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JOURNAL OF THEORETICAL POLITICS

Increasing rents and incumbency disadvantage

Journal of Theoretical Politics
1–41

DOI: 10.1177/0951629815586873
jtp.sagepub.com
SAGE

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Abstract

Recent empirical studies have found a incumbency *disadvantage* in many developing democracies, in marked contrast with the well-known incumbency advantage in the US and other developed democracies. We know considerably less about incumbency disadvantage than incumbency advantage. In a simple principal-agent framework, I explore the role of a prominent feature of developing democracies – corruption. When rents are constant in incumbents' tenure – a standard assumption – the conditions for incumbency disadvantage are existent but limited; however, *increasing* rents, possibly due to learning, a gradual build-up of rent-extraction networks or fiscal windfalls, considerably increase the possibility of incumbency disadvantage, because voters may prefer inexperienced and unconnected challengers, even if they are of lower quality. Incumbency disadvantage becomes more likely as the pace of rent increase grows, politician quality decreases, with noise in the policy outcome, and potentially even when the pool of politicians improves. It is strictly more costly than any electoral outcome with high but constant-rents. The results highlight a novel reason for control of corruption and sensitivity to its dynamics.

Keywords

Corruption; incumbency; political agency; rent-seeking

1. Introduction

"Аппетит приходит во время еды."
Appetite comes with eating. (Russian proverb)

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Incumbency advantage has been one of the most studied topics in research on US elections (e.g. Ansolabehere et al., 2000; Cox and Katz, 1996; Erikson, 1971; Gelman and King, 1990). Numerous studies have shown that both legislators (e.g. Levitt and Wolfram, 1997) and parties (e.g. Lee, 2008) enjoy an electoral advantage and that it extends beyond the US Congress to many other offices at various levels of government (e.g. Ansolabehere and Snyder, 2002; Hirano and Snyder, 2009). Scholars have similarly found positive incumbency effects in many other mature democracies (e.g. Hainmueller and Lurz-Kern, 2008; Katz and King, 1999; Kendall and Rekkas, 2012).

Interest in incumbency effects has only recently been extended to younger and poorer democracies and the preponderance of current findings stands in marked contrast to the evidence from the United States and other mature democracies. Scholars have found persistent incumbency a *disadvantage* in countries like India (Linden, 2004; Uppal, 2009), Brazil (Klašnja and Titiunik, 2013) and across post-communist democracies within central and eastern Europe (Roberts, 2008). This contrasting evidence represents an interesting and puzzling phenomenon. We know much less about why we may observe a incumbency disadvantage than a incumbency advantage. For example, incumbents can strategically choose policy and manipulate voter information in order to better signal their desirability to voters compared to challengers (Ashworth, 2005; Besley, 2007). Why are incumbents in these developing democracies not only unable to use their time in office to persuade voters of their quality, but seem to impel voters to persistently replace them?

In this paper, I explore one potential cause – corruption. Rent-seeking is a plausible factor for several reasons. If incumbents are disadvantaged, there has to be something unappealing to voters about incumbents compared to challengers. It is well-known that poorer and younger democracies are considerably more corrupt than rich established democracies, based on the standard cross-national measures of rent-seeking (e.g. Treisman, 2007). Corruption has been prominent in countries where incumbency disadvantage has been uncovered (e.g. Banerjee and Pande, 2009; Caselli and Michaels, 2009; Grzymala-Busse, 2007) and has been shown to be an important component of voting behavior (e.g. Banerjee et al., 2014; Ferraz and Finan, 2008).

On the other hand, corruption has to engender incumbency disadvantage *in equilibrium*, taking into account incumbents' incentives to hide or reduce corruption in order to increase their chance of reelection. Through simple principal-agent models, I first find that a incumbency disadvantage can exist – under limited conditions – when the amount of extractable rents is constant over the politician's tenure in office – a standard assumption in existing research. However, in certain circumstances – especially in young democracies – incumbents may plausibly extract *increasing* rents over time, due to learning, or because setting up effective rent-extraction networks may take time.[1] For example, Fisman et al. (2012) find that in India incumbent legislators amass more (suspicious) wealth in office than first-time legislators. In my models, increasing rents considerably broaden the scope for incumbency disadvantage. This is because rent-seeking politicians are incentivized by future higher rents to deliver good outcomes in the present, making the voter

less able to distinguish between rent-seekers and non-rent-seekers. The voter responds by limiting the reelection probability. Incumbency disadvantage is easier to sustain as the rent increase becomes steeper or the quality of politicians decreases. It is yet more likely if the policy outcome is observed with noise and as noise increases. Under certain conditions, a incumbency disadvantage may be easier to sustain even as the pool of politicians improves, because the voter increasingly prefers the gamble of replacement to keeping an experienced and well-connected rent-seeker, even if their rent-extraction proclivity is very low. Also, incumbency disadvantage, while an optimal voter response, is costly: rent-seeking is strictly higher – and thus voter welfare lower – under incumbency disadvantage with increasing rents than under any electoral outcome with constant-rents, no matter how high these rents are. Finally, I show that a incumbency disadvantage in the presence of increasing rents cannot be eliminated if rent-seeking politicians care about policy outcomes important to voters – in fact, it is only further exacerbated; however, echoing the important work by McKelvey and Riezman (1992) on seniority as a source of incumbency advantage, I find that the incumbency disadvantage can be considerably ameliorated – but not necessarily altogether eliminated – if a politician's competence in delivering goods desired by voters also increases in their tenure.

The results highlight a novel reason to control rent-seeking, different from the more common emphasis on economic costs of corruption (for a review, see for example Aidt (2003)). What may be particularly important is the *dynamic* rather than just static rent-seeking. Most existing theories – and data – about corruption pertain to the level, not to the change in incumbent corruption over time. The results also point to the need for a more thorough understanding of incumbency disadvantage. It likely has other important causes – such as lower partisan attachments or weaker parties in younger democracies – and consequences – such as policy instability and lower incentives for high-quality candidates to enter politics.

2. Literature

A number of recent empirical studies have found credible evidence of incumbency disadvantage in developing democracies around the world. Using the regression discontinuity design applied to elections as pioneered by Lee (2008), Linden (2004) and Uppal (2009) document that incumbent candidates in national and state parliamentary elections in India since 1991 are respectively around 14 and 22 per cent *less* likely to win in the next election.[2] Using different samples in Brazil's mayoral elections, held every four years since 1996, Titiunik (2009) and Klašnja and Titiunik (2013) find that an incumbent party is around 20 per cent less likely to win.[3] An overwhelming majority of coalition governments in democracies in central and eastern Europe – close to 90 per cent – have failed to win reelection since the fall of communism (Bernhard and Karakoç, 2011; Birch, 2003; Roberts, 2008; Pop-Eleches, 2010).[4]

How can we explain these outcomes? The existing literature does not offer many answers. To the extent that theories of electoral accountability are concerned with

incumbency effects, they primarily characterize incumbency advantage. This is perhaps unsurprising given the prevalence of incumbency advantage in mature democracies such as the US Incumbency advantage may arise because incumbents can signal their desirability to the voter, whereas challengers cannot (Besley, 2007). Strategically allocating early effort towards their constituents at the expense of other work, incumbents may be able to manipulate voter learning and secure electoral advantage (Ashworth, 2005). Alternatively, incumbency advantage can arise purely through selection, even if politicians' actions do not affect voters' beliefs in equilibrium. Since voters seek to elect higher-quality candidates, incumbents are expected to be better than an average challenger, which in turn induces incumbency advantage (Ashworth and Bueno de Mesquita, 2008; Zaller, 1998).

In light of these intuitive arguments, incumbency disadvantage as an electoral equilibrium is quite puzzling. Why are incumbents in democratic elections in Brazil, India, post-communist Europe or Sub-Saharan Africa not able to signal their desirability, so much so that they not only fail to secure advantage, but can even be at a disadvantage? How are these incumbents prevented from strategically providing an effort to build reputations? Are these incumbents not deemed of higher quality by being elected in the first place?[5]

For its part, the empirical literature on the incumbency advantage in mature democracies offers a rich set of potential factors that may account for the variation in incumbency effects across countries. For example, the incumbency advantage has been attributed to deterrence of high-quality challengers (e.g. Cox and Katz, 1996; Levitt and Wolfram, 1997), incentives to cultivate a personal vote (e.g. Ansolabehere et al., 2000), constituency service (e.g. Serra and Moon, 1994), ideological polarization (Abramowitz et al., 2006), and the heuristic value of incumbency when partisan ties are weak (Ferejohn, 1977).[6] While examining the importance of these factors in explaining incumbency disadvantage may be fruitful, it is complicated by several factors. Incumbency effects are difficult to compare across countries due to large institutional differences (e.g. effects for legislators elected in single-member districts with a majority rule verses multi-member districts with a PR rule). Also, many potentially important factors vary simultaneously, making it difficult to isolate causal effects. For example, variation in incumbency effects across countries does not seem to be caused solely by the variation in electoral rules, the type of incumbent (party or candidate), level of government (local or national), or type of office (legislative or executive). Incumbents are advantaged in single-member districts for the US House of Representatives, but not for the Indian Lok Sabha; in multi-party parliamentary democracies in Canada, but not in post-communist Eastern Europe; or in local executive elections in Germany, but not in Brazil. Moreover, there is no general agreement as to the main causes of incumbency advantage in the US and other mature democracies. For these reasons, it is useful to begin with more *general* theories of potential causes of incumbency disadvantage that take into account important facts about developing democracies.

What aspects of developing democracies may merit attention? For incumbents to be disadvantaged, voters have to perceive them less favorably than incumbents'

electoral challengers, despite – or perhaps because of – efforts made by incumbents while in office. One factor that may potentially make incumbents unappealing is corruption. It is a familiar stylized fact that poorer and younger democracies are considerably more corrupt than mature democracies, based on the standard cross-national measures of rent-seeking (e.g. Montinola and Jackman, 2002; Treisman, 2007). Corruption has been prominent in countries where incumbency disadvantage has been shown to obtain (for example, for eastern Europe, see Grzymala-Busse (2007); Kotkin and Sajo (2002); Miller et al. (2001); for India, see Banerjee and Pande (2009); Bhavnani (2012); Fisman et al. (2012); and for Brazil, see Caselli and Michaels (2009); Ferraz and Finan (2008)). Scholars have also shown that corruption can be an important component of voting behavior in these countries (e.g. Banerjee et al., 2014; Ferraz and Finan, 2008; Klašnja et al., 2014; Winters and Weitz-Shapiro, 2013).

While corruption is plausible, it is not immediate that it can bring about incumbency disadvantage. It is certainly reasonable to assume that incumbents have an incentive to hide (e.g. Di Tella and Weinschelbaum, 2008) and/or reduce corruption (e.g. Ferraz and Finan, 2011) in order to increase their prospects for reelection. Therefore, corruption has to affect incumbency retention in equilibrium, once these incentives are taken into account.[7]

The focus on corruption here complements other potential sources of incumbency disadvantage discussed elsewhere. Klašnja and Titiunik (2013) argue that incumbency disadvantage among mayors in Brazil partly derives from the weakness of parties in disciplining their members. Eggers and Spirling (2014a) find incumbency disadvantage in 19th-century Britain (which gradually turns into incumbency advantage in the 20th century) and argue that it may have arisen because the candidate pool was becoming electorally more appealing from one election to the next during that period.[8]Aidt et al. (2011) attribute the incumbency disadvantage in India to the success of criminal candidates against incumbents, who are nominated by parties in competitive districts due to their ability to intimidate voters.[9]

3. The baseline model

Electoral accountability has been commonly modeled in the principal-agent framework and, in what follows, I develop a series of simple models in this tradition. In this section, I present the baseline model that will be the basis for most of the analysis that follows. In Sections 4.4–4.7, I explore several modifications and extensions of the baseline model.

3.1. Game form, players and action space

The principal is the representative voter and the agent is the politician. The voter makes a single binary decision – whether to reelect the politician or not. The politician makes a pair of decisions – the policy outcome $G_t \in (0,\ T_t]$ and the level of rent-extraction for private purposes R_t. G_t is the level of public goods spending. T_t

is an exogenous level of tax collection such that $T_t = G_t + r_t$ in period t, where r_t will be defined shortly.[10] There are two periods, $t = \{1, 2\}$.

3.2. Player utilities

The voter derives per-period utility solely from G, $W_t = G_t$. There are two types of politicians, $\theta = \{H, L\}$, denoting high and low type, respectively. Initially, I assume that the utility of the politician is

$$U_t(\theta) = \begin{cases} G_t & \text{if } \theta = H \\ R_t & \text{if } \theta = L \end{cases}$$

In other words, initially, the high type is benevolent, and cares only about the policy outcome valued by the voter. The low type politician is always rent-seeking and derives utility solely from the private rent extracted. That the bad politician cares only about rent is commonly assumed in other models of electoral accountability (e.g. Persson and Tabellini, 2000). In Section 4.4 below, I allow the high type to be rent-seeking as well, subject to the constraint that his optimal rent is lower than that of the low type; in Section 4.6, I examine the case when the low type also cares about G.

I assume that the per-period rent is

$$R_t = r_t - f_{t_I}(\theta)c(r_t)$$

where r_t is the desired share of tax collection diverted to rents and is the variable chosen by the incumbent. θ and $f_{t_I}(\cdot)$ are the key aspects of the model and for simplicity, both are common knowledge. θ denotes politician's affinity for rent-extraction – it is an index of politician's integrity. $\theta^L \in (0, 1)$, so that lower θ^L implies lower integrity.[11] If both types of politicians are rent-seeking, $\theta^H > \theta^L$. That θ is continuous is meant to capture the observation that politicians of very different integrity may be able to occupy office in a young democracy and will serve to derive comparative statics.[12]

$f_{t_I}(\theta)$ is meant to capture two aspects. First, it captures the extent to which rent-seeking may vary over time. In particular, I assume that

$$f_{t_I}(\theta)\begin{cases} = \theta & \text{if } t_I = 1 \\ \leq \theta & \text{if } t_I = 2 \end{cases}$$

where t_I denotes the incumbent's term in office, with $t_I = 1$ denoting a newly elected incumbent, whether in $t = 1$ or $t = 2$ and $t_I = 2$ denoting a reelected incumbent, only possible in $t = 2$. This setup implies that when $f_{t_I=2}(\theta) = \theta$, the rent is constant over time. This is a standard assumption in common models of political accountability (e.g. Besley, 2007).

However, I also examine the possibility that rent-seeking can be increasing in a politician's tenure in office, $f_{t_I=2}(\theta) = \theta$. There are reasons to believe, and some evidence, that in certain instances rents may be increasing in tenure. For example,

Bhavnani (2012) and Fisman et al. (2012) find that in India incumbents amassed more suspicious wealth within a term relative to challengers than did first-time legislators.[13] Incumbents may become better at extracting rents as they gain experience and knowledge of the political rules – and how to go around them. Learning may be particularly steep when new rents are being captured, such as in the early years of privatization in post-communist Eastern Europe (e.g. Kaufmann and Siegelbaum, 1996). Querubin and Snyder (2013) argue that rent-seeking increased significantly during the American Civil War due to a large temporary increase in military spending. Caselli and Michaels (2009) and Monteiro and Ferraz (2012) document an increase in corruption among Brazilian mayors in municipalities that received large oil windfalls. Seniority may also bring previously unavailable rents. In India, wealth of senior legislators promoted to executive office rose considerably more than expected from legitimate sources than for other legislators (Fisman et al., 2012). Moreover, rent-extraction may be increasing because it takes time to develop a rent-extraction network through (repeated) connections with the bureaucracy and interest groups. Coviello and Gagliarducci (2012) find that longer-tenured mayors are more likely to collude with local contractors, leading to higher costs of procurement within a less competitive market. Scholars have also shown that rents are often not simply captured by a single agent, but are instead distributed among a number of agents within the bureaucracy, political hierarchy, and the private sector (Bussell, 2013; Olken and Barron, 2009; Shleifer and Vishny, 1993; Wade, 1985). Where incumbents are more easily able to establish rent-extraction networks, this component of increase in rent-extractive ability will be stronger. Examples may include the absence of term limits or the discretionary ability to appoint large parts of the bureaucracy or replace important veto players. In sum, the possibility of increasing rents over a tenure in office may represent a unique liability for incumbents relative to a typical challenger with no or limited previous political experience.[14]

The second aspect captured by $f_{t_I}(\theta)$ is that the rent-increasing 'technology', $f_{t_I}(\cdot)$, interacts with the integrity of the rent-seeking politician, θ. Therefore, the technology interacts with the politician's type. This is a less common assumption, but one I think is substantially justified. It is plausible that politicians more prone to corruption are more motivated to learn how to extract rents better. Also, they are probably more likely to use this knowledge, when they are able, to build rent-extraction networks or seize increasing resources.[15]

For simplicity, I characterize $f_{t_I}(\theta)$ by a rent-increasing parameter α_{t_I} so that $f_{t_I}(\theta;\alpha_{t_I}) = \theta^{\alpha_{t_I}}$, where

$$\alpha_{t_I}\begin{cases} = 1 & \text{if } t_I = 1 \\ \geq 1 & \text{if } t_I = 2 \end{cases}$$

This functional form satisfies the properties of $f_{t_I}(\theta)$ defined above.[16] Since $\alpha = 1$ whenever $t_I = 1$, I henceforth drop it when characterizing first-period rent-seeking and drop the incumbent term subscript t_I to simplify the notation (unless noted otherwise).

Finally, $c(\cdot)$ is a convex, strictly increasing function and it is identical for all politicians. For simplicity, I assume that $c(\cdot) = (\cdot)^2$. Its interpretation can be broad, from the moral cost of being corrupt, to the effort expended in building and maintaining a rent-extraction network, to the risk of getting caught. Its purpose is to constrain rent-seeking of politicians with different integrity to different degrees, which in turn allows voters to not be indifferent between different politician types in the last period of the game.

The rent R_t is concave and increasing in α and concave and decreasing in θ.[17] Optimal per-period choice of the incumbent is $\widehat{r_t} = 1/(2\theta^{\alpha})$ and so $\widehat{R_t} = 1(4\theta^{\alpha})$.

3.3. Strategies, order of play, information structure and equilibrium concept

As mentioned, there are two periods, $t = \{1, 2\}$. Time ends at the end of the second-period, implying that any second-period incumbent is a 'lame-duck'. The future is discounted with a common discount rate $\beta < 1$. The rent-seeking politician maximizes the discounted sum of rents

$$R_1 + \beta\sigma(G_1)R_2$$

where $\sigma(G_1)$ is the voter's optimal reelection rule based on the provision of goods by the politician. To simplify notation, I henceforth substitute σ for $\sigma(G_1)$, given that the reelection rule necessarily depends on the observed first-period provision of G.

The information structure is simple. While the probability distribution over types is common knowledge, with $Pr(\theta = H) = \pi$, the realization of a given politician's type is unobserved by the voter but observed by the incumbent, inducing adverse selection.[18] The fact that the politician can choose the level of rent from a continuum of choices induces moral hazard. To keep the model simple, I initially assume that the implemented policy is observed perfectly, i.e. without noise. This assumption raises the issue of off-equilibrium beliefs. Having the high type be non-strategic, as in most of the analysis below, constrains the equilibrium choices of the low type, thus simplifying the handling of off-equilibrium beliefs of the voter. I assume that $Pr(\theta = H|G_t \neq T) = 0$. However, this set of beliefs is more problematic when the high type is also rent-seeking, with $\theta^H > \theta^L$. I show in Appendix 2 that the results are robust in the Cho–Kreps sense (Cho and Kreps, 1987) for a subset of values of the key parameters. Moreover, in Appendix 3, I also examine a very similar model with G observed with (normally distributed) noise and show that the qualitative results underpinning the main claims in the paper hold.[19] In the paper, I therefore opt for a simpler model in order to more clearly flesh out the core intuitions.

The equilibrium concept is the perfect Bayesian equilibrium. In the second-period, there are no reelection incentives for any incumbent and so the strategy of every politician is given. If the high type politician is benevolent, the sequentially rational voting rule for the voter is to reelect the incumbent if the posterior probability that the incumbent is of type H is greater than the prior probability π that a randomly drawn challenger is of that type. When all politicians are rent-seeking,

the voter may choose any rule that minimizes reduction in her welfare in the future. The voter's posterior beliefs, in turn, depend on the equilibrium action of the first-period incumbent. In the presence of adverse selection, the voter cannot commit to a predetermined performance rule (Fearon, 1999).

Finally, I assume that the institution of elections is not compromised – incumbents respect election results and leave if defeated. Also, there is no voter intimidation or possibility of election fraud.[20]

The order of play is as follows.

1. Nature chooses the incumbent and his type.
2. The incumbent chooses rent and spending.
3. The voter observes G_1 but not the type of the politician or R_1, updates her beliefs, and votes (the end of period one).
4. If the incumbent is replaced, nature chooses the new incumbent and his type; the incumbent chooses rent and spending.
5. All payoffs are realized and the game ends (the end of period two).

4. Results

4.1. Constant rents

I first analyze results in the environment where rents are constant, i.e. $\alpha_{t_l=2} = 1$ and the high-type politician is benevolent. This environment might correspond to a situation where all incumbents are term-limited or are severely constrained in building rent-extraction networks, for example through strict oversight. Alternatively, available rents for extraction may be low or highly dispersed, so that the increase in future rents is difficult even in the presence of learning or networking.

In this environment, optimal rents for the L incumbent in each period are the same, $R_1 = R_2$. Given the out-of-equilibrium beliefs and that H type is benevolent, there can be only two levels of provision of G on the equilibrium path in the first-period, $G_1 \in \{T_1, T_1 - \hat{R}_1\}$, where $\hat{R}_t$ represents the bad types optimal per-period rent. Given that the high type is benevolent, to ease notation, I use θ to denote the low type's integrity, i.e. $\theta = \theta^L$. The rent-seeking politician, L, will have an incentive to mimic the benevolent politician if and only if

$$\hat{R}_1 < \beta\sigma^* R_2 \tag{1}$$

where σ^* denotes the voter's optimal reelection rule. Since the two rents are equal and the future is discounted, the condition in equation (1) can never be satisfied.

Lemma 1. *In an environment where rents to the incumbent are constant over time and the pool of candidates contains benevolent politicians, the only equilibrium is a separating equilibrium. The reelection rate of a randomly chosen first-period incumbent, ρ_c^*, is exactly proportional to the share of benevolent politicians in the population.*[21]

In the environment where the rents are constant, the reelection rate is invariant to how bad the bad politicians are – the level of θ. What matters is only the balance between the good and bad politicians in the pool of candidates. What does that tell us about incumbency disadvantage? Note that the first-period incumbent is chosen randomly by nature at the start of the game. Between two candidates, the probability is obviously 1/2. In the model, it is therefore straightforward to define incumbency disadvantage as $\rho^* < 1/2$. In the constant-rent environment, it is then obvious that incumbency disadvantage exists only if $\pi < 1/2$. To the extent that the mechanisms of selection into politics screen in high-quality politicians, π is high, incumbents are advantaged in the constant-rent environment. In this very simple framework, incumbency disadvantage exists only under limited conditions.[22]

The result in Lemma 1 depends on some minimal amount of discounting. If the politician were to value the future as equally as the present, any arbitrary reelection rule by the voter would be supported in equilibrium. However, I show in Appendix 3 that the same result is obtained in a similar model without discounting, but with G observed imperfectly with some amount of noise.

4.2. Increasing rents

Suppose instead that the rents that a rent-seeking incumbent may extract can increase over his tenure in office, so that ceteris paribus a reelected incumbent ($t_I = 2$) can be more corrupt than a novice in office ($t_I = 1$), or $\alpha_{t_I=2} > 1$. For example, this may be due to steep learning by incumbents. In central and eastern Europe in the wake of the collapse of communism, most governments privatized formerly state-owned assets. Scholars have noted that the privatization entailed considerable corruption (e.g. Anderson and Gray, 2006; Hellman et al., 2003; Kaufmann and Siegelbaum, 1996),[23] and it is plausible that early incumbents, to the extent that they were rent-seeking, had considerable scope for learning how best to extract remts (e.g. Shleifer and Treisman, 2001).

Unlike in the constant-rent environment, increasing rents may induce the low type to mimic the high type.

Lemma 2. *If* $\beta > \theta^{\alpha-1}$, *the only equilibrium is a partially pooling equilibrium such that* $\sigma_i^* = (1\beta)\theta^{\alpha-1}$, *where* σ_i^* *denotes the voter's optimal reelection rule in the increasing-rent environment*. If $\beta \leq \theta^{\alpha-1}$, *the only equilibrium is a separating equilibrium qualitatively identical to that from Lemma 1*.

If the condition for partial pooling is satisfied, σ_i^* decreases as rent-seeking technology increases. Also, the voter's optimal reelection strategy is no longer invariant to the 'badness' of rent-seeking politicians: σ_i^* decreases as θ decreases, i.e. as the bad type's affinity for rent-seeking increases.[24]

As in the constant-rent environment, retention in the partially pooling equilibrium with increasing rents is increasing in the share of benevolent politicians in the pool of potential incumbents;[25] however, retention now also depends on the quality of low type politicians and on the rent-increasing technology (as well as on the agents' patience).

Lemma 3. *In the partially pooling equilibrium, reelection rate of a randomly drawn first-period incumbent decreases as integrity of rent-seeking politicians decreases, future rents increase compared to present rents, and politicians' patience increases.*

Lemma 3 does not establish that incumbents are disadvantaged. The following result follows directly.

Proposition 1. *In the partially pooling equilibrium, incumbency disadvantage, defined as* $\rho^* < 1/2$, *exists if* $\theta^{\alpha-1} < \beta/(2\pi + (1-\pi)\beta)$. *The condition is more easily satisfied if integrity of low-type politicians* (θ) *is low, future rent increase* (α) *is high, and/or the share of benevolent politicians in the population* (π) *is low.*

Incumbency disadvantage, however, also exists in the constant-rent environment for $\pi < 1/2$. Indeed, even though the possibility of increasing rents may cause mimicking, it does not necessarily bring about incumbency disadvantage;[26] however, it is important to reiterate that the reelection rate is no longer invariant to the quality of bad politicians and is also decreasing in the rate of increase of corruption over time. Moreover, per assumption of the interaction between type and rent-increasing technology, the reelection rate drops even more as both the low-type's quality deteriorates and future rents increase. These results are illustrated graphically in Figure 1.

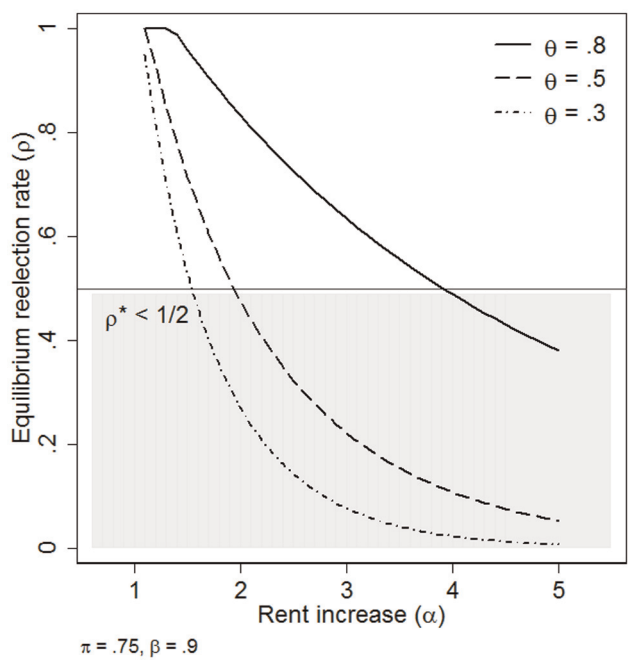

Figure 1. Quality of rent-seeking politicians, future rent increase, and equilibrium reelection rate.

Figure 1 illustrates the changes in the equilibrium reelection rate when $\pi = 3/4$. This suggest that unlike in the constant-rent environment, incumbency disadvantage may exist in the increasing rent-environment even when the share of good politicians is high.

Remark 1. *In the increasing-rent environment, incumbency disadvantage exists even as* $\pi \to 1$ *if* $\beta > 2\theta^{\alpha-1}$.[27]

Remark 1 illustrates that in the presence of increasing rents for incumbents during their tenure, existence of even a very small share of rent-seeking candidates may lead the voters to throw *any* incumbent out of office more often than not. This tendency is exacerbated as the rent-increasing technology (increasing α) combines with deteriorating quality of rent-seeking politicians in the pool (decreasing θ).

4.3. Implications for voter welfare

The incumbency disadvantage arises as the voter's response to selection problems brought about by the possibility of increasing rents in the presence of rent-seeking politicians. While this is an equilibrium response, the question is what is its impact on voter welfare compared to a constant-rent environment in which political selection is made simpler by the uniqueness of a separating equilibrium.

Proposition 2. *Compared to the constant-rent environment when incumbents are advantaged, rent-seeking is strictly higher and thus voter equilibrium utility strictly lower in the increasing-rent environment when incumbents are disadvantaged.*[28] *In fact, rent-seeking is greater under increasing rents with incumbency disadvantage than under any electoral outcome in the constant-rent environment.*

Incumbency disadvantage induced by increasing rents makes the voter strictly worse-off – even when the majority of politicians are benevolent – than when rents are constant. This is the case even if constant-rents are very high. Even though the voter responds rationally to the possibility of increasing rent-seeking by minimizing future rent-extraction, the amount of rents under this equilibrium is always higher. This is true even if the low-type politician is only slightly rent-seeking, i.e. as $\theta \to 1$. The reason is that in the mixed-strategy equilibrium, the bad politician must steal more frequently in the first-period to make the voter indifferent between retaining and replacing him, and increasingly so as the future rent increase becomes greater.[29]

4.4. Making benevolent politician rent-seeking

Previous section highlighted the importance for incumbent retention of the possibility that incumbents can extract increasing rents over their potential tenure in office. Moreover, when rents are not constant over politicians' tenure, turnover also depends on the quality of rent-seeking politicians, as measured by the level of θ^L. In other words, turnover depends on the average quality of the candidate pool. Another way that the quality of the candidate pool may deteriorate is that H becomes rent-seeking, albeit with greater integrity than L, such that $1 > \theta^H > \theta^L$.[30]

Now the high-type politician is 'good' simply because his affinity for rent-extraction is lower than that of L. Rents are still assumed to be increasing. In this case, the interest is whether under some conditions the voter would find it optimal to replace H as well as L incumbents. Intuitively, if H incumbents are replaced, the L incumbents should also be.

Suppose that the voter knows that the first-term incumbent is of type H with rent-extraction affinity θ^H. The voter would find it optimal to replace this incumbent if and only if

$$T - R_1^H + \beta\left[\pi(T - \widehat{R_2^H}) + (1-\pi)(T - R_2^L)\right] > T - R_1^H + \beta(T - R_2^H)$$

Substituting and rearranging gives the following condition

$$\pi > \frac{(\theta^H)^\alpha - \theta^L}{\theta^H - \theta^L} \tag{2}$$

Several observations can be made. First, the voter will always prefer replacement for any π if $(\theta^H)^\alpha < \theta^L$. Holding θ^H and θ^L constant, this condition is more easily satisfied when α is high. Alternatively, holding α constant, this condition is more easily satisfied if the two types of politicians do not differ much in integrity, i.e. θ^H and θ^L are similar.

Even if $(\theta^H)^\alpha > \theta^L$, the condition (2) may be satisfied if π is sufficiently *high*. Intuitively, when rent-seeking is increasing over time and the voter knows that there are many candidates whose first-term rent-seeking would be more temperate, she will minimize future rent-extraction by decreasing retention to zero. Note that when $\pi = 1$, expression (2) reduces to $(\theta^H)^\alpha < \theta^H$, which is always true. These results are collected in the following proposition.

Proposition 3. *In an increasing-rent environment where all politicians are rent-seeking, the voter never reelects any first-period incumbent if: (a) rents are sufficiently increasing to allow future rents of more moderately rent-seeking politicians to be higher than present rents of politicians of lower quality; (b) good and bad politicians are similar in rent-extraction affinity; and/or (c) the share of more moderately rent-seeking politicians in the population is high.*

Under some conditions, therefore, increasing rents and lower quality of politicians compared to the baseline case of Section 4.1 may lead to a complete break-down of selection.[31] But suppose $\pi < ((\theta^H)^\alpha - \theta^L)(\theta^H - \theta^L)$.[32] As in the previous section, of interest is whether a mixed-strategy equilibrium exists. Now, the question is whether a politician of lower integrity is willing to mimic a politician with higher integrity.[33]

Lemma 4. *A partially pooling equilibrium exists, with*

$$\sigma_i^* = (\theta^L)^{\alpha-1}\frac{1}{\beta}\left(1 - \frac{\theta^L}{\theta^H}\right)^2, \quad \text{if } \beta > (\theta^L)^{\alpha-1}\left(1 - \frac{\theta^L}{\theta^H}\right)^2$$

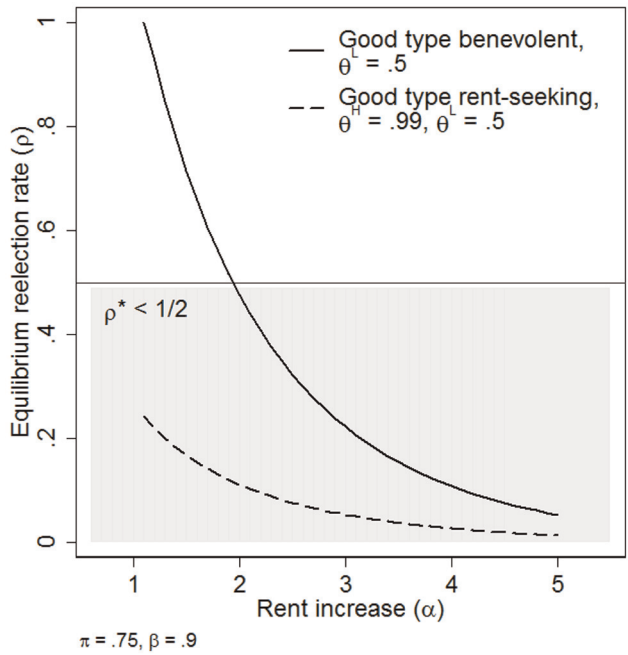

Figure 2. Removing a benevolent politician, future rent increase, and equilibrium reelection rate.

Intuitively, since H is of worse quality than the benevolent politician, conditions for pooling should be easier to satisfy. Indeed, comparing the conditions in Lemmas 2 and 4 suggests that pooling is easier to achieve when the high type is no longer benevolent.[34]

The unconditional reelection probability of a randomly chosen first-period incumbent is now decreasing in integrity of 'good' politician, θ^H.[35] Moreover, comparing the reelection rates with and without a benevolent high type gives the following result.

Proposition 4. *When conditions for the partially pooling equilibrium are satisfied, incumbents are retained less frequently when all politicians are rent-seeking than when some politicians are benevolent. Consequently, ceteris paribus, decreasing the quality of politicians by removing benevolent candidates may only exacerbate incumbency disadvantage, as it is easier to sustain it in equilibrium.*

Proposition 4 is illustrated in Figure 2. Making the previously benevolent type rent-seeking, even ever so slightly, may considerably reduce the equilibrium retention rate. The intuition is simply that the value of replacement is made greater by having all politicians who may be retained increase their rent-seeking in their next term. Having a novice, even if of lower quality, may be more attractive to the voter than an experienced or connected rent-seeker, however moderately corrupt.

This finding offers one potential answer to the question posed above about why incumbents may be disadvantaged, even if they are of higher quality. The answer given by the model is that the possibility of increasing rent-extraction by a reelected incumbent may outweigh the potentially positive differential in quality (in terms of integrity) that incumbent might possess compared to a typical challenger.

4.5. Observing policy with noise

I next examine the effect on incumbent retention of the policy outcome being observed with noise, rather than perfectly. In light of the results above, where the lack of information on incumbent type in the presence of increasing rents makes the voter more likely to prefer replacement (Lemma 3 and Proposition 4), adding noise to the policy outcome G should only further lower incumbent reelection probability. Noise might emanate from the unwillingness or lack of capacity to provide credible data on policy outcomes (e.g. Hollyer et al., 2014), or from constraints on media freedom (e.g. Besley and Burgess, 2002). The advantage of adding noise is that it pins down voter beliefs everywhere, obviating the need to specify off-equilibrium beliefs. However, it makes the model less tractable. I therefore slightly change the model in ways to make it easier to solve, but without altering the main forces at play in the baseline model above. In Appendix 4, I show that the key drivers of results in the baseline model – findings in Lemmas 1 and 3 (pertaining to the increase in the future rent relative to today's rent) remain basically unchanged. Here, I concentrate on the effect of noise on the likelihood of retention.

Suppose that rather than observing the first-period outcome perfectly, the voter observes $g_1 = G_1 + \epsilon$, where $\varepsilon \sim N(0, \sigma_T)$. Also, suppose that H is benevolent (as in the baseline model), and L makes a binary rather than a continuous choice of rent: $R_t \in \{0, \alpha_{t,t_l} T\}$, $\alpha_{t,t_l} \in (0,1)$.[36] The rent-increasing technology is captured in a simple way: $\alpha_{t_l=1} \leq \alpha_{t_l=2}\}$. To simplify notation, let $\alpha_{t_l=1} \equiv \alpha_1$ and $\alpha_{t_l=2} \equiv \alpha_2$, unless otherwise noted. Also, for simplicity I eliminate the variation in the corruptness of the politician, θ, and in the discounting. The information structure and the timing of the game remain the same as above.

Introducing noise to the increasing rent environment decreases incumbent retention in several ways, collected in the following proposition.

Proposition 5. *Adding noise decreases overall retention compared to an environment without noise by making ρ*decrease in future rents in both the separating and the mixed-strategy equilibrium. Increase in noise also monotonically reduces the equilibrium reelection probability in both equilibria. Moreover, increase in noise makes the bad incumbent less likely to fully separate, which shifts the game into a semi-separating equilibrium with a strictly lower reelection probability.*

In the separating equilibrium without noise, the voter knows precisely whether the incumbent took rents in the first-period or not, thus knowing perfectly what her utility from retaining the incumbent in the final period would be. This changes when provision of G is noisy. Now, the voter must consider her expected utility in the final period. Since the future rent is a factor in this expected utility, noise links

reelection in the separating equilibrium with the rent-increasing technology. Holding beliefs constant, the voter is more inclined to vote any incumbent out of office as future rents increase relative to the present rents. Moreover, as in the no-noise environment, reelection decreases in future rents in the semi-separating equilibrium with noise. Therefore, overall, adding noise broadens the conditions under which the equilibrium reelection rate is lowered.

As expected, a increase in noise in its own right reduces incumbent retention. The intuition is simple: a noisier signal reduces the voter's ability to differentiate between high and low type's actions, in turn making her demand a higher standard for reelection in the hope to screen out the rent-seeking incumbents. Finally, a noisier signal makes the bad type more likely to mimic, which makes the voter apply a yet higher reelection threshold. As before, this tendency is further exacerbated by the presence of increasing rents.

4.6. Making rent-seeking politician care about policy

In the baseline model, the low-type politician extracts utility solely from the private rent and cares about the voter-valued goods G only in as much as it allows him to get reelected. This assumption may be too stark, especially if the incumbency disadvantage brought about increasing rents could be ameliorated by the rent-seeking politician getting utility from G as well as the rent R. Voters may be willing to overlook or condone corruption at the ballot box if rent-seeking politicians also provide public and/or private goods voters care about (e.g. Brusco et al., 2004; Vicente and Wantchekon, 2009). A well-known phrase in Brazil summarizes this argument well: 'Rouba, mas faz' ('He robs, but he gets things done') Cotta and Cristiana (2008) as cited in Winters and Weitz-Shapiro (2013).

Therefore, I examine the effect of modifying the baseline model to allow the rent-seeking politician to extract utility from the goods G. Suppose that $U(\theta^L) = \lambda G_t + (1-\lambda)R_t$, where $\lambda \in [0, 1)$ is some fixed weight and everything else remains as defined in the original model. Obviously, the baseline model corresponds to $\lambda = 0$. Intuitively, when $\lambda > 0$, the level of G provided in the first-period will be higher than in the baseline model.[37] However, this only *exacerbates* the selection problem the voter is faced with, as characterized by the following result.

Proposition 6. *In the partially pooling equilibrium, the equilibrium reelection rate is lower when the low-type politician cares about the voter-valued goods G than when he only cares about private rents. Therefore, incumbency disadvantage is easier to sustain. Furthermore, the reelection rate is decreasing in the weight the low type puts on G.*

The voter is *less* likely to reelect the incumbent if 'he robs, but gets things done', at least if the incumbent is likely to go on 'robbing' even more in the future. This happens because the low type's first-period utility is now higher since he extracts some utility from G, making it easier to mimic the benevolent type. The voter simply has to respond by further lowering the reelection rule σ^*. Since the voter's utility does not change, the bad type politician's mixing strategy does not change, and the net result is only a decrease in the equilibrium reelection rate. The logic is

similar to the argument that, for example, changing the penalty for a crime without changing the payoff to the law enforcer does not affect the frequency of commitment of the crime in (a mixed-strategy) equilibrium, but rather only the frequency of law enforcement (Tsebelis, 1989).

4.7. Increasing policy competence

Intuitively, the incumbency disadvantage could be ameliorated or eliminated if incumbents learned not only to extract rents better over time, but also became better in providing goods voters care about. Unlike in the previous section, if the incumbent's policy competence increases in tenure, the voter will benefit in the future as well as in the present, and may be more likely to keep an experienced incumbent, even if there is a possibility that the same incumbent becomes increasingly corrupt as well. This is a form of dynamic 'Rouba, mas faz', and it is similar in spirit to the logic of McKelvey and Riezman (1992) and Muthoo and Shepsle (2014), who show that incumbents can be advantaged by seniority, if senior legislators have an advantage in legislative bargaining, because voters recognize that their future stream of payoffs is higher with a senior legislator.

I modify the baseline model to allow for increasing G as well as rents over a incumbent's tenure. Suppose α_g is the rate of increase in G over incumbent's tenure and analogous for α_r for rents, and that $\alpha_j = 1$ for $j \in \{g, r\}$ for $t_I = 1$ and $\alpha_r > 1$ and $\alpha_g \geqslant 1$ for $t_I = 2$. That is, I assume that rents are increasing over tenure, and that there is the possibility of an increase in G as well.[38] To make the model more tractable, suppose that $G_t = \alpha_g g$ and $R_t = \alpha_r \sqrt{r}$ and $g_t + r_t = T_t$; suppose further that the incumbent's utility is $\theta^i G_t + (1 - \theta^i) R_t$ for $i \in \{H, L\}$, that $\theta^H = 1$ (i.e. high type is benevolent) and $\theta^L \in (0, 1)$ (as before, to ease notation, let $\theta^L = \theta$).[39] The remaining assumptions and the timing are identical to the baseline model.[40]

Proposition 7. *With increasing provision of G along with increasing rents, there exists a perfectly separating, perfectly pooling, as well as a partially pooling equilibrium. There can be no incumbency disadvantage in the pure strategy equilibria, i.e. when*

$$\frac{\alpha_r^2 - \alpha_g}{\alpha_g^2 - \alpha_g} < \frac{1}{1 - \pi} \left(\frac{2\theta}{1 - \theta} \right)^2$$

as there is no replacement. Therefore, incumbents are always advantaged for: (a) a sufficiently high increase in G relative to the increase in private rents ($\alpha_g > \alpha_r^2$)*, and/or (b) a sufficiently high share of high-type politicians* (π) *and weight placed on G by low-type politicians* (θ).

For a sufficiently high increase in incumbents' competence in providing G, the voter's utility from retaining the incumbent might be higher than from a fresh replacement even if the incumbent turns out to be of low type. In this case, the voter will keep *any* incumbent, in turn obviating the need for the low type to mimic the

high type in the first-period. A separating equilibrium with no replacement – and no disadvantage – results. If instead the voter's utility from keeping the incumbent is higher only if she receives $G_1 = T$, but the increase in rent is sufficiently high for the low type to have an incentive to mimic in the first-period, the voter will still be content with keeping any incumbent as long as she receives the desired level of goods in the first-period (T). This produces a perfectly pooling equilibrium with no replacement and again no disadvantage. Therefore, so long as the game is in a pure strategy equilibrium, there is no incumbency disadvantage and the reelection rate no longer depends on the probability of a high type (as in the pure strategy equilibrium in the baseline model). Therefore, if incumbents are able to sufficiently increase policy competence, for example because highly motivated candidates enter politics, policy learning is steep, or incumbents have institutional support – they should be advantaged.

However, increasing the provision of G does not entirely eliminate the possibility of incumbency disadvantage. If the lottery from replacement is higher than the lottery from retaining the incumbent, the voter is no longer indifferent about incumbent's type, and the result is a partially pooling equilibrium qualitatively identical to that from the baseline model (Lemmas 2 and 4). In this equilibrium, the reelection rate is increasing in α_g and decreasing in α_r, so for sufficiently high α_r relative to α_g, incumbents will still be disadvantaged.[41]

More interestingly, there can *still* be a disadvantage even if the two competencies grow at the *same* rate (or alternatively, if voters perceive incumbents to be learning how to better 'rob' and 'get things done' in equal measure).

Remark 2. *When $\alpha_g = \alpha_r$, and the game is in a partially pooling equilibrium, the equilibrium reelection rate is strictly higher with increasing provision of G than when it is constant. Nevertheless, for sufficiently high α_r, a partially pooling equilibrium implies incumbency disadvantage.*

Sufficiently high increasing rents are still too harmful for the voter even if the incumbent shows a commensurate increase in policy competence. This is illustrated in Figure 3. The graphs show the equilibrium reelection rate as a function of α_g, α_r, π, and θ, as contours with darker shades representing higher reelection probability (the white line indicates $\rho^* = 1/2$). In the left-hand panel, policy competence is constant whereas rent-extracting ability is increasing, as in the baseline model; in the right-hand panel, both policy competence and rent-extraction are increasing equally. Going from top to bottom panels, the rate of increase is greater.

Comparing the left-hand to right-hand panels gives evidence of the claim in Proposition 7: increasing provision of G lowers the likelihood of incumbency disadvantage brought about by the increase in rent-extraction. For example, comparing Figures 3(a) and 3(b), it is clear that even with moderate increase in G, incumbent's reelection probability is considerably higher. Figures 3(d) and 3(f), however, show that in the parameter space consistent with the partially pooling equilibrium, a high increase in rent-seeking still leads to incumbency disadvantage, even if the incumbent increases the provision of G at the same rate.

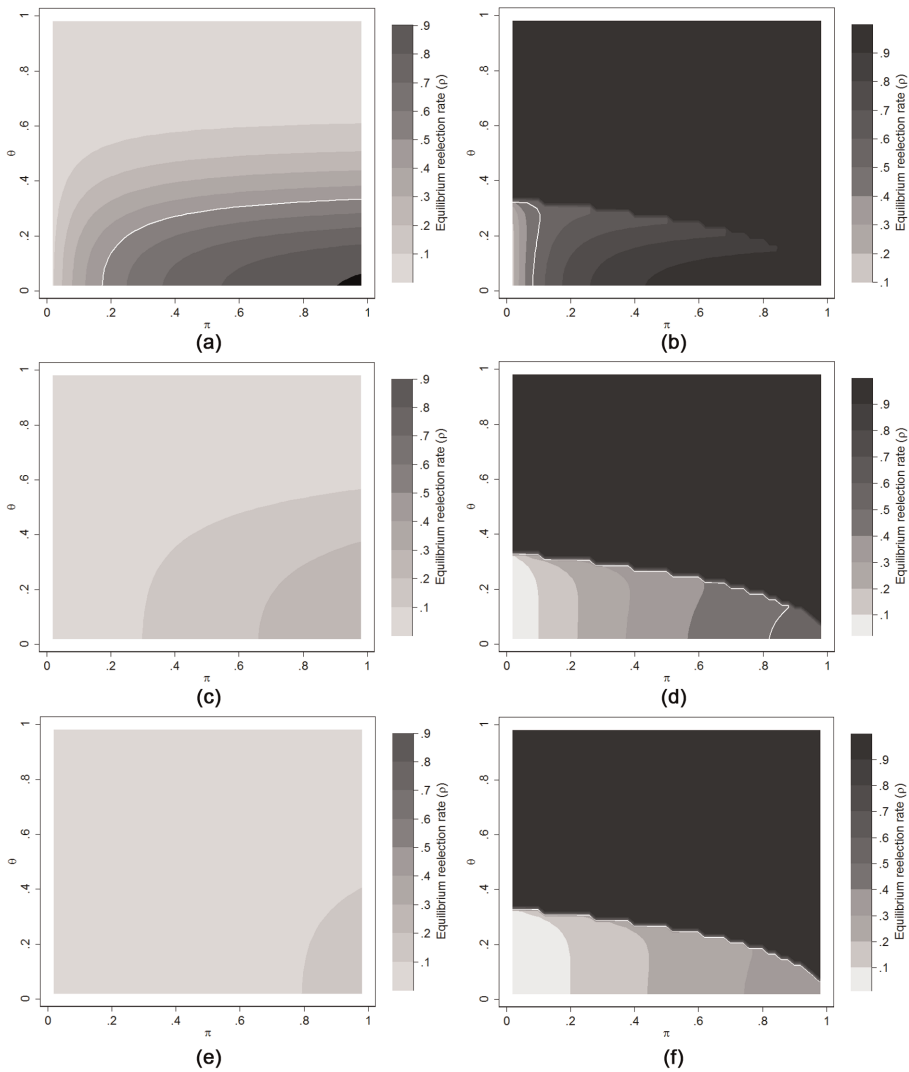

Figure 3. Equilibrium reelection rates with constant (left-hand side) and increasing *G* (right-hand side) and increasing rent.

5. Discussion

The results of the model presented in this paper highlight a novel reason why corruption may be costly. When incumbents can extract increasing rents, voters may throw them out in greater numbers, even if the alternatives on offer are not better. This tendency is strongest when the voter has little information to differentiate between the incumbents and challengers, whether because there is little variation in

candidate quality, or because policy is observed with noise. The ability of incumbents to increase policy competence – or voter's belief thereof – as well as rent-extraction alleviates high incumbent replacement, but does not necessarily eliminate it.

Reelection rate is increasing in the shade of the graph area. The white line indicates $\rho^* = 1/2$. In all panels, $\beta = 1$, $T = 1$.

The question remains of what differences between developed and developing democracies may bring about (increasing) rent-seeking and thus incumbency disadvantage. While an explicit model of these underlying factors is beyond the scope of this paper, I point informally here to one plausible and potentially important institutional source that may affect incumbency disadvantage through rent-seeking – weakly institutionalized parties.

Compared to mature democracies, party systems in developing democracies are more volatile (e.g. Powell and Tucker, 2014; Roberts and Wibbels, 1999), less institutionalized (Dix, 1992; Mainwaring and Scully, 1997), less focused on programmatic and ideological appeals (Keefer, 2007; Kitschelt et al., 2010), and more personalistic and subject to turnover (Pop-Eleches, 2010). Weak parties are less able to discipline their members and sufficiently compensate them in terms of policy influence and career paths (Eguia, 2013), possibly shortening their time horizons and inducing members to rely more heavily on outside networks. Moreover, because of low ideological coherence, party membership may be heterogeneous and more likely to include rent-seeking politicians (Hollyer and Wantchekon, 2014). Weak party systems are also associated with lower levels of partisan attachments among voters (e.g. Dalton and Weldon, 2007), who may put more weight on performance evaluations than partisanship (Kayser and Wlezien, 2011), thus increasing the importance of corruption (Gingerich, 2013). For all these reasons, parties may be less able to induce good behavior and prevent rent-seeking from their members.

The model presented in this paper could potentially be adapted to incorporate this institutional environment through a career-concerns model with a long-lived party and shorter-living candidates and a scheme of transfers that the party could offer to candidates in various stages of their career. One can imagine that a strong party able to guarantee benefits for its members can prevent shirking and disincentivize members from investment into rent-extraction skills or networks. A strong party would thus be better able to avoid punishment for corruption from voters than a weak party unable to provide such benefits to its members.[42] In a related argument, Klašnja and Titiunik (2013) show that party weakness in Brazil leads to a incumbent party disadvantage because parties are unable to discipline and incentivize mayors to perform well in office when they are term-limited and thus face no reelection incentives.[43]

Other possible extensions may be interesting. Continuing incumbency disadvantage may potentially result in a trap in a bad equilibrium. If incumbents are perpetually unlikely to get reelected, high-quality candidates may be discouraged from running for office, which may in turn explain why incumbents get thrown out more often than not ((Caselli and Morelli, 2004; Klašnja et al., 2014, see)). When turnover in office is high, policy outcomes may be too unstable, stifling long-term

development. Therefore, it may be particularly fruitful to examine the mechanisms by which countries may be able to escape an equilibrium where incumbents are disadvantaged.

The model assumes that the increase in rent-extraction is exogenously given. This may be plausible when the source of increase is for example a largesse from a newly discovered natural resource or increase in fiscal spending that can be siphoned off. It may be less plausible in the context of building a rent-extraction network. It may be interesting to endogenize the rent-increase – as well as the policy competence increase – the incumbent would choose. With a sufficiently low reelection rate, even high types may be discouraged from investing in increasing policy competence and low types may choose the level of rent increase that perpetuates incumbency disadvantage.

The model also assumes that the politician does not share any of the rents with the voters or use them in other ways to boost his reelection chances. Allowing for clientelistic networks should intuitively reduce the incumbency disadvantage. If the incumbent politician can get reelected by buying off certain subgroups of voters and so having to disguise his corruption to only the remaining groups, he may be reelected while also being able to enjoy higher rents. To the extent that rent-seeking ability can be used to buy-off voters, bad incumbents may even be advantaged compared to the benevolent incumbents. Such a result would be consistent with the observation that criminal candidates are frequent in India and enjoy better electoral prospects than non-criminal candidates in the environment where candidates are typically disadvantaged (Aidt et al., 2011); however, this outcome may be sustainable only to the extent that subgroups of voters cannot extract information from each other regarding the politician's type. These are potentially interesting questions for further research.

Appendix 1. Proofs

Proof of Lemma 1. The first part of the Lemma follows immediately from the text. For the second, it is obvious that the voter chooses $\sigma_c^*(G_1^H) = 1$ and $\sigma_c^*(G_1^L) = 0$.[44] The ex ante reelection rate of a randomly chosen first-period incumbent is the convex combination of the conditional reelection probabilities and prior probabilities of each type: $\rho_c^* = \pi\sigma_c^*(G_1^H) + (1-\pi)\sigma_c^*(G_1^L) = \pi$. □

Proof of Lemma 2. Suppose $\beta > \theta^{\alpha-1}$. Then, $\sigma < 1$. The voter would ensure that the condition in equation (1) is never satisfied by setting $\sigma = 0$. However, this would mean never reelecting upon observing $G = T$, in which case L would always separate; however, the voter would then conclude that $Pr(\theta = H|G = T) = 1$, and reelect with certainty, which is a contradiction. The voter's strategy obviously makes the low-type incumbent indifferent.

Suppose instead that $\beta \leq \theta^{\alpha-1}$. Then, $\sigma \geqslant 1$. The bad type of politician has no incentive to mimic but instead extracts the optimal first-period rent $R_1 > 0$. The voter's optimal reelection strategy is then a corner, set at either zero or one. □

Proof of Lemma 3. Let $\psi \equiv (\theta - (1-\pi)\theta^{\alpha})^2 > 0$. Then,

$$\frac{\partial \rho_i^*}{\partial \theta} = \frac{\pi}{\beta}\frac{(\alpha-1)\theta^{\alpha}}{\psi} > 0, \quad \text{since } \alpha > 1, \qquad \frac{\partial \rho_i^*}{\partial \alpha} = \frac{\pi}{\beta}\frac{\ln(\theta)\theta^{\alpha+1}}{\psi} < 0, \quad \text{since } \theta < 1$$

Proof of Proposition 1. The left-hand side of the inequality decreases as θ decreases and/or as α increases. The right-hand side is increasing in β and decreasing in π. □

Proof of Remark 1. The condition is obtained when substituting $\pi \rightarrow 1$ in the condition for the existence of incumbency disadvantage, $(\theta^L)^{\alpha-1} < \beta/(2\pi + (1-\pi)\beta)$. This condition will also prove important further below. □

Proof of Proposition 2. Denote the voter's equilibrium welfare as W. In the fixed rent-environment, voter welfare is: $W_c = \pi T(1+\beta) + \beta\ (1-\pi) + (1-\pi)(T-R)(1+\beta\ (1-\pi))$. In the increasing-rent environment in the mixed-strategy equilibrium, it is: $W_i = \pi T(1+\beta) + (1-\pi)(T-R_1)(1 \quad -\gamma + \beta(1-\sigma_i^*)) + (1-\pi)(\gamma T + \beta\sigma_i^*(T-R_2))$. $W_c > W_i$ if $R_1(\pi - \rho_i^*) > \sigma_i^*(R_1 - R_2)$. Substituting and rearranging gives the condition

$$\frac{1}{\beta}\left(\theta^{\alpha-1} - 1\right) < \pi\left(1 - \frac{1}{\beta}\frac{\theta^{\alpha-1}}{1-(1-\pi)\theta^{\alpha-1}}\right)$$

The left-hand side decreases whereas the right-hand side increases as $\theta^{\alpha-1}$ decreases. Decreasing $\theta^{\alpha-1}$ therefore makes the inequality more likely to hold. Suppose that $\theta^{\alpha-1} = \beta/(2\pi + (1-\pi)\beta)$. Below this level of $\theta^{\alpha-1}$, there is incumbency disadvantage in the increasing rent-environment. Substituting and rearranging gives:

$$\frac{1}{2} < \pi + \frac{1}{\beta} - \frac{1}{2\pi + (1-\pi)\beta}$$

The second term is greater than the third term, because $\beta < 2\pi + (1-\pi)\beta$ for any π. Assuming $\pi > 1/2$, so that there is incumbency advantage in the constant-rent case, it follows immediately that for this level of $\theta^{\alpha-1}$, $W_c > W_i$. Further decreasing $\theta^{\alpha-1}$, whether by increasing α or decreasing θ, or both, only further lowers W_i compared to W_c.

When comparing rents in the two equilibria, rent-seeking under the mixed-strategy equilibrium in the increasing-rent case is higher than rents under the separating equilibrium in the constant-rent case if the same condition as above is satisfied

$$\frac{1}{\beta}\left(\theta^{\alpha-1} - 1\right) < \pi\left(1 - \frac{1}{\beta}\frac{\theta^{\alpha-1}}{1-(1-\pi)\theta^{\alpha-1}}\right)$$

Therefore, the second statement follows from the first.

For the third statement, substitute in the above condition $\pi \rightarrow 0$, which maximizes the amount of rents extracted in the constant-rent equilibrium. The condition reduces to $0 < 1 - \theta^{\alpha-1}$, which is always satisfied, no matter how close θ is to one. □

Proof of Proposition 3. A necessary condition for the expression in equation (2) to lead to perfect replacement is that the voter who ex ante wants to replace H would

also replace L. This is true if $R_2^L > R_2^H$, or that $r_2^L - (\theta^L)^\alpha (r_2^L)^2 > r_2^H - (\theta^H)^\alpha (r_2^H)^2$. Note that because $\theta^H < \theta^L$, $r_2^L > r_2^H$. Let $r_2^H = r_2^L + \epsilon$. Also, recall that $r_2^i = 1/(2(\theta^i)^\alpha)$. Substituting and rearranging gives the condition

$$1 < \frac{2(\theta^H)^\alpha}{(\theta^L)^\alpha + (\theta^L)^\alpha}$$

which is always satisfied. Therefore, ex ante the H incumbent is always preferred to the L incumbent, even if the H incumbent is also rent-seeking.

All statements in the proposition follow from the text immediately above. □

Proof of Lemma 4. Suppose that the voter's out-of-equilibrium belief is still that $Pr(\theta = H | G \neq T) = 0$.[45] By the same logic as above, L has an incentive to mimic if

$$\widetilde{R_1^H} + \sigma_i \beta R_2^L > R_1^L$$

where $\widetilde{R_1^H} \equiv r_1^H - \theta^L (r_1^H)^2$ denotes the L level of first-period rent-extraction when mimicking H. By the same logic as above, in this equilibrium the low-type politician mimics with probability

$$\gamma = \frac{\pi}{1-\pi} \frac{\widehat{R_2^L} - R_2^H - \pi(\widehat{R_2^L} - \widehat{R_2^H})}{R_2^L - \widehat{R_2^L} + \pi(\widehat{R_2^L} - \widehat{R_2^H})}$$

Substituting for optimal r_2^H and simplifying yields

$$\sigma_i \beta \left(\frac{\theta^H}{\theta^H - \theta^L} \right)^2 > (\theta^L)^{\alpha - 1}$$

which defines the equilibria of the game.

Optimal rents for each type ($R_1^H < R_1^L$) constrain what the voter observes on the equilibrium path. Crucially, type θ^H has no incentive to deviate from his optimal rent given the voter's out-of-equilibrium belief. The rest of the proof proceeds in the same way as the proof of Lemma 2. □

Proof of Proposition 4. For the first statement, denote the unconditional reelection probability under the mixed-strategy equilibrium when H is benevolent

$$\rho_1{}^* = \pi \sigma_i{}^* + (1-\pi)\gamma \sigma_i{}^* = \frac{\pi}{\beta} \frac{\theta^\alpha}{\theta - (1-\pi)\theta^\alpha}$$

where $\gamma \equiv Pr(G_1 = T | \theta = L)$, is the probability that the low type mimics the high type; denote and the unconditional reelection probability under the mixed-strategy equilibrium when H is rent-seeking $\rho_2{}^* = (1/\beta)\pi \Psi (\theta^L)^{\alpha - 1}$, where

$$\Psi = \left(1 - \frac{\theta^L}{\theta^H}\right)^2 \left(\frac{1}{(\theta^L)^\alpha} - \frac{1}{(\theta^H)^\alpha} \right) \Big/ \left(\frac{1}{(\theta^L)^\alpha} - \frac{1}{\theta^L} + \pi \left(\frac{1}{\theta^L} - \frac{1}{\theta^H} \right) \right)$$

$\rho_1^* > \rho_2^*$ implies $1/(1-(1-\pi)(\theta^L)^{\alpha-1}) > \Psi$. The left-hand side is greater than one since the denominator is smaller than the numerator. Therefore, it is sufficient to show $\Psi < 1$, or

$$\left(1-\frac{\theta^L}{\theta^H}\right)^2\left(\frac{1}{(\theta^L)^\alpha}-\frac{1}{(\theta^H)^\alpha}\right) < \frac{1}{(\theta^L)^\alpha}-\frac{1}{\theta^L}+\pi\left(\frac{1}{\theta^L}-\frac{1}{\theta^H}\right)$$

This last condition simplifies to $\Upsilon/(\theta^H)^\alpha < \theta/(\theta^L)^\alpha$, where $\Upsilon = (\theta^H)^{\alpha-1}\pi - (1-\theta^L/\theta^H)^2$ and $\theta = 1-(1-\theta^L/\theta^H)^2 - (\theta^L)^{\alpha-1}(1-\pi)$. Since $\theta^L < \theta^H$, it is sufficient to show that $\Upsilon < \theta$, and $\theta > 0$. $\Upsilon < \theta$ simplifies to $(\theta^H)^{\alpha-1}\pi + (\theta^L)^{\alpha-1}(1-\pi) < 1$. Substituting θ^H for θ^L in this expression makes the left-hand side greater, but still smaller than the right-hand side, and so the condition holds. $\theta > 0$ simplifies to $2 > \theta^L/\theta^H + \theta^H(\theta^L)^{\alpha-2}(1-\pi)$. Both terms on the right-hand side are smaller than one, and so the condition is satisfied. Therefore $\Psi < 1$. □

For the second statement, Proposition 1 indicates that incumbency advantage exists if $(\theta^L)^{\alpha-1} < \beta/(2\pi + (1-\pi)\beta)$. From Lemma 4, it follows that $\rho_2^* < 1/2$ if $(\theta^L)^{\alpha-1}\Phi < \beta/(2\pi)$. Inspection of the two conditions shows that $\beta/(2\pi) > \beta/(2\pi + (1-\pi)\beta)$ and $(\theta^L)^{\alpha-1}\Phi < (\theta^L)^{\alpha-1}$. Therefore, ceteris paribus, making 'good' politicians rent-seeking, however moderately, makes the condition for incumbency disadvantage easier to satisfy.

Proof of Proposition 5. As before, the voter's posterior belief upon observing g_1 should make her indifferent between the two lotteries of utilities in the second-period $\pi T + (1-\pi)T(1-\alpha_1) = Pr(\theta = H|g)T + (1-Pr(\theta = H|g))T(1-\alpha_2)$. Suppose first that L wishes to separate in equilibrium and extract $\alpha_1 > 0$. The voter's posterior belief is

$$Pr(\theta = H \mid g) = \left(\phi\left(\frac{g-T}{\sigma_T}\right)\pi\right)/\left(\phi\left(\frac{g-T}{\sigma_T}\right)\pi + \phi\left(\frac{g-T(1-\alpha_1)}{\sigma_T}\right)(1-\pi)\right)$$

which gives a threshold level g below which the voter replaces the first-period incumbent:

$$\underline{g} = \frac{\sigma_T^2}{\alpha_1 T}\ln\left(\frac{1}{\pi}\left(\frac{\alpha_2}{\alpha_1}-(1-\pi)\right)\right) + T\left(1-\frac{\alpha_1}{2}\right)$$

The reelection threshold increases both in the noise (σ_T) and the future rent relative to present-day rent (α_2, while holding α_1 constant):

$$\frac{\partial \underline{g}}{\partial \sigma_T} = \frac{2\sigma_T}{\alpha_1 T}\ln\left(\frac{1}{\pi}\left(\frac{\alpha_2}{\alpha_1}-(1-\pi)\right)\right) > 0$$

since

$$\frac{1}{\pi}\left(\frac{\alpha_2}{\alpha_1}-(1-\pi)\right) > 1; \quad \frac{\partial \underline{g}}{\partial \alpha_2} = \frac{\sigma_T^2}{\alpha_1 T(\alpha_2/\alpha_1 - 1 + \pi)} > 0$$

The separating equilibrium exists if the bad politician finds it worthwhile to steal today, or if $\alpha_1/\alpha_2 \geq \Phi\ (g - T(1-\alpha_1)) - \Phi(g - T)$. The condition is satisfied for a subset of parameter values, for which a separating equilibrium exists. The unconditional reelection probability is then $\rho_1{}^* = \pi(1 - \Phi(\underline{g} - T)) + (1-\pi)(1 - \Phi(\underline{g} - T(1-\alpha_1))$. $\rho_1{}^*$ is straightforwardly decreasing in $\underline{g}$, and the reelection threshold, in turn, is increasing in σ_T, which establishes part of the second claim. $\rho_1{}^*$ is also increasing in α_2– unlike in the baseline model in Lemma 1, which establishes part of the first claim.

Suppose the condition for separation is not satisfied. Then, the L mixes between stealing and not stealing in the first-period. A fully pooling equilibrium cannot exist; see Appendix 4 for more details. The voter needs to adjust her posterior so that

$$\begin{aligned} Pr(\theta = H \mid g) &= \phi\left(\frac{g-T}{\sigma_T}\right)\pi \Big/ \left(\phi\left(\frac{g-T}{\sigma_T}\right)\pi + \phi\left(\frac{g-T}{\sigma_T}\right)(1-\pi)(1-\delta)\right. \\ &\left. + \phi\left(\frac{g-T(1-\alpha_1)}{\sigma_T}\right)(1-\pi)\delta\right) \end{aligned}$$

where δ is the probability with which L steals in the first-period.
The voter's posterior belief yields a threshold level of public goods

$$\underline{g} = \frac{\sigma_T^2}{\alpha_1 T}\ln\left(\frac{\delta(\alpha_2 - \alpha_1(1-\pi))}{\delta(\alpha_2 - \alpha_1(1-\pi)) - (\alpha_2 - \alpha_1)}\right) + T\left(1 - \frac{\alpha_1}{2}\right)$$

The politician, in turn, must be indifferent between stealing and not in the first-period, which gives the equality $\Phi(\underline{g} - T(1-\alpha_1) = \Phi\ (\underline{g} - T)\ +\ \alpha_1/\alpha_2$. This condition implicitly defines the low-type incumbent's mixing strategy δ. By the implicit function theorem, $(\partial\delta)/(\partial\sigma_T) > 0$ for a sufficiently high level of α_2. The unconditional reelection rate is, $\rho_2{}^* = \pi(1 - \Phi(\underline{g} - T)) + \delta)(1-\pi)(\Phi(T(1-\alpha_1) - \underline{g}) - \Phi(T - \underline{g}))$, or equivalently $\Phi(T - \underline{g}) - \delta(1-\pi)(\alpha_1/\alpha_2)$. Evaluating the last expression shows that $\rho_2{}^*$ depends on $\underline{g}$ which in turn depends on α_2. This completes the first claim in the proposition. Moreover

$$\frac{\partial\rho^*}{\partial\sigma_T} = \frac{\partial\rho^*}{\partial\sigma_T \mid \delta = \text{constant}} + \frac{\partial\rho^*}{\partial\delta}\cdot\frac{\partial\delta}{\partial\sigma_T} < 0$$

after using the result of the implicit function theorem. This completes the second claim in the proposition.
Finally, for the third claim, evaluate the condition for separation from the first paragraph of this proof. $\underline{g}$ is increasing in σ_T, which increases the right-hand side but leaves the left-hand side unchanged, thus making it less likely that L will fully separate. For the second part of the claim, compare $\rho_1{}^*$ and ρ^{*2}. It is clear that for a given $\underline{g}\rho_1{}^*$ is larger. Moreover, denote $\underline{g}$ in the separating equilibrium $\underline{g}^S$ and in the semi-separating equilibrium $\underline{g}^M$. Then

$$\underline{g}^S < \underline{g}^M \text{if} \frac{1}{\pi}\left(\frac{\alpha_2}{\alpha_1} - (1-\pi)\right) < \frac{\delta(\alpha_2 - \alpha_1(1-\pi))}{\delta(\alpha_2 - \alpha_1(1-\pi)) - (\alpha_2 - \alpha_1)}$$

which reduces to $\alpha_1(1-p) < \alpha_2$, which is always true. Therefore, it must be the case that $\rho_1{}^* > \rho_2{}^*$, which completes the third claim. □

Proof of Proposition 6. When the low type cares about G, such that $U(\theta^L) = \lambda G_t + (1-\lambda)R_t$, he mimics the good type if and only if

$$\lambda T + \sigma\beta(\lambda G_2 + (1-\lambda)R_2) \geq \lambda G_1 + (1-\lambda)R_1$$

Substituting and rearranging gives the condition

$$\sigma^* \geq \frac{1}{\beta}\left(1 - \frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta}\right) \Big/ \left(\lambda T + \left(1 - \frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta^\alpha}\right)\right)$$

For the same reason as in Lemma 2, there is no perfectly pooling equilibrium. Since the voter's utility is unchanged compared to the baseline model, the politician mixes in the same way to support the partially pooling equilibrium as in the baseline model.

For the first claim in the proposition, note that the equilibrium reelection now is

$$\rho^* = \frac{1}{\beta}\frac{\pi}{1-(1-\pi)\theta^{\alpha-1}}\left(1 - \frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta}\right) \Big/ \left(\lambda T + \left(1 - \frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta^\alpha}\right)\right)$$

The equilibrium reelection rate in the partially pooling equilibrium in the baseline model was

$$\frac{1}{\beta}\frac{\pi\theta^{\alpha-1}}{1-(1-\pi)\theta^{\alpha-1}}$$

Therefore, the new reelection rate is lower if

$$\theta^{\alpha-1} > \left(1 - \frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta}\right) \Big/ \left(\lambda T + \left(1 - \frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta^\alpha}\right)\right)$$

Rearranging, this expression is true if

$$\theta^{\alpha-1}\left(\lambda T + \left(1 - \frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta^\alpha}\right)\right) > \left(1 - \frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta}\right)$$

The second term on the left-hand side is equal to the right-hand side, and the first term on the left-hand side, $\theta^{\alpha-1}\lambda T > 0$, thus making the condition always true.

The second claim follows directly from the first, given that the $\rho^* < 1/2$ is easier to satisfy.

For the third claim in the proposition, it is straightforward to see that $\partial\rho^*/\partial\lambda < 0$. This is because the only term that changes with respect to λ is

$$\left(1-\frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta}\right)/\left(\lambda T+\left(1-\frac{\lambda}{1-\lambda}\right)\left(\frac{1-4\lambda}{4\theta^{\alpha}}\right)\right)$$

The numerator and the second term in the denominator change by the same amount. Because of the extra term in the denominator, it increases in λ more than the numerator. □

Proof of Proposition 7. As usual, the voter keeps the incumbent if: $\pi G^H_{t_I=2} + (1-\pi)G^L_{t_I=2} \geq \pi G^H_{t_I=1} + (1-\pi)G^L_{t_I=1}$. If $G^L_{t_I=2} \geq \pi G^H_{t_I=1} + (1-\pi)G^L_{t_I=1}$, then even retaining the low type provides greater second-period utility than replacing. In that case, the voter always retains the incumbent, irrespective of the type. In turn, the low type does not have an incentive to mimic the high type. The equilibrium reelection rate $\rho^* = 1$ and this is a separating equilibrium.

If $\pi G^H_{t_I=2} + (1-\pi)G^L_{t_I=2} \geq \pi G^H_{t_I=1} + (1-\pi)G^L_{t_I=1}$ but $G^L_{t_I=2} < \pi G^H_{t_I=1} + (1-\pi)G^L_{t_I=1}$, then the voter wants to reelect upon observing G^H_1 and not reelect upon observing G^L_1. It is straightforward to see that low type always has an incentive to pool, and the voter always reelects. The equilibrium reelection rate is again $\rho^* = 1$.

Finally, if $\pi G^H_{t_I=2} + (1-\pi)G^L_{t_I=2} \geq \pi G^H_{t_I=1} + (1-\pi)G^L_{t_I=1}$, then the voter is not indifferent between the two lotteries in the second-period. There is a partially pooling equilibrium in the same vain as in Lemmas 2 and 4.

Given the functional forms and politician's utility described in Section 4.7, the optimal level of

$$G^{\theta}_t = \alpha_g\left(T-\left(\frac{(1-\theta)\alpha_{r,t_I}}{2\theta\alpha_{g,t_I}}\right)^2\right)$$

Substituting where appropriate in this expression $\alpha_g = \alpha_r = 1$ for $t_I = 1$, $T = 1$ and $\theta^H = 1$, and substituting into the condition for partial pooling gives the inequality in the proposition for which incumbency advantage is assured. □

Proof of Remark 2. For the first claim, note that in the partially pooling equilibrium with increasing rents but constant provision of G, the reelection rate is

$$\rho_c{}^* = \frac{\pi}{\beta}\frac{(1-\theta)^2}{(1-\theta)^2\alpha_r^2+4\theta^2}\frac{\alpha_r^2}{\alpha_r^2-(1-\pi)}$$

With increasing rents as well as provision of G, it is

$$\rho_i{}^* = \frac{\pi}{\beta}\frac{(1-\theta)^2\alpha_g}{(1-\theta)^2\alpha_r^2+4\theta^2\alpha_g^2}\frac{(1-\theta)^2\alpha_r^2}{(1-\theta)^2(\alpha_r^2-(1-\pi)\alpha_g)-4\theta^2\alpha_g(\alpha_g-1)}$$

Substituting $\alpha_g = \alpha_r$ and rearranging, $\rho_i{}^* > \rho_c{}^*$ if

$$\frac{(1-\theta)^2}{(1-\theta)^2+4\theta^2}\frac{(1-\theta)^2\alpha_r}{(1-\theta)^2(\alpha_r^2-(1-\pi)\alpha_r)-4\theta^2\alpha_r(\alpha_r-1)} > \frac{(1-\theta)^2}{(1-\theta)^2\alpha_r^2+4\theta^2}\frac{\alpha_r^2}{\alpha_r^2-(1-\pi)}$$

It is straightforward to see that each fraction on the left-hand side is greater than the corresponding fraction on the right-hand side.
For the second claim, note that ρ_i* from above can further be simplified to

$$\frac{\pi}{\beta}\frac{(1-\theta)^2}{(1-\theta)^2+4\theta^2}\frac{(1-\theta)^2}{(1-\theta)^2(\alpha_r-(1-\pi))-4\theta^2(\alpha_r-1)}$$

It is straightforward to see that the entire expression is decreasing in α_r. Since the increase α_r (relative to α_g) assures that the game cannot have pure strategy equilibria, ρ_i*<1/2 and the condition for the game to be in a partially pooling equilibrium,

$$\frac{\alpha_r^2-\alpha_g}{\alpha_g^2-\alpha_g} > \frac{1}{1-\pi}\left(\frac{2\theta}{1-\theta}\right)^2$$

together implicitly define the level of α_r for which the reelection rate in the partially pooling equilibrium is always below 1/2. □

Appendix 2. Perturbing off-equilibrium beliefs

Lemma 4 and Proposition 4 rely on a potentially unreasonable out-of-equilibrium belief by the voter. Namely, H is effectively constrained to extracting his optimal rent, since any deviation would only ensure certain defeat. It may be reasonable to assume that it is the high type that wants to signal his type by lowering his first-period rent below the optimal level. It may then be reasonable to construct out-of-equilibrium beliefs by the voter so that she assigns positive probability only to the high type when $\widehat{R_1}<\bar{R}_1^H$, where $\bar{R}_1^H$ is the optimal first-period rent for type H. In this case, the mixed-strategy equilibrium from Lemma 4 may potentially be eliminated by the application of the Intuitive Criterion (Cho and Kreps, 1987).
However, the following result establishes the condition under which the equilibrium defined in Lemma 4 is stable under any out-of-equilibrium beliefs that assign positive probability of deviation to $\widehat{R_1}$ in the first-period only to the high type.

Remark 3. *In the increasing-rent environment where all politicians are rent-seeking, a mixed-strategy equilibrium defined in Lemma 4 is stable in the Cho–Kreps sense for any set of out-of-equilibrium beliefs where* $Pr(\theta = H \mid G_1 > \bar{G}_1^H) = 1$ *if* $\beta > 2(\theta^L)^{\alpha-1}$.[46] *If this condition holds, the partially pooling equilibrium implies incumbency disadvantage. Disadvantage exists for any value of* π.

Proof. For the first statement, suppose $Pr(\theta = H \mid G_1 > \bar{G}_1^H) = 1$, which corresponds to the most unfavorable belief for the low type's ability to mimic the high

type. Also suppose that the mixed-strategy equilibrium from Lemma 4 holds. The high type would deviate to $\widehat{R_1}<\bar{R}_1^H$ if: $\hat{R}_1^H + \beta R_2^H > \bar{R}_1^H + \sigma_2^* \beta R_2^H$, where σ_2^* is as defined in Lemma 4. Substituting and simplifying yields

$$\hat{R}_1^H > \frac{1}{4}\left((\theta^L)^{\alpha-1}\left(1-\frac{\theta^L}{\theta^H}\right)^2 + (\theta^H)^{\alpha-1} - \beta\right)/(\theta^H)^{\alpha}$$

If

$$\beta > (\theta^L)^{\alpha-1}\left(1-\frac{\theta^L}{\theta^H}\right)^2 + (\theta^H)^{\alpha-1}$$

the good type always has an incentive to lower first-period extraction in order to try to signal his type. Nevertheless, given the budget constraint, H can only reduce his first-period rent to zero. L may be able to mimic H all the way down to this benevolent first-period outcome if $\beta R_2^L > R_1^L + \sigma_1^* \beta R_2^L$, where σ_1^* is as defined in Lemma 2. This retention rate corresponds to the optimal voter strategy in the case of a deviation by L to $\hat{R}_1^L = 0$, assuming that H has indeed deviated to that level. This expression simplifies to $\beta > 2(\theta^L)^{\alpha-1}$.

For the second statement, the proof to Proposition 4 showed that $\rho_2^* < 1/2$, and $\Psi < 1$. Therefore, $\beta > 2(\theta^L)^{\alpha-1}$ implies both that the game is in a mixed-strategy equilibrium and incumbency disadvantage. □

For the third statement, simply note that $\beta > 2(\theta^L)^{\alpha-1} > 2(\theta^L)^{\alpha-1}\Psi\pi$ for any value of π.

In sum, in the presence of a rent-increasing technology, removing benevolent politicians from the pool of candidates does not alleviate incumbency disadvantage, and may further exacerbate it – for some out-of-equilibrium beliefs of the voter. The first part of the claim is established by comparing Remarks 1 and 3, whereas the second arises by way of Proposition 4.

Appendix 3. Constant rents and noise

The results in Lemma 1 – that constant-rents yield only a separating equilibrium, and consequently that incumbency disadvantage only exists if $\pi < 1/2$ – depend on some minimal amount of discounting. If the politician were to value the future as equally as the present, any arbitrary reelection rule by the voter would be supported in equilibrium. However, I show here that the same results are obtained in a similar model without discounting, but with G observed imperfectly, with some amount of noise.

The setup of the model is explained in Section 4.5 in the text. The voter's posterior belief upon observing g_1 must make her indifferent between the two lotteries in the second-period

$$\pi T + (1-\pi)T(1-\alpha_1) = Pr(\theta = H \mid g)T + (1 - Pr(\theta = H \mid g))T(1-\alpha_2)$$

Suppose that L wishes to separate in equilibrium and extract $\alpha_1 > 0$. The voter's posterior belief is then

$$Pr(\theta = H \mid g) = \left(\phi\left(\frac{g-T}{\sigma_T}\right)\pi\right) / \left(\phi\left(\frac{g-T}{\sigma_T}\right)\pi + \phi\left(\frac{g-T(1-\alpha_1)}{\sigma_T}\right)(1-\pi)\right)$$

This posterior gives a reelection threshold level of g

$$\underline{g} = \frac{\sigma_T^2}{\alpha_1 T}\ln\left(\frac{1}{\pi}\left(\frac{\alpha_2}{\alpha_1} - (1-\pi)\right)\right) + T\left(1 - \frac{\alpha_1}{2}\right)$$

The separating equilibrium exists if the bad politician finds it worthwhile to steal today

$$\alpha_1 T + Pr(\text{reelect} \mid \text{steal})\alpha_2 T \geq Pr(\text{reelect} \mid \text{notsteal})\alpha_2, T$$

which is equivalent to

$$\frac{\alpha_1}{\alpha_2} \geq \Phi\left(\underline{g} - T(1-\alpha_1)\right) - \Phi\left(\underline{g} - T\right)$$

When $\alpha_2 = \alpha_1$, i.e. the rents are constant over incumbent's tenure, the above condition reduces to

$$1 \geq \Phi\left(\frac{\alpha_1 T}{2}\right) - \Phi\left(-\frac{\alpha_1 T}{2}\right)$$

By symmetry of the normal distribution, the right-hand side can be reexpressed as $2\Phi((\alpha_1 T)/2) - 1$. Since $\epsilon \sim N(0, \sigma_T)$, $\Phi(0) = 1/2$. Since $\alpha_1 \in (0, 1)$ and $T > 0$, and assuming finite T, $\Phi((\alpha_1 T)/2) \in (1/2, 1)$. Therefore, the right-hand side $\in (0, 1)$, and the condition for separation is always satisfied.

To show that incumbency disadvantage can exist only if $\pi < 1/2$, consider the equilibrium reelection rate. In the separating equilibrium, the unconditional reelection probability is:

$$\rho^* = \pi(1 - \Phi(\underline{g} - T)) + (1-\pi)(1 - \Phi(\underline{g} - T(1-\alpha_1)))$$

When $\alpha_2 = \alpha_1$, the reelection rate is $\rho^* = \pi\ (1 - \Phi(-(\alpha_1 T)/2)) + (1-\pi)(1 - \Phi(-(\alpha_1 T)/2))$, or $\pi + (1 - 2\pi)\Phi((\alpha_1 T)/2)$. Substituting for $\pi = 1/2$ in ρ^* gives $1/2 + \Phi(0) > 1/2$. Since $\Phi(-c(\alpha_1 T)/2) \in (0, 1/2)$, the reelection rate is increasing in π, and so it must be that case that $\rho^* > 1/2$ if $\pi > 1/2$.

Appendix 4. Increasing rents and incumbent retention with noise

In this section, I show that one of the key findings in the paper from Lemma 3 (pertaining to the increase in the future rent relative to today's rent) remains qualitatively unchanged when the noise is included. That is, I show here that the main

results in the paper are not dependent on a specific set of off-equilibrium beliefs employed in the paper.

In line with Lemma 3, I focus on characterizing the semi-separating equilibrium in the model with noise. As in the previous section, the voter's posterior belief is formed so that she is indifferent between the two lotteries in the second-period: $\pi T + (1-\pi)T(1-\alpha_1) = Pr(\theta = H|g)T + (1-Pr(\theta = H|g))T(1-\alpha_2)$.Suppose L is mixing between stealing and not in the first-period.[47] The voter's posterior belief is then

$$\begin{aligned} &Pr(\theta = H \mid g) \\ &\quad = \left(\phi\left(\frac{g-T}{\sigma_T}\right)\pi\right) / \left(\phi\left(\frac{g-T}{\sigma_T}\right)\pi + \phi\left(\frac{g-T}{\sigma_T}\right)(1-\pi)(1-\delta)\right. \\ &\quad \left. + \phi\left(\frac{g-T(1-\alpha_1)}{\sigma_T}\right)(1-\pi)\delta\right) \end{aligned}$$

where δ is the probability with which L steals in the first-period. Conceptually, $\delta = 1-\gamma$ where γ is the mixing probability in the model without noise as defined in Section 4.2 above.

The voter's posterior belief yields a threshold level of public goods

$$\underline{g} = \frac{\sigma_T^2}{\alpha_1 T}\ln\left(\frac{\delta(\alpha_2 - \alpha_1(1-\pi))}{\delta(\alpha_2 - \alpha_1(1-\pi)) - (\alpha_2 - \alpha_1)}\right) + T\left(1 - \frac{\alpha_1}{2}\right)^{48}$$

The politician, in turn, must be indifferent between stealing and not stealing in the first-period, which gives the equality $\Phi(g-T(1-\alpha_1) = \Phi\ (g-T) + \alpha_1/\alpha_2$. This condition implicitly defines the low-type incumbent's mixing strategy δ, which is difficult to express explicitly. Its behavior with respect to α_2, while keeping α_1 fixed can be examined by the implicit function theorem.

Namely, let $G \equiv \Phi\ (\underline{g} - T(1-\alpha_1) - \Phi(\underline{g} - T) - \alpha_1/\alpha_2$. $\underline{g}$ is increasing in α_2 if $\delta > (\alpha_2 - \alpha_1)/(\alpha_2 - \alpha(1-\pi))$, which is easier to satisfy as α_2 increases, given that the right-hand side is decreasing in α_2.

$$\begin{aligned} \frac{\partial G}{\partial \alpha_2} &= \left(\frac{\sigma_T^2 \pi}{(\delta(\alpha_2 - \alpha_1(1-\pi)) - (\alpha_2 - \alpha_1))(\alpha_2 - \alpha_1(1-\pi))T}\right) \\ &\quad \left(\phi(\underline{g} - T(1-\alpha_1)) - \phi(\underline{g} - T)\right) + \frac{\alpha_1}{\alpha_2} \end{aligned}$$

For a sufficiently high α_2, this derivative is negative.

$$\frac{\partial G}{\partial \delta} = \frac{\sigma_T^2(\alpha_1 - \alpha_2)}{\alpha_1 T \delta(\delta(\alpha_2 - \alpha_1(1-\pi)) - (\alpha_2 - \alpha_1))}\left(\phi(\underline{g} - T(1-\alpha_1)) - \phi(\underline{g} - T)\right)$$

This derivative is positive for a high α_2. Applying the implicit function theorem then gives $(\partial\delta)/(\partial\alpha_2) > 0$ for a sufficiently high α_2. In other words, the probability of stealing in the first-period increases as the future rent gets larger compared to today's rent. This is qualitatively identical to the result in the baseline model in the

paper, where the probability of mimicking was decreasing in the rent-increasing technology α.

Finally, consider the unconditional reelection rate. In the semi-separating equilibrium,

$$\rho^* = \pi(1 - \Phi(\underline{g} - T)) + (1 - \delta)(1 - \pi)(1 - \Phi(\underline{g} - T)) + \delta(1 - \pi)(1 - \Phi(\underline{g} - T(1 - \alpha_1)))$$

or equivalently $\Phi(T - \underline{g}) - \delta(1-\pi)(\alpha_1/\alpha_2)$. To evaluate the reelection rate with respect to α_2, it is important to note that there are two endogenous quantities: $\underline{g}$ and δ. Therefore, it must be the case that

$$\frac{\partial \rho^*}{\partial \alpha_2} = \frac{\partial \rho^*}{\partial \alpha_2 | \delta = \text{constant}} + \frac{\partial \rho^*}{\partial \delta} \cdot \frac{\partial \delta}{\partial \alpha_2}$$

which is equal to

$$-\frac{\alpha_1}{\alpha_2^2(\phi(\underline{g} - T(1 - \alpha_1)) - \phi(\underline{g} - T))} + \delta(1 - \pi)\left(\frac{\alpha_1}{\alpha_2^2}\right) - (1 - \pi)\left(\frac{\alpha_1}{\alpha_2}\right)\frac{\partial \delta}{\partial \alpha_2}$$

The first term is negative if $\phi(\underline{g} - T)) < \phi\ (\underline{g} - T(1-\alpha_1))$, which is true for a sufficiently high α_2. The third term is always negative. Therefore the entire expression is negative if

$$\delta < \frac{1}{(\phi(\underline{g} - T(1 - \alpha_1)) - \phi(\underline{g} - T))(1 - \pi)}.$$

As α_2 increases, the denominator of the right-hand side becomes smaller, and so $\partial \rho^* / \partial \alpha_2 < 0$, given that $\delta \in (0, 1)$.[49]

Acknowledgements

Special thanks go to James Hollyer, Sanford Gordon and Rebecca Morton for their comments and guidance. For valuable comments and suggestions, I also thank the editor and two anonymous reviewers, as well as Michaël Aklin, Scott Ashworth, Adam Bonica, Ethan Bueno de Mesquita, Andy Eggers, S.P. Harish, Marina Jovanović, Andrew Little, Monika Nalepa, Natalija Novta, Rocío Titiunik, Joshua Tucker, and attendees and discussants at the 2013 APSA Annual Meetings, 2013 EPSA Annual Meetings, and the conference in Honor of Norman Schofield's Leadership of the Center in Political Economy, Washington University, St. Louis, April 2013. Any errors are my own.

Notes

1. An alternative interpretation is simply that voters believe that incumbents can extract increasing rents.
2. These results have been subsequently confirmed by Aidt et al. (2011) and Fisman et al. (2012).

3. Earlier studies have also found a frequent incumbent turnover among presidents in other Latin American countries (Dix, 1984; Molina, 2001).
4. Klašnja (2014) similarly finds incumbency disadvantage among mayors in Romania. There is also evidence of a disadvantage among legislators in Sub-Saharan Africa (Macdonald, 2014; Warren, 2013).
5. Incumbency disadvantage is yet more intriguing given that incumbents in younger – less institutionalized – democracies may have more options to ensure political survival in office (e.g. Boas and Hidalgo, 2011; Przeworski, 2011).
6. Gordon and Landa (2009), however, show that not all incumbents are advantaged by some of the common sources of incumbency advantage. An increase in some factors, such as campaign funding advantage or endorser bias in favor of incumbents, while beneficial to low-quality incumbents, may actually be harmful to high-quality incumbents, by diluting the value of the signal from the decision to run for reelection in the face of a serious challenge.
7. Corruption may only be a manifestation of deeper and more fundamental causes of incumbency disadvantage. I discuss this in more detail in Section 5.
8. While the authors do not test for the effect of corruption on incumbency disadvantage, corruption was high in the UK during that period (Eggers and Spirling, 2014b; Popa, 2014), making it at least a possible cause.
9. More generally, Svolik (2013) and Myerson (2006) examine incumbent retention in a young democracy setting and characterize a self-fulfilling equilibrium where voters expect little of incumbents, who in turn perform poorly. This results in anti-incumbency, but in their framework this equilibrium is unstable and only leads to a complete breakdown of democracy.
10. The policy space is unidimensional. Most notably, there is no ideology. While this is a simplification, in young democracies partisanship is typically underdeveloped and candidate platforms are quite unstable. See more details in Section 5. The absence of ideology allows the electorate to be modeled by preferences of a single representative voter.
11. In Section 4.7 I will assume $\theta^H = 1 > \theta^L$.
12. Alternatively, θ can be interpreted as politician's rent-extraction *ability*. The difference between ability and affinity is not entirely innocuous, as I will discuss in a moment.
13. Klašnja (2014) finds similar evidence for mayors in Romania.
14. This logic is similar – only in reverse – to a well-known model of incumbency advantage of McKelvey and Riezman (1992). In their model, the seniority system, established in equilibrium, advantages incumbents electorally because senior legislators have a recognition advantage in legislative bargaining and thus produce higher welfare for their constituents. An important assumption in their model is that there is no moral hazard or other source of conflict between the legislators and the voters – their preferences are shared and monotonically increasing in the amount of money the legislator brings to the district. In the main analysis below, I show that when the preferences of voters and incumbents are in conflict, seniority (understood broadly as longer tenure, not in the particular context of legislative bargaining) can result in incumbency disadvantage. Moreover, I show in Section 4.7 that when experience translates into increase in *both* rent-seeking and provision of goods voters care about, an incumbency disadvantage *can still exist*, but is nevertheless ameliorated compared to the case when politicians only increase rent-seeking.
15. As I show in Section 4.7, results are substantively unaffected when the type and the technology are separated by, for example, assuming that the utility of the politician is $\theta G_t + (1-\theta)R_t$, and R_t incorporates the rent-increasing technology. I choose the

above functional forms to simplify algebra and discuss the impact of bad type politician's preference for goods that the voter values as separate from politician's type. See Section 4.6.

16. I have chosen this functional form as it greatly simplifies the algebra. Using several other (quasi-) convex and decreasing functions does not change the results substantively.
17. $(\partial R_t)/(\partial\alpha) = -\ln(\theta)\theta^{\alpha}r^2 > 0$ since $\theta < 1$; $(\partial^2 R_t)/(\partial\alpha^2) = -(\ln(\theta))^2\theta^{\alpha}r^2 < 0$; $(\partial R_t)/(\partial\theta) = -\alpha\theta^{\alpha-1}r^2 < 0$; $(\partial^2 R_t)/(\partial\theta^2) = -(\alpha-1)\alpha\theta^{\alpha-2}r^2 < 0$.
18. This assumption may be problematic if θ were interpreted as the politicians'*ability* to extract rents, rather than his affinity for rent-extraction. The politician's ability may not only be hidden from the voter, but it may also be initially unknown to the politician. In that case, it would be more appropriate to assume that there is symmetric uncertainty over θ, as in career-concerns models (e.g. Persson and Tabellini, 2000). However, when it comes to matters such as corruptness the politician is commonly assumed to know their type (e.g. Besley, 2007).
19. Another potential way to introduce additional uncertainty is to make α unknown – voters and perhaps politicians may be uncertain about the rent-increasing technology.
20. Most of the empirical literature on incumbency disadvantage in this Section look at reasonably well-functioning democracies. An extension could allow for voter intimidation or clientelistic networks between voters and politicians.
21. All the proofs are given in Appendix 1.
22. The model can be extended so that π is endogenized. If benevolent politicians are compensated at a competitive level compared to bad politicians, political selection would likely result in a high π, thus eliminating the incumbency disadvantage in this simple constant-rent setup. See for example Caselli and Morelli (2004).
23. As one of numerous example, in Romania, 79 people, including several high-profile politicians, were indicted for defrauding the state of about$325 million in lost revenues during the privatization of the state-owned merchant fleet in the early 1990s Amariei (2004).
24. $(\partial\sigma_i^*)/(\partial\theta) = 1/\beta(\alpha-1)\theta^{\alpha-2} > 0,$, since $\alpha > 1$. $(\partial\sigma_i^*)/(\partial\alpha) = 1/(\beta)\ln(\theta)\theta^{\alpha-1} < 0$, since $\theta < 1$.
25. Namely, the reelection rate is $\rho_i^* = \pi\sigma_i^* + (1-\pi)\gamma\sigma_i^* = (\pi/\beta)(\theta^{\alpha}/(\theta-(1-\pi)\theta^{\alpha}))$, where $\gamma \equiv Pr(G_1 = T|\theta = L)$, is the probability that the low type mimics the high type. In particular, in the partially pooling equilibrium, the voter's posterior belief upon seeing $G_1 = T$ is: $\Pi = \pi/(\pi + (1-\pi)\gamma)$. The bad politician will mix so that $\Pi T + (1-\Pi)(T-R_2) = \pi T + (1-\pi)(T-\widehat{R_2})$, where $\widehat{R_2}$ denotes the second-period rent-extraction of a newly elected bad incumbent (i.e. $\widehat{R_2} \equiv R_{2,t_I=1}$). This yields $\gamma = (\pi\theta^{\alpha})/(\theta-(1-\pi)\theta^{\alpha})$. Then, $(\partial\rho_i^*)/(\partial\pi) = (\theta^{\alpha+1} - \theta^{2\alpha})/(\theta-(1-\pi)\theta^{\alpha})^2 > 0$, since $\theta < 1$.
26. Namely, the condition for mimicking is $\theta^{\alpha-1} < \beta$, whereas for incumbency disadvantage it is $\theta^{\alpha-1} < (\beta)/(2\pi + (1-\pi)\beta)$. For $\pi < 1/2$, $\beta/(2\pi + (1-\pi)\beta)$ can be both greater or smaller than β.
27. Of course, absent of any other component to electoral outcomes, the incumbency disadvantage cannot exist if the pool of candidates consists only of benevolent politicians, i.e. $\pi = 1$.
28. The parameters affecting the retention rate in the constant-rent environment (π) are a subset of those affecting retention in the increasing-rent environment (π, β, θ, α). Comparison across equilibria in different environments is thus valid when π is kept constant.

29. Namely

$$\frac{\partial \gamma}{\partial \alpha} = \frac{\pi \ln(\theta)\theta^{\alpha+1}}{(\theta-(1-\pi)\theta^{\alpha})^2} < 0$$

so that the probability of first-period mimicking by L decreases in α.

30. An additional assumption needed is that θ^H satisfies the constraint $r_2^H - (\theta^H)^{\alpha}(r_2^H)^2 < 1$, i.e. that the optimal second-period rent for the good type is not equal to total tax collection T_2. This assumption ensures that the voter is not indifferent between the two types in the second-period. If this assumption does not hold, both types extract the entire tax collection in the second-period. The voter would be indifferent, and any retention rate would be supported in a partially pooling equilibrium, if such an equilibrium exists. In the ensuing analysis, I assume that this condition holds.
31. This in turn further weakly increases equilibrium rent-seeking, since everyone extracts optimal rents, and neither the high nor the low type has an incentive to lower first-period extraction to try to manipulate voter updating. Voter welfare is weakly lower and rent-extraction weakly higher compared to an equilibrium with any positive reelection rate, such as the one discussed immediately below.
32. If this condition is satisfied, then $(\theta^H)^{\alpha} > \theta^L$.
33. Rent-increasing technology is key here. Any arbitrary reelection rule is possible in a mimicking equilibrium in a constant-rent environment without a benevolent type. If L mimics H, the lottery over which type would be reelected is identical to the lottery over the type chosen afresh from the pool of candidates. The voter would be indifferent, and any arbitrary reelection rule would be supported in equilibrium.
34. This is because $(1-\theta^L/\theta^H)^2 < 1$.
35. The reelection rate is now $\rho_i^* = (1/\beta)\pi\Psi(\theta^L)^{\alpha-1}$, where

$$\Psi = \left(1-\frac{\theta^L}{\theta^H}\right)^2 \left(\frac{1}{(\theta^L)^{\alpha}} - \frac{1}{(\theta^H)^{\alpha}}\right) \Big/ \left(\frac{1}{(\theta^L)^{\alpha}} - \frac{1}{\theta^L} + \pi\left(\frac{1}{\theta^L} - \frac{1}{\theta^H}\right)\right)$$

Let

$$\Gamma = 1-\frac{\theta^L}{\theta^H}, \Omega = \frac{1}{(\theta^L)^{\alpha}} - \frac{1}{(\theta^H)^{\alpha}}, \quad \Delta = \frac{1}{(\theta^L)^{\alpha}} - \frac{1}{\theta^L} + \pi\left(\frac{1}{\theta^L} - \frac{1}{\theta^H}\right)$$

Then,

$$\frac{\partial \rho_i^*}{\partial \theta^H} = \frac{2(\theta^L)^{\alpha}\Gamma\Omega}{(\theta^H)^2\Delta} + \frac{\alpha(\theta^L)^{\alpha-1}\Gamma^2}{(\theta^H)^{\alpha+1}\Delta} - \frac{(\theta^L)^{\alpha-1}\Gamma^2\Omega\pi}{(\theta^H)^2\Delta^2}$$

Comparing the first term to the last term gives $2/(\theta^L)^{\alpha-1} - 2 + 2\pi\Gamma > \pi\Gamma$, which is satisfied, and so the first term is larger than the third. Since the middle term is positive, $(\partial\rho_i^*)/(\partial\theta^H) > 0$.

36. The continuous choice variable induces moral hazard, which is yet more pronounced with the added noise. This adds considerably to the complexity of derivations. Since my focus in this part of the analysis is on the reelection probability rather than rent-seeking, I choose to avoid moral hazard for purposes of exposition and primarily focus on problems of adverse selection.

37. Optimal first-period G in the baseline model is $G_1 = T - r_1 = T - 1/(2\theta)$. When the low type cares about G, it is $G_1 = T - 1/(2\theta)(1-\lambda/(1-\lambda))$. If $\lambda > 0$, the latter is obviously larger than the former, as $1-\lambda/(1-\lambda) < 1$.
38. Since the high-type politician is benevolent, he will provide the public goods in the second-period, if reelected; thus, the possibility of greater public goods provision for the voter is not entirely removed by the second-period term-limit effect.
39. Unlike in the baseline model, I separate the type and the technology to make the algebra simpler. Alternatively, α could be considered as incorporating both technology and type, and θ as serving the purpose of λ from Section 4.6.
40. For simplicity, I assume $T = 1$ henceforth.
41. The reelection rate in a partially pooling equilibrium is

$$\rho^* = \frac{\pi}{\beta}\frac{(1-\theta)^2}{(1-\theta)^2\alpha_r^2 + 4\theta^2\alpha_g^2}\frac{(1-\theta)^2\alpha_r^2\alpha_g}{(1-\theta)^2(\alpha_r^2 - (1-\pi)\alpha_g) - 4\theta^2\alpha_g(\alpha_g - 1)}$$

    The second fraction is decreasing and the third increasing in α_g; using further the product rule, $(\partial\rho^*)/(\partial\alpha_g) > 0$. Similarly, $(\partial\rho^*)/(\partial\alpha_r) < 0$. The left-hand side of the condition for partial pooling given in Proposition 7 is monotonically decreasing in α_r, and so its sufficient increase relative to α_g will imply the elimination of the separating equilibria and a drop in ρ^* below 1/2.
42. To the extent that the politician faces a fixed budget constrain in each period, better ability of the party to constrain shirking in the politician's last term translates directly into a lower increase in rent-seeking compared to a politician under a weak party.
43. In the presence of weak parties, term limits thus may make incumbency disadvantage more likely. On the other hand, term limits may be a useful way to limit the potential damage from increasing rents if politicians serve for long periods; however, the presence/absence of term limits does not alter the strategic incentives I discuss in this paper, so long as rents increase continually over time served in office, and term limits do not bind after one period in office. Moreover, the behavior of voters in my model acts as a (weakly) more efficient means of limiting rent-seeking than term limits. As shown in Lemma 2, under some conditions, separating equilibria are supported under which high-type politicians are retained. Under term limits, politicians of all types are removed, which may be leave voters weakly worse-off.
44. The subscript is used to distinguish this variable from subsequent variables of interest.
45. This out-of-equilibrium belief may be harder to justify than when the high type is benevolent. I discuss in Appendix 2 the condition that allows the equilibrium to survive the application of the Intuitive Criterion.
46. $\bar{G}_1^H$ is the level of first-period provision of goods G greater than that consistent with the high types optimal rent-extraction.
47. Note that if $\alpha_2 \geq \alpha_1$, complete pooling is not an equilibrium, because g would not convey any information and the voter would replace this with certainty. The probability of L stealing therefore needs to be positive for an equilibrium to exist.
48. This threshold level of g is higher than the threshold level in the separating equilibrium in Appendix 4.
49. The condition also reveals that adding noise induces some non-monotonicity in the reelection rate with respect to α_2 when α_2 is small. Also, the reelection rate is more likely to be decreasing in future rents when π is low or σ_T is high.

References

Abramowitz AI, Alexander B and Gunning M (2006) Incumbency, redistricting, and the decline of competition in US house elections. *Journal of Politics* 68(1): 75–88.

Aidt T, Golden MA and Tiwari D (2011) *Incumbents and Criminals in the Indian National Legislature*. Los Angeles, CA: University of California, Department of Political Science.

Aidt TS (2003) Economic analysis of corruption: a survey. *The Economic Journal* 113(491): 632–652.

Anderson JH and Gray CW (2006) *Anti-Corruption in Transition 3: Who Is Succeeding... and Why?*Washington DC: World Bank.

Ansolabehere S and Snyder JM (2002) The incumbency advantage in US elections: an analysis of state and federal offices, 1942–2000. *Election Law Journal* 1: 315–338.

Ansolabehere S, Snyder JM and Stewart C (2000) Old voters, new voters, and the personal vote: using redistricting to measure the incumbency advantage. *American Journal of Political Science* 44: 17–34.

Amariei R (2004). Romania: The perils of privatization. *Transitions Online* [online], 17 August. Available at: http://www.tol.org/client/article/12739-the-perils-ofprivatization.html (last accessed 25 May 2015).

Ashworth S (2005) Reputational dynamics and political careers. *Journal of Law, Economic and Organization* 21: 441–466.

Ashworth S and Bueno de Mesquita E (2008) Electoral selection, strategic challenger entry, and the incumbency advantage. *Journal of Politics* 70: 1006–1025.

Banerjee A, Green DP, McManus J, et al. (2014) Are poor voters indifferent to whether elected leaders are criminal or corrupt? A vignette experiment in rural India. *Political Communication* 31(3): 391–407.

Banerjee A and Pande R (2009) *Parochial politics: ethnic preferences and politician corruption*. Massachusetts Institute of Technology, Department of Economics.

Bernhard M and Karakoç E (2011) Moving west or going south?: economic transformation and institutionalization in postcommunist party systems. *Comparative Politics* 44(1): 1–20.

Besley T (2007) *Principled Agents? The Political Economy of Good Government*. Oxford, UK: Oxford University Press.

Besley T and Burgess R (2002) The political economy of government responsiveness: theory and evidence from india. *The Quarterly Journal of Economics* 117(4): 1415–1451.

Bhavnani R (2012) *Possible Corruption among India's Politicians: Evidence from Asset Disclosures*. University of Wisconsin-Madison, Department of Political Science.

Birch S (2003) Electoral Systems and Political Transformation in Post-Communist Europe. New York: Palgrave Macmillan.

Boas TC and Hidalgo FD (2011) Controlling the airwaves: incumbency advantage and community radio in Brazil. *American Journal of Political Science* 55(4): 869–885.

Brusco V, Nazareno M and Stokes SC (2004) Vote buying in Argentina. *Latin American Research Review* 39(2): 66–88.

Bussell J (2013) Varieties of corruption: the organization of rent-seeking in India. In: *Paper prepared for presentation at the 71st Annual Conference of the Midwest Political Science Association*, Chicago, IL, 11–14 April 2013.

Caselli F and Michaels G (2009) Do oil windfalls improve living standards? Evidence from Brazil. *American Economic Journal: Applied Economics* 5(1): 208–238.

Caselli F and Morelli M (2004) Bad politicians. *Journal of Public Economics* 88(3–4): 759–782.

Cho IK and Kreps DM (1987) Signaling games and stable equilibria. *Quarterly Journal of Economics* 102: 179–221.
Cotta V and Cristina L (2008) *Adhemar de Barros (1901–1969): A Origem do Rouba, Mas Faz*. Masters Dissertation, University of Sao Paulo, Brazil.
Coviello D and Gagliarducci S (2012) *Tenure in Office and Public Procurement*. Canada: HEC Montreal.
Cox GW and Katz JN (1996) Why did the incumbency advantage in US house elections grow. *American Journal of Political Science* 40: 478–497.
Dalton RJ and Weldon S (2007) Partisanship and party system institutionalization. *Party Politics* 13(2): 179–196.
Di Tella R and Weinschelbaum F (2008) Choosing agents and monitoring consumption: a note on wealth as a corruption-controlling device. *The Economic Journal* 118(532): 1552–1571.
Dix RH (1984) Incumbency and electoral turnover in Latin America. *Journal of Interamerican Studies and World Affairs* 26: 435–448.
Dix RH (1992) Democratization and the institutionalization of Latin American political parties. *Comparative Political Studies* 24(4): 488–511.
Eggers AC and Spirling A (2014a) *Incumbency Advantage and Disadvantage: Theory and Evidence from the UK*. London School of Economics and Political Science, Department of Government.
Eggers AC and Spirling A (2014b) Guarding the guardians: partisanship, corruption and delegation in Victorian Britain. *Quarterly Journal of Political Science* 9(3): 337–370.
Eguia JX (2013) The origins of parties: the United States congress in 1789–1979 as a test case. *Economics & Politics* 25: 313–334.
Erikson RS (1971) The advantage of incumbency in congressional elections. *Polity* 3: 395–405.
Fearon JD (1999) Electoral accountability and the control of politicians: selecting good types versus sanctioning poor performance. In: Przeworski SCS, Adam and Manin B (eds) *Democracy, Accountability and Representation*. Cambridge, UK: Cambridge University Press, pp.55–97.
Ferejohn J (1977) On the decline of competition in congressional elections. *American Political Science Review* 71: 166–176.
Ferraz C and Finan F (2011) Electoral accountability and corruption: evidence from the audits of local governments. *American Economic Review* 101: 1274–1311.
Ferraz C and Finan FS (2008) Exposing corrupt politicians: the effects of brazil's publicly released audits on electoral outcomes. *Quarterly Journal of Economics* 123(2): 703–745.
Fisman R, Schulz F and Vig V (2012) *Private returns to public office*. National Bureau of Economic Research No. 18095, Boston, MA.
Gelman A and King G (1990) Estimating incumbency advantage without bias. *American Journal of Political Science* 34: 1142–1164.
Gingerich DW (2013) Yesterday's heroes, today's villains: ideology, corruption, and democratic performance. *Journal of Theoretical Politics* 26(2): 249–282.
Gordon SC and Landa D (2009) Do the advantages of incumbency advantage incumbents?*Journal of Politics* 71(4): 1481–1498.
Grzymala-Busse A (2007) *Rebuilding Leviathan: Party Competition and State Exploitation in Post-Communist Democracies*. New York: Cambridge University Press.
Hainmueller J and Lurz-Kern H (2008) Incumbency as a source of spillover effects in mixed electoral systems: evidence from a regression-discontinuity design. *Electoral Studies* 27: 213–227.

Hellman JS, Jones G and Kaufmann D (2003) Seize the state, seize the day: state capture and influence in transition economies. *Journal of Comparative Economics* 31(4): 751–773.
Hirano S and Snyder JM (2009) Using multimember district elections to estimate the sources of the incumbency advantage. *American Journal of Political Science* 53: 292–306.
Hollyer JR and Wantchekon L (2014) Corruption and ideology in autocracies. *Journal of Law, Economics, and Organization, First View:* 1–35. DOI: 10.1093/jleo/ewu015.
Hollyer JR, Rosendorff BP and Vreelend JR (2014) Measuring transparency. *Political Analysis* 22(4): 413–434.
Katz JN and King G (1999) A statistical model for multiparty electoral data. *American Political Science Review* 93: 15–32.
Kaufmann D and Siegelbaum P (1996) Privatization and corruption in transition economies. *Journal of International Affairs* 50: 419–458.
Kayser MA and Wlezien C (2011) Performance pressure: patterns of partisanship and the economic vote. *European Journal of Political Research* 50(3): 365–394.
Keefer P (2007) Clientelism, credibility, and the policy choices of young democracies. *American Journal of Political Science* 51(4): 804–821.
Kendall C and Rekkas M (2012) Incumbency advantage in the canadian parliament. *Canadian Journal of Economics* 45(4): 1560–1585.
Kitschelt H, Hawkins K, Luna JP, et al. (2010) *Latin American Party Systems*. Cambridge, UK: Cambridge University Press.
Klašnja M (2014) *Corruption and Incumbency Disadvantage: Theory and Evidence*. Princeton University, Center for the Study of Democratic Politics.
Klašnja M, Little AT and Tucker JA (2014) Political corruption traps. [Manuscript]. At: Princeton University, Center for the Study of Democratic Politics.
Klašnja M and Titiunik R (2013) Incumbency disadvantage in weak party systems: Evidence from brazil. [Manuscript]. At:
Klašnja M, Tucker JA and Deegan-Krause K (2014) Pocketbook vs. sociotropic corruption voting. *British Journal of Political Science:* 1–28. DOI: 10.1017/S0007123414000088.
Kotkin S and Sajo A (2002) *Political Corruption in Transition*. Budapest, Hungary: Central European University Press.
Lee DS (2008) Randomized experiments from non-random selection in US house elections. *Journal of Econometrics* 142: 675–697.
Levitt SD and Wolfram CD (1997) Decomposing the sources of incumbency advantage in the US house. *Legislative Studies Quarterly* 42: 45–60.
Linden LL (2004) *Are Incumbents Really Advantaged? The Preference for Non-Incumbents in Indian National Elections*. Massachusetts Institute of Technology, Department of Economics.
Macdonald B (2014) *Incumbency Disadvantages in African politics? Regression Discontinuity Evidence from Zambian Elections*. London School of Economics and Political Science, Department of International Development.
Mainwaring S and Scully TR (1997) Building democratic institutions: party systems in Latin America. *Electoral Studies* 16(1): 131–131.
McKelvey RD and Riezman R (1992) Seniority in legislatures. *American Political Science Review* 86(4): 951–965.
Miller WL, Grodeland AB and Koskechinkina TY (2001) *A Culture of Corruption? Coping with Government in Post-Communist Europe*. Budapest: Central European University Press.

Molina J (2001) The electoral effect of underdevelopment: government turnover and its causes in Latin American, Caribbean and industrialized countries. *Electoral Studies* 20: 427–446.

Monteiro J and Ferraz C (2012) *Does Oil make Leaders Unaccountable? Evidence from Brazil's Offshore Oil Boom*. Harvard University, Center for International Development.

Montinola GA and Jackman RW (2002) Sources of corruption: a cross-country study. *British Journal of Political Science* 32: 147–170.

Muthoo A and Shepsle KA (2014) Seniority and incumbency in legislatures. *Economics & Politics* 26(1): 13–37.

Myerson RB (2006) Federalism and incentives for success of democracy. *Quarterly Journal of Political Science* 1: 3–23.

Olken BA and Barron P (2009) The simple economics of extortion: evidence from trucking in Aceh. *Journal of Political Economy* 117(3): 417–452.

Persson T and Tabellini G (2000) *Political Economics: Explaining Economic Policy*. Cambridge, MA: The MIT Press.

Pop-Eleches G (2010) Throwing out the bums: protest voting and unorthodox parties after communism. *World Politics* 62: 221–260.

Popa M (Forthcoming) Elites and corruption: a model of endogenous reform and a test using British data. *World Politics*.

Powell EN and Tucker JA (2014) Revisiting electoral volatility in post-communist countries: new data, new results, and new approaches. *British Journal of Political Science* 44(1): 123–147.

Przeworski A (2011) *Democracy and the Limits of Self-Government*. Cambridge, UK: Cambridge University Press.

Querubin P and Snyder JM (2013) The control of politicians in normal times and times of crisis: wealth accumulation by US congressmen, 1850–1880. *Quarterly Journal of Political Science* 8: 409–450.

Roberts A (2008) Hyperaccountability: Economic voting in central and eastern Europe. *Electoral Studies* 27: 533–546.

Roberts KM and Wibbels E (1999) Party systems and electoral volatility in Latin America: a test of economic, institutional, and structural explanations. *American Political Science Review* 93(3): 575–590.

Serra G and Moon D (1994) Casework, issue positions, and voting in congressional elections: a district analysis. *Journal of Politics* 56(1): 200–213.

Shleifer A and Treisman D (2001) *Without a Map: Political Tactics and Economic Reform in Russia*. Cambridge, MA: The MIT Press.

Shleifer A and Vishny RW (1993) Corruption. *The Quarterly Journal of Economics* 108(3): 599–617.

Svolik MW (2013) Learning to love democracy: electoral accountability and the success of democracy. *American Journal of Political Science* 57(3): 685–702.

Titiunik R (2009) *Incumbency Advantage in Brazil: Evidence from Municipal Mayor Elections*. University of Michigan, Department of Political Science.

Tiwari D, Golden MA and Aidt TS (2010) Criminality and incumbency of candidates to the national legislature in India. In: *Paper presented at APSA 2010 Annual Meeting*.

Treisman D (2007) What have we learned about the causes of corruption from ten years of cross-national empirical research. *Annual Review of Political Science* 10: 211–244.

Tsebelis G (1989) The abuse of probability in political analysis: the Robinson Crusoe fallacy. *The American Political Science Review* 83(1): 77–91.

Uppal Y (2009) The disadvantaged incumbents: estimating incumbency effects in indian state legislatures. *Public Choice* 138: 9–27.

Vicente PC and Wantchekon L (2009) Clientelism and vote buying: lessons from field experiments in African elections. *Oxford Review of Economic Policy* 25(2): 292–305.

Wade R (1985) The market for public office: why the Indian state is not better at development? *World Development* 13(4): 467–495.

Warren S (2013) *Incumbency (dis)advantage and Constituency Service in African Legislative Elections*. New York University, Department of Politics.

Winters MS and Weitz-Shapiro R (2013) Lacking information or condoning corruption? When will voters support corrupt politicians? *Comparative Politics* 45: 418–436.

Zaller JR (1998) Politicians as prize fighters: electoral selection and the incumbency advantage. In: Geer JG (ed) *Politicians and Party Politics*. Baltimore, MD: Johns Hopkins University Press, pp.125–185.