Making Votes Not Count: Strategic Incentives for Electoral Corruption

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September, 2004

Abstract

As the practice of regular mass elections has become widespread, so have the instances of corrupt elections. Electoral corruption undercuts the crucial role of elections of enabling citizens to select, reward and punish rulers. I study the question, when are elections likely to be corrupt and when clean? The prevailing view is that, because electoral corruption is costly and risky, it is likely to be pursued when it can change who wins, namely in close elections; also, it is to be pursued only to the extent necessary to secure a victory, but not beyond that point. This view applies well enough to competitive democracies, but not to less-than-democratic electoral systems such as autocracies or dominant-party systems, where incumbents are substantially more powerful than other contenders. In fact, elections in such systems are often so corrupt as to yield overwhelming victories. In light of current ideas on electoral corruption this is puzzling: Why engage excessively in the costly practice of electoral corruption? I propose an answer based on the informational and reputational effects of electoral corruption. I elaborate two mechanisms through which powerful incumbents can benefit from electoral corruption. First, electoral corruption can inflate the margin of victory. In turn, high margins can deter future opposition turnout and coordination. Second, the belief that elections will be corrupt can deter opposition turnout directly. Using an original dataset with a new measure of electoral corruption for 88 countries in 1990-2000, I find strong evidence that electoral corruption and high margins of victory are associated with lower turnout. I use OLS, instumental variables, and matching estimators. I test the micro-level relationship between beliefs and turnout using a panel of electoral surveys, and find that the belief that elections are corrupt is strongly associated with a lower likelihood of voting.

* I thank Jim Fearon, Alberto Díaz-Cayeros, Dan Quint, Barry Weingast, Steve Haber, Jessica Wallack, Jonathan Wand, Vidal Romero, Kenneth Mori-McElwain, and participants at the Comparative Politics and PEP seminars at Stanford for helpful comments and discussions.

1. Introduction

Many regimes today are formally democratic, but democracy does not everywhere work equally well. I study one of the chief tactics used to subvert the strictures of democratic contestation and accountability, namely electoral corruption. Understanding electoral corruption is not only normatively important to those interested in democracy, but it can shed new light on a number of classical topics of political science, including regime transitions, electoral accountability and responsiveness, and political culture. Also, it can have practical consequences for the observation and evaluation of electoral processes.

The central question of this paper is, when are rulers and governments more or less likely to engage in electoral corruption? In other words, what are the incentives that give rise to electoral corruption?

The obvious answer – that governments engage in electoral corruption in order to win elections – is quite tempting. The story, however, is both richer and less intuitive. For one thing, there exists substantial variation in the conditions under which governments pursue electoral corruption, as well as in the extent to which they do so. However, existing ideas about the conditions that give rise to corrupt elections and about the goals of those who pursue these practices are insufficient to account for the full range of empirical variation, leaving an important part of the observed universe of cases unexplained.

The prevailing view associates electoral corruption with close elections, slim margins of victory, and secrecy.[1] The idea is that because electoral corruption is costly both in terms of resource expenditures and of the risk of punishment, it is profitably pursued insofar as it can lead to victory, that is, when the race is close and a few votes at the margin can alter the outcome. As James Scott writes in a 1972 monograph entitled *Comparative Political Corruption*: "when the race is close, the marginal utility of the additional dollar of…patronage promises…is all the greater". In a 2003 literature review entitled "Electoral Fraud: Causes, Types, and Consequences," Fabrice Lehoucq concludes that "political competition fuels ballot rigging."[2] Along the same lines, in a study of election fraud in America in the Gilded Age, Peter Argersinger identifies the closeness of elections as a major cause of electoral fraud:

> "…the reality of election fraud in the Gilded Age was its strategic, not massive, nature. Only in those areas where relatively minor changes in the recorded popular vote would result in a different electoral outcome was there any incentive for fraudulent activity."[3]

The costliness of electoral corruption together with the association of electoral corruption with close contests imply that the margin of victory in corrupt elections should

[1] Margin of victory refers to the *ex-post* difference in vote percentage between the winner and the first runner up. In contrast, closeness refers to the *ex-ante* difference.

[2] Lehoucq 2003, p. 253

[3] Argersinger 1985, p.672.

be slim. Argersinger quotes one of Joseph P. Kennedy's sons as saying, about his own father, that "he was willing to buy as many votes as necessary to win, but *he was damned if he would buy a single extra one*." [4]

I will argue that the prevailing view is incorrect or at any rate incomplete – that across countries there is little evidence that electoral corruption is associated with small margins of victory. There exist, to be sure, cases of corrupt elections where competition is fierce and margins of victory are small.[5] But in semi-competitive systems, electoral corruption by incumbents often goes together with large margins of victory. Such cases call for an explanation: Excessive electoral corruption is wasteful if less would suffice in order to win.[6]

I develop a theory that uncovers incentives for electoral corruption that differ from those that have been proposed in the literature and that can account for large or overwhelming margins of victory in corrupt elections. Specifically, I focus on the informational and reputational effects of corrupt elections, in electoral systems that are not quite representative democracies.

The core of the argument is that electoral corruption can deter opposition from participating and from voting by influencing citizens' beliefs about the possibilities for an opposition victory. While the incentives to influence voting behavior by manipulating beliefs and information exist in every electoral system[7], they can be effectively acted upon only to the extent that neither political competitors nor institutions provide significant checks – that is, where the media is captured and the rule of law is relatively weak. These conditions are most likely to obtain in semi-competitive electoral systems, that is, in those governed by a dominant party or an autoritharian ruler.[8] Hence,

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[4] Ibid., emphasis added.

[5] Some examples include the Philippines in the 1950s and 1960s (Wurfel, 1963), Costa Rica in the first half of the 20th century (Lehoucq and Molina, 2002), 19th-century Colombia (Posada-Carbó, 2000), and America in the Gilded Age (Argersinger 1985; Cox and Kousser 1988).

[6] Electoral corruption is a costly practice. The activities that mass electoral corruption involves are many and varied, and engaging in them clearly requires substantial resources. Cox and Kousser (1988) in a study of electoral fraud in New York State in the late 19th century, list "free transportation to the polls, the use of repeaters, the illegal naturalization of foreigners, the election-day importation of voters from other states, the padding of registration rolls, fraudulent counting, and, most interestingly, payments to citizens not to vote" (p.654-655). Most of these actions are typical of corrupt elections (detailed lists of modalities of electoral corruption are given by Schedler 2002 for the case of Mexico and Molina and Lehoucq 1999 for Costa Rica). Precise costs are understandably hard to obtain for many of these activities. But there exist some estimates of the price of vote-buying. Cox and Kousser cite newspaper quotes of the cost per vote in the late 1800s ranging between $10 and $27. By one newspaper account, at least a third of each party's voters had to be bribed, either to change the way they voted or to stay at home and abstain. Wurfel estimates the cost per vote in the Philippines in the 1960s at P1 to P25 (or $0.5 to $12.5 at the official exchange rate until 1962), "depending on the…closeness of the race" (p.763). While some scholars argue that vote-buying is more legitimate than other forms of electoral corruption, at least in 1960s Philippines this was not the case. Not only was vote-buying explicitly prohibited by law, but it was also considered illegitimate by the public (as Wurfel writes, "selling one's vote is considered a reprehensible act by a respectable citizen"). Nevertheless, Wurfel estimates that 10 to 20% of the electorate sold their vote. In sum, electoral corruption is an expensive proposition.

[7] This has been pointed out, for instance, by the literature on Duvergerian electoral coordination. See for instance Cox 1997.

[8] If the ruler is too powerful, though, and can readily manufacture electoral results, then voting behavior ceases to matter. Thus, the arguments here apply to semi-competitive systems, but not to absolute autocracies.

reputational or informational incentives for electoral corruption are most likely to arise in such systems.

I propose two specific mechanisms through which a ruler can use electoral corruption to enhance his reputation for being electorally strong, that is, for being able and willing to do whatever it takes in order to win. First, an overwhelming victory today can send a powerful signal to the citizenry tomorrow – a large margin of victory can deter opposition turnout, discourage opposition coordination (e.g. when the opposition is fragmented into a number of parties), and increase the winner's bargaining power with respect to electorally important social actors by rendering it less likely that they are pivotal in a winning coalition. Second, public acts of electoral corruption before the election – such as large-scale vote buying or violence against candidates – can constitute evidence of a ruler's electoral muscle and of his readiness to flex it in the current election. Either of these tactics – overwhelming victory (for its effect on future elections) or public pre-electoral display of muscle (for its effect on the current election) – can reinforce the perception that the ruler is likely to win at any cost and serve to deter opposition activity and turnout.

Thus, I argue that there exists a variety of incentives that give rise to electoral corruption. In competitive systems, electoral corruption will arise only in close contests.[9] In semi-competitive systems, however, incentives for electoral corruption can arise under a number of conditions. A powerful incumbent with low electoral support has incentives to pursue electoral corruption in order to win. At the same time, such an incumbent may benefit – regardless of the electoral support he initially enjoys – from additional electoral corruption leading to a victory with a higher margin or to an outright overwhelming victory. But the ability of the incumbent to profit from an overwhelming victory, even in semi-competitive systems, depends on a number of factors. First, where citizens have reliable information about the electoral support of the different contenders and the vote intentions of fellow citizens, beliefs about the likely outcome of the election are hard to manipulate. Consequently, overwhelming victories in corrupt elections should be more common where the mass media is captured.[10] Second, the long-term effects of high margins benefit only insofar as he has some linkage to future governments. This can happen even if the ruler cannot stand for reelection, for instance via his party or ethnic group. Third, the expected benefit to the ruler from electoral corruption must be great enough to justify the costs and risks. For instance, where losing power entails jail or death, the costs the ruler is willing to incur in order to win are higher than where the prospects from losing are less ominous. Fourth, the more that opposition supporters have to gain from a change in government (e.g. if they are currently excluded from incumbent-controlled spoils or jobs they could benefit greatly from a change in government), the less likely they are to be deterred from voting by the belief that the ruler is likely to win.

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[9] A *competitive* system is one where two or more contenders are more-or-less evenly matched in terms of access to economic and political resources (but not necessarily evenly matched in terms of electoral support). A *close* election, in contrast, is one where the leading contenders enjoy similar levels of electoral support. Thus, competitiveness and closeness are distinct and independent concepts. It is possible to have a close election in an uncompetitive system, just as it is possible to have an election that is not close in a fiercely competitive system.

[10] Djankov et al 2002, for instance, document a strong empirical relationship between authoritarianism and government control of the media.

The plausibility of the mechanism – that is, of the idea that high margins of victory and the sight of corrupt activities can influence the beliefs and expectations of the citizenry and that these can, in turn, influence voting behavior – is natural to someone who has experienced elections under dominant rule. In Mexico, for instance, the PRI's long history of winning overwhelmingly, both in terms of margins and in terms of offices[11], deeply shaped what Mexican citizens expected from elections. For decades, nobody believed that the opposition stood a chance at the polls. A famous Mexican playwright sarcastically captured this feeling in 1976, when victory by the PRI was a foregone conclusion: "Elections will take place on Sunday. How exciting! Who might win?".[12] But even in advanced democracies, a feeling of disenfranchisment is often associated with lower political participation.[13]

The PRI also cultivated a reputation for being willing and able to engage in any kind of electoral corruption – fraud, cooptation, bribing, intimidation, and violence – in order to win at the polls. Thus, as elections approached, citizens learned to identify the sight of electoral corruption as signaling that the PRI was yet again set on a heavy-handed path to victory. To opposition supporters, such signs were discouraging, and discouragement translated into abstention.

Thus, both the long-term reputation of the PRI for winning overwhelmingly and the shorter-term signals of resolve to win at all costs that public acts of electoral corruption constituted worked in the PRI's favor, by deterring voluntary participation in elections and thus rendering a PRI victory easier. Sustaining an image of invincibility in the public eye was an important part of the PRI's strategy to maintain its grip on power, especially as its popular support declined. And electoral corruption played a key role in keeping this image alive.

Using a panel of electoral surveys for 39 elections around the world, I show that the discouragement effect associated with the expectation that the election will be unfair holds as well in other elections and other electoral systems. I find that citizens who believed that the elections were unfair were significantly more likely to abstain.

In the empirical section I test a number of predictions of the theory, some of which contrast with existing scholarship. While existing scholarship implies that corrupt elections will be won with relatively small margins of victory, the ideas I present here imply that corrupt elections will be won with margins of victory of all sizes, possibly including both slim as well as overwhelmingly large margins of victory; only where electoral competition is strong will corrupt elections go together with slim margins of victory. The theory here also implies an association between corruption and turnout, and between margin of victory and turnout. I test these implications in the large cross section. I use a variety of statistical methods including regression and matching, and perform a number of robustness checks. I find strong support for my ideas.[14]

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[11] A practice known colloquially as "carro completo," or "a full cart."

[12] Jorge Ibarguengoitia, quoted in Poiré 1999. In the 1976 presidential election, the main opposition party (PAN) did not field a candidate, so a PRI victory was more assured than usual. Still, the quote manages to capture the mood that prevailed.

[13] See Nie, Junn, and Stehlik-Barry 1996 for instance.

[14] In this paper I only test the broadest features of the theory and the mechanisms that sustain it. More detailed testing is possible – for instance of the relationship between a ruler's time-horizon and the incentives for electoral corruption – and is currently in the making.

In the next section I elaborate the argument. I then present a game theoretic model of corrupt elections to illustrate the first of the two mechanisms that I propose here, namely the use of electoral corruption to win by a large margin in order to deter opposition turnout in future elections.[15] I then present empirical tests of the theory. Finally, I discuss alternative explanations and conclude.

2. Argument

In this section I elaborate the arguments presented in the Introduction and illustrate them with some preliminary empirics.

I first distinguish two kinds of electoral corruption.[16] The *competitive* kind exists when various contenders have access to electoral corruption and the race is close. That is, at least two contenders have access to enough political and economic resources that they are able to significantly engage in electoral corruption. In such cases, electoral corruption consists of "an intricate game of tricks open to all contestants."[17] Much like in a price war or an arms race, no contender can afford to fall behind their close competitors. This is the kind of electoral corruption that has received attention in the literature – it is the kind that Argersinger called "strategic, not massive."

The *anticompetitive* kind of electoral corruption, in contrast, arises when one of the contenders – generally the incumbent – is more powerful than all others. In this situation, the powerful contender is unmatched in terms of access to resources, control of the media, etc., and, for all practical purposes, he is the only one with the ability to significantly engage in electoral corruption. Standard ideas about electoral corruption do not help to understand why a hegemon engages in electoral corruption in order to win an election with a 65% margin advantage with respect to the closest runner-up, as Heydar Aliyev of Azerbaijan did in the 1998 presidential election, or with a margin of 90% or more over the next runner-up, as in the Ivory Coast's 1995 presidential election. This kind of electoral corruption, to borrow Argersinger's term, one could call "massive." Standard ideas, however, do not help to account for this type of corruption – it is either wasteful (if one supposes that the incumbent needed electoral corruption in order to win, but engaged in so much of it that he won overwhelmingly) or unnecessary (if one

[15] I have modeled the second mechanism – namely the use of public pre-electoral corruption to deter opposition turnout in the current election – elsewhere. I don't include that work here for reasons of space, but it is available on demand. An interesting implication of that work is that, in contrast with what the conventional wisdom holds, there can exist incentives for incumbents to make their corrupt activities public rather than secret.

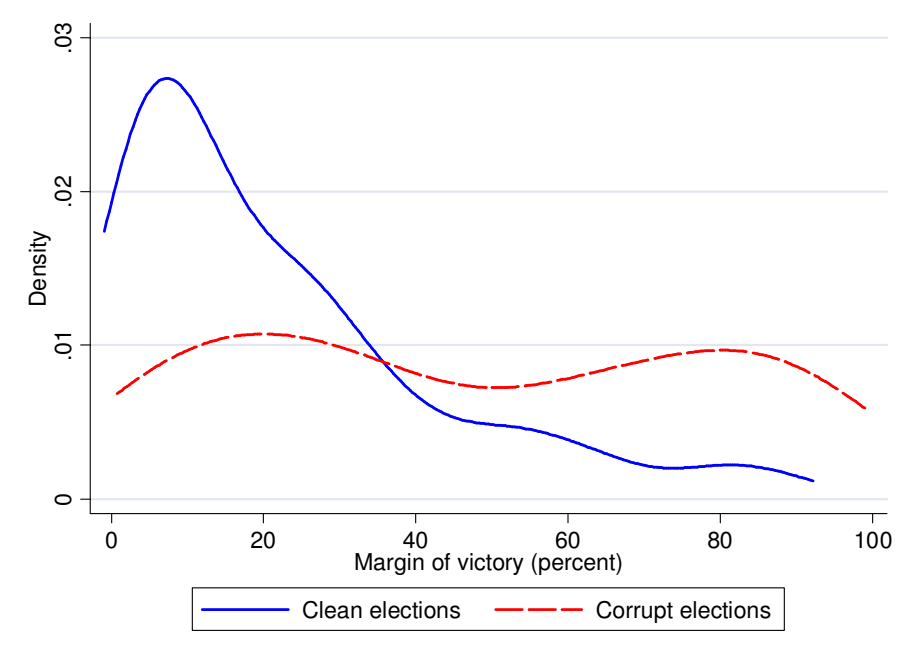
[16] A wide variety of practices relating to elections are commonly denominated as corrupt. Such practices include electoral fraud (e.g. the alteration of the vote count through means such as the fabrication of votes, the alteration of computer counts, and the doctoring of voters' lists), vote buying, the use of force or the threat of it to coerce voters or intimidate candidates, the manipulation of the administration of elections (e.g. changing the times and places of voting booths), and the alteration of the law to disqualify legitimate political opponents , among other things. For the purposes of this paper, any illegal action geared at obtaining an electoral edge counts as an act of electoral corruption. The various modalities of electoral corruption are simply different tools or "technologies." I take the view that the decision to use electoral corruption or not to do so is distinct from the decision about what specific modalities to use.

[17] Posada-Carbó 2000, p.637.

supposes that the incumbents stood to win, but decided to engage in electoral corruption anyway).

Nevertheless, seemingly "wasteful" or "massive" electoral corruption is quite common. In fact, while standard ideas would predict that electoral corruption should be more common among elections with slim margins of victory, in a cross section of national elections in 1975-2000 corrupt elections exhibit margins of victory of all sizes *at about the same rate* (Figure 2.1).[18]

Figure 2.1
Empirical Distribution of Margin of Victory



Notes: Data for 185 executive elections in presidential systems in the period 1975-2000, including 54 corrupt elections. The measure of margin of victory is cmargin, and the measure of corruption is cfraud (details on these are given in the empirical section). Gaussian kernel.

The key contribution of this paper is to offer a theory that uncovers incentives for electoral corruption different to the ones that have been proposed by the literature, and that are able to account for anticompetitive or massive electoral corruption.

I focus on the informational and reputational effects of electoral corruption. Because these effects are underpinned by limited political competition and by a limited availability of reliable information to the public, they are unlikely to be very significant in strongly competitive systems such as advanced democracies. Thus, the theory I develop applies to electoral systems with limited competition, such as authoritarian or dominant-party systems. Examples of these include, to name only a few, Mexico under the PRI, Argentina in the late 19th and early 20th century, Azerbaijan in the 1990s, and

[18] Figure 2.1 is essentially a smoothed histogram of the data. I discuss the limitations of the data in the empirical section.

Togo in the 1990s. I consider only multiparty elections, because in single-party systems and the most repressive autocracies electoral results to a large extent can be manufactured and do not depend on voting behavior.[19]

To recap, the core of the argument is that electoral corruption can deter opposition from participating and from voting and depress turnout by influencing citizens' beliefs about what the outcome of the election is likely to be. I have argued that citizens in an autocratic regime whose sympathies lie with the opposition may be disinclined to vote if they think the opposition has no chance of winning.[20] There can exist a number of reasons for this – opposition supporters could fear losing their job or other economic benefits, or even fear for their physical integrity, and thus be reluctant to vote for the opposition or to vote at all unless they are relatively confident that the opposition can win (in which case there would be no retaliation).[21] They could also be disinclined to vote out of a feeling of discouragement associated with the belief that the outcome of the election is basically predetermined and their preferred candidate has no chance of winning. The point is that beliefs about the likely outcome of the election can influence voting behavior. In turn, this creates incentives for rulers to manipulate such beliefs.

I distinguish two factors affecting beliefs about the likely outcome of an election. First, beliefs about the ruler's *electoral strength*, that is, about his ability to force a victory (considering all the means at his disposal, both legitimate and corrupt). Second, beliefs about the likely *coordination and turnout of opposition* supporters. These two distinct sets of beliefs interact to create an overall perception about the likely outcome of the election. An electorally strong ruler can force a victory regardless of opposition turnout. On the other hand, even an electorally weak ruler can win an election if opposition supporters fail to coordinate (e.g. if opposition is fragmented into various parties) and to turn out in large numbers. In the Mexico example above, the belief that the PRI victory was inevitable might have responded, for instance, to any or all of the following: (1) the perception that the PRI enjoyed ample electoral support; (2) the perception that the PRI could and would force a victory by corrupt means even if it did not have enough electoral support to win cleanly; (3) the belief that opposition parties and supporters would fail to coordinate their vote and/or to turn out in large enough numbers to beat the PRI even if opposition supporters constituted a plurality.

Electoral corruption has the capacity to affect beliefs both about the ruler's electoral strength and about opposition coordination and turnout. I argue for two

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[19] It is interesting to consider why an authoritarian ruler holds elections in the first place. In all likelihood there exist many answers to this question. In some instances the causes may be found domestically, and elections may be a means to defuse internal conflicts or to co-opt potential opponents. In other cases international pressure may coax autocrats into holding elections.

[20] The literature has hypothesized the electoral corruption could lead to increases in turnout. In particular, Philip Converse offered this as an explanation for the decline of turnout in early 20th century U.S. It is quite possible that certain kinds of electoral corruption have a turnout-increasing effect, but whether this effect is of a great enough magnitude to offset potential turnout-decreasing effect is open to question. The empirical evidence I examine here indicates that electoral corruption on average reduces turnout.

[21] Retaliation presumes some kind of verifiability. While secret-ballot laws reduce possibilities for verifiability, they do not entirely preclude it. For example, precinct-level results are verifiable, and it is well-known that party operatives, for example in Mexico, have threatened group-level retaliation – e.g. withholding future patronage benefits from a whole village or small locality – if electoral results are unsatisfactory. See also Brusco, Nazareno and Stokes for a related argument and evidence from Argentina.

mechanisms. First, electoral corruption can inflate the margin of victory. High or overwhelming margins can make the ruler look electorally unassailable.[22] Second, electoral corruption can also act on beliefs directly, when corrupt activities are visible to the public.[23]

To elaborate, the key idea in the first mechanism (subsequently the "long-term" mechanism) is that by winning with large or overwhelming margins, a ruler can foster a reputation for being electorally strong. In turn, this reputation can serve him well in future contests by deterring opposition activity, coordination, and turnout. Such a reputation can thus help a ruler or a party with low electoral support to keep winning elections. Conversely, the public revelation that the ruler has low support can spur opposition coordination and turnout. That is, a ruler with low underlying support may want to win with large margins in order to prevent the electoral equilibrium from "tipping" against him. A remarkable implication of this logic is that a ruler may find it in his interest to resort to electoral corruption *even when doing so is unnecessary to win the current election*.

The key idea in the second mechanism (subsequently the "short-term" mechanism) concerns modalities of electoral corruption that are visible. As discussed in the Introduction, when an opposition supporter in an authoritarian or dominant-party system observes signs of electoral corruption, she can infer that (1) the ruler can force a victory and/or (2) fellow opposition supporters may be discouraged, bribed, or intimidated to prevent them from voting for the opposition, therefore reducing the chances of an opposition victory. When this is the case, public electoral corruption can deter opposition turnout and coordination.[24]

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[22] The same applies to winning an overwhelming number of offices, such as seats in the legislature or subnational executive positions.

[23] While some modalities of electoral corruption, such as stuffing ballot boxes and doctoring voter lists, can be kept secret, others, such as candidate intimidation, violence against opposition supporters, and vote buying, are by their very nature quite public. I study the logic of visible – as opposed to secret – electoral corruption in more detail in a companion paper. The key idea is somewhat counterintuitive, namely that there can exist incentives for a ruler to engage in electoral corruption in the public eye, or to even pretend to be engaging or willing to engage in electoral corruption (i.e. to bluff). Particularly where the rule of law is not very strong and the ruler is powerful (i.e. in the sort of regime that constitutes the focus of this paper), acting this way may be yield benefits to the ruler. Insofar as fostering the perception of electoral corruption before the election can increase the beliefs that the ruler is electorally strong and that opposition is unlikely to coordinate, such perception may depress opposition turnout and render victory for the ruler possible or easier. The specific effects of visible electoral corruption on beliefs, however, are mediated by the prevailing political culture. Thus, in some circumstances public electoral corruption can encourage (as opposed to deter) opposition turnout and consequently backfire.

[24] In a companion paper I discuss this mechanism in more detail. One important point in that paper is that the effect of publicly visible electoral corruption is mediated by the abiding political culture, understood as the set of beliefs and expectations held by the public at large. Opposition supporters may assume, for instance, that fellow opposition supporters will be discouraged by the sight of electoral corruption. This is particularly likely if voting against the incumbent can possibly carry with it material or physical sanctions. (While this is an equilibrium notion of political culture, it is congenial with the classical literature on political culture; for instance, Almond and Verba in *The Civic Culture* already noted the apathy of the Mexican electorate; the ideas here can explain such apathy as an equilibrium outcome). However, the political culture can also be such that public electoral corruption leads opposition supporters to believe that fellow opposition supporters will be outraged and mobilized (e.g. out of moral indignation), and this may lead to higher opposition turnout and possibly to an opposition victory (Weingast 1997 develops a similar intuition). When the ruler is in tune with the abiding political culture, he can strategically

While these two mechanisms are conceptually distinct, in practice they often arise together – electoral corruption often simultaneously involves both secret and visible modalities, and can be pursued both before and during/after elections. Moreover, as the Mexico example suggests, the signaling effect of visible corruption can be cumulative over time, as the abiding set of beliefs and expectations – indeed the political culture – is shaped by experience. Nevertheless, it is useful to keep them conceptually apart for the sake of clarity.[25]

For reasons of space I restrict further theoretical elaboration to the first (long-term) mechanism, namely to the idea that electoral corruption can have a long-term deterrent effect on opposition turnout and coordination mediated by the margin of victory. I model this mechanism in the Section 3, and then use the model to derive comparative statics and observable implications, some of which I have already discussed. I will not conceptually elaborate the second (short-term) mechanism– namely the idea that public electoral corruption can be a powerful signal on the part of the ruler and deter opposition turnout and coordination – much further in this paper.[26]

2.1 Electoral Corruption and Accountability

The literature has considered a number of sources of variation in the effectiveness of elections as instruments of accountability, such as the observability of government effort and skill, the clarity of responsibility for policy decisions, the relative timing of executive and legislative elections, and the rule by which executives are elected.[27] Existing scholarship on elections, however, was largely crafted with advanced democracies in mind. Thus, all this literature – indeed most of the literature dealing with elections – assumes that institutions function the way they are theoretically supposed to function.[28] Once voters have made up their minds, for instance, the actual process of voting, counting votes, transporting ballots, aggregating precinct-level information, and similar activities are assumed to happen automatically and seamlessly. Yet in less-than-fully-democratic electoral systems, each of these steps can face abundant challenges, obstacles and perils: Candidates can be intimidated, voters bribed or threatened, and ballot boxes stuffed, to name only a few of the modalities that electoral corruption can take. In other words, the set of procedures linking citizens' intentions to vote with vote totals is, in many regimes, quite fragile. Such fragility is often exploited for partisan or individual gain.

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anticipate citizens' reactions when choosing whether to hold clean or corrupt elections. An importantly consequence of these ideas is that the effectiveness of elections can depend importantly on the abiding political culture, rendering electoral accountability a self-fulfilling condition depending on prevailing beliefs.

[25] I will consider them together in the empirical section.

[26] More detailed work on this mechanism, including a formal model, is available on demand.

[27] See for instance Powell and Whitten 1993; Powell 2001; Samuels 2004; Dahl 1971; Przeworski, Stokes and Manin 1999; Fearon 1999; Besley and Burgess 2002; Besley and Preston 2001; Ferejohn 1986; Cox 1997; Persson and Tabellini 2000, ch.4.

[28] This is true irrespective of the approach, formal or not. Virtually the entirety of the formal work involving models of elections assumes this, including the literatures on economic voting, political macroeconomic cycles, and decentralized voter coordination (for a good summary see Persson and Tabellini).

Understanding accountability as the state of affairs in which unpopular incumbents lose elections,[29] it follows that competitive electoral corruption need not undermine accountability very much. The reason is that competitive electoral corruption entails a close election, meaning that the winner ostensibly was about as electorally popular as the first runner-up. Anticompetitive corruption, however, seriously undermines the effectiveness of elections as instruments of accountability: On one hand, if a significantly unpopular ruler engages in electoral corruption and wins, this clearly undermines accountability. On the other hand, if a popular ruler – one enjoying roughly equal or higher electoral support than the next most-popular contender – engages in electoral corruption to boost his margin of victory, accountability may upon initial consideration seem not to be undermined in any obvious way, since the ruler would have won anyway. As this paper argues, however, overwhelming victory may have a long-term deterrent effect on opposition activity and thus undermine accountability in the long run. Thus, while any sort of electoral corruption – like other corruption – can distort the allocation of resources, the anticompetitive brand of electoral corruption may be particularly worrisome in terms of its effects on development because it can seriously undermine accountability, reducing the incentives for good governance and possibly leading to a political-economic development trap.[30]

The possibility that electoral corruption has long-term informational effects means that in order to assess the fairness of an election it may not be sufficient to ask whether fraud and other kinds of corruption were grave enough to change the outcome of the current election: Overwhelming victories may confer undue advantages to the ruler or dominant-party in the long run by deterring opposition activity.

[29] This formulation is appropriate for majority or plurality rule. The translation of votes into seats is not so straightforward for other electoral rules, but the formulation in the text conveys the intuition.

[30] For an illustration of a situation where rulers are able to retain power through the oppression and discouragement of opposition and thus need not provide development-enhancing goods to their populations consider the contrast drawn by Amartya Sen and Jean Drèze between the Indian states of Kerala and Uttar Pradesh. While both states hold regular elections, healthy electoral competition in Kerala has played a crucial role in Kerala's spectacular success as measured by development indicators. In contrast, in Uttar Pradesh, elite capture of the governmental institutions and repression of the opposition has led to stagnation in development indicators (see Drèze and Gazdar 1997, V.K. Ramachandran 1997, Drèze and Sen 1995).

3. A Model of Elections Under Authoritarian Rule

3.1 Preliminaries

In this section I present a model of elections with the possibility of electoral corruption, corresponding to the long-term mechanisms I described in previous sections. The model refers to a dominant-party or authoritarian regime that holds regular mass elections. The analysis of the model concentrates on the following questions. First, what incentives exist for engaging in electoral corruption. Second, what is the role of beliefs and expectations on equilibrium outcomes and thus on electoral accountability. Third, what conditions underpin the different equilibria and levels of accountability.

The model brings attention to the importance of beliefs about the ruler's electoral strength – i.e. about his ability to win elections.[31] In a regime where public information is limited or unreliable – as in often the case in authoritarian or dominant-party regimes – the ruler is able to influence expectations and beliefs about his electoral strength and that of other contenders in ways that would not be possible if reliable public opinion polls were available. A basic idea in the model is that, even if pre-electoral polls are unavailable or unbelievable, electoral results of past elections are always publicly available.

I use the model to investigate whether past electoral results are informative to potential voters when other information about the electoral support of contenders is suppressed, and what consequences this could have in terms of providing incentives for electoral corruption and of undermining accountability. Of course, electoral results themselves can be subject to fabrication, and in the most politically-repressive regimes official electoral results are believed by no one. Here I consider a less extreme situation, namely the case where the ruler can influence electoral results through electoral corruption, but not by merely announcing a result of his choice.

3.2 Description of the Game

The players are two contenders for office – a dominant ruler and an opposition party – and a large but finite number of citizens N, all eligible to vote. The game proceeds as follows. First, nature chooses the ruler's level of support among the electorate (his "electoral strength" or "type"), $x \in \{x^h, x^l\}$, with x^h denoting a high level of support and x^l a low level of support.[32] Nature's choice follows a commonly known prior $p \in (0,1)$ indicating the probability that the ruler has high support.[33] The ruler observes x but the citizens do not. Then two consecutive elections take place. The electorate consists of three segments: The ruler's supporters, *hard* opposition supporters, and *soft* opposition

[31] Electoral strength can respond to many factors, including the level of support among the electorate, influence over the media, access to economic resources, the rule of law, and scruples, to name only a few. The model I develop below focuses on level of support among the electorate, but similar models could be written where the "moving part" is some other factor impinging on electoral strength.

[32] Support x is expressed as a fraction in [0,1]. High and low support are defined in the next paragraph.

[33] For tractability I restrict the ruler's type space to a two-element set. The equilibrium analysis for the case where the ruler's type can take a large (or an infinite) number of values is non-trivial. I hope to include it in a future version of this work, though it's not clear yet whether it will contribute any additional insights.

supporters.[34] Hard opposition supporters constitute a fixed proportion y of the full electorate, they always turn out to vote, and they always vote for the opposition. The ruler's supporters are also hard supporters – they always turn out and they vote for the ruler.[35] Soft opposition supporters can choose to turn out (v) or to abstain (a), and if they turn out they vote for the opposition.[36] Simultaneously with the election, the ruler chooses whether or not to engage in electoral corruption. The technology of electoral corruption has the following characteristics: It is secret – it cannot be observed by the public – and it works by transforming votes cast for the opposition into votes for the ruler. The ruler chooses the proportion of votes to transform, $b \in [0, b^{max}]$, where b^{max} is the maximum fraction of votes he can transform.[37] After the first election, the fraction of the vote obtained by the ruler, r, is announced publicly.[38] Then citizens can vote again, and the ruler can simultaneously engage in electoral corruption using the same technology, again choosing a number of votes to transform no larger than b^{max}. Elections are won by the candidate who obtains a majority of the vote, and ties are resolved in favor of the incumbent.[39]

I define a ruler with *high* support as one who can force a win *even when all opposition turns out to vote* (i.e. $x^h \geq 0.5 - b^{max}$), and a ruler with *low* support as one who can force a win *only when all soft opposition supporters abstain* (i.e. $y - b^{max} \leq x^l < 0.5 - b^{max}$). For simplicity, I will initially assume the following:

Assumption 1: A ruler with high support has majority support, and a ruler with low support has more support than that provided to the opposition by hard opposition supporters. That is, $x^h \geq 0.5$ and $y \leq x^l < 0.5 - b^{max}$.

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[34] Strictly speaking, when a citizen learns whether she is a soft or hard opposition supporter or a supporter of the ruler, she must update her prior with the new information. This makes no difference for the analysis I present because, first, the updating changes the prior by an arbitrarily small amount as N gets large, and, more importantly, because all the citizens that make a choice (i.e. the soft opposition supporters) are identical, and therefore the updating of the prior affects them all equally. Thus, to be precise one could say that the ruler's type is chosen according to some prior distribution called something other than p, and then call p the updated belief that soft opposition supporters hold. The rest of the analysis then goes through unchanged.

[35] This assumption is quite plausible if one thinks of machine-style politics where turnout and vote choice are observable. In such circumstances, important material benefits such as one's job may depend crucially on voting behavior, and it could be expected that everyone who benefits from the patronage that the ruler or ruling party metes out should vote and support the ruler or ruling party. See Ames 1970, and del Pozo and Aparicio 2000 for the case of Mexico; Menes 1998 for the U.S.

[36] This is not a model about candidate choice – citizens' decisions concern turnout only. Candidate choice can be thought of as having occurred before the game begins.

[37] Both b and b^{max} are expressed as proportions of the total electorate.

[38] The result r is the ratio of votes cast for the ruler to total votes cast.

[39] A natural way to model the situation where an individual's expectations about what others will do plays a big role in her own voting behavior is as a coordination game. The idea that citizens turnout choices can follow a logic of coordination has been proposed before not only empirically but also theoretically. Alexander Schuessler (2000), for instance, develops a model in which "in her decision of whether to attach to a candidate or not, the voter will…respond to the proportion of the electorate that is perceived or expected to support the same candidate," and uses it successfully to explain diverse phenomena including bandwagons and the depressing effects on turnout of negative campaigns.

In every election, the ruler obtains utility V if he wins the election, 0 if he loses, and incurs cost b if he engages in electoral corruption to increase the number of votes in his favor by b.[40] An opposition supporter's payoff depends on whether she[41] votes or not, and on who wins the election. A soft opposition supporter prefers to vote if the opposition will win the election, and to abstain if the opposition will lose. Specifically, her preference ordering is as follows: Vote and opposition wins (the payoff associated with this outcome is w) > abstain and opposition wins (with a payoff g) > abstain and opposition loses (payoff is 0) > vote and opposition loses (payoff is $-l$), as shown in Figure 3.1.

Figure 3.1
Sample payoffs to a soft opposition supporter

	Opp. loses	Opp. wins
Vote	$-l$	w
Abstain	0	g

where $w>g>0$ and $l>0$. [42] Thus, soft opposition supporters in some circumstances face a coordination dilemma. Payoffs in the second period are discounted at rate δ. All the rules of the game, type spaces, payoffs and the prior are common knowledge.

A pure strategy s^r for the ruler is a map from levels of support $x \in \{x^h, x^l\}$ to levels of electoral corruption for each election $[0,b^{max}]\mathsf{X}[0,b^{max}]$. A pure strategy s^i for an arbitrary soft opposition supporter i is an action in $\{a,v\}$ in the first election, and a map from possible electoral results r to actions $\{a,v\}$ in the second election.[43]

3.3 Equilibrium Analysis

The central question is whether there exist equilibria where the ruler has incentives to engage in electoral corruption for strategic reasons other than winning the election – that is, the current election.

Note first that the payoff structure for soft opposition supporters spells out a coordination dilemma: In equilibrium, no soft opposition supporter wants to vote if fellow soft opposition supporters will not vote, even if every soft opposition supporter

[40] For simplicity, I assume that one unit of money corresponds exactly to one unit of utility. Note that because of the technology of electoral corruption, b ballot transformations yield a $2b$ additional *margin of victory* for the ruler, since they add a ballot in his favor and destroy a ballot against him. This technology leaves the total number of cast ballots intact.

[41] Following standard practice, I use the male gender for one player (the ruler) and the female gender for the other (an arbitrary opposition supporter, or the whole opposition itself, depending on the context). While both players move simultaneously, the ruler observes nature's choice before anything else happens, so I arbitrarily designate him as player 1.

[42] For instance, $w=3$, $g=2$, $l=1$ can be rationalized as follows: Suppose the citizen receives a utility of 2 if the opposition wins, faces a cost of 1 from turning out to vote, and receives a psychological premium of 2 for having voted if the opposition wins.

[43] The set of possible results depends on the parameters x^l, x^h, b^{max}, and y and it consists of all possible clean and corrupt results for either type of ruler. Note that in equilibrium, there are at most two possible values of r on the equilibrium path, one for each type of ruler. The exact values can vary with the equilibrium strategies.

would be, in expectation, better off if they all voted. This dilemma gives rise to a multiplicity of equilibria. Initially I will assume that:

Assumption 2: The opposition has solved its coordination dilemma, so that whenever soft opposition supporters could be better off in expectation if they all voted, they will vote.

Under this assumption, soft opposition supporters can be treated together as a unitary actor. Henceforth I refer to the set of soft opposition supporters as "opposition" (for instance, "opposition abstains" will mean that soft opposition supporters abstain).[44]

The issue of interest is whether there exist incentives for the ruler to manipulate electoral results by means of electoral corruption for informational effects. If the electoral result of the first election, r, provides new information, then voters can use it to update their priors. Thus, possible Nash equilibria of this game fall into one of two categories, according to whether the result of the first election is informative or not. In separating equilibria, the electoral result of the first election for each type of ruler is different, so voters learn the type of the ruler after the first election. In pooling equilibria, the electoral result of the first election for either type of ruler is the same, and voters don't obtain any new information from it. The question is whether there exists an equilibrium in which the ruler, standing to win the first election cleanly, nevertheless chooses to engage in electoral corruption in order to provide or withhold information from the citizens, with the purpose of gaining an edge in the second election. Existing scholarship about electoral corruption (which I revisit in the next section) holds that "wasteful" corruption – i.e. corruption that is not needed in order to win an election – is irrational. Thus, such an equilibrium would stand at odds with existing scholarship. Interestingly, such an equilibrium does exist:

Proposition 1 ("Equilibrium 1"): The profile of strategies

$$s^r = \quad (\beta,0;\ 0,0)$$
$$s^i = \quad \begin{cases} (a;\ a) & \text{for } r = r^h \\ (a;\ v) & \text{for all feasible } r \text{ with } r \neq r^h \end{cases}$$

together with the off-the-path belief $\mu=0$ (where μ denotes the probability that the ruler is of the high type) constitutes a Nash (perfect Bayesian) equilibrium, where the four choices in the ruler's strategy s^r correspond to (low type in first election, high type in first election; low type in second election, high type in second election); the two elements in the opposition's strategy s^i correspond to (choice in first election; choice function in second election); β denotes the amount of electoral corruption that equalizes the electoral results for high and low types in equilibrium when opposition abstains[45], that is, $r=r^l=r^h$;

[44] Even though there are other opposition supporters (i.e. hard), these always turn out so they have no strategic decisions to make.

[45] Note that if opposition does not abstain, by definition the low type cannot mimic the high type.

r^h denotes the result of the first election in equilibrium when the ruler is of the high type; and r^l denotes the same quantity for a low type.[46]

To sustain this equilibrium, the prior p must be relatively high, specifically $p>p^{**}$, where

$$p^{**} \equiv (w+\delta w)/(w+\delta w+l)$$

and $\delta \in (0,1)$ denotes the discount rate for the period between the elections. Also, $\beta < \delta V$ must hold. The equilibrium value of β is given by

$$\beta = (x^l + y)/(x^h + y)x^h - x^l$$

In addition, this equilibrium requires the following technical conditions. First, there exist restrictions on the range of values that r can possibly take stemming from the parameters. The range of values that r can feasibly take depends on x^l, x^h, y, and b^{max}. Specifically,

$$r \in \{[x^l, (x^l + b^{max})/(x^l + y)] \cup [x^h, (x^h + b^{max})/(x^l + y)]\} \cap \{[0,1]\}$$

Second, the equilibrium requires that β be feasible, and this is the case when

$$(x^l + b^{max})/(x^l + y) \geq x^h/(x^h + y)$$

that is, when a low type can obtain at least as high a percentage of the vote using electoral corruption than a high type can obtain in a clean election, given that opposition abstains. Finally, this equilibrium maintains Assumptions 1 and 2.

On the path of play, opposition abstains in both elections, and the ruler wins both elections. The second election is clean, but the first election is sometimes corrupt.[47] This is surprising: The ruler, knowing that he stands to win the first election cleanly regardless of his type, nevertheless chooses to engage in corruption.[48] The main point in Equilibrium 1 is that the ruler engages in electoral corruption, *not in order to win the election* (since his victory is already a given), but rather in order to ensure that he can also win the *next* election.[49] This contrasts with the common idea that the goal of electoral corruption is to win the current election.

To get a sense for why this is an equilibrium, consider first the opposition. In the first election, opposition abstains because the ruler is very likely to be of the high type ($p > p^{**}$), so in expectation it doesn't pay to vote. Thus, a ruler of any type will win the first election. The second election, however, is different. If the ruler's type can be inferred by

[46] Note that electoral results depend not only on the ruler's type, but also on the equilibrium strategies of all the players (and on the parameters of the model).

[47] Specifically, if the ruler learns he has low support he engages in electoral corruption. Note, however, that given the opposition's equilibrium strategy, even a ruler of the low type would win the election.

[48] He engages in corruption when he is of the low type.

[49] Under the assumptions in the text, only a low type will engage in corruption in equilibrium, because a high type can win no matter what opposition does. The logic, however, can translate into more complicated settings where it is conceivable that even a ruler with majority support could choose to engage in electoral corruption due to the dynamic effects on future elections.

the citizens from the first election's result (i.e. in a separating, or "revealing" equilibrium), then in the second election opposition votes when the ruler has low support and abstains when he has high support. This means that if the ruler has low support, he will lose the second election. On the other hand, if the ruler can prevent citizens from learning his true type, he can benefit from the preexisting belief that he is likely to be the high type, because this belief will lead opposition to abstain in the second election, handing a victory to the ruler whatever his type. This is precisely what the ruler does in this equilibrium: He chooses a strategy where a ruler with low support mimics, by engaging in electoral corruption, the electoral result that a ruler with high support would obtain cleanly. By doing this, he prevents the electorate from learning, on the basis of the first election's results, about the ruler's actual level of support, and thus preserves his reputation[50] for being likely to be of the high type.

Two of the conditions underpinning this equilibrium deserve highlighting. First, the prior must be high enough. Exactly how high is a function of the opposition payoffs and of the discount rate, as specified above. Second, the cost of electoral corruption in the first period must not be prohibitively high compared with the expected benefit of a secure victory in the second election (that is, $\beta < \delta V$). Otherwise, the ruler prefers to save on corruption and to take the risk that, if he is a low type, he will win one election and lose the next one.[51] In effect, in Equilibrium 1 the ruler is trading off resources today (spent in corruption) in exchange for assured victory tomorrow. The mechanism that makes this work is the deterrent effect that beliefs about the ruler's type have on opposition. Thus, the ruler is willing to invest in winning "wastefully" in the first election in order to maintain this deterrent effect in the second election.

By way of illustration consider the August 15, 2004 referendum in Venezuela on whether to end Hugo Chavez's presidential term. Public opinion polls going into the referendum gave Mr. Chavez a solid edge of 7 to 12%. International observers declared the poll clean, and Mr. Chavez's edge going into the poll made his victory credible. However, Mr. Chavez's margin of victory was roughly double the margin that polls gave him ex-ante. This led a number of Venezuelan scholars to closely examine the referendum for evidence of electoral corruption. In a statistical analysis of the discrepancies between exit-poll results, official results, and the pre-referendum signature roster, Ricardo Hausmann of Harvard and Roberto Rigobon of MIT find evidence that Mr. Chavez orchestrated massive fraud.[52] This finding begs the central question in this paper: Why might Mr. Chavez have engaged in seemingly unnecessary fraud? The theory I have presented provides one possible answer: Mr. Chavez orchestrated secret fraud not in order to win, since his victory was practically assured, but rather with the strategic goal of disheartening opposition. In fact, local elections are upcoming, and Mr. Chavez's solid 20-point margin in the referendum seems, according to local observers, to have indeed taken its toll on opposition morale.[53]

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[50] Where his reputation is embodied in the prior p and is established before the game begins.

[51] In the model, the ruler is only looking forward one period, but if the ruler has a longer-term horizon then under certain conditions this tradeoff is conceivably even more attractive (I have not worked out the details).

[52] Ricardo Hausmann and Roberto Rigobon, 2004.

[53] Personal communication, Francisco Monaldi, Instituto de Investigaciones Económicas y Sociales, Universidad Católica Andrés Bello.

3.3.1 Accountability and Beliefs in Equilibrium

In Equilibrium 1, a ruler that succeeds at preventing citizens from learning about his type can hold on to power even if he has low support. In other words, an unpopular ruler can use electoral corruption for informational purposes in order to subvert accountability. Thus, Equilibrium 1 clearly embodies a failure of accountability: Rulers with low support always win elections.

There exist other equilibria in this game with more accountability, where low types sometimes (or always) lose elections. For example, in equilibria where the ruler's type is revealed after the first election, the second election proceeds with full accountability – if the opposition faces a ruler with low support, it will turn out in large numbers and win the election. This is the case in Equilibrium 3 (see Table E1 below and Table A1 in Appendix A). In this equilibrium, the opposition votes in the first election, and by doing this learns the ruler's type. Then the second election proceeds with full accountability, because a high type wins but a low type loses. [54]

Table E1
Equilibrium Paths of Four Equilibria

Equilibrium:		1 (pooling)		2 (separating)		3 (separating)		4 (separating)	
Election:		First	Second	First	Second	First	Second	First	Second
Equilibrium Actions:	Opposition:	a	a	a	a if $r=r^h$ v if $r=r^l$	v	a if $r \geq 0.5$ v if $r < 0.5$	a	a if $r=r^h$ v if $r=r^l$
	Ruler: [1]	β 0 [2]	00	00	00	00	00	00	00
Election Outcome:	High type:	Win	Win	Win	Win	Win	Win	Win	Win
	Low type:	Win	Win	Win	Lose	Lose	Lose	Win	Lose
Equilibrium Conditions:		$p > p^{**}; \beta < \delta V$		$p > p^{**}; \beta \geq \delta V$		$p < p^*$		$p^* \leq p \leq p^{**}$	

Notes: [1] Ruler's strategy notated as (action if low type) (action if high type); [2] β denotes the amount of electoral corruption needed in order to equalize r^h with r^l in equilibrium. Table assumes $x^h \geq 0.5$, $x^l < 0.5 - b^{max}$. Definitions: $p^* = w/(w+l)$; $p^{**} = (w+\delta w)/(w+\delta w+l)$. This table is not an exhaustive listing of model equilibria. Proofs in Appendix A.

This equilibrium is sustainable only when p is low enough ($p < p^*$), that is, when the ruler has a reputation for *not* being electorally strong. In other words, one of the model's implications is that beliefs about the ruler's electoral strength can matter greatly in terms of the level of accountability embodied in electoral outcomes: Beliefs that the ruler is likely to be electorally strong deter opposition and preclude equilibria with high accountability, but beliefs that the ruler is likely to be electorally weak encourage opposition participation and force revelation of the ruler's type, which in turn increases accountability in future elections.

As a further illustration of the idea that beliefs about the ruler's electoral strength can affect accountability in equilibrium, consider Equilibrium 4. In this equilibrium, citizens believe that the ruler is more likely to have high support than in Equilibrium 3, but not as high as in Equilibrium 1 (that is, $p^* \leq p \leq p^{**}$). Accordingly, accountability is higher than in Equilibrium 1, since low-typed rulers sometimes lose elections (while in Equilibrium 1 they always win), but it is lower than in Equilibrium 3, since low-typed

[54] However, if one relaxes Assumption 1 and allows the ruler's high type to have less than majority support ($0.5 - b^{max} \leq x^h < 0.5$), then the analogous equilibrium is *not* one of full accountability: High types will still win both elections (because the threat that they can force victory using electoral corruption deters opposition) , but in fact they should lose because they don't have plurality support. Still, this equilibrium would be one of more accountability than Equilibrium 1 in the text, because here low types lose elections, but in Equlibrium 1 both low and high types always win.

rulers lose the second election always, but win the first (in Equilibrium 3, low-typed rulers lose both elections). (The reason that pooling does not work for the ruler in this equilibrium is that, because voters don't believe he's too likely to be a high type – that is, because $p \leq p^{**}$ – they will vote in the presence of pooling, so the ruler obtains nothing in return for the cost of pooling).[55]

3.3.2 Implications for the Incentives to Engage in Electoral Corruption

The observable implications of this model differ from those of existing views on electoral corruption. The latter – which I elaborate in the next section – predict that corrupt elections are associated with lower margins of victory than clean elections. In contrast, the model predicts that this relationship need not hold in elections under autocracy or a dominant party. In fact, Equilibrium 1 predicts a *positive association* between the incidence of electoral corruption and the margin of victory. However, if one allows additional possibilities for the ruler's level of support (i.e. if "high" types can enjoy less than majority support, for instance, but still a high enough support that they could force victory if everyone turns out to vote), there can exist incentives for rulers to engage in electoral corruption not for informational effects but rather in order to win the election.[56] When this is the case, corrupt elections can be associated with small (or inexistent) margins of victory. Thus, in elections where a dominant party or ruler restricts competition, electoral corruption can be associated with margins of victory of all sizes.[57]

Incentives to engage in electoral corruption in semi-competitive regimes in the model can be of two sorts. First, to win the election. Second, to increase the margin of victory for its informational effects in future elections. This raises the question of when one or the other (or both) incentives are present. The incentive to engage in electoral corruption in order to win exists whenever the ruler stands to lose and could win through corrupt means.[58] The question then becomes when the incentive exists for the ruler to engage in electoral corruption beyond the extent necessary to win the election. The answer can be gleaned from the conditions that underpin Equilibrium 1. I examine some comparative statics based on these conditions in the next section.

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[55] Remember from Equilibrium 1 that pooling is costly because it involves spending on corruption when the ruler is of the low type, in order to imitate a high type. However, if this does not deter opposition turnout, then a low-type ruler is better off not imitating, because he will lose anyway.

[56] That is, in order to win the *current* election. To see this, consider again a "high" type, who, instead of enjoying majority support, is supported by a minority but can force a victory through electoral corruption (that is, if a high type has support of at least $0.5\text{-}b^{max}$ but less than 0.5). Under some conditions on the parameters, it is in the interest of the ruler to engage in electoral corruption in the first election in order to bring his vote total to 50%, which gives him victory. Specifically, an equilibrium exists with strategies as in Equilibrium 1 for the opposition, and (o,b^*) for the ruler in both elections. This equilibrium exists for $p<p^*$ and $b^*<V$, where b^* is the minimum amount of electoral corruption necessary in order to bring the high type to victory. On the equilibrium path, rulers of the high type win and those of low type lose (as in equilibrium 3 in Table A1), but high types hold corrupt elections. (Note that all the equilibria depicted in Table A1 assume that high types have majority support).

[57] Note that a one of the crucial conditions sustaining this equilibrium – namely a belief that the ruler is electorally strong (i.e. that he has high electoral support) – is likely to hold often in dominant-party or autocratic regimes where the ruler or ruling party routinely wins elections.

[58] So long, of course, as the amount of electoral corruption needed to achieve this is affordable for the ruler, and that the expected benefit exceeds the expected cost.

Empirically, the incentives to engage in electoral corruption in regimes such as the one considered in the model will vary with the empirical distribution of rulers' level of support, prior beliefs, other model parameters, and the associated equilibria. Thus, in contrast with existing views on electoral corruption, this model suggests that there is no *a priori* reason to expect that in dominant-party or autocratic electoral regimes corrupt elections will be won with slim margins of victory, or that close elections will lead to higher likelihood of electoral corruption.[59]

3.3.3 Comparative Statics

This subsection explores the effects on equilibrium outcomes of other parameters of the model. First I consider how the stakes of victory, the cost of electoral corruption, and the ruler's valuation of the future support or undercut ruler's efforts to use elections to buttress his own reputation for electoral strength. I then consider the effect of changes in the payoffs of opposition on equilibrium outcomes.

Consider once more Equilibrium 1, where the ruler uses electoral corruption to keep up the belief that he's likely of the high type. When the cost of electoral corruption is high enough ($\beta \geq \delta V$), all else equal, the ruler's tactic becomes prohibitively costly and this equilibrium is not sustainable and accountability improves. The cost of electoral corruption can respond to a number of factors, such as those influencing the strength of the rule of law. The establishment of independent electoral institutions with power to punish electoral transgressions, such as those established in Mexico in the 1990s, can certainly raise the cost of electoral corruption. The stakes of victory or defeat also matter.[60] When the gains from winning are not too high, electoral corruption may not be worthwhile (as the above condition $\beta \geq \delta V$ suggests). Finally, the less the ruler cares about the future (i.e. the lower that δ is) the less important that the long-term informational effects of electoral corruption become.[61]

Thus, a higher relative cost of electoral corruption with respect to the stakes of winning can improve accountability. To see this consider Equilibrium 2. In this equilibrium, p is high, and the cost of corruption is high relative to the stakes of victory. In this equilibrium, elections are clean in both periods, with the opposition abstaining in the first election (because p is high), but with full accountability in the second election (because the ruler's type has been revealed)[62].

Consider now the effect of changes in the payoffs to opposition. As this and the previous subsections showed, the prior p is a key determinant of the possible equilibria, and consequently of accountability. The thresholds that make one or another equilibrium possible, however, in turn depend on the payoffs to opposition. Consider the cost $-l$ faced by an opposition supporter when she voted and the ruler won. The higher (in absolute value) this cost is, the lower the thresholds p^* and p^{**}, meaning that the range of values

[59] While I do not currently have systematic data regarding the empirical distribution of the model parameters in regimes such as the ones considered here, in principle such factors could be measured, leading to further testing possibilities for the theory.

[60] As Tilly (1985) points out, the excessive power associated with office in many developing countries provides all sorts of perverse incentives. See also Przeworski 1991, ch.1.

[61] In the model I assume the same discount rate δ for the ruler and for the opposition, but it is straightforward to allow them to have different discount rates.

[62] The equilibrium path is similar to that in Equilibrium 4.

of p for which opposition finds voting attractive (in expectation) is reduced. The more dangerous or costly it is for citizens to vote for the opposition – doing so could lead to loss of patronage or employment, or to physical danger – the more restrictive the conditions under which equilibria with high accountability (e.g. Equilibria 3 and 4) can be sustained. Equilibrium 1, for instance, is supported for a larger range of values of p as the cost l increases.

By the same token, as w (the payoff to an opposition supporter for having voted when the ruler won) increases, the range of values of p supporting high-accountability equilibria increases as well. The more that a change in government could bring about a change in the economy, employment opportunities, or personal freedom, the higher that w is. In other words, the higher the stakes for opposition citizens from winning (w), the higher the range of values of p for which they are willing to risk voting, with the attendant positive effects on accountability (as explored in a previous subsection).

In sum, moving beyond the model, I argue that a variety of incentives can give rise to electoral corruption. In competitive systems, electoral corruption will arise only in close contests. In semi-competitive systems, however, incentives for electoral corruption can arise under a number of conditions. A powerful incumbent with low electoral support has incentives to pursue electoral corruption in order to win. At the same time, such an incumbent may benefit – regardless of the electoral support he initially enjoys – from additional electoral corruption leading to a victory with a higher margin or to an outright overwhelming victory. But the ability of the incumbent to profit from an overwhelming victory, even in semi-competitive systems, depends on a number of factors.

First, where citizens have reliable information about the electoral support of the different contenders and the vote intentions of fellow citizens, beliefs about the likely outcome of the election are hard to manipulate. Consequently, overwhelming victories in corrupt elections should be more common where the mass media is captured. The capture of the media is a measurable quantity. Indeed, Djankov et al have put together a measure of state ownership of the media.[63] Unfortunately, the measure is not nuanced enough for the purposes of the theory here. In particular, an important shortcoming of their data is that it contains no information about whether privately-owned mass media is captured by the state. Mexican media, for example, is privately owned but, as is widely known, was strongly influenced by the PRI-government for decades.

Second, the long-term effects of high margins benefit the ruler only insofar as he has some linkage to future governments. This can happen even if the ruler cannot stand for reelection, for instance via his party or ethnic group. The existence of such linkages is measurable.

Third, the expected benefit to the ruler from electoral corruption must be great enough to justify the costs and risks. For instance, where losing power entails jail or death, the costs the ruler is willing to incur in order to win are higher than where the prospects from losing are less ominous. Fourth, the more that opposition supporters have to gain from a change in government (e.g. if they are currently excluded from incumbent-controlled spoils or jobs they could benefit greatly from a change in government), the less likely they are to be deterred from voting by the belief that the ruler is likely to win. At the same time, the higher the risk for a citizen of supporting the opposition, the more important that informational effects are likely to be.

[63] Djankov et al 2002.

In sum, the theory I have presented makes a number of comparative-statics predictions that in principle can be measured. I have put together a substantial dataset that permits testing of some of the theory's predictions and implications, but additional data work could lead to further and more fine-grained testing.

4. Empirics

In this section I study the empirical relationships between electoral corruption, margin of victory, and turnout at the country level. I also use survey data to explore the relationship between individual beliefs about electoral corruption and voter turnout.

The first issue that I bring to the data is the relationship between electoral corruption and the margin of victory. The standard view is that corrupt elections should be won with slimmer margins of victory than clean elections, all else equal. I have argued, however, that this relationship need not hold in general. Rather, it should only hold in competitive systems (i.e. where more than one contender has access to electoral corruption). In semi-to competitive systems corrupt elections will be associated with margins of victory of all sizes. While the theory makes more fine-grained predictions about the margin of victory that one could expect in a semi-competitive system (e.g. higher margins should go together with a captured media), the data I currently have does not permit me to test such predictions.[64] The standard view is embodied in the following hypothesis:

> H1: Corrupt elections are won with smaller margins of victory than clean elections, all else equal.

To test this hypothesis I use a new dataset that contains country-level information on electoral corruption and margin of victory for 182 executive elections in presidential systems in 73 countries in the period 1975-2000.[65] The data on electoral corruption, as I explain below, is an original measure that I coded from secondary sources. In addition, the dataset contains various political and socioeconomic indicators. For electoral corruption I initially used the variable FRAUD from the Database of Political Institutions (DPI), which consists of a dichotomous indicator of whether "vote fraud or candidate intimidation [were] serious enough to affect the outcome of elections." This variable, however, has a large number of misclassifications, including a severe problem of false negatives (for example, all elections in Mexico in the period 1975-2000 were coded as

[64] A second claim that can be tested is that concerning the relationship between electoral corruption and the *ex-ante* closeness of elections. Doing this is challenging because it requires information about *ex-ante* closeness, which cannot be easily gleaned from ex-post measures of closeness without a number of assumptions, especially because ex-post measures already incorporate the effects of electoral corruption (which creates a simultaneity problem). Despite this problem the literature often uses electoral results as measures of ex-ante closeness (see, for instance, Cox, Rosenbluth, and Thies 1998; Cox and Kousser 1981; Cox and Munger 1989; Cox 1988), which is problematic if electoral results are doctored or elections are not clean. Nevertheless, elsewhere I have carried out an instrumental-variables estimation of the effect of closeness on electoral corruption, using the fractionalization of opposition parties as a source of variation for the margin of victory exogenous to electoral corruption, and found no support for the view that close elections are more likely to be corrupt. I do not include the results here but they are available on demand.

[65] I use the country-year template from the Database of Political Institutions.

clean, a questionable choice at least concerning the 1988 presidential election).[66] To recode the variable, I used the DPI's coding criterion but consulted specialized sources (the DPI, in contrast, used sources that were appropriate for a broader coding of institutional features). Specifically, I used Dieter Nohlen's election Handbooks, which contain detailed electoral statistics and review articles for every country. The handbooks cover most of the period of interest. I supplemented this data with information from the Country Profiles written by the Economist Intelligence Unit (EIU), the Journal of Democracy's "Election Watch" section, and the website electionworld.org, which links to databases of official electoral statistics for recent elections throughout the world. I gave precedence to the more scholarly sources, i.e. the dictionaries, followed by the EIU, the Journal of Democracy, and the websites. The Country Profiles are useful because they are designed to be used as reference sources, and are thus carefully researched and up to date. The Election Watch updates, however, offer timely coverage but the information is more sparse and unsystematic.

I coded an election as a 0 if sources specifically said that it was a clean election, and as a 1 if sources specifically said that the election was widely alleged to be corrupt.[67] Otherwise I coded the election as missing data.[68] I restricted my coding efforts to executive elections in presidential systems. The reason for this was both practical – coding all elections in all countries even in a ten-year period is a Herculean task – and theoretical, following the observation made by a number of authors that winner-takes-all elections provide the greatest incentives for corruption.[69] I excluded single-party elections because the opposition and its activity is unobservable.[70]

Like the DPI I coded the period 1975-2000, although the years 1990-2000 are of particular interest because they are better covered in the sources, and more importantly because the sample of non-single-party elections expands greatly at that time due to the beginning of elections in former Soviet-bloc countries, and because few African states held multiparty elections before 1989.

To check for robustness I use four different measures of electoral corruption. My coding is called FRAUD_NEW and it contains data for 214 elections, out of which 130 are executive elections in presidential systems in 1975-2000 for which I have data also on

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[66] Phil Keefer, one of the authors of the DPI, acknowledged this problem in a personal communication earlier this year.

[67] Additionally, I recorded who made the allegation of corruption (e.g. opposition parties or international observers), and whether the opposition boycotted the election. However, in this paper I don't use these last two refinements because I still have a lot of missing data about allegations and boycotts.

[68] This approach is, of course, imperfect in a number of ways. For one thing, as mentioned in the text I do not currently distinguish *who* claimed that the election was corrupt. Opposition can falsely cry foul as a last resort or to appease angry supporters upon losing an election. International electoral observers are not completely objective either – they can be loath to cause too much trouble, especially when domestic political forces decide to go along with an electoral result, and in other cases they can be biased against one of the parties. Moreover, even with my recoding it is impossible to get rid of false negatives: There may exist truly secret instances of electoral corruption.

[69] See Lehoucq's 2003 review piece, for instance. A slightly more comprehensive choice would have been to code all majoritarian elections. I intend to expand coverage to all majoritarian elections, and eventually to proportional-representation elections as well.

[70] However, the basic insight of the theory – namely that overwhelming victory can have a deterrent effect via beliefs – may well be operative also in such systems, and may help to explain why autocrats like to hold elections and win them with 99% or 100% of the vote

the margin of victory. Of these, 47 were corrupt. FRAUD is the original DPI variable. I also coded the variable FLAWED on the basis of data from the Journal of Democracy's Election Watch section, as reported by Pastor (1999), for the years 1990-1999. In contrast with the other variables, FLAWED measures not only electoral corruption but also a variety of factors that may lead to flawed elections but in themselves do not constitute electoral corruption, such as unequal access to media, unfair laws, and the presence of political protests. I use FLAWED mostly to check for robustness. Finally, the variable CFRAUD contains my coding of electoral corruption, supplemented where data was missing in my coding by information from DPI or from the Journal of Democracy when available.[71] To create CFRAUD, I began with the 130 elections I coded, added another 74 from the DPI for which data was missing (out of which 12 were corrupt), and another 7 from the Journal of Democracy for which data was still missing. Thus, the variable CFRAUD contains information for 185 elections, out of which 54 are corrupt. Of these, 129 (and 40 corrupt) correspond to the period 1990-2000.

In addition to the measure of electoral corruption, I coded data on the margin of victory in the variable CMARGIN. Surprisingly, I did not find any ready-made coding of this information for a large cross section of countries (DPI records only the vote total of the winner).

The average incidence of electoral corruption in executive elections in presidential systems in the sample is surprisingly large, and it ranges between 19% and 36%, depending on the measure used, with a standard deviation of over 40%. Thus, roughly between one in five and one in three executive elections in presidential systems in 1990-2000 were reported to be corrupt. Table 4.1 breaks down the incidence of fraud by region.

TABLE 4.1
Regional incidence of corrupt elections, 1975-2000

	FRAUD_NEW		CFRAUD		FRAUD		FLAWED	
	Avg	N	Avg	N	Avg	N	Avg	N
Africa & Middle East	53%	58	48%	64	42%	52	34%	53
Asia	8%	12	6%	16	13%	16	0%	12
Eastern Europe & Ctrl Asia	64%	11	56%	16	31%	13	36%	11
America	19%	43	16%	83	15%	80	6%	53
Western Europe & Oceania	0%	4	0%	4	0%	4	0%	3
Total	**37%**	**128**	**30%**	**183**	**24%**	**165**	**19%**	**132**

Notes: Figures shown are for executive elections in presidential systems in 1975-2000; FLAWED is for 1990-1999. Regions constructed on the basis of PWT 6.1 subregions as follows: Africa & Middle East, PWT subregions 1 to 5; America and the Caribbean, 6 to 8; Asia, 10 to 12; Eastern Europe and Central Asia, 9 and 13; Western Europe and Oceania, 14 and 15. There are no cases of executive elections in presidential systems in Oceania in the period shown.

[71] I used information from the Journal of Democracy only for 1990-1999, although additional years are available.

4.1 The Margin of Victory in Corrupt Elections

To get a basic idea of how H1 holds up in the data I begin by calculating the average margin of victory in clean vs. corrupt elections.[72] The average margin of victory for corrupt elections is significantly larger than the margin for clean elections (49.4% vs. 21.4%), and the difference is statistically significant. This would seem to contradict H1. However, the difference could be due to other political, economic, or institutional factors. In fact, the difference of means between corrupt and clean elections in a number of indicators of development and political institutions, including is large and statistically significant, as Table 4.2 shows:

TABLE 4.2
Means of margin of victory and its correlates

Concept	Variable	Clean	Corrupt
Margin of victory	CMARGIN	21.4	49.4
Democracy	POLITY	4.3	-4.1
Real GDP/cap	RGDPCH	5471	2881
Openness to trade	OPENK	64.1	68.5
Population	POP	33284	12591
Polarization	POLARIZ	0.55	0.13
Checks	CHECKS	2.7	1.9

Notes: Measure of corruption is CFRAUD.
All differences of means are significant at the 99% level except for openness to trade, which is not significant. Data for executive elections in presidential systems in 1990-2000.

Democracy is the variable POLITY from the Polity IV dataset, and it ranges between -10 (most autocratic) to 10 (most democratic). GDP, openness to trade, and population come from the Penn World Tables. Polarization, checks, and EIEC are from DPI. Polarization (POLARIZ) measures the ideological difference between the executive and the parties in the legislature (it ranges from 0 to 2), and CHECKS is a measure of the number of checks on government power.

The question then is whether the differences in margin of victory persist after controlling for potentially relevant correlates. To do this I use OLS regression, and perform a number of robustness tests. The conclusion is the same: The regression analysis does not support the idea that corrupt elections have smaller margins.

[72] Henceforth I use CFRAUD as the measure of electoral corruption unless otherwise specified, though I carried out robustness checks of the analysis below with the other measures.

TABLE 4.3
OLS regression – Margin of Victory

Control sets:	A	B	C
CFRAUD	10.0	10.7	8.9
	[0.17]	[0.15]	[0.23]
Observations	115	115	115
R-squared	0.45	0.47	0.48

Notes: Robust P-values in brackets. Control set A includes POLITY and logged real per-capita GDP; control set B adds population and openness to trade; control set C adds five regional dummies. Data for executive elections in presidential systems in 1990-2000.

While the coefficient approaches significance in the above table, in fact it's not robust to changes in the measure of electoral corruption: For FRAUD it's about 2, and for FLAWED it's slightly negative, and it's not significant in either case, for any of the control sets. That is, no discernible relationship emerges between electoral corruption and margin of victory from this analysis. If anything, is would seem that electoral corruption *inflates* the margin of victory, but this effect is neither significant nor robust.

I test for robustness of specification, of model, and of measures of electoral corruption and margin of victory. I use three specifications, one with basic controls (democracy and log of per-capita income), one with additional controls (the former two plus population and openness to trade), and one with additional controls and regional dummies. I do not include the institutional variables (from DPI) as controls because information on the margin of victory is used in their construction. I test for model robustness by repeating the estimation using matching estimators, which are non-parametric.[73] I also repeat the analysis using the three measures of electoral corruption and two measures of margin of victory.[74] The finding is robust to these changes.

An alternative hypothesis, in accordance with the theory developed in this paper, would sustain that:

> H2: Corrupt elections are won with smaller margins of victory under democratic competition. In the absence of democratic competition, the effect of electoral corruption on margins of victory could go every which way.

To test hypothesis H2 I dividing the sample into competitive (or democratic) and autocratic elections. I consider democratic any country-year with a POLITY score greater than 6, and autocratic when POLITY is less than 0.[75] The results are shown below.

[73] I report matching estimates only for the next analysis, namely the one where I divide sample into competitive and autocratic elections.

[74] The second measure of margin of victory is based on CMARGIN, but in cases where I have data for the winner's percentage vote only, I estimate a lower bound on the margin of victory as: $\max\{V-(100-V), 0\}$, where V denotes the fraction of the vote obtained by the winner expressed in percentage units.

[75] I initially leave out the observations with values of POLITY between 0 and 5. This makes little difference because there are few observations with POLITY scores in that interval, but I repeat the analysis

TABLE 4.4
OLS regression – Margin of Victory by Competitiveness of Elections

	Democracy			Autocracy		
Control sets:	A	B	C	A	B	C
CFRAUD	-6.9	-6.8	-7.3	7.8	9.5	9.3
	[0.015]**	[0.018]**	[0.000]***	[0.496]	[0.439]	[0.420]
Observations	51	51	51	35	35	35
R-squared	0.195	0.21	0.238	0.082	0.132	0.207

Notes: Robust P-values in brackets. Control set A includes POLITY and logged real per-capita GDP; control set B adds population and openness to trade; control set C adds five regional dummies.

The results strongly support H2. In democracies, electoral corruption "leads" to lower margins of victory. The effect is significant and substantial: Corrupt elections on average "lead" to margins of victory that are lower by about 7%. This result is robust to every change in specification and in measures of both electoral corruption and margin of victory. One way to interpret this result, consistent with the arguments in this paper and with the conventional wisdom on electoral corruption applied to competitive systems, is that *in competitive systems* electoral corruption is capturing the effect of the ex-ante closeness of elections together with the fact that electoral corruption is costly. That is, if electoral corruption is more likely where elections are close and electoral corruption is not wasteful, then what we are observing is a spurious correlation between electoral corruption and the margin of victory, for the case of democracies, where the true causal variable is the closeness of the election.

In autocracies, as the arguments in this paper predict, we should not expect any particular relationship between electoral corruption and margin of victory, and none is present in the results. If anything, considering the results from all the different measures, it would seem that electoral corruption has a positive effect on the margin of victory, although this effect is significant only for one of the combinations of measures of electoral corruption and margin of victory that I ran as robustness tests.

To test for robustness to the choice of model, I repeat the analysis using matching estimators. The treatment is electoral corruption, and the outcome of interest is the average margin of victory. Matching attempts to correct for selection bias – in this case, corrupt elections take place in poorer and less democratic nations, and their incidence also likely differs due to unobserved region-specific effects – by matching "treated" observations to "untreated" ones, that is, by trying to emulate a control and a treatment group as they might have been created if one could randomly assign the treatment (that is, as if one could randomly force some elections to be corrupt and others to be clean). Once these groups are created, any statistic or model can be estimated on them. I use kernel propensity-score matching in a STATA implementation by Leuven and Sianesi (2003).

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defining that interval as autocracy instead of leaving it out, and the results don't change much. I also test higher cutoffs for democracy, again with no significant changes in the result.

TABLE 4.5
Matching estimates of effect of Electoral Corruption on Margin of Victory

	Full sample	Democracy	Autocracy
ATT	19.1	-9.7	15.4
95% CI	[8, 31]	[-17.9, -2.3]	[-3.2, 42.6]
N	115	51	35

Notes: Results shown are for control set C only. The treatment variable is CFRAUD, and outcome is CMARGIN. Control set C includes POLITY, logged real per-capita GDP, population, openness to trade, and five regional dummies. The average treatment effect on the treated and bias-corrected 95% confidence interval on this statistic are shown. Estimator is kernel matching with Normal kernel and 0.25 bandwidth.

The matching estimates are broadly consistent with the regression analysis in terms of magnitude and direction. The average treatment effect denotes the difference in average margin of victory between the group of corrupt elections and the matched control group[76]. I estimate confidence intervals using bootstrapping. Unfortunately, the differences in the characteristics of country-years with corrupt and clean elections are so great in the sample that it is very difficult to find untreated cases to match treated cases, so the common support is very small when the sample is subdivided by regime type. Still, the results are similar to those from the OLS analysis. The effect of electoral corruption on margin of victory in the full sample is positive, though in this case it is significant (the 95% confidence interval lies above zero). This rejects H1 even more strongly than the OLS analysis. In democracies, the effect is negative and significant as in the OLS analysis (the 95% confidence interval lies below zero); and in autocracies the effect is positive but not significant at the 95% level, since the 95% confidence interval contains the zero, also like in the OLS analysis.

The small size of the common support makes it difficult to draw definitive inferences from the above exercise. However, insofar as the various robustness checks turn up the same basic results, I conclude that the data supports the ideas put forth in this paper: The idea that closeness provides incentives for electoral corruption does not hold in general; and it also fails to hold when elections are not competitive. This is as predicted by the model, which indicates that there can exist incentives for electoral corruption at all levels of ex-ante closeness when elections are not competitive. Consistent with this, but inconsistent with existing scholarship, the results here reflect a slightly *positive*, if not very significant, association between electoral corruption and margins of victory in electoral autocracies. It is only under more even political competition that the ideas here predict that incentives for electoral corruption respond to the closeness of races (following the logic of the conventional wisdom) and, consequently that electoral corruption should go together with smaller margins of victory. This prediction also is confirmed by the data.

[76] Balance in all the controls (A, B and C) is attained.

4.2 Beliefs and Turnout

I have proposed two specific mechanisms linking electoral corruption and electoral outcomes in semi-competitive systems. Both mechanisms are mediated by the beliefs of potential voters. At the individual level, the long-term mechanism predicts that the belief that the ruler will win discourages turnout, and that such a belief is buttressed by a high margin of victory in the previous election. The short-term mechanism predicts that the belief that the ruler can force a victory through corrupt means reduces the likelihood of voting. Beliefs are hard to measure, but as a proxy for this belief I use a survey question that asks the respondent his opinion about the fairness of the election.[77]

The mechanisms also have reduced-form implications about the relationships between electoral corruption, margin of victory, and turnout, and these can be tested using country-level data. The short-term mechanism implies that corrupt elections should display a same-election reduction in turnout when compared with clean elections. The long-term mechanism implies that high margins of victory in the past reduce opposition turnout in the present and that secret electoral corruption in the past, through its effect on the margin of victory, reduces opposition turnout in the present. Moreover, while I have thus far treated the two mechanisms as conceptually distinct, a natural extension of the ideas I have presented is that the two mechanisms could interact: Visible electoral corruption could have not only same-election effects, but also long-term deterrent effects mediated by an over-time learning process where citizens learn to identify visible signs of electoral corruption before an election with the willingness and ability of the ruler to force a victory. In the long-term mechanism, it is high past margins of victory that deter future opposition turnout, but past visible electoral corruption could have a similarly long-lasting effect.[78]

One potential obstacle in the way to testing the reduced-form predictions is the fact that I do not have information on the partisanship of voters. That is, I only have information about *overall* turnout, not about opposition turnout.[79] Fluctuations in overall turnout, however, are a reasonable proxy for fluctuations in opposition turnout under the assumption that incumbent turnout does not vary much as a result of changes in either past electoral corruption or the margin of victory in the previous election. This assumption seems reasonable for semi-competitive systems, where opposition turnout can reach very low levels, for instance when opposition parties boycott the election. Incumbent supporters, in contrast, may have strong incentives to turn out – often,

[77] Measuring beliefs for the long-term mechanism is harder. Ideally, one would have measures of the belief that the incumbent will win the present election taken both before and after the *previous* election. The prediction would be that a prior belief that the incumbent is electorally strong would persist if the previous election was won with a large margin, but it would otherwise be updated downwards.

[78] The logic is somewhat different from that of the long-term mechanism described in the text (where the deterrent effect is mediated by large margins of victory). In the model in the text, if citizens can observe electoral corruption, the informational equilibrium unravels. Thus, a model for the long-term effect of visible corruption would have to be somewhat different. A pooling mechanism similar to the one in the model could exist if citizens can observe whether electoral corruption but not the extent of it. Another possibility, as suggested in the text, is that citizens could learn, over time, to associate visible signs of electoral corruption with overwhelming victory by the ruler.

[79] The survey data that I use does contain information about turnout. Unfortunately, the amount of missing data is too great for this question to be of any use.

patronage benefits, their job, or their safety may depend on their showing up to vote.[80] Additionally, powerful incumbents have more resources than other parties to mobilize supporters on election day, for instance by transporting them to the polls.

Note that the data on electoral corruption essentially measures the visible, as opposed to secret, kind.[81] The only limitation this places on the testing is that it cannot be used to test the effect of secret electoral corruption on the margin of victory.

I present results from the survey analysis and the country-level reduced-form.[82]

4.3.1 Beliefs and Turnout in the Survey Data

To test if the association between beliefs and turnout holds in general (hypothesis H6), I use the *Comparative Study of Electoral Systems* (CSES) panel of electoral surveys. The issue of interest is whether, after controlling for other determinants of turnout, beliefs have an independent effect on turnout.

I use survey data from Module 1 of the CSES. This data includes 39 elections around the world in 1996-2001. The same survey (in translation when necessary) was administered in every case, on nationally-representative samples of citizens in voting age. Thirty-six of the surveys are for parliamentary or legislative elections, and the other three for presidential elections, all at the national level. The data was merged in a single file with 62,409 cases, or an average of about 1600 cases per election. Most of the surveys were conducted after the election, but some were collected both before and after, and others between rounds of majoritarian elections. Surveys were completed through personal interviews, phone interviews and mailbacks. There exist some differences in sampling procedures and in question design between surveys, but overall the study is designed so that the surveys can be pooled together.

I test the following hypothesis in the pooled set of all surveys.

> H3: In the panel of surveys, the belief that the election will be corrupt should be associated with a lower propensity to vote.

To proxy for beliefs I use the question:

> "In some countries, people believe their elections are conducted fairly. In other countries, people believe their elections are conducted unfairly. Thinking of the last election in [country], where would you place it on this scale of one to five

[80] This implies a measure of observability. But even where the ballot is secret a degree of observability can persist. For one thing, it is possible to observe whether someone goes to the polls. Moreover, even if individual votes are unobservable, vote totals are observable at the precinct or local level, and powerful incumbents can threaten collective punishment. On the use of patronage benefits for partisan purposes by powerful incumbents see for instance the work on social infrastructure programs such as PRONASOL (Weldon and Molinar, 1991) and PROGRESA in Mexico, or FONCODES in Peru. For patronage-based politics in the U.S. see Menes 1998.

[81] In fact, by definition any cases of truly secret electoral corruption could not be in the data. Still, degrees of observability could be coded – in some instances the public may have learned about electoral corruption post-facto, while in others the intention to hold a corrupt election might have been resoundingly announced beforehand. I have thus far not coded these distinctions.

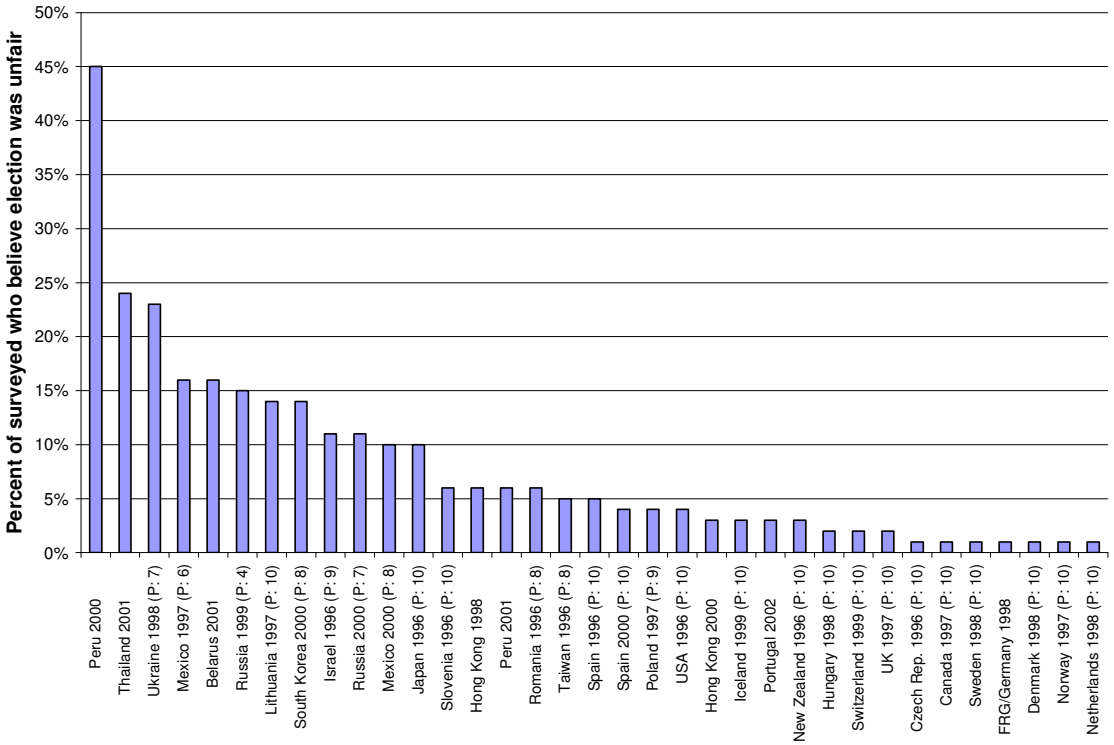
[82] I only present results for the reduced-form relationship between electoral corruption and turnout. The rest of the analysis is available on demand.

where ONE means that the last election was conducted fairly and FIVE means that the last election was conducted unfairly?"

As controls I use basic demographics, income, political information (which I use as a proxy for political interest), self-reported turnout, and perceptions about the fairness of the election.

Pooling assumes that the overall relationship between beliefs and turnout is similar across elections. Thus, differences in turnout due to beliefs should depend on the number of citizens who subscribe to those beliefs. In other words, where a large part of the population believes that elections will be corrupt, turnout will be more depressed than where only a few believe this. Figure 4.1 shows the percentage of respondents who indicated they believed the election was unfair, for the 35 elections in which the question was asked:

Figure 4.1
Beliefs about the fairness of the election



Notes: "P:" indicates Polity score (10=most democratic).

The figure shows there is considerable variation in beliefs between countries and elections. With few exceptions, in advanced democracies practically nobody believes elections to be unfair. In contrast, in developing countries the variation is considerable. If beliefs have an impact on turnout, it follows (assuming that the impact does not vary much from country to country and from election to election) that the impact is larger where more people believe the election to be unfair. Table 4.7 displays the results.

Table 4.7
Effect of beliefs about the fairness of the election on turnout

	Full sample (35 elections)		Mexico 1997	
fairelec		-0.089		-0.062
		[0.000]***		[0.007]***
income	0.028	0.022	0.034	0.027
	[0.011]**	[0.060]*	[0.327]	[0.455]
gender	-0.021	0.025	0.016	0.031
	[0.435]	[0.382]	[0.819]	[0.663]
age	0.036	0.033	0.063	0.062
	[0.000]***	[0.000]***	[0.000]***	[0.000]***
age^2	-0.0003	-0.0002	-0.0006	-0.0005
	[0.000]***	[0.000]***	[0.000]***	[0.000]***
educ	0.078	0.075	0.082	0.081
	[0.000]***	[0.000]***	[0.001]***	[0.001]***
rural	0.032	0.023	0.064	0.054
	[0.005]***	[0.058]*	[0.065]*	[0.140]
recall	0.296	0.259	0.130	0.146
	[0.000]***	[0.000]***	[0.053]*	[0.036]**
polinfo1	0.187	0.132	0.046	0.106
	[0.000]***	[0.001]***	[0.678]	[0.362]
polinfo2	0.100	0.094	0.188	0.177
	[0.001]***	[0.003]***	[0.012]**	[0.022]**
polinfo3	0.023	0.004	-0.025	-0.064
	[0.442]	[0.886]	[0.756]	[0.442]
Constant	-0.887	-0.555	-1.567	-1.408
	[0.000]***	[0.000]***	[0.000]***	[0.000]***
N	14,896	14,187	1,760	1,671

Notes: Probit regression with robust standard errors. P-values in brackets. ***=significant at 1%, **=significant at 5%, *=significant at 10% level. Data from CSES Module 1. The variables recall and polinfo are indicators of political knowledge.

Even after controlling for the standard determinants of turnout including income, education, and political interest, the belief that the election was or would be unfair is associated with a statistically significant reduction in turnout.[83] The magnitude of the effect of a change in beliefs from fairelec=1 (the election was fair) to fairelec=5 (the election was unfair), holding all other variables at their sample means, is equivalent to an *7.9% decrease in the probability of voting*.

One potential problem with this interpretation is that the question is asked after the election, so that the answer could reflect a post-facto justification for not having voted. While I can't rule out this possibility with the data I have, the result I obtain is in line with those of analogous studies that employ pre-electoral surveys. For example, in a remarkably early (1985) public opinion survey of the Mexico City electorate, Juan Molinar and Leonardo Valdés find that a substantial proportion of abstainers and of those

[83] Unfortunately, I was not able to control for partisan choice because the amount of missing data was too large.

who refuse to register are unhappy with the system ("rechazo al sistema electoral"); and that a substantial proportion of abstainers believe that the electoral system is corrupt ("su voto no se respeta") and that the outcome of the election is basically predetermined in favor of the PRI. Moreover, those sectors of the population with the highest rates of abstention are also the most likely to support the opposition.[84] Jorge Domínguez and James McCann report a similar effect in their study of Mexican elections in 1988-1994. They find that voters who believed the election was dirty were more likely to abstain, and that abstainers disproportionately favored the opposition.[85] Running the analysis in Table 4.7 for the Mexico 1997 election I obtain an estimate of -7.7% for the decrease in the probability of voting associated with a change in belief from 1 (fair) to 5 (unfair), holding other regressors are at their sample means.[86] Thus, I cannot reject H3.

4.3.2 Beliefs and Turnout in the Country-Level Data

The reduced-form estimate of the effect of electoral corruption on same-election turnout using country-level data should be similar to the one obtained from the survey data in the previous subsection. I run an OLS regression of turnout on electoral corruption to test the following hypothesis:

> H4: In the cross-section, electoral corruption should be associated with lower overall turnout in the same election.

I estimate the effect on the full sample as well as on non-democracies. The estimate is surprisingly close to that from the survey data, and it holds for different definitions of non-democracy, as well as for alternative measures of electoral corruption, FRAUD and FRAUD_NEW in addition to CFRAUD. The estimates with the alternative measures are of roughly the same magnitude, and present similar patterns of significance.

[84] Molinar and Valdés 1985, p.197-200.

[85] Domínguez and McCann, 1996 and 1998.

[86] The 2000 election in Mexico is not a very good point of comparison because that election was unique in many ways, not the least of which is that it constituted the first opposition victory in a presidential election in about 70 years. Thus, any deterrent effect of beliefs about the fairness of the election might have been superseded by other powerful forces associated with the emotional force of the events.

Table 4.8
OLS estimates of reduced-form effect of electoral corruption on turnout

	Full sample				Authoritarian regimes		
					Polity<8	Polity<=6	Polity<=0
Column:	A	B	C	D	E	F	G
CFRAUD		-6.29		-8.44	-9.14	-8.16	-9.63
		[0.082]*		[0.036]**	[0.058]*	[0.116]	[0.077]*
LOGRGDP	6.16	5.85	7.53	7.78	5.68	4.02	7.45
	[0.001]***	[0.003]***	[0.000]***	[0.000]***	[0.055]*	[0.261]	[0.096]*
POLITY	0.44	0.20	0.61	0.32	-0.08	-0.25	-0.39
	[0.066]*	[0.472]	[0.022]**	[0.279]	[0.840]	[0.574]	[0.752]
POP	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0003
	[0.000]***	[0.000]***	[0.000]***	[0.000]***	[0.070]*	[0.103]	[0.037]**
OPENK	0.002	0.004	-0.045	-0.051	-0.028	0.073	-0.232
	[0.963]	[0.936]	[0.397]	[0.386]	[0.771]	[0.479]	[0.207]
Africa			2.63	4.88	2.31	0.32	-4.73
			[0.555]	[0.331]	[0.716]	[0.961]	[0.538]
Middle East and			3.03	4.56	1.54	2.44	-2.95
			[0.564]	[0.316]	[0.827]	[0.683]	[0.710]
Asia			4.45	2.40	-2.49	-0.60	-2.87
			[0.243]	[0.557]	[0.740]	[0.938]	[0.833]
Central Asia and							
Eastern Europe			6.62	8.77	8.27	8.33	4.27
			[0.027]**	[0.006]***	[0.079]*	[0.048]**	[0.463]
America			-3.19	-3.09	-7.63	-2.60	-13.49
			[0.298]	[0.323]	[0.271]	[0.662]	[0.270]
Constant	13.23	18.76	4.56	6.16	22.98	28.17	29.98
	[0.360]	[0.208]	[0.782]	[0.725]	[0.323]	[0.320]	[0.385]
Observations	158	153	158	153	97	83	45
R-squared	0.147	0.169	0.175	0.207	0.12	0.14	0.286

Robust p values in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%
Notes: Cross-sectional country level data, 1975-2000.

As the table shows, electoral corruption has a negative and significant effect on turnout in the cross-section. The effect is robust to controlling for region. The micro-level and macro-level estimates suggest that a visibly corrupt election on average reduces turnout by 7-9%.

5. Alternative Explanations for Electoral Corruption with High Margins of Victory

Here I consider a number of additional explanations for the observation that electoral corruption can give rise to large margins of victory, noting that different explanations need not be mutually exclusive. These include: Uncertainty about level of support, uncertainty about effects of corruption, and decentralization. I include this discussion here for completeness, and do not attempt here to adjudicate among them with respect to their importance.

One possible explanation for electoral corruption resulting in high margins of victory is the existence of uncertainty about the amount of additional votes that are necessary for the ruler in order to win the election. In this case, the ruler, in order to reduce the risk of losing, could be willing to engage in excessive electoral corruption. One argument against this explanation is that this type of uncertainty could conceivably be mitigated by spending on information-gathering, and presumably conducting a public-opinion poll is generally cheaper than committing large-scale fraud[87]. If so, this explanation merely shifts the question one step backwards: Why would a ruler rationally waste resources?

A second possibility is the existence of uncertainty about the means-ends connection between corruption effort and the number of votes that such an effort will buy. In this case, a risk-averse ruler could end up spending excessive resources on electoral corruption. This type of uncertainty might be harder to mitigate through a poll, although learning would certainly occur over time if electoral corruption was commonplace.

A third explanation could be that decisions about the level of electoral corruption are not made in a centralized manner, as modeled here, but rather by multiple decentralized operators, each with a big stake (e.g. their career) in gathering more votes for the ruler. In this case, it would be local agents that make the decisions as to how much corruption is enough. Thus, modeling fraud as a centralized decision, as I do here, would not be the right approach. There is some evidence that in some countries electoral fraud is quite decentralized. Ames (1970), for instance, mentions the possibility that local electoral results were used in Mexico as a device to distinguish the more able from the less able political operators, i.e. as a recruitment device to bring operators from the lower into the higher echelons of the state-party. If so, then individual rationality (of the local operators) could lead to collective irrationality (i.e. to excessive electoral corruption). While decentralized corruption may well have been at work in Mexico (and elsewhere), there is also strong evidence that electoral corruption in Mexico was centrally planned, both as recently as 1988, when massive fraud was centrally planned and prepared before the election, and as far back as in the times of the Mexican president and dictator Porfirio Díaz, who would himself decide on the list of candidates that would stand and win.[88] Patronage spending in Mexico has also been centrally planned, although it is not clear whether such spending should be considered corrupt.[89] Centrally-organized fraud seems to be empirically important.

If either the second or the third explanations are operative, then one could conceivably see overinvestment in fraud for reasons different to the ones developed in this paper.[90] These various explanations, however, are not mutually exclusive: It is possible that overinvestment in fraud could simultaneously be due to uncertainty, decentralization, and externalities, or that different reasons apply in different cases. Further empirical work is necessary to say more about this.

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[87] Although in some circumstances a poll may not yield the desired information.

[88] Posada-Carbó 2000, for instance, refers to a letter that Mr. Díaz wrote to the Governor of Puebla detailing a list of "candidates" (p.615).

[89] See, for instance, the work of Beatriz Magaloni and Alberto Díaz-Cayeros, or Weldon and Molinar1991, for the case of Mexico.

[90] Though under the second reason we could conceivably also see underinvestment.

6. Conclusion

The arguments and the model presented here take a step toward unpacking what hitherto has been a black box in scholarship on elections, namely the mechanisms giving rise to electoral corruption, and the mechanisms through which electoral corruption impacts democratic accountability.

The theory here makes new distinctions in a number of important dimensions of electoral corruption. First, it distinguishes between the material (or direct) and the informational (or indirect) effects of electoral corruption on electoral outcomes. Second, it distinguishes between the same-election (or short-term) and the future-election (or long-term) effects of corrupt elections. Third, it distinguishes two basic kinds of electoral corruption, one seeking to alter the vote count at the margin, and another seeking to inflate the margin beyond the level strictly necessary to attain victory, in order to deter opposition.

I showed how beliefs about the political process – in particular beliefs about the chances of victory of the incumbent –can sustain or undermine electoral accountability, providing strong incentives to incumbents to manipulate the information that underpins such beliefs. This is consistent with the well-established fact that autocrats covet and seek control over the mass media. But the incentives for cheating in elections and controlling the media emphasized above are likely to exist in all electoral systems, not only in authoritarian and dominant-party systems. However, only where institutions or political competition fail to place checks on the power of the incumbent can such incentives be acted upon in a significant way. Where such checks do not exist, however, political dominance may breed more political dominance. And even in countries undergoing institutional reform, the possible persistence of ruler's reputations for being able to ensure electoral victory may slow down the transition to more democratic electoral outcomes.

An important question is how to break out of a situation of limited political competition and accountability. First, reliable public information about the relative electoral strength of candidates can undercut the ability of a ruler to manipulate the beliefs of potential voters and thus eliminate the informationally-based deterrent effect, removing a stumbling bloc in the way of the strategic coordination of the opposition. Second, effective monitoring and rule-of-law in the area of elections can reduce the incidence of electoral corruption not only through the obvious mechanism of reducing the amount of fabricated ballots, for instance, but also through other mechanisms: It can reduce long-run informational effects on accountability; and it can increase the cost of engaging in electoral corruption. Third, the comparative-statics exercise suggests that protecting the secrecy of the ballot and the physical integrity of citizens who dare vote their minds can increase the range of situations in which accountability holds.

The comparative-statics analysis suggests a number of testable hypotheses. Where the stakes of elections for the ruler are lower, the personal risks of voting against the ruler are lower, the potential gains to citizens from voting the ruler out are higher, and the ruler has few prospects for continued tenure or influence, electoral corruption of the anticompetitive kind should be less likely.

Appendix A: Equilibria and Proofs

Table A1
Loose descriptions of four equilibria

Equilibrium		Player	Ruler's type	Election 1	Election 2
1	Requires $p > p^{**}; \beta<\delta V$				
	Equilibrium actions	Opposition		**a**	**a**
		Ruler [1]		**β0** [2]	**00**
	Outcome (refers to ruler)		High	Win	Win
			Low	Win	Win
	Payoffs	Opposition	High	0	0
			Low	0	0
		Ruler	High	V	δV
			Low	$V-\beta$	δV
2	Requires $p > p^{**}; \beta\geq\delta V$				
	Equilibrium actions	Opposition		**a**	**a if $r=r^h$** **v if $r=r^l$**
		Ruler		**00**	**00**
	Outcome (refers to ruler)		High	Win	Win
			Low	Win	Lose
	Payoffs	Opposition	High	0	0
			Low	0	0
		Ruler	High	V	δV
			Low	V	0
3	Requires $p < p^*$				
	Equilibrium actions	Opposition		**v**	**a if $r \geq 0.5$** **v if $r < 0.5$**
		Ruler		**00**	**00**
	Outcome (refers to ruler)		High	Win	Win
			Low	Lose	Lose
	Payoffs	Opposition	High	$-l$	0
			Low	w	δw
		Ruler	High	V	δV
			Low	0	0
4	Requires $p^* \leq p \leq p^{**}$				
	Equilibrium actions	Opposition		**a**	**a if $r=r^h$** **v if $r=r^l$**
		Ruler		**00**	**00**
	Outcome (refers to ruler)		High	Win	Win
			Low	Win	Lose
	Payoffs	Opposition	High	0	0
			Low	0	δw
		Ruler	High	V	δV
			Low	V	0

Notes: [1] Ruler's strategy notated as (action if low type) (action if high type); [2] β denotes the amount of electoral corruption needed in order to equalize r^h with r^l in equilibrium. Table assumes $x^h \geq 0.5$, $x^l < 0.5-b^{max}$. Definitions: $p^* = w/(w+l)$; $p^{**} = (w+\delta w)/(w+\delta w+l)$. Proofs follow below.

Proof for the Equilibria in Tables E1 and A1

Proof strategy: Derive the best-response functions for the ruler and the soft opposition supporters, then combine them into the equilibria. The lemmas are preparatory steps.

LEMMA 1: In equilibrium, the ruler does not engage in corruption in the second election.

PROOF: Denote by $(b_{l,2}, b_{h,2})$ the ruler's choice of level of electoral corruption in the second election. By the definition of high and low support, the level of electoral corruption cannot change the outcome of the second election: A ruler with high support wins for any choice of $b_{h,2}$. When the ruler has low support, the outcome of the second election depends on the opposition only – if all opposition turns out, then the ruler loses, and if opposition[91] abstains, then he wins, and opposition turnout cannot depend on the level of corruption in the second election since voters cannot observe it before they choose their actions. Thus, since the level of electoral corruption does not affect the outcome but it is costly, the ruler always holds a clean election in the second period. □

LEMMA 2: If opposition votes in the first election, the ruler's type is revealed through the electoral result, and therefore the updated prior is either $p^u=0$ or $p^u=1$.

PROOF: By definition, a ruler with low support loses the election when opposition votes, and a ruler with high support wins. Because Bayes rule must hold, when the ruler loses voters must attach probability one to the event that the ruler has low support, and when he wins they must attach probability one to the event that he has high support.□

LEMMA 3: In any opposition equilibrium strategy with voting in the first election, the second-election strategy is given by the map: a if $r \geq 0.5$; v otherwise.

PROOF: From Lemma 2 we know that $r \geq 0.5$ implies that $p^u=1$. Then the expected utility from voting in period 2, $EU_2(v)=-l$, and that from abstaining, $EU_2(a)=0$, so voting is chosen. Similarly, $r < 0.5$ implies that $p^u=0$ and thus $EU_2(v)=w$, while $EU_2(a)=0$, so abstention is chosen.□

LEMMA 4: If the result of the first election does not reveal the ruler's type, then opposition's BR in the second election entails voting iff $p < w/(w+l)$.

PROOF: $EU_2(v)= p^u(-l) + (1- p^u)w$, and $EU_2(a)=0$, so voting is chosen when $p^u < w/(w+l)$. By Lemma 2, we know that the first-period action was to abstain (otherwise the first election would have revealed the ruler's type), and the fact that there was no revelation implies that $p^u = p$.□

PROPOSITION 1: If the result of the first election reveals the ruler's type, then the best-response function of the opposition is given by:

[91] As in the text, I use "opposition" to refer to the set of soft opposition supporters.

In the first election: *v* if $p<w/(w+l)$, *a* otherwise.
In the second election: *v* if $r < 0.5$, *a* otherwise.

If the result of the first election does not reveal the ruler's type, then the best-response function of the opposition is given by:

In both elections: *a* if $p \geq (w+\delta w)/(w+l+\delta w)$.
For other values of *p*, the best response in the first election is *v*
(Note that this forces revelation of the ruler's type, so no pooling equilibrium can exist for $p < (w+\delta w)/(w+l+\delta w)$).

PROOF: If *r* reveals the ruler's type, then comparing the expected utility of voting with that of abstaining yields the condition for the first election. The second-election part of the best response follows from Lemma 3. Now, when there is no revelation, by Lemma 2 the first-election best response is to abstain. But this requires that *p* satisfy the condition on *p* given above, otherwise the BR in the first election is to vote and by Lemma 2 this would contradict the assumption that there is no revelation. The rest follows from Lemma 4.□

LEMMA 5: All else equal, if G* is a best response for opposition given a ruler's equilibrium strategy H, then G* is also a best response to any other ruler's strategy H' so long as, given G*, both H and H' lead to revelation of the ruler's type after the first election, or both H and H' lead to a lack of revelation of the ruler's type after the first election.

PROOF: Proposition 1 shows that opposition's best response depends on the ruler's strategy only insofar as it leads to revelation of the ruler's type or to failure of revelation after the first election.□

LEMMA 6: Any separating (i.e. revealing of the ruler's type after the first election) equilibrium strategy for the ruler is dominated by 00.

PROOF: Any strategy with $b > 0$ in the first election for either the high or the low type is more expensive than 00, and Lemma 5 shows that if any separating strategy is a best response, so is 00.□

PROPOSITION 2: (i) When $p<w/(w+l)$, the ruler has a dominant strategy 00 in the first election and 00 in the second, where the first action in each pair denotes the action for a low type, and the second one the action for a high type.

(ii) When $w/(w+l) \leq p \leq (w+\delta w)/(w+\delta w+l)$, the ruler has a dominant strategy 00 in the first election, 00 in the second.

(iii) When $p >(w+\delta w)/(w+\delta w+l)$, if $\beta < \delta V$, then the ruler's best response in the first election is $\beta 0$, where β is the amount of electoral corruption that renders the electoral result obtained by a low type engaging in corruption in the first election identical to the

result that would be obtained by a high type that engages in no electoral corruption in the same election.[92]

(iv) When $p > (w+\delta w)/(w+\delta w+l)$, if $\beta \geq \delta V$, then the ruler's best response in the first election is 00.

PROOF: (i) By Proposition 1, the opposition's best response is to vote in the first election, and by Lemma 2 this reveals the ruler's type through the electoral result. By Lemma 6, a more expensive strategy that also leads to revelation is dominated. This proves the first-election part of the strategy. The second-election part of the strategy follows from Lemma 1.

(ii) By Proposition 1, in equilibrium the ruler's type must be revealed, since otherwise the opposition's best response is inconsistent with the assumption of no revelation. The rest of the proof is as for (i).

(iii) By the proof to (i) and Lemma 6, the first-election strategy 00 dominates all strategies that lead to revelation of the ruler's type. By similar logic, $\beta 0$ dominates any strategy that prevents revelation, since such a strategy is necessarily more expensive than $\beta 0$, and, by Lemma 5, if any pooling strategy is a best response in equilibrium, then $\beta 0$ is a best response as well. Finally, under the first-election plans of action 00 and $\beta 0$, a high type obtains $V+\delta V$ in expectation. Under 00, a low type obtains V; and under $\beta 0$, a low type obtains $V-\beta+\delta V$ in expectation. Comparing the expected payoffs for the two plans of action yields the condition on β.

(iv) Everything is as in the proof to (iii), except that the final payoff comparison yields the condition on β. □

The four equilibria in Tables E1 and A1 follow from Propositions 1 and 2.

[92] This assumes the existence of β, which in turn depends on the value of the support x for the high and the low types, as well as on b^{max}, as established in Section 3.

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