

Corruption and the Incumbency Disadvantage: Theory and Evidence

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Incumbents in many developing democracies face significant disadvantages when seeking reelection, in stark contrast to the well-known incumbency advantage in the United States 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.

Recent studies have found strong evidence for the *incumbency disadvantage*—the counterintuitive phenomenon in which incumbents are systematically less likely to win elections than similar nonincumbents—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 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, which increases 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), which forces 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 incum-

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bency 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. Studies 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 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 Friedenbergh 2013).

The rest of the article is organized as follows. The next section discusses the literature and describes the theoretical model and its predictions. The following section provides a

description of the Romanian context—the data, methods, and research design used to test the theoretical predictions. Results are then presented, and the conclusion 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 appendix, including tables A1–A14 and figures A1–A5, available online.

LITERATURE AND THEORY

Holding office has been shown to lead to large subsequent electoral losses in mayoral elections in Brazil (Klašnja and Titunik 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; Pop-Eleches 2010; Roberts 2008), Sub-Saharan Africa (Macdonald 2014), and even in nineteenth-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 nonincumbents, 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.

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 incumbencydisadvantage 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).

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 *dampening* 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 Klačnja (forthcoming). The details are given in section A1 in the 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 et al. 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, 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.

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.

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

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

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.

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 unfav-

orable electoral prospects. These factors suggest that incumbents and nonincumbents are not necessarily comparable.

Lee (2008) proposed a regression discontinuity design (RDD) to overcome these difficulties. The RDD approximates a natural experiment by comparing a party's subsequent 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 be plausibly 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 article. 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 multiparty 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 appendix.

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 nonincumbents. Second, given the focus on close contests, the RDD requires a large number of elections. Mayoral elections in Romania fulfill both of 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

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

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.

ample scope for corruption among Romanian mayors (Dimulescu, Pop, and Doroftei 2013; Ioniță 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% of elections have had a margin of victory of less than 5%, and 15% of elections have had the top three parties within 10% of the vote.

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 appendix.

The main data-set is drawn from more than 4,000 previously unused declarations of mayoral candidates' privately owned immovable, movable and financial assets. Using this 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 nonincumbents may be indicative of corruption, it is not a proof of it. I therefore construct several additional data-sets to complement and validate the measure of wealth accumulation. First, I collected the information from a large number of public procurement contracts for 2008–12 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 regular-

ized 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 change in infrastructure spending and the concomitant change in the actual physical stock of infrastructure for 2008–12. 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.

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

7. For example, Constantin Părvulescu, the mayor of Fărcășești, in Gorj county in Romania, awarded 35 works contracts in the period 2003–8 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 Fărcășești 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 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; Ioniță 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 appendix.

source of 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 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 et al. 2013; Ferraz and Finan 2009; Gagliarducci and Nannicini 2013; Kotakorpi and Poutvaara 2011).¹¹

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 dis-

continuity (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 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%, this jump in salary provides a substantial financial boost.

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, that is, the proposed mechanisms behind any observed incumbency disadvantage.

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 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 than very similar nonincumbents.

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 nonparametric regression within a narrow window around the cutoff. In particular, a regression functions

10. The salary also depends on the locality type. There are three types of localities, in approximate order of size: communes (comune), towns (orașe), 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.

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

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 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.

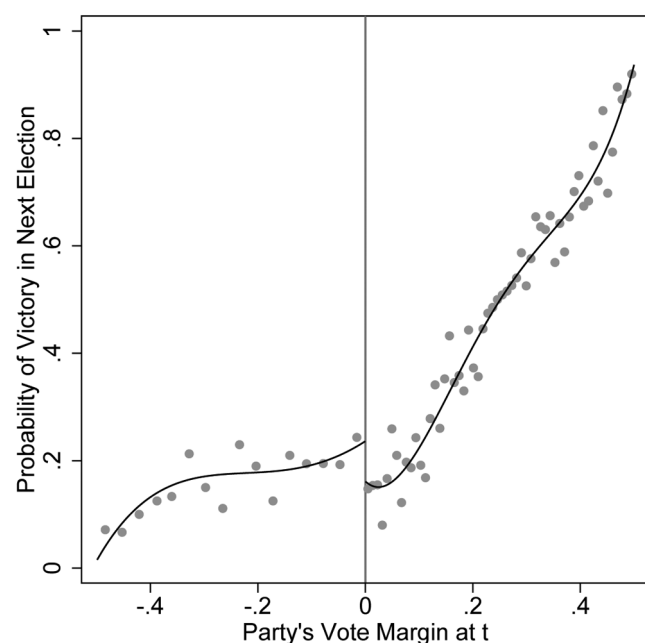


Figure 1. The incumbency disadvantage in Romanian mayoral elections. The vote margin on the x-axis is positive if a party won in the first round, or if a party went to the runoff in case the election had one. See section A2.1 in the appendix for more details. The dots show the average probability of 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).

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 nonparametric 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 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 11 percentage points less likely to win in the next election than parties just below the threshold. Given that the average probability of winning in the next election close to the cutoff is around 20%, this is a very strong effect—approximately a 50% drop. This estimate of incumbency disadvantage is highly statistically significant. The second column 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 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 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 not many disproportionately close wins (losses) just above (below) the threshold (McCrary 2008). Table A5 in the 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.

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.

Similar to 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 appendix for more details), the effect in column 1 is quite sizable. Table A11 in the appendix shows that this result cannot be explained by incumbents catching up after being initially poorer than nonincumbents, as their initial wealth is statistically indistinguishable.¹⁶

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 Național Liberal and Partidul Democrat-Liberal, or their predecessors).

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 appendix, while focusing on rerunning candidates may induce some selection bias, it most probably acts to attenuate the wealth accumulation differential.

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 appendix shows that the results are quite stable across bandwidths of different size.

Table 1. Incumbency Disadvantage in Romanian Mayoral Elections

	Comparison: Winners vs Losers	
	Outcome Variable: Victory $t + 1$	Outcome Variable: Vote Margin $t + 1$
Estimate	-.110	-.053
Standard error	.035	.027
<i>p</i> -value	.002	.049
Bandwidth	.175	.149
<i>N</i>	2,610	2,231
<i>N</i> below cutoff	1,019	915
<i>N</i> above cutoff	1,591	1,316

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 the section on incumbency disadvantage.

Greater wealth accumulation among incumbents need not necessarily imply corruption; it 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 2008–12 than mayors in very similar villages just above the salary threshold.¹⁷ That wealth is accumulated at a higher pace where income is lower and is difficult to reconcile with entirely legal means of wealth increase. Importantly, table A12 in the appendix 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 nonincumbents 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 appendix contains an extensive discussion showing that this is 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 ten-

Table 2. Romanian Mayors' Wealth Accumulation

	Outcome Variable: Wealth Accumulation	
	Comparison: Winners vs Losers	Comparison: Above vs Below Salary Threshold
Estimate	.905	-.858
Standard error	.210	.415
<i>p</i> -value	.000	.039
Bandwidth	.159	.198
<i>N</i>	1,232	105
<i>N</i> below threshold	632	69
<i>N</i> above threshold	600	36

Note. The first column gives the RDD estimate of mayors' wealth accumulation relative to wealth accumulation of rerunning nonincumbents. 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 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.

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

	Comparison: Above vs Below Salary Threshold			
	Outcome: Procurement Corruption Risk			Outcome: Missing Infrastructure
	Opaque Procedure (1)	Price per Quantity (2)	Single Bidder Tenders (3)	
Estimate	-.690	-.339	-.213	-.753
Standard error	.251	.172	.127	.392
<i>p</i> -value	.006	.048	.094	.055
Bandwidth	.215	.200	.206	.134
<i>N</i>	129	70	211	52
<i>N</i> below threshold	91	46	150	35
<i>N</i> 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 appendix.

ders (column 3), and greater waste in infrastructure spending (column 4).¹⁸

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 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 appendix. This "balanced window" includes villages with population between 5,700 and 8,300 inhabitants.

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 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 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 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 appendix.



Figure 2. The incumbency disadvantage across the salary threshold. 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 appendix. The middle (right) panel shows the estimates within the balanced population window below (above) the population/salary threshold.

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 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 suggest that this incumbency disadvantage is primarily concentrated in low-salary villages—villages with greater corruption.

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- and higher-salary villages is statistically significant. In figure A5 in the appendix, I show that these results are quite stable across a range of population windows smaller and larger than the balanced window used here.

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 nonincumbents, 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 6 shows additional evidence consistent with incumbents' increasing corruption during tenure in office. Using data from 10 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

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, 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.

Table 4. Incumbency Disadvantage across the Salary Threshold

	Comparison: Winners vs Losers			
	Outcome Variable: Victory $t + 1$			
	Sample: Entire Population Window (1)	Sample: Below Salary Threshold (2)	Sample: Above Salary Threshold (3)	Sample: Difference (Bootstrapped) (4)
Estimate	-.144	-.260	.196	.436
Standard error	.107	.115	.148	.201
<i>p</i> -value	.177	.023	.184	.030
Bandwidth	.163	.172	.139	
<i>N</i>	239	173	67	
<i>N</i> below threshold	95	73	20	
<i>N</i> 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 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.

compares this 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 cor-

ruption 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 is statistically insignificant (also

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

	Comparison: Winners vs Losers		
	Outcome Variable: Wealth Accumulation		
	Sample: First-Term Mayors (1)	Sample: Multiple-Term Mayors (2)	Sample: Difference (Bootstrapped) (3)
Estimate	.700	1.798	1.106
Standard error	.249	.545	.589
<i>p</i> -value	.005	.001	.061
Bandwidth	.152	.098	
<i>N</i>	839	254	
<i>N</i> below threshold	453	120	
<i>N</i> above threshold	386	134	

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

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	Sample: Above vs. Below Salary Threshold
Estimate	.025	-.155
Standard error	.011	.071
<i>p</i> -value	.025	.028
Bandwidth	1	.186
<i>N</i>	18,237	1,202
<i>N</i> below threshold		795
<i>N</i> 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.

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 the first time in the t election).²⁴

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 nonresponse 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 multilevel model is fit with locality and year random effects.

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

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 renominating an experienced—and thus potentially more corrupt—candidates in places with higher corruption, that is, 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 evidence that parties in higher-salary villages are more likely to renominate multiple-term mayors than in lower-salary villages.

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,

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

	Comparison: Winners vs. Losers	
	Comparison: Above vs. Below Salary Threshold	
	Outcome Variable: Mayor's Renomination Victory $t + 1$ (1) $t + 1$ (2)	
Estimate	-.348	.051
Standard error	.156	.028
<i>p</i> -value	.026	.066
Bandwidth	.146	.170
<i>N</i>	2,694	660
<i>N</i> below threshold	1,030	424
<i>N</i> above threshold	1,664	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 renominating a multiple-term incumbent in villages above the 7,000 population/salary threshold relative to villages below the threshold.

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 encourages them to steal more while they are in office. This equilibrium is worse for voters than if lower corruption allowed for electoral advantage of good incumbents (Klačnja, 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 et al. 2013; Caselli and Morelli 2004; Klačnja, 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 that supplement or enhance electoral control of corruption (e.g., Lederman, Loayza, and Soares 2005). What institutions may be important? The seniority corruption pre-

mium 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. Klačnja and Titunik (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 article 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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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).

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