Corruption and the Incumbency Disadvantage: Theory and Evidence*

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Abstract

Incumbents in many developing democracies face significant disadvantages when seeking reelection, in stark contrast to the well-known incumbency advantage in the U.S. and other mature democracies. I propose and test a new explanation for this incumbency disadvantage: corruption. Formally, I show that incumbents become more disadvantaged as the cost of committing corruption decreases, the quality of the candidate pool deteriorates, and when gains to corruption increase with time spent in office. I test these hypotheses using innovative measures of local corruption in Romania. Identification comes from two discontinuities: (1) national rules tying mayoral salaries to population thresholds that cause jumps in the opportunity cost of corruption and thus its incidence, and (2) close elections that assign incumbency as-if randomly. This strategy provides strong evidence that the large incumbency disadvantage found in Romanian local elections is caused by the incidence of corruption and the large seniority premium to corruption exploited by Romanian mayors.

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Recent studies have found strong evidence for the *incumbency disadvantage* – the counter-intuitive phenomenon in which incumbents are systematically less likely to win elections than similar non-incumbents – in developing democracies as diverse as India (Uppal, 2009), Brazil (Klašnja and Titiunik, 2014), and post-communist democracies in Central and Eastern Europe (Roberts, 2008). This body of evidence stands in stark contrast to the well-known incumbency advantage in the United States (e.g. Erikson, 1971; Gelman and King, 1990), and many other mature democracies (e.g. Hainmueller and Lurz-Kern, 2008; Katz and King, 1999; Kendall and Rekkas, 2012).

Causes of the incumbency disadvantage are less well understood than causes of the incumbency advantage. For example, by strategically choosing policy and constituency service, incumbents are better positioned than challengers to influence voters' attitudes and information (Ashworth, 2005; Besley, 2007). Why is it that incumbents in many developing democracies are unable to use their time in office to persuade voters of their quality? A plausible cause I explore in this study is corruption: the misuse of public office for private gain. It is well-known that younger and poorer democracies are more corrupt than rich mature democracies (e.g. Treisman, 2000). Scholars have shown that because of frequent bribe victimization and high corruption perception in developing democracies, corruption can be an important component of voting behavior (e.g. Ferraz and Finan, 2008; Klašnja, Tucker, and Deegan-Krause, Forthcoming).

Drawing on a detailed formal analysis in Klašnja (Forthcoming), I first show theoretically that incumbents become systematically more disadvantaged when: (a) the opportunity cost to being corrupt decreases, increasing incentives to engage in corruption; (b) the quality of the candidate pool deteriorates, increasing the probability that any incumbent in office is corrupt; and (c) the returns from corruption increase over the course of an incumbent's tenure (e.g. because of learning on the job), forcing voters to minimize corruption increase by replacing incumbents frequently, even if challengers are also perceived as corrupt.

Empirical tests of these predictions are challenging because corruption is difficult to measure, and because it is likely correlated with other potential causes of the incumbency disadvantage, such as underdevelopment. I overcome these challenges in several novel ways by focusing on local elections in Romania. I collected extensive data to develop novel measures of town-level corruption, based on more than 4,000 mandatory declarations of assets to measure suspicious wealth accumulation of Romanian mayoral candidates; a large number of public procurement contracts to identify possibly corrupt tenders; and discrepancies between infrastructure spending and actual physical infrastructure outcomes to measure corrupt waste of resources.

To tackle the challenge of isolating the effect of corruption, I exploit a rare institutional feature in Romania that mayoral salaries change sharply at thresholds determined solely by a town's population size. Scholars have shown that higher salaries increase the opportunity cost of corruption (e.g. Becker and Stigler, 1974), and attract higher-quality candidates for office (e.g. Dal Bó, Finan, and Rossi, 2013). These channels are closely related to the theoretical predictions. Using a regression discontinuity design that compares towns with populations very close to a salary threshold – towns on average very similar in all respects except those caused by the change in salary – I find that higher salaries indeed lower corruption. This exogenous variation thus gives leverage in identifying the causal effect of corruption on the incumbency disadvantage.

I combine this identification strategy with another: the regression discontinuity design pioneered by Lee (2008) that compares electoral winners and losers in close elections to detect and isolate incumbency advantages. In concert, these two strategies produce support for the theoretical predictions. There is a large incumbency disadvantage in Romanian mayoral elections, and this disadvantage is much higher in places where the exogenously-driven incidence of corruption is higher. Moreover, Romanian mayors on average become more corrupt the longer they stay in office, and in turn more experienced incumbents are

more strongly disadvantaged.

The results point to both the promise and the limits of electoral accountability in high-corruption developing democracies. The incumbency disadvantage is Romanian voters' best response to the country's endemic corruption at the local level. However, this strategy can in turn incentivize corrupt incumbents to steal while they can, an equilibrium worse for voters than any equilibrium in a lower-corruption environment where voters could advantage incumbents (Klašnja, Forthcoming). These results support the premise that escaping a high-corruption environment by electoral means alone may be exceedingly difficult (Ashworth, Bueno de Mesquita, and Friedenberg, 2013).

The rest of the paper is organized as follows. The next section discusses the literature and describes the theoretical model and its predictions. Section 2 provides a description of the Romanian context, the data, methods, and research design used to test the theoretical predictions. Section 3 presents the results, and Section 4 discusses their implications for the study of corruption, the incumbency disadvantage, and electoral accountability more broadly. Several technical discussions and a number of additional results and robustness checks briefly mentioned in the text are given in the Online Appendix.

1 Literature and Theory

Holding office has been shown to lead to large subsequent electoral losses in mayoral elections in Brazil (Klašnja and Titiunik, 2014), and in legislative elections in India (Aidt, Golden, and Tiwari, 2011; Fisman, Schulz, and Vig, 2012; Linden, 2004; Uppal, 2009), post-communist eastern Europe (Birch, 2003; Roberts, 2008; Pop-Eleches, 2010), Sub-Saharan Africa (Macdonald, 2014) and even in 19th Century Britain (Eggers and Spirling, 2014).

How can we explain this incumbency disadvantage? Incumbency advantage is understood better. Unlike challengers, incumbents can signal their quality to voters through

constituency service (Ashworth, 2005; Besley, 2007). Alternatively, since voters seek to elect good candidates, incumbents should be on average of higher quality than losers, thus deserving an electoral advantage (Ashworth and Bueno de Mesquita, 2008; Zaller, 1998).[1] In light of these intuitive arguments, the incumbency disadvantage is puzzling. Why are incumbents in many young and developing democracies not able to signal their desirability to the voters and strategically build reputations? Why are they not favored by electoral selection?[2]

The incumbency disadvantage implies that voters systematically rate incumbents less favorably than non-incumbents, despite, or perhaps because of, efforts made while in office. A plausible cause of the incumbency disadvantage I examine is corruption. While corruption may be a plausible cause, its effect must be theorized carefully. In many developing democracies corruption is widespread and citizens often perceive both incumbents and challengers as corrupt. It is not obvious whether corruption can engender an incumbency disadvantage in such an environment. Moreover, incumbents typically have an incentive to hide corruption (Di Tella and Weinschelbaum, 2008) or reduce it (Ferraz and Finan, 2011) in order to increase their prospects for reelection. These incentives work in the direction of *dampen-*

[1]The more empirical literature on the incumbency advantage offers other explanations, such as the deterrence of high-quality challengers (e.g. Cox and Katz, 1996; Levitt and Wolfram, 1997), incentives to cultivate a personal vote (e.g. Ansolabehere, Snyder, and Stewart, 2000), ideological polarization (Abramowitz, Alexander, and Gunning, 2006), and the heuristic value of incumbency when partisan ties are weak (Ferejohn, 1977). Gordon and Landa (2009), however, show theoretically that not all incumbents are advantaged by some of these factors.

[2]The incumbency disadvantage is yet more intriguing given that incumbents in younger, often less institutionalized democracies may have more options to ensure political survival in office, such as vote buying or electoral fraud (e.g. Boas and Hidalgo, 2011; Przeworski, 2011).

ing any effects of corruption on the incumbency disadvantage. At the same time, voters are likely to be conscious of such incumbents' incentives and take them into account when voting. Theoretically, these incentives of both incumbents and voters should be taken into account simultaneously.

I therefore first evaluate a simple formal model of an interaction between a voter (the principal) and an incumbent (the agent), drawing upon a more detailed analysis in Klašnja (Forthcoming). The details are given in Section A1 in the Online Appendix; here, I informally discuss the main features and the intuition behind the predictions. The incumbent divides a budget between provision of a public good and private rents. The incumbent's choice is influenced by his "type" – his affinity for corruption. For simplicity, there are two types of politicians: "good" politicians who always serve the voter, and "bad" politicians who prefer to use their public office for personal gain, but may constrain themselves to increase their reelection chances.

The bad politician's optimal amount of rent-seeking is also influenced by the cost of being corrupt, which consists of two components: the effort needed to divert the budget to rents, and the opportunity cost (e.g. the loss of legitimate income upon being caught). Based on the empirical evidence from a number of developing democracies, I allow for the possibility that the effort component may decrease during tenure in office (at a decreasing rate). That is, gains from corruption may increase in tenure (Fisman, Schulz, and Vig, 2012), perhaps because incumbents can learn to better extract rents, particularly when new rents are being captured, such as in the early years of privatization (e.g. Kaufmann and Siegelbaum, 1996), during war-time increases in military spending (Querubin and Snyder, 2013), or from natural resource windfalls (Caselli and Michaels, 2013; Monteiro and Ferraz, 2012). Moreover, since corruption often involves a network of cronies (Olken and Barron, 2009; Shleifer and Vishny, 1993), incumbents may increase corruption because it takes time to develop a rent-extraction network through repeated connections with the bureaucracy and

interest groups (Coviello and Gagliarducci, 2012). Below, I provide further evidence that Romanian mayors on average become more corrupt with time spent in office.

The voter makes a decision to keep or replace the incumbent with a challenger, who is drawn from the same distribution of types as the incumbent. While the voter knows in general the odds of having a corrupt politician in office, she does not observe his type (whereas the incumbent knows his own type).

I focus on two simple testable hypotheses of this model.

Prediction 1 *The incumbency disadvantage increases as: (a) the quality of the candidate pool deteriorates, and (b) the opportunity cost of corruption decreases.*

Consider part (a). Since the voter does not know the politician's type, she needs to rely on the incumbent's actions. However, bad incumbents may have an incentive to pretend to be good and constrain corruption when facing reelection in order to enjoy their rents later.[3] Another piece of information the voter possesses is the prior probability – the unconditional odds – of facing a corrupt politician. Corrupt politics likely attracts corrupt candidates, making it more likely that *any* politician in office is a bad type, irrespective of their observable performance. This by itself makes the voter more reluctant to reelect. Therefore, a decrease in the quality of the candidate pool should increase the likelihood of incumbency disadvantage.

Next, consider part (b). As the opportunity cost of corruption increases, the bad type's optimal amount of rent will decrease, making corrupt incumbents more similar to good incumbents. Accordingly, any mimicking by bad incumbents is less problematic for the voter, as the downside from mistakenly reelecting a bad incumbent decreases. Therefore,

[3]While this mimicking of the good types by the bad types means that the voter initially gets the same value from both incumbent types, eventually the bad type will steal at the expense of the voter.

the voter can reelect incumbents at higher rates, reducing the incumbency disadvantage. While part (a) examines the effect of the distribution of politician *types*, part (b) posits the effect of corruption through politicians' *actions*.

One may examine in practice different kinds of factors that improve the quality of the candidate pool or increase the opportunity cost of corruption. As I explain below, I exploit sharp changes in politicians' salaries as a potentially exogenous source of corruption incentives.[4]

Prediction 2 *The incumbency disadvantage is more likely when the incumbents' gains from corruption increase over time spent in office.*

When the cost of effort needed to extract rents decreases over time spent in office, gains to corruption increase during tenure. Corrupt incumbents may then have a particularly strong incentive to pretend to be good in the present in order to enjoy higher future rents. This makes it harder for the voter to separate the wheat from the chaff in the present, and makes the voter increasingly worse-off in the future if she mistakenly reelects a corrupt incumbent. Therefore, all else equal, the voter must lower the reelection rate, increasing the likelihood of the incumbency disadvantage. This prediction makes it clear why the incumbency disadvantage may exist even when the entire political elite is perceived as generally corrupt. When incumbents can increase gains from corruption over time spent in office, constantly "shuffling the deck" allows voters to at least minimize increases in corruption, if not root out corruption entirely.[5]

[4]Other potential factors include increased monitoring, such as random audits or an effective judiciary, or enhanced public scrutiny through the media or non-governmental organizations.

[5]The incumbency disadvantage decreases when the incumbent can get better at policy-making as well as rent-seeking, but need not be entirely eliminated (Klašnja, Forthcoming).

2 Context, Methods and Data

Empirically testing these predictions poses several challenges. First, one needs a design to estimate the causal effect of incumbency on future electoral success. Second, one needs good measures of corruption and the increase in corruption during incumbents' tenure in office. Moreover, to precisely isolate any effect of corruption on the incumbency disadvantage, one needs a plausibly exogenous source of variation in corruption. Of course, studying corruption as a cause of the incumbency disadvantage requires studying politics where corruption is prominent and incumbents may be disadvantaged. I next describe the details of my research design and the extensive data collection in Romania, a country that is well-suited to tackle these challenges in testing the theoretical predictions.

2.1 Estimating Incumbency Disadvantage with a Regression Discontinuity Design

As has been well documented in the literature on the incumbency advantage (e.g. Erikson, 1971; Gelman and King, 1990), there are several challenges in estimating the effect of incumbency on subsequent electoral success. Incumbents often systematically differ from those who lose; for example, they are more skillful at public policy or better at fund-raising. Also, strong incumbents deter quality challengers from running, and incumbents frequently strategically retire when facing unfavorable electoral prospects. These factors suggest that incumbents and non-incumbents are not necessarily comparable.

Lee (2008) proposed a regression discontinuity design (henceforth RDD) to overcome these difficulties. The RDD approximates a natural experiment by comparing a party's sub-

Moreover, the incumbency disadvantage is likely lessened if incumbents use some of the captured rents to buy votes, provide clientlistic goods, or manipulate elections, in which case the incumbency disadvantage might be even greater.

sequent electoral success in places where it barely wins and barely loses. Because parties in close elections are unlikely to perfectly control their vote share – and thus their incumbency status – incumbency may plausibly be as-if randomly assigned in close contests. Therefore, winners and losers in close elections may on average be very similar in all respects except for the incumbent status, allowing for the causal identification of the incumbency advantage. The RDD has been used in most recent studies of the incumbency advantage and disadvantage (see Erikson and Titiunik, 2015, and references therein), and I follow that practice in this paper. I adapt the standard RDD approach to three aspects of the Romanian mayoral elections: the possibility of a runoff between the top two parties; the multi-party nature of the Romanian party system; and the party switches among local candidates. Due to space constraints, I discuss these adjustments in Section A2 in the Online Appendix.

2.2 Focusing on Romanian Mayoral Elections

The RDD requires two conditions. First, the assignment of incumbency must be based on an ex-ante clear rule, for example winning the majority of the vote. Only in such elections can we ex-ante clearly define a comparison between incumbents and non-incumbents. Second, given the focus on close contests, the RDD requires a large number of elections. Mayoral elections in Romania fulfill both these conditions. There are more than 3,000 towns and villages in Romania with directly elected mayors through a plurality rule, allowing me to draw on more than 9,000 contests since the country's transition to democracy.

Romania is also a good case to study for a number of substantive reasons. Anti-incumbency bias has been very pronounced in post-communist Eastern Europe (e.g. Roberts, 2008), and corruption has been a critical political and economic issue (e.g. Miller, Grodeland, and Koskechinkina, 2001). Mayors have increasingly been given important policy responsibilities, such as the approval and execution of the local budget and the provision of many

local public goods (Coman et al., 2001).[6] Some observers believe that these resources provide ample scope for corruption among Romanian mayors (Dimulescu, Pop, and Doroftei, 2013; Ioniţă, 2005). At the same time, decentralization can lead to greater demand for accountability and easier monitoring (Escobar-Lemmon and Ross, 2014).

Importantly, Romanian mayoral elections are not simply a second-order referendum on national politics. For example, in 2000, the correlation between the vote shares of the five largest national parties in legislative and local elections was only .40. Mayoral elections in Romania have been more competitive than the national elections. The average effective number of parties in local elections has been 4.6, relative to 3.3 in national legislative elections over the same period. When there are three strong local parties, 25 percent of elections have had a margin of victory of less than 5 percent, and 15 percent of elections have had the top three parties within 10 percent of the vote.

2.3 Objective Measures of Local Corruption

Testing the theoretical predictions in Romanian local elections requires local-level measures of corruption. The most common corruption measures, such as Transparency International's Corruption Perception Index, cannot be used as they are invariably available only at the country level. Romania offers a wealth of data to develop novel objective corruption indicators at the local level. Here, I briefly present the data sources and the ways in which I construct the measures. More details are given in Section A3 in the Online Appendix.

The main dataset is drawn from more than 4,000 previously unused declarations of mayoral candidates' privately-owned immovable, movable and financial assets. Using this

[6]The responsibilities of the mayor include the maintenance of local roads, water and sewage supply networks, district heating, waste treatment, administration of local hospitals, territorial and urban planning, and construction of social housing. Laws 215/2001 on Local Public Administration and 195/2006 on Decentralization.

information, I calculate the change in wealth between 2008 and 2012 for the top candidates in localities where they ran in mayoral elections in both 2008 and 2012. As discussed in more detail below, by comparing mayors' wealth accumulation to wealth accumulation among very similar challengers, I will begin examining corruption among mayoral incumbents. Moreover, by comparing wealth accumulation among barely-winning first-term and barely-winning multiple-term mayors, I will examine whether mayors' gains from corruption increase over time spent in office.

While differential wealth accumulation of incumbents and non-incumbents may be indicative of corruption, it is not a proof of it. I therefore construct several additional datasets to complement and validate the measure of wealth accumulation. First, I collected the information from a large number of public procurement contracts for 2008-2012 to develop several intuitive measures of corruption risk in procurement: the frequency with which local tenders are conducted through low-transparency procedures, the frequency of single-bidder local tenders, and the average price per quantity for regularized homogenous purchases, such as office or medical supplies. Less transparent, uncompetitive and more expensive contracts are often an indication of corrupt tenders (Søreide, 2002).[7]

These procurement corruption risk indicators measure broadly the misappropriation of public resources for corrupt use. One of the most common areas of such misappropriation is infrastructure spending.[8] I construct a measure of "missing infrastructure" by comparing the

[7]For example, Constantin Pârvulescu, the mayor of Fărcăşeşti, in Gorj county in Romania, awarded 35 works contracts in the period 2003-2008 to the same supplier in excess of €1.4 million, most of which were awarded through single bidder tenders. These contracts represented over 85% of the total public procurement budget by the City Hall of Fărcăşeşti during this period (see `http://www.pna.ro/faces/comunicat.xhtml?id=2330`)

[8]For example, during 2001-2003, Vrancea, the county in Romania where the then Minister of Transportation Miron Mitrea was previously elected, received close to three times the

change in infrastructure spending and the concomitant change in the actual physical stock of infrastructure for 2008-2012. A large discrepancy between the money allocated and the stock of infrastructure potentially indicates corruption in the allocation of funds. I focus on water and sewage distribution systems, because maintenance of this type of infrastructure is predominantly under the local authority and their capital expenditures are among the most clearly earmarked.[9]

Rather than attempt to combine these diverse measures in a single index, I conduct the empirical tests for each measure of corruption separately. The benefit is that consistently similar evidence across multiple indicators should increase the confidence that the results are not driven by measurement error in any one indicator, and that the indicators are successful at capturing actual corrupt behavior.

2.4 Exogenous Source of Corruption: Salary Threshold

Even with detailed measures of corruption, it is challenging to establish the causal effect of corruption on election outcomes. Any incumbency disadvantage may be caused by other factors correlated with both corruption and reelection rates, for example low public good provision (Uppal, 2009). To aid the causal analysis, I exploit a potentially exogenous source of

average amount of central government transfers for the maintenance of county and local roads (Societatea Academică din România, 2004). Observers allege that this kind of favoritism is often associated with misuse of funds for personal or political purposes (e.g. Expert Forum, 2013; Ioniţă, 2005).

[9]To further complement these corruption measures, I also geo-coded by locality, to the extent possible, more than 3,000 corruption cases led by the two anti-corruption institutions in Romania: the Romanian Anti-Corruption Directorate (PNA) and the National Integrity Agency (ANI). These data and the results are discussed in Section A7 in the Online Appendix.

variation in corruption afforded by a rule that ties mayoral salaries to a locality's population size.[10]

Crucially, much like close electoral winners and losers are likely to be very similar, localities with a population barely below and above a given population/salary threshold are likely to be very similar in all respects except those affected by mayoral salary. I can thus apply another regression discontinuity design (RDD) to examine the effect of salary on corruption. To the extent that the sharp change in salary does affect corruption around the threshold in expected ways, this RDD can be helpful in isolating the causal effect of corruption itself on the incumbency disadvantage in localities just below and above the salary threshold.

The existing theoretical literature has shown that *higher* salaries can *lower* corruption, through a disincentive effect of imposing a higher cost of job loss upon detection (Becker and Stigler, 1974), and a selection effect of attracting more honest and more highly-skilled candidates (Besley, 2004; Bond, 2008; Caselli and Morelli, 2004). Empirical studies have found evidence consistent with both the disincentive effect (Di Tella and Schargrodsky, 2003; Van Rijckeghem and Weder, 2001) and the selection effect (Dal Bó, Finan, and Rossi, 2013; Ferraz and Finan, 2009; Gagliarducci and Nannicini, 2013; Kotakorpi and Poutvaara, 2011).[11]

[10]The salary also depends on the locality type. There are three types of localities, in approximate order of size: communes (comune), towns (oraşe), and municipalities (municipii). This typology affects a number of policies, most notably the tax rates, the repatriation of taxes, and the size and kinds of transfers from the central and county governments. See Article 2 of Law 351/2001 for the typology, and Article 6 and Annex II of Law 100/2007 for the criteria for the locality designation. My analysis only examines one locality type – the communes.

[11]Other explanations of the negative effect of higher salaries on corruption may include more highly paid officials being audited more often or punished more strictly.

These channels are particularly closely related to Prediction 1. Part (a) of Prediction 1 states that the likelihood of incumbency disadvantage should decrease with the increase in the quality of the candidate pool, a mechanism consistent with the selection effect of salaries on corruption; part (b) states that the likelihood of incumbency disadvantage should decrease with the increase in the cost of sanction, a mechanism consistent with the disincentive effect of salaries on corruption. The sharp change in salary as a source of variation in corruption could also be useful for Prediction 2 – on the effect of incumbents becoming increasingly corrupt over time – to the extent that localities with lower salaries attract incumbents who are more likely to increase rent-seeking during their tenure in office.

There are eight population/salary thresholds, but only one threshold, at 7,000 inhabitants, represents a unique discontinuity (i.e. no other policy changes in a similar way based on population size) and provides sufficiently large sample size for the analyses that follow (for more details, see Section A4 in the Online Appendix). The nominal jump in base salary at this threshold during the period of study was approximately from the 68th percentile to the 80th percentile in the personal income distribution.[12] Since the average share of salary in total financial assets of candidates in these villages is close to 90 percent, this jump in salary provides a substantial financial boost.

3 Results

I begin the discussion of the results by examining the overall incumbency disadvantage among Romanian mayors using the RDD. I then test the two theoretical predictions, i.e. the proposed mechanisms behind any observed incumbency disadvantage.

[12]Figure A2 in the Online Appendix shows that the mandated salary increase indeed translates into an actual jump in salaries at the threshold.

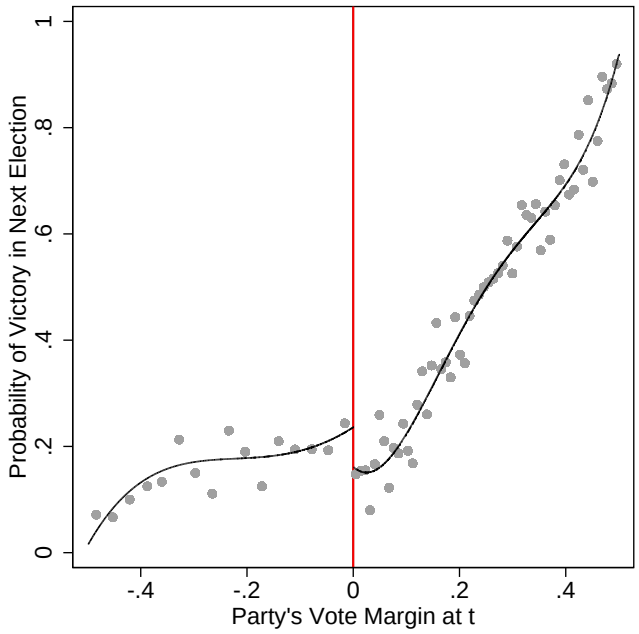
3.1 Overall Incumbency Disadvantage

Figure 1 graphically indicates that parties in Romanian mayoral elections appear to be strongly disadvantaged.[13] The outcome variable, plotted on the y-axis, is the probability of winning in the $t+1$ election. The dots represent the average probability of winning within a small bin of the incumbent party's vote margin in the t election, shown on the x-axis. For observations with a positive vote margin – those to the right of the vertical line in the middle of the graph – the incumbent party won the t election (or made it to the runoff round; see Section A2.1 in the Online Appendix for more details). For observations with a negative vote margin, the incumbent party lost the t election (or missed out on the runoff round). Observations closer to the vertical line indicate more narrowly won elections. To help organize the data visually, two fourth-order local polynomial best-fit lines are shown, fit to the data separately on each side of the cutoff. The sharp drop in the incumbent party's probability of winning in the $t+1$ election at the cutoff indicates that in close elections, barely winning incumbents are considerably *less* likely to win that very similar non-incumbents.

Column 1 in Table 1 shows the results of a formal statistical test of the finding in Figure 1. I follow the now standard practice of using a non-parametric regression within a narrow window around the cutoff. In particular, a regression functions is estimated separately above and below the cutoff by means of weighted linear regressions, with weights decreasing in the distance of each observation's vote margin from the cutoff. The non-parametric regressions require a window (also called the "bandwidth") to be specified, with observations outside of the bandwidth receiving a zero weight. I follow the common practice of selecting an optimal

[13]Most results in the text are shown with party as the unit of analysis, rather than the individual candidate. Sections A2.2 and A2.3 in the Online Appendix discuss in detail the reasons for such a choice. Table A3 shows that the results are substantively very similar with the individual candidate as the unit of analysis.

Figure 1: The Incumbency Disadvantage in Romanian Mayoral Elections



Note: The vote margin on the x-axis is positive if a party won in the first round, or if a party went to the runoff in case the election had one. See Section A2.1 in the Online Appendix for more details. The dots show the average probability of victory in the next election within a small bin of the vote margin. The lines are the fourth-order local polynomial best-fit lines fit separately on each side of the cutoff. The plot is based on the procedure developed by Calonico, Cattaneo, and Titiunik (Forthcoming).

bandwidth that minimizes the mean-squared-error of the regression, relying on the procedure outlined in Calonico, Cattaneo, and Titiunik (2014).[14]

The result in column 1 indicates that parties just above the threshold are around eleven percentage points less likely to win in the next election than parties just below the threshold.

[14]The results are very similar when other common procedures for optimal bandwidth selection are used. Results are available upon request. Also, Figure A3 in the Online Appendix shows that the results are quite stable across bandwidths of different size.

Table 1: The Incumbency Disadvantage in Romanian Mayoral Elections

Comparison	Winners vs. Losers	
Outcome Variable	Victory $t+1$	Vote Margin $t+1$
Estimate	-0.110	-0.053
St. Error	0.035	0.027
p-value	0.002	0.049
Bandwidth	0.175	0.149
N	2610	2231
N Below Cutoff	1019	915
N Above Cutoff	1591	1316

Note: The outcome variable is indicated in the column header. Victory $t+1$ is the probability of winning in the next election. Vote Margin $t+1$ is the difference between a party's vote share in the next election and the vote share of the strongest opponent. The estimates are from the RDD described in Section 2.1.

Given that the average probability of winning in the next election close to the cutoff is around 20 percent, this is a very strong effect – approximately a 50 percent drop. This estimate of incumbency disadvantage is highly statistically significant. The second columns shows that the result is substantively similar if the outcome is the vote margin in the next election rather than the probability of victory.[15] Importantly, Table A8 in the Online Appendix shows that these results cannot be explained by parties rerunning at different rates below and above the cutoff, which would possibly induce bias, as the propensity to run in the subsequent elections is very similar and statistically indistinguishable across the cutoff.

The RDD estimates are invalid if incumbents or non-incumbents can precisely manipulate close elections to their advantage, in which case observations close to the cutoff may not in fact be comparable. Two types of tests are usually performed to examine the validity of the

[15]This incumbency disadvantage is not limited to fringe parties in local elections. The results are slightly stronger if the analysis is limited to the three largest parties (Partidul Social Democrat, Partidul Naţional Liberal and Partidul Democrat-Liberal, or their predecessors).

design: to ascertain no incumbency effects on important variables realized before a party obtains incumbency (Caughey and Sekhon, 2011; Eggers et al., 2015); and to demonstrate that there are no disproportionately many close wins (losses) just above (below) the threshold (McCrary, 2008). Table A5 in the Online Appendix shows the results of the first test, while Table A7 (top panel) shows the results of the second test. Both tests strongly suggest that the RDD estimates are valid.

3.2 Corruption among Romanian Mayors

I now turn to investigating whether corruption can explain this incumbency disadvantage in Romanian mayoral elections. In this section, I begin by examining the evidence for the prevalence of corruption among Romanian mayors. The incumbency disadvantage is unlikely to be due to corruption if it is rare among Romanian mayors.

Much like with the subsequent electoral success examined in the previous section, we can obtain the causal effect of incumbency on wealth accumulation by comparing close winners and losers. Column 1 in Table 2 gives strong evidence that barely-winning mayors who run in both 2008 and 2012 accumulate wealth considerably more rapidly than very similar close losers who also rerun. As the scale of overall wealth accumulation is between -6 and 6 (see Section A3.1 in the Online Appendix for more details), the effect in column 1 is quite sizable. Table A11 in the Online Appendix shows that this result cannot be explained by incumbents catching up after being initially poorer than non-incumbents, as their initial wealth is statistically indistinguishable.[16]

Greater wealth accumulation among incumbents need not necessarily imply corruption; it

[16]Unlike in the incumbency disadvantage analysis in the previous section, where the unit of analysis is the party, here the unit of analysis is the individual candidate. As I discuss in Section A3.1 in the Online Appendix, while focusing on rerunning candidates may induce some selection bias, it most probably acts to attenuate the wealth accumulation differential.

Table 2: Romanian Mayors' Wealth Accumulation

Outcome Variable	Wealth Accumulation	
Comparison	Winners vs. Losers	Above vs. Below Salary Threshold
Estimate	0.905	-0.858
St. Error	0.210	0.415
p-value	0.000	0.039
Bandwidth	0.159	0.198
N	1232	105
N Below Threshold	632	69
N Above Threshold	600	36

Note: The first column gives the RDD estimate of mayors' wealth accumulation relative to wealth accumulation of rerunning non-incumbents. The second column shows the RDD estimate of mayors' wealth accumulation in villages above the 7,000 population/salary threshold relative to mayors' wealth accumulation in villages below the threshold. The construction of the measure of wealth accumulation is described in Section A3.1 in the Online Appendix.

may stem for example from mayors on average being more intelligent or entrepreneurial than losers – factors that may have contributed to them being elected in the first place. While this is unlikely given the use of the RDD, I turn to examining mayors' wealth accumulation in very similar villages close to the 7,000 population/salary threshold. As mentioned above, there is evidence that higher salaries may reduce corruption. The second column in Table 2 shows that mayors in towns barely below the 7,000 threshold accumulated considerably more wealth for 2008-2012 than mayors in very similar villages just above the salary threshold.[17] That wealth is accumulated at a higher pace where income is lower is difficult to reconcile with entirely legal means of wealth increase. Importantly, Table A12 in the Online Appendix

[17]Mayoral candidates can only run in one locality where they are residents (Law 67/2004, Articles 4(2) and 6(5)), but residency requires living in a town for only three months. Therefore candidates could in principle strategically move between towns from one election to the next, including based on salary considerations. In practice, the share of candidates who change places where they run in the data is very low.

shows that this result is not due to mayors in lower-salary communes being initially poorer (and so more likely to catch up). The result in column 2 therefore suggests both that mayors' greater wealth accumulation compared to similar non-incumbents at least in part stems from corruption, and that higher salaries do lower corruption.

As with the incumbency disadvantage RDD results, the RDD estimates across the salary threshold are invalid if mayors can manipulate the population counts (and so the location of their villages around the salary threshold), perhaps because higher-paid mayors are more resourceful or more politically connected. The Online Appendix contains an extensive discussion showing that this unlikely. Table A6 shows that the villages just below and just above the threshold are indistinguishable on a number of predetermined characteristics; Tables A7 (bottom panel) and A9 fail to reject the hypothesis that mayors are able to manipulate the population counts in election years and during the population census; and Table A10 shows that the key results hold within localities that move from one side of the salary threshold to the other over time.

To validate further the relationship between salary and corruption, Table 3 examines the RDD estimates for the measures of procurement corruption risk and missing infrastructure in the vicinity of the 7,000 population/salary threshold. All the indicators show the *same* pattern across the salary threshold as the measure of wealth accumulation. The lower-salary villages just below the population threshold exhibit a higher frequency of tenders with lower-transparency procedures (column 1), higher prices per quantity of regularized purchases (column 2), higher frequency of single-bidder tenders (column 3), and greater waste in infrastructure spending (column 4).[18]

[18]Importantly, Table A13 in the Appendix shows that these results are not due to differences in the composition of procurement contracts available for estimation across the population/salary threshold. Moreover, several other measures of procurement corruption risk, including the frequency of annulled tenders and the restriction of tenders to specific

Table 3: Procurement Corruption Risk and Missing Infrastructure across the Salary Threshold

Comparison	Above vs. Below Salary Threshold			
	Procurement Corruption Risk			
Outcome	Opaque Procedure	Price per Quantity	Single Bidder Tenders	Missing Infrastructure
Estimate	-0.690	-0.339	-0.213	-0.753
St. Error	0.251	0.172	0.127	0.392
p-value	0.006	0.048	0.094	0.055
Bandwidth	0.215	0.200	0.206	0.134
N	129	70	211	52
N Below Threshold	91	46	150	35
N Above Threshold	38	24	61	17

Note: Each column shows the RDD estimate comparing an outcome, indicated in the column header, in localities above the 7,000 population/salary threshold to localities below the threshold. The details on the construction of the corruption measures are given in Section A3.2 in the Online Appendix.

3.3 Tests of Prediction 1

The evidence in Tables 2 and 3 points to considerable corruption among Romanian mayors. I now turn to evaluating the support for Prediction 1. To reiterate, the incumbency disadvantage should increase with a decrease in the cost of sanction and a decrease in the quality of the candidate pool, both of which may be engendered by a decrease in mayoral salaries.[19] Having established in the previous section that an exogenous decrease in mayoral

professions, again follow the same pattern. These results are available upon request.

[19]The two mechanisms posited by Prediction 1 cannot be entirely separated with the tests performed in the previous section. The results in Table 3 are arguably more indicative of the disincentive effect of salary on incumbents' effort, since procurement and infrastructure spending are in essence measures of incumbent performance. In Table A14 in the Online Appendix, I show the RDD estimates across the salary threshold for indicators derived from corruption prosecutions, which are arguably more consistent with the selection effect on the quality of the candidate pool. The results are consistent with the other measures of

salaries at the 7,000 population threshold indeed leads to greater corruption, I now compare the incumbency disadvantage in villages just below and above the salary threshold.

We should expect greater incumbency disadvantage in villages just below the 7,000 population/salary threshold. This analysis represents a combination of one regression discontinuity – comparing close winners and losers – with another discontinuity in the incidence of corruption across the population/salary threshold. Because variation in corruption close to the salary threshold is affected solely by the population size, any difference in the incumbency disadvantage across the population/salary threshold is very likely due to that variation.

The question remains about the size of the window around the salary threshold within which to compare the RDD incumbency effects. I focus on a window wherein important predetermined village and electoral characteristics are indistinguishable across the salary threshold. This means that any differences in the incumbency disadvantage across the salary threshold cannot be explained, for example, by better-paid mayors' greater ability to manipulate elections or differences in village development.[20] To save space, I describe the details of the procedure for choosing the window in Section A6 in the Online Appendix. This "balanced window" includes villages with population between 5,700 and 8,300 inhabitants.

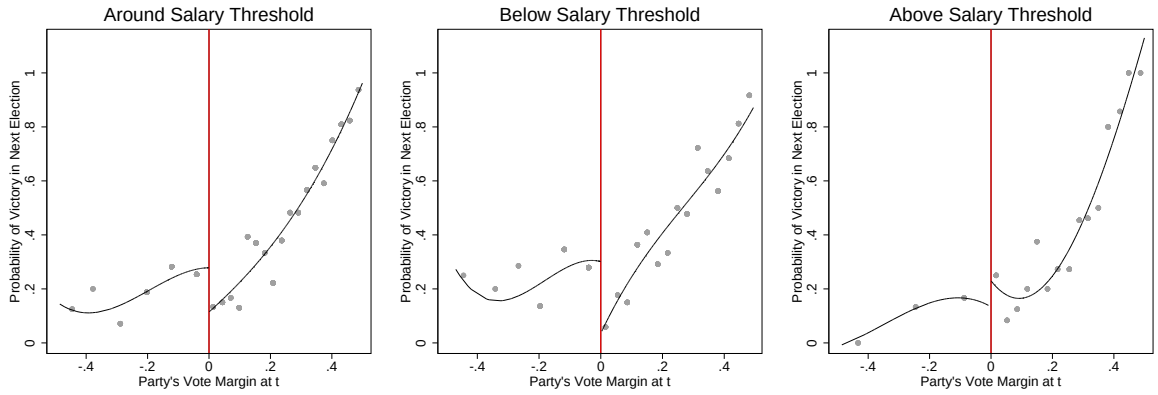
Figure 2 graphically presents the incumbency disadvantage in close elections in villages in the entire balanced window around the 7,000 threshold (left panel), villages below the threshold (middle panel), and above the threshold (right panel). The results within the

corruption: there are statistically significantly more corruption prosecution cases, and those cases involve more diverse actors in lower-salary villages than in very similar higher-salary villages.

[20]For example, the villages within this balanced window are statistically indistinguishable in terms of their mayors' co-partisanship with the central government, their propensity to switch parties, or the share of salary in their declared financial assets. See also Table A6 in the Online Appendix.

balanced population window (left panel) are broadly similar to the those in the entire sample, shown earlier in Figure 1. That is, parties in villages around the 7,000 threshold enjoy similar incumbency disadvantage as do parties elsewhere. However, the middle and right panels suggests that this incumbency disadvantage is primarily concentrated in low-salary villages – villages with greater corruption.

Figure 2: The Incumbency Disadvantage across the Salary Threshold



Note: The graphs show the same quantities as in Figure 1. The left panel shows the estimates within the population window on both sides of the 7,000 population/salary threshold for which the predetermined variables are balanced. For the definition of this window, see Section A6 in the Online Appendix. The middle (right) panel shows the estimates within the balanced population window below (above) the population/salary threshold.

Table 4 formally confirms these conclusions. An incumbent party in close elections in villages barely below the salary threshold are statistically significantly disadvantaged (column 2) by about 26 percentage points, while above the salary threshold an incumbent party appears neither advantaged nor disadvantaged (column 3). Therefore, any incumbency disadvantage in villages around the 7,000 population/salary threshold (column 1) seems to derive solely from the lower-salary villages. The last column in Table 4 shows that the difference between the incumbency effects in the lower-salary and higher-salary villages is

statistically significant. In Figure A5 in the Online Appendix, I show that these results are quite stable across a range of population windows smaller and larger than the balanced window used here.

Table 4: Incumbency Disadvantage across the Salary Threshold

Comparison	Winners vs. Losers			
Outcome Variable	Victory $t+1$			
Sample	Entire Pop. Window	Below Salary Threshold	Above Salary Threshold	Difference (Bootstrapped)
Estimate	-0.144	-0.260	0.196	0.436
St. Error	0.107	0.115	0.148	0.201
p-value	0.177	0.023	0.184	0.030
Bandwidth	0.163	0.172	0.139	
N	239	173	67	
N Below Threshold	95	73	20	
N Above Threshold	144	100	47	

Note: The first column shows the RDD estimate of the incumbency disadvantage within the entire balanced population window on both sides of the 7,000 population/salary threshold. For the definition of this window, see Section A6 in the Online Appendix. The second (third) column shows the RDD estimate of the incumbency disadvantage within the balanced population window below (above) the population/salary threshold. The fourth column shows the bootstrapped difference between the estimates in columns 2 and 3.

3.4 Tests of Prediction 2

The previous section showed evidence consistent with Prediction 1. This section proceeds to test Prediction 2 – that the incumbency disadvantage is more likely when incumbents' gains from corruption increase with the time spent in office. It firsts examines the evidence for increasing corruption over incumbents' tenure, and then examines the incumbency disadvantage for parties with similar candidates with different length of tenure in office.

Table 2 showed that barely winning mayors on average accumulate wealth more rapidly than similar non-incumbents, and that this greater wealth accumulation at least in part

stems from corruption. Table 5 shows a high "seniority premium" to wealth accumulation. That is, wealth accumulation of more experienced barely-winning mayors (column 2) is even more rapid than that of first-term barely winning mayors (column 1), relative to narrowly-losing candidates. The difference between these two RDD estimates (column 3) is significant at $p < .058$, and the magnitude of the difference is approximately as large as the difference between narrow winners and losers in general (column 1 of Table 2).[21]

Table 5: Multiple-Term vs. First-Term Mayors' Wealth Accumulation

Comparison	Winners vs. Losers		
Outcome Variable	Wealth Accumulation		
Sample	First-Term Mayors	Multiple-Term Mayors	Difference (Bootstrapped)
Estimate	0.700	1.798	1.106
St. Error	0.249	0.545	0.589
p-value	0.005	0.001	0.061
Bandwidth	0.152	0.098	
N	839	254	
N Below Threshold	453	120	
N Above Threshold	386	134	

Note: The outcome is wealth accumulation, as described in Section A3.1 in the Online Appendix. The first (second) column gives the RDD estimate of first-term (multiple-term) mayors' overall wealth accumulation relative to rerunning challengers. The third columns shows the bootstrapped difference between the estimates in columns 1 and 2.

Table 6 shows additional evidence consistent with incumbents' increasing corruption during tenure in office. Using data from ten public opinion surveys in Romania, column 1 shows that voters hold statistically significantly greater perceptions of corruption increase in constituencies with a multiple-term mayor than a first-term mayor.[22] Column 2 compares this

[21]Note that the results from the previous section indicate a very likely attenuation bias in this comparison, because we are less likely to observe multiple-term incumbents with high wealth accumulation, given that corrupt incumbents are electorally disadvantaged.

[22]The surveys are the Romanian Public Opinion Barometers in May 2002, October 2002,

difference in voters' perceptions in villages below and above the salary threshold. Voters in villages between 5,700 and 7,000 inhabitants (i.e. below the salary threshold and within the balanced population window) are close to 10 percentage points more likely to perceive corruption increase under a multiple-term mayor than a first-term mayor (significant at $p < .073$, not shown); in villages between 7,000 and 8,300 people, the difference in voters' perceptions under multiple-term and first-term mayors is -5.6 percentage points, and statistically insignificant (also not shown). The difference between these two estimates is shown in column 2, and is statistically significant at conventional levels.[23]

Tables 5 and 6 therefore strongly suggest that incumbents' corruption can increase during time in office. Prediction 2 states that the seniority corruption premium should make the incumbency disadvantage more pronounced. Column 1 of Table 7 shows the difference between the RDD estimate of the incumbency disadvantage in the $t + 1$ election when a party runs with an incumbent candidate in the t election (i.e. a candidate who was already holding office before the t election) and with a new candidate (i.e. the candidate who won for

May 2003, October 2003, May 2004, October 2004, May 2005, October 2006, and October 2007, and the Romanian Electoral Studies survey in November 2009. The voters were asked their perception on whether corruption had increased since the previous election and their expectations about corruption increase in the coming year.

[23]The estimates in Table 6 are from an OLS regression with a respondent as the unit of analysis. The outcome variable equals one if the respondent perceives corruption increase and zero otherwise. The independent variable of interest is whether a locality has a multiple-term or a first-term mayor. The control variables include: respondents' gender, age, ethnicity, education, their partisan preference for the major parties in the previous election, survey fixed effects, and indicators for non-response for education, vote and corruption questions. Standard errors are clustered by locality. The results are very similar if locality fixed effects are added or if a multi-level model is fit with locality and year random effects.

Table 6: Voters' Corruption Perceptions of Multiple-Term and First-Term Mayors

Comparison	Multiple-Term vs. First-Term Mayors	
Outcome Variable	Perceptions of Corruption Increase	
Sample	Entire Sample	Above vs. Below Salary Threshold
Estimate	0.025	-0.155
St. Error	0.011	0.071
p-value	0.025	0.028
Bandwidth	1	0.186
N	18237	1202
N Below Threshold		795
N Above Threshold		407

Note: The outcome is the probability that a voter perceives an increase in corruption since the last election or in the next year. The estimate is the coefficient from an OLS regression on a dummy variable indicating a locality with a multiple-term mayor (=1) or a first-term mayor (=0), controlling for a range of individual characteristics. The data come from ten public opinion surveys in the period 2002-2009. Standard errors are clustered by locality.

the first time in the t election).[24] Consistent with Prediction 2, the negative and statistically significant difference implies that a party running with a more experienced office-holder is considerably more disadvantaged than when running with a first-term candidate.

Column 2 in Table 7 shows related evidence that the parties are conscious that in a high-corruption environment seniority may be an electoral *liability* rather than an asset. Based on voters' perceptions of corruption increase, column 2 in Table 6 suggested that mayors in lower-salary localities are perceived to become more increasingly corrupt over time. Combined with Prediction 2, the implication is that parties should be hurt more by re-nominating an experienced – and thus potentially more corrupt – candidates in places with higher corruption, i.e. in lower-salary villages more so than in higher-salary villages. Turning back to using the RDD around the salary threshold, column 2 in Table 7 shows

[24]The test is identified because parties' nominating decisions are made at t, before the determination of treatment assignment.

evidence that parties in higher-salary villages are more likely to re-nominate multiple-term mayors than in lower-salary villages.

Table 7: Party Incumbency Disadvantage with Multiple-Term and First-Term Incumbents

Comparison	Winners vs. Losers	Above vs. Below Salary Threshold
Outcome Variable	Victory $t+1$	Mayor's Renomination $t+1$
Estimate	-0.348	0.051
St. Error	0.156	0.028
p-value	0.026	0.066
Bandwidth	0.146	0.170
N	2694	660
N Below	1030	424
N Above	1664	236

Note: The first column shows the RDD estimate of the incumbency disadvantage when an incumbent party runs with a multiple-term mayor relative to running with a first-term mayor. The second column shows the RDD estimate of the incumbent party's probability of re-nominating a multiple-term incumbent in villages above the 7,000 population/salary threshold relative to villages below the threshold.

4 Conclusion

This study evaluates the role of corruption in the incumbency disadvantage prominent in many developing democracies around the world, in stark contrast to the well-known incumbency advantage in mature democracies. Theoretically, it shows that the incumbency disadvantage is more likely when the opportunity cost of corruption decreases, the quality of the candidate pool deteriorates, and when incumbents can become increasingly corrupt over time spent in office. Empirically, the study finds evidence consistent with these predictions in Romanian mayoral elections.

As with most other work that relies on within-country variance, the question remains about the generalizability of the findings. While such questions can ultimately only be addressed by studies performed in other contexts, Romania is neither a corruption outlier

among the developing democracies, nor the only country to exhibit systematic incumbency disadvantage.[25] Therefore, the results in this study potentially contribute to a more general understanding of the link between corruption and voters' and politicians' behavior in democracies.

The results lend some cause for optimism about the quality of democratic accountability in developing democracies where corruption is an important problem. Romanian voters are sensitive to corruption and its increase. That said, whereas the incumbency disadvantage is the voters' best response to high corruption and high seniority corruption premium, a lower probability of being elected shortens incumbents' time horizons and incentivizes them to steal more while they are in office. This equilibrium is worse for voters than if lower corruption could allow them to electorally advantage good incumbents (Klašnja, Forthcoming). Moreover, as more politicians become corrupt, returns to being corrupt may increase, attracting more bad politicians to run for office, in turn potentially discouraging voters from punishing corruption (Ashworth, Bueno de Mesquita, and Friedenberg, 2013; Caselli and Morelli, 2004; Klašnja, Little, and Tucker, 2014).

These arguments suggest the limits to fighting corruption and its increase through electoral means alone, and further highlight the importance of other institutional mechanisms

[25]The reader may wonder if Romania may be atypical in that a relatively high corruption environment nonetheless coexists with meaningful elections that offer citizens the possibility to exert accountability, perhaps because of the influence of other EU members with strong norms of electoral integrity. In other places, corruption has been shown to go hand in hand with electoral manipulation such as vote-buying (e.g. De La O, 2015), which may weaken the effect of corruption on the incumbency disadvantage. In that case, this study may be uncovering the upper bound of the effect of corruption on the incumbency disadvantage. Yet, Romanian elections are not perceived to be an outlier compared to other developing democracies in terms of electoral integrity (Norris, Frank, and Martínez i Coma, 2014).

that supplement or enhance electoral control of corruption (e.g. Lederman, Loayza, and Soares, 2005). What institutions may be important? The seniority corruption premium found in this study may partly stem from the fact that mayors in Romania do not face term limits and may thus afford a longer-term investment in the development of rent-extraction networks. However, the effect of terms limits is potentially ambiguous, and should be examined carefully. While term limits may constrain corruption increase, they would also necessarily induce the replacement even of well-behaving politicians. Moreover, term limits may further shorten politicians' time horizons, exacerbating the "take-the-money-and-run" behavior even while at the same time constraining future corruption increase. Klašnja and Titiunik (2014) find that parties in local elections in Brazil, where term limits exist, are disadvantaged primarily after their lame duck candidates retire, suggesting that voters punish parties for their candidates' bad behavior induced by the lack of reelection incentives.

Another important source of (increasing) corruption may be the fact that there is little upward mobility for local politicians in Romania, which may reduce the incentives to behave well because of the lack of career prospects. Parties in Romania are less programmatic and ideological and more personalistic, as in many other developing democracies (Keefer, 2007; Kitschelt et al., 2010; Pop-Eleches, 2010). It would be interesting to examine to what extent party system development helps constrain corruption and the development of rent-extraction networks, both inside and outside political parties. Findings from my paper suggest that to the extent that party system strength lowers corruption, it should also serve parties' interests by lowering or eliminating the incumbency disadvantage.

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