Who Runs When?

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Abstract

When are good candidates willing to run for office? I analyze a dynamic model of elections in which voters learn about politicians' competence by observing governance outcomes. In each period, the country faces either a crisis or business as usual. A crisis has two key features: it exacerbates the importance of the officeholder's competence and, as a consequence, the informativeness of his performance. I show that electoral accountability has the perverse consequence of discouraging good candidates from running in times of crisis. Precisely when the voter needs him the most, the potential candidate who is most likely to be competent chooses to stay out of the race to preserve his electoral capital. In contrast with results in the existing literature, this adverse selection emerges even if running is costless and if office is more valuable than the outside option.

James Madison, father of the US constitution, believed that democratic elections serve primarily the purpose of allowing citizens to select good political leaders: 'the aim of every political Constitution is, or ought to be, first to obtain for rulers men who possess most virtue to discern (...) the common good of society' (Federalist Papers 57). Similarly, V.O. Key (1956: 10) argued that 'the nature of the workings of government depends ultimately on the men who run it'. Indeed, a growing empirical literature highlights that political leaders' competence has a critical impact on a country's performance (Jones and Olken, 2005; Besley, Montalvo and Reynal-Querol, 2011).

The health of a democratic system thus depends crucially on the answer to two questions. First, can voters identify good politicians to be (re)elected and bad ones to be thrown out? Second, are high-quality politicians willing to run for office in the first place? Attempts to answer the first question abound in the the literature. Much less attention has instead been devoted to the second. This paper aims at filling this gap. In particular, rather than focusing solely on *whether* competent individuals self-select into politics (as in the extant literature), I investigate *when* good candidates choose to enter the race. I thus present a dynamic model of elections to study how the environment conditions — i.e., whether the country is experiencing a moment of crisis or a period of business as usual — influence the endogenous supply of good political candidates.

The model uncovers a stark inefficiency: the quality of the pool of candidates is lower in periods of crisis, i.e., precisely when the country most needs a competent leader. When the country experiences a crisis, the office-holder's ability is put to the test. Forward-looking potential candidates thus consider both the value of holding office today, and how this would influence their electoral chances in the future. The potential candidate who is most likely to deliver a good performance is also the one that has the most to lose from failing, since he initially enjoys a reputation advantage. Thus, he has incentives to stay out of the race during times of crisis in order to protect his electoral capital for the future. In contrast, the potential candidate who is ex-ante less qualified for office has nothing to lose. As such, he is always willing to take the gamble and run for office during challenging times in hopes of improving his reputation. In equilibrium, voters thus get the *wrong candidates* at the *wrong time.* This result holds true even if running is costless, and holding office

is more valuable than the outside option. Indeed, this adverse selection does not arise due to weak electoral incentives, as is the case in the extant literature. Quite the opposite, it emerges precisely as a consequence of accountability.

The contribution of this paper is therefore threefold. First, it identifies a perverse consequence of electoral accountability that had been previously overlooked: it discourages the best candidates from running precisely when the voters need them the most. Second, it characterizes conditions (and policies) under which this inefficiency is amplified and under which, instead, it is muted. And finally, it highlights how the rational 'calculus of candidacy' (Rohde, 1979) goes beyond a simple comparison of the *exogenous cost of running* and the expected rents from office. If we consider politicians' dynamic electoral incentives, this calculus must also include *endogenous costs of holding office*.

I study these endogenous costs and the inefficiencies they generate by analyzing a dynamic a game that lasts for infinitely many periods. In each period, potential candidates simultaneously choose whether to enter the race. Running is costless and the payoff from holding office is higher than the outside option, therefore entering the race is always statically optimal. However, potential candidates are forward-looking and consider how the timing of their entry in the electoral arena influences the chances of remaining in office for two consecutive terms (before hitting the term limit). The baseline model is one of pure selection: the office-holder's performance results in either a good or a bad governance outcome, with the probability of producing a good outcome a function of the incumbent's type and the state of the world. Potential candidates' types, representing their political ability or competence, are unknown to both the voter and the politicians themselves. Politicians differ in their reputation, which indicates the probability of being a competent type. Intuitively, we can think about this probability as representing a measure of the politician's (expected) quality. Finally, the state of the world represents the environment conditions in the country. In each period, the country either experiences a crisis, or its conditions are 'business as usual'. A crisis (e.g., a global recession, a war, a natural disasters)) is an exogenous shock that has a key feature: it amplifies the impact of the incumbent's ability. Thus, competent office holders are especially valuable for the

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voters when the country experiences a crisis.

In this setting, the environment conditions (i.e., whether the country is experiencing a crisis or undergoing a period of business a usual) determine how much information the voters will obtain about the incumbent's ability. In particular, a crisis represents a test: precisely because the officeholder's competence matters the most during times of crisis, this is also when the governance outcome reveals most information about his ability. Here, the model builds on results in the retrospective voting literature highlighting that exogenous crises can represent an opportunity for the incumbent to prove himself, but also irreparably damage his standing if he is unable to deliver an effective response (see Healy and Malhotra (2013) for a review). Thus, even if the value of holding is the same in all periods, in this model a crisis influences potential candidates' *dynamic* payoff from being elected today.

In this perspective, being in office during a crisis is a gamble, because the officeholder may reveal himself as an incompetent type and thus get ousted. Straightforwardly, the lower the probability of being competent, the higher this risk. Naive intuition may suggest that positive selection should emerge in equilibrium, with the best (in expectation) potential candidate in the pool being more likely to run in times of crisis. Instead, the opposite is true.

While the best potential candidate has the highest chances of being able to manage a crisis (and thus faces lower risk), he also possesses valuable electoral capital (and thus has a higher *endogenous* opportunity cost). If the voter learns nothing new, this candidate will in fact still have an electoral advantage in the future. In contrast, new information may reveal to the voter that this initially advantaged candidate is actually an incompetent type. As a consequence, the probability of being retained for a second term is maximized if this candidate first gets to office during a period of business as usual, when his competence is less likely to be put to the test. The best potential candidate therefore experiences *fear of failure*: has incentives to stay out of the race in times of crisis and only enter during normal times.

Instead, the worst (in expectation) potential candidate never has anything to lose. Indeed, holding office during a crisis can only increase his future electoral chances, by allowing him to prove

himself and thus improve his reputation. As such, he has incentives to *gamble for resurrection* (Downs and Rocke, 1994): is always willing to enter the race when a crisis is likely to emerge, and instead has incentives to stay home during periods of business as usual.

Thus, when politicians are sufficiently patient, adverse selection — with regards to both *which* candidate is willing to run, and *when*— emerges in equilibrium. The worst potential candidate enters the race during times of crisis, while the best one chooses to run only during periods of business as usual. Importantly, this is true even if the best potential candidate is almost certain of being a competent type. The tiniest amount of uncertainty about his own ability to solve a crisis is enough to generate this inefficiency.

Having established the emergence of this problem, I then analyze if and how it may be mitigated. First, I find that improving the quality of the *worst* candidate in the pool increases the *best* potential candidate's incentives to run during times of crisis. Thus, a policy aimed at attracting better candidates at the bottom will have a "trickle up" effect and improve the quality of elected politicians, even when such bottom candidates do not actually get to office. Next, I show that in my setting increasing political salaries has no impact on the timing of potential candidates' entry decision. We know from extant literature that higher political wages may induce more competent individuals to self-select into politics (Ferraz and Finan, 2009). In my model, office rents are already higher than the outside option, so that all potential candidates aim to eventually become politicians. Yet, further increasing the benefits of holding office will not solve the inefficiency that arises with respect to *when* the best potential candidates will choose to enter the pool. Finally, I ask whether policies allowing for longer, or shorter, term limits may help solve the adverse selection identified here. I show that increasing term limits has an ambiguous effect on the best potential candidate's incentives to run for office during turbulent times, and thus on voter welfare. If this potential candidate is sufficiently confident in his own ability, he will have stronger incentives to run under longer term limits. In contrast, if he is not sufficiently likely to be a competent type, longer term limits further decrease his willingness to enter the race in times of crisis.

Notice that key assumption the theory builds on is that the environment conditions influence the

inferences that voters draw by observing governance outcomes: exogenous crises have an informational value. In the model, I impose in particular that a crisis *amplifies* the effect of the incumbent's competence on his performance, therefore provides voters with an opportunity to learn more about the officeholder's type. However, it is important to emphasize that the inefficiency highlighted above would continue to arise in a world where crises instead *mute* the impact of the incumbent's ability.[1] For example, we may argue that even a competent type would perform poorly in times of crisis. Instead, during periods of business as usual competent officeholders are able to deliver a good governance outcome. Then, the voter benefits the most from a competent politician during normal times, but this is also the state under which governance outcomes are most informative. As a consequence, the potential candidate who is most likely to be competent experiences fear of failure and has incentives to stay out of the race during normal times, running for office only during periods of crisis. Again, the voter gets the wrong candidate at the wrong time.

The model discussed so far is one of pure selection. It abstracts from two issues typically at the core of political agency models: asymmetric information and moral hazard. Potential candidates do not have any private information about their own ability and, once in office, cannot take any strategic action to improve their performance, which is solely a function of their type and the state of the world. These simplifications are useful for the baseline model, as they allow me to clearly illustrate the mechanism behind my results. However, in the second part of the paper I relax each of these assumptions (in turn), and analyze potential candidates' incentives under these richer strategic environments.

When potential candidates have private information about their true ability, their entry choice sends a potentially informative signal to the voters (Gordon, Huber and Landa, 2007). Intuitively, this may generate strategic incentives that go in the opposite direction as those discussed above, whereby potential candidates that are willing to run signal that they are confident in their own ability to solve a crisis. Nonetheless, I show that the adverse selection equilibrium always emerges.

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[1]As discussed in Ashworth, Bueno de Mesquita and Friedenberg (2017), crises may have either one or the other effect (i.e., mute or amplify the impact of competence), depending on our assumptions on the production function for governance outcomes.

The equilibrium is not unique but it is often likely to represent a focal point of the game, since it is the one that provides all potential candidates with the highest expected utility.

Next, I consider a setting where the incumbent's performance is a function not only of his type and the state of the world, but also of his effort choice. Here, the officeholder's effort choice (correctly conjectured by the voter in equilibrium) determines the informativeness of the governance outcome (as in Ashworth, Bueno de Mesquita and Friedenberg (2017)). In principle, potential candidates could therefore eliminate the risk associated with holding office during a crisis if they can commit to a level of effort that ensures outcomes reveal little information. I show that this is not enough to always eliminate the adverse selection documented above. Further, a familiar trade-off emerges: the voter can never at the same time attract the most competent politician to office and incentivize him to exert effort.

Taken together, the results of this paper uncover an inefficiency that can be more or less severe, but is unlikely to leave any democracy immune. The source of this inefficiency lies at the core of the accountability relationship between the voters and their representatives. Voters cannot credibly commit to ignoring valuable information that may be generated about the incumbent. Precisely when competence matters the most, the officeholder's performance reveals most information about his true ability. Paradoxically, the candidate who is most likely to be competent also has the most to lose from new information, and is not willing to take the gamble. In Online Appendix D, I provide some suggestive evidence that this inefficiency is more than a mere theoretical possibility. Evaluating the model's predictions by analyzing individual cases is challenging, since the pool of potential candidates is unobserved. Considering the theory's implications in the aggregate is instead a more promising direction. Thus, I analyze data on US Gubernatorial candidates and show that, in line with the theory, the probability that no high-quality candidate enters the race almost doubles during periods of (national-level) economic recession, jumping from 15% to 28%.[2] While this analysis is obviously just a first step in evaluating the empirical relevance of my model, it opens interesting avenues for future research.

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[2]This analysis is further discussed in the Conclusion section.

Contributions to the Literature

A small but burgeoning literature in political economy studies the endogenous supply of good politicians (Caselli and Morelli, 2004; Messner and Polborn, 2004; Dal Bó, Dal Bó and Di Tella, 2006; Mattozzi and Merlo, 2008; Fedele and Naticchioni, 2016; Brollo et al., 2013).[3] This literature builds on the intuition that 'potential candidates for political office will be influenced in their decision whether to enter the competition—as in any other profession—by financial considerations' (Messner and Polborn (2004, p. 2423)). Thus, these works typically focus on *static* settings, where potential candidates compare the expected returns from office to their outside option in the private market. Political ability and private-market salary are assumed to be correlated, therefore good politicians also have higher opportunity cost of running for office. This potentially generates adverse selection, whereby low-ability individuals are more likely to enter politics.

My paper contributes to this literature in two ways. First, I expand the 'calculus of candidacy' (Rohde, 1979) to incorporate politicians' *dynamic* electoral incentives. Second, I analyze *when*, rather than simply whether, good candidates are willing to enter the race. The key intuition is that potential candidates with long-term political ambitions consider how *holding office* today influences their electoral chances in the future. These strategic considerations may depend crucially on the environment conditions, i.e., the realization of a period-specific state of the world (crisis, or business as usual). Thus, even when running is costless and holding office is more valuable than the outside option (so that running would always be *statically* optimal), potential candidates face the strategic choice of when to enter the race.

In this perspective, this work is most closely related to Banks and Kiewiet (1989) and Jacobson (1989). Jacobson argues that good potential candidates may choose not to run when the political or economic conditions make it hard to beat the incumbent, in order not to waste valuable resources (see also, among others, Stone and Maisel (2003)). Banks and Kiewiet's formal model uncovers a similar 'incumbency scare-off' effect: good candidates may prefer to run during open-seat elections

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[3]Other scholars analyse endogenous candidacy, but focus on settings in which potential candidates differ in motivations (see Callander (2008)) or ideology (see Osborne and Slivinski (1996); Besley and Coate (1997); Indridason (2008)), rather than quality.

rather than challenge an electorally leading incumbent. This result emerges because in their model a candidate can only enter the race once, which generates an opportunity cost of *running* for office when the chances of winning are low. This is in sharp contrast with the model presented here, where running is costless but *holding* office has a potential opportunity cost. Substantively, my model complements this literature by providing a rationale for why even weak incumbents may face no serious challenge or, in open-seat elections, *neither* party may be able to field a high-quality candidate: in my setting, even a sure winner may sometimes be unwilling to run.

Here, the cost of holding office is rooted in information. Potential candidates anticipate that the voters would look at their performance to update their beliefs about their competence. In turn, such updated beliefs would inform their electoral choices in the future. This is a well-known dynamics in political economy (see Ashworth (2012) for a review), but my paper is the first one to analyze how it influences the endogenous supply of competent candidates.

Finally, my work is also in close conversation with a recent literature in formal theory that highlights how events outside of the officeholders' control may nonetheless impact their electoral fortunes, by altering the inferences voters draw upon observing their performance in office (Ashworth et al. 2017). My model complements these works. While Ashworth, Bueno de Mesquita and Friedenberg (2017) take the pool of candidates as given, I focus on how crises influence the endogenous supply of good politicians.

The Baseline Model

Players and actions. Consider a game that lasts for infinitely many periods, $t \in \{1, 2, \ldots, \infty\}$. At the beginning of the game, one potential candidate for each party $P \in \{1, 2\}$ is drawn from the pool of its members. In each period, potential candidates simultaneously choose whether to run for office or stay out of the race. A representative voter chooses whom to elect.

Office-holders are subject to a two-terms limit. When an incumbent leaves office—whether because he hits the term limit or is outvoted—he cannot run for office again in the future. This

assumption is stronger than necessary, and is meant to capture the notion that losing office damages a politician's future electoral career. After an incumbent leaves office, a replacement potential candidate is drawn from the same pool of party members.

Potential candidates' types. Each potential candidate i is either a good type, $\theta_i = 1$, or a bad one, $\theta_i = 0$. Potential candidates' types are unknown to all players, including the potential candidates themselves. Players share common beliefs that a share q_P of party P's members are good types. Notice that all potential candidates belonging to the same party are ex-ante identical, since they are all drawn from the same pool. Thus, the prior probability of any potential candidate from Party 1 being a good type is q_1, and the prior for Party 2 potential candidates is q_2.[4] This assumption is not necessary for the substantive results, but it is extremely helpful in streamlining the presentation and simplifying the analysis. An extension where each party has multiple potential candidates of different expected ability is analyzed below.

Within this framework, we can interpret q_P as party P's candidates' reputation or political capital. Intuitively, q_P also captures a measure of expected quality. I assume $0 < q_2 < q_1 < 1$, and thus refer to a potential candidate from Party 1 as the ex-ante advantaged one, and to a potential candidate from Party 2 as the disadvantaged one.

Crises. In each period, the country either faces a period of business as usual ($\omega_t = 0$), or it experiences a negative shock ($\omega_t = 1$). A shock is an *exogenous* crisis: it may represent, for example, a period of economic hardship, a war or a natural disaster. Players share common prior beliefs that $prob(\omega_t = 1) = \bar{p}$. Furthermore, at the beginning of each period, they observe a public signal $\chi_t \in \{0, 1\}$ indicating the likelihood of a crisis arising during the upcoming term, where $prob(\chi_t = 0 | \omega_t = 0) = prob(\chi_t = 1 | \omega_t = 1) = \psi > \frac{1}{2}$. The state ω_t then realizes, and is publicly observed, in each period at the beginning of the officeholder's term.

Governance outcomes. In each period, the officeholder produces either a good governance outcome ($o_t = g$) or a bad one ($o_t = b$). The probability of a good outcome realization is a function

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[4]There is a slight technical difficulty associated with the fact that the pool depletes over time. To bypass this problem, I assume that whenever a party draws a new potential candidate, another politician with the same true type is born into the pool.

of the state of the world, ω_t, and the officeholder's type, θ_i:

$$prob(o_t = g) = 1 - \omega_t + \omega_t\theta_i. \tag{1}$$

This formulation reflects the assumption that exogenous shocks amplify the effect of the incumbent's type on his performance. The officeholder always produces a good outcome during periods of business as usual ($\omega_t = 0$). Instead, if a crisis arises ($\omega_t = 1$) the incumbent's type determines the outcome realization. A good type ($\theta_i = 1$) always delivers a good outcome in times of crisis, while a bad type ($\theta_i = 0$) never does.[5] Substantively, this assumption captures the notion that competent officeholders are more likely to solve a crisis, and thus deliver a good governance outcome, than incompetent ones.

Payoffs. Finally, let us define the players' payoffs. Potential candidates are office motivated. Their payoff in each period out of office is normalized to 0. In each period in office, they instead obtain a payoff $k > 0$. Future payoffs are discounted at a rate δ. Since this paper focuses on incentives and disincentives to *hold* office, I consider a setting in which running is costless.[6]

The voter cares about governance outcomes. She pays a cost λ in each period in which $o_t = b$, whereas her payoff from a good outcome $o_t = g$ is normalized to 0.

Timing. To sum up, in each period t the game proceeds as follows

1. If the incumbent is up for re-election, a potential challenger is drawn from the pool of members of the opposing party. Otherwise, both parties draw potential candidates;

2. The signal χ_t is publicly observed;

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[5]The specific parametrization adopted here is for simplicity. Let $\Delta(\omega_t)$ be the difference in the probability that a good type produces a good outcome and the probability that a bad type does, under state of the world ω_t. Then, as long as $\Delta(1) > \Delta(0)$, the results of the model continue to hold (assuming incumbents are ousted after failing to successfully manage a crisis). More generally however, as I will discuss in more details below, the key inefficiency highlighted in this paper (voters get the wrong candidate at the wrong time) emerges even in a world where crises mute, rater than amplify, the effect of competence (see p. 20).

[6]Notice that, because I model a deterministic election process, this assumption has no impact on the qualitative results.

3. Potential candidates choose whether to enter the race;

4. The voter chooses whom to elect;

5. The state ω_t realizes and is publicly observed;

6. The governance outcome o_t realizes and is publicly observed;

7. Period-t payoffs realize, and the game proceeds to the next period.

In what follows, I will focus on equilibria in weakly undominated strategies. Since running is costless, this implies that each potential candidate's entry decision is conditional on winning the election (i.e., this amounts to an indifference breaking assumption). This streamlines the statement of the propositions but has otherwise no impact on the results.

Further, I will assume that the voter fully discounts the future (i.e., she only consider her payoff in the current period). This ensures that, in each period, the candidate with the highest reputation wins the election irrespective of incumbency status. This is not necessarily true in equilibrium with a forward looking voter. When choosing between a term limited incumbent and a challenger that is less likely to be competent but can run again in the following period, a forward looking voter would under some conditions elect the challenger. This is because the term limit would otherwise prevent the voter from efficiently using all the available information when making her electoral decision in the next period.

Before concluding this section, let me also highlight that the baseline model described above is one of pure selection. Politicians in office take no strategic action, and their performance is solely a function of their type and the state of the world. Furthermore, I assume away any asymmetry of information between voters and potential candidates (i.e., potential candidates do not have private information about their type). These assumptions allow me to focus on the 'gambling' aspect of the potential candidates' entry choice, and thus clearly illustrate the mechanism behind my results. However, in a separate section below I extend this model to incorporate, in turn, moral hazard and asymmetric information and analyze potential candidates' incentives under these richer strategic environments.

Analysis

Before delving into the equilibrium analysis it is important to emphasize that, in this setting, entering the race is always statically optimal for all potential candidates:

Remark 1. *Suppose potential candidates are completely impatient, i.e., $\delta = 0$. Then, all potential candidates always enter the race in equilibrium.*

Running is costless, and the per-period value of holding office (k) is higher than the outside option. Thus, if a potential candidate ever chooses to stay out of the race, it must be due to dynamic incentives. To understand why this may be the case, it is useful to first focus on the voter's problem.

The voter's problem

The voter cares (myopically) about governance outcomes. In each period, she therefore elects the candidate who is most likely to deliver a good performance. Straightforwardly, in an open-seat election her decision is simply a function of her prior beliefs over the candidates' abilities. Thus, whenever candidates from both parties enter the race, the voter always elects the candidate from Party 1.[7]

In contrast, when faced with the choice whether to retain a sitting incumbent, the voter's decision is informed by the incumbent's performance in office. This paper builds on a key intuition: the inferences that voters draw upon observing the governance outcome are a function of the state of the world. Thus, the same outcome may convey different information under different environment conditions. In other words, crises have an informational value. Precisely because crises amplify the effect of competence on outcomes, they also increase the informativeness of the incumbent's performance.[8] Thus, when the country is hit by a negative shock, the voter is able to draw more

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[7]Recall that when an incumbent loses office he cannot reenter the pool of candidates, therefore the candidates running in an open-seat election must be new draws that have not been in office before.

[8]The notion of informativeness adopted here is analogous to Blackwell's (1954): for any two experiments E and E', E' is more informative when the posterior distribution induced by E is a mean-preserving spread of the posterior distribution induced by E'. Here, the experiment 'holding office in times of crisis' is more informative than the experiment 'holding office during normal times'.

precise inferences about the incumbent's type.

My parametric assumptions imply that this effect emerges in a very stark way. Denote μ_i the posterior probability that incumbent i in office in period t is a good type. Recall that q_i is the prior probability that i is a good type and o_t is the period-t governance outcome. Then, the following holds:

Remark 2.

- *Suppose that there is no crisis in period t ($\omega_t = 0$). Then, governance outcomes are uninformative and $\mu_i = q_i$;*

- *Suppose instead that a crisis emerges in period t ($\omega_t = 1$) Then, governance outcomes are fully informative and we have that:*

  - *if the outcome is good ($o_t = g$), then $\mu_i = 1$;*

  - *if instead the outcome is bad ($o_t = b$), then $\mu_i = 0$.*

Under a period of business as usual ($\omega_t = 0$), both types are always able to deliver a good outcome. Thus, the officeholder's performance is uninformative, and the voter's beliefs always remain at the prior. In contrast, an exogenous crisis ($\omega_t = 1$) provides the voter with a test of the incumbent's political ability, and therefore an opportunity to learn. Thus, although the crisis is fully exogenous, it may influence the incumbent's electoral chances. Indeed, the voter's electoral decision may be different under different states of the world, even fixing the governance outcome.

In what follows, we consider the probability that an incumbent from party P is re-elected after holding office in period t, *assuming a challenger enters the race*. Then, we have that:

Lemma 1.

- *Suppose that there is no crisis in period t ($\omega_t = 0$). Then, a Party-1 incumbent gets reelected but a Party-2 incumbent gets ousted;*

- *Suppose instead that there is a crisis in period t ($\omega_t = 1$). We have that:*

- *if the governance outcome is good ($o_t = g$), then both Party-1 and Party-2 incumbents get reelected;*

- *if instead the outcome is bad ($o_t = b$), then both Party-1 and Party-2 incumbents get ousted.*

Recall that the prior probability that a politician from party P is a good type is given by q_P, with $q_1 > q_2$. Further, a politician who leaves office can never re-enter the pool of candidates, therefore an incumbent who is up for re-election is pitted against an untried challenger from the other party. Thus, an incumbent from Party 1 (Party 2) is ex-ante advantaged (disadvantaged) against any potential challenger. The above result then follows straightforwardly from Remark 2. Delivering a good outcome during normal times reveals no new information. This ensures a Party-1 incumbent's survival, but is never enough for an ex-ante disadvantaged incumbent from Party 2 to get reelected. In contrast, under $\omega_t = 1$ governance outcomes are fully informative. Thus, a good performance is always necessary and sufficient for the incumbent to win reelection.

The potential candidates' problem

With this in mind, let us now move to the potential candidates' (hereafter, PCs) problem. First, it is useful to analyze the benchmark case in which PCs are fully patient, which clearly illustrates their strategic incentives:

Proposition 1. *Suppose potential candidates are fully patient, i.e., $\delta = 1$. Then, for all $0 < q_2 < q_1 < 1$ the game has a unique equilibrium:*

- *Potential candidates from Party 1 enter the race if the public signal indicates normal times ($\chi_t = 0$), and stay out if the signal indicates a crisis ($\chi_t = 1$);*

- *Potential candidates from Party 2 enter the race if the public signal indicates a crisis ($\chi_t = 1$) and stay out if the signal indicates normal times ($\chi_t = 0$).*

This Proposition describes a stark inefficiency. Here, the voter benefits the most from a competent officeholder when a crisis is likely. Yet, only the worst (in expectation) candidates enter the

race during such periods. Instead, the best ones are willing to run if and only if a period of business as usual is expected. Thus, the voter gets the wrong candidate at the wrong time.

The *static* value of being in office is the same in each period, regardless of whether a crisis emerges or not. However, a politician who wins office for a first term and then is outvoted loses his political capital and any future electoral prospects (since he cannot reenter the pool of candidates). Thus, when potential candidates are fully patient, their strategic problem is to choose the right time to enter the electoral arena so as to maximize the chances of remaining in office for two consecutive terms.

Consider first a PC from Party 2. Suppose that no crisis emerges in period t, $\omega_t = 0$. Then, as Lemma 1 indicates, an incumbent from Party 2 would only be reelected if his potential challenger decides not to run. Conversely, a crisis potentially allows this disadvantaged incumbent to prove himself, thereby increasing his ex-ante probability of winning even if the challenger enters the race. Therefore, PCs from Party 2 maximise the probability of being elected for two consecutive terms if they get to office during times of crisis, even when the probability of being competent is arbitrarily close to zero. In other words, the disadvantaged PCs from Party 2 always have incentives to gamble for resurrection, and seek office during periods of crisis. This, in turn, generates incentives to stay out of the race under $\chi_t = 0$, i.e., when a crisis is less likely than usual.

Instead, a PC from Party 1 faces very different incentives. While this PC has higher chances of being able to manage a crisis, he also possesses valuable electoral capital: he is ex-ante more likely be competent than any randomly drawn challenger. Thus, he enjoys a reputation advantage and is always guaranteed reelection for a second term if he gets to office during normal times, when no new information is generated about his type. Instead, if he gets to office during a crisis, he will be ousted if he fails to deliver a good governance outcome. This advantaged potential candidate therefore experiences fear of failure, and has incentives to avoid the gamble. Importantly, this holds true even if he is almost certain that he would succeed: the tiniest amount of uncertainty over his ability to successfully manage a crisis is enough to generate these incentives. Even if the probability of being competent is arbitrarily close to one, PCs from Party 1 will therefore choose to stay home

under $\chi_t = 1$, and wait for a better time to enter the race.

I now allow potential candidates to discount the future ($\delta < 1$), in order to study their dynamic trade-off and characterize conditions under which the inefficiency highlighted in Proposition 1 is more likely to emerge.

First, a straightforward implication of the above discussion is that, regardless of the value of δ, the best potential candidates have no reason to stay out of the race during a period of business as usual, and the worst ones are always willing run during periods of crisis:

Lemma 2. *In equilibrium, PCs from Party 1 never choose to stay out of the race if the public signal indicates normal times ($\chi_t = 0$), and PCs from Party 2 never choose to stay out if it indicates a crisis ($\chi_t = 1$).*

Importantly, this implies that there is no condition under which all potential candidates decline to run.

Next, I show that the inefficiency identified in Proposition 1 survives when δ is sufficiently large.

Proposition 2. *There exist unique $\widehat{\delta}_1 \in (0,1)$ and $\widehat{\delta}_2 \in (0,1)$ such that:*

- *Potential candidates from from Party 1 have strictly dominant strategy to run when the public signal indicates normal times ($\chi_t = 0$) and stay home otherwise if and only if $\delta > \widehat{\delta}_1$;*

- *Potential candidates from from Party 2 have strictly dominant strategy to run when the public signal indicates a crisis ($\chi_t = 1$) and stay home otherwise if and only if $\delta > \widehat{\delta}_2$.*

When potential candidates are not perfectly patient, they face a trade-off. On one hand, they want to get to office as soon as possible. On the other, they want to time their entry into the electoral arena so as to maximize the chances of being in office for two consecutive terms, as described in Proposition 1. When δ is sufficiently large, dynamic considerations dominate.[9]

As an aside, I note that there also exists a unique $\widetilde{\delta}_1 < \widehat{\delta}_1$ such that when $\delta \in [\widetilde{\delta}_1, \widehat{\delta}_1]$, then Party-1 PCs enter the race under $\chi_t = 1$ if the election is open seat, but stay home under $\chi_t = 1$

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[9]Notice that the the strategies defined in Proposition 2 are strictly dominant for the subgames in which, upon entering the race, a potential candidate would win for sure (e.g., when the incumbent failed to solve a crisis in the previous period). For all other subgames, the strategies defined above are weakly dominant.

if the incumbent is up for reelection. This is because, as discussed further below in relation to Corollary 3, dynamic incentives to stay out of the race are weaker when the election is open-seat. Interestingly, this implies that the ex-ante disadvantaged politicians from Party 2 experience an incumbency advantage, but this advantage only materializes during times of crisis.

Finally, we can characterize how changes in model primitives influence potential candidates' incentives to enter the race, and therefore the intensity of the inefficiency experienced by the voter. First, consider the impact of a candidate's own expected ability. We have that

Corollary 1.

- $\widehat{\delta}_1$ *is increasing in* q_1;

- *There exists a unique* $\widehat{\psi}$ *s.t. if* $\psi > \widehat{\psi}$, *then* $\widehat{\delta}_2$ *is decreasing in* q_2. *Otherwise, if* $\psi < \widehat{\psi}$, *then* $\widehat{\delta}_2$ *is increasing in* q_2.

The first point is intuitive. As q_1 increases, a potential candidate from Party 1 is more likely to be able to solve a crisis. As a consequence, he becomes more willing to take the gamble and run for office during times of crisis. The second result seems more puzzling. When the public signal χ_t is sufficiently informative (ψ is large), the disadvantaged PCs from Party 2 become less willing to run for office the more likely they are to be competent. To understand this result, notice that q_2 is the ex-ante probability that a Party-2 incumbent elected during a crisis survives to a second term (assuming he faces a challenger). Thus, the opportunity cost of getting to office under $\chi_t = 0$ is increasing in q_2. When ψ is large, so that a crisis following a signal $\chi_t = 0$ is very unlikely, this straightforwardly implies that $\widehat{\delta}_2$ is decreasing in q_2: as q_2 increases, potential candidates from Party 2 have stronger incentives to stay out of the race under $\chi_t = 0$ and wait for a period of crisis. Suppose instead ψ is low. Then, the probability of a crisis is relatively high (i.e., close to the prior $\bar{p}$) even after observing signal $\chi_t = 0$. Because politicians discount the future, this implies that increasing q_2 has a larger positive impact on the payoff of entering the race immediately than on the opportunity cost, and $\widehat{\delta}_2$ increases.

Second, we consider the impact of the potential challenger's expected ability on each candidates' incentives to enter the race:

Corollary 2.

- $\widehat{\delta}_1$ *is increasing in* q_2;

- $\widehat{\delta}_2$ *is not a function of* q_1.

When a PC from Party 1 chooses whether to enter an open-seat race under $\chi_t = 1$, he must consider the possibility that his opponent turns out to be a competent type, and is thus able to solve the crisis and get reelected for a second term. This is costly for the Party-1 PC as it delays the moment in which he may hope to get to office. Thus, the higher the probability that candidates from the opposing party are competent, the stronger the incentives to run for PCs from Party 1, i.e., $\frac{\partial \widehat{\delta}_1}{\partial q_2} > 0$. This result has two important implications. First, it shows the depth of the inefficiency experienced by the voters: their preferred potential candidate is more likely to stay out of the race precisely when the alternative candidate is very bad. Second, it emphasizes that promoting the recruitment of better candidates at the bottom of the pool may be a valuable strategy to improve the quality of *elected* politicians, even if such bottom candidates never actually get to office.

Consider now the cutoff $\widehat{\delta}_2$. Recall that PCs from Party 2 can never win in an open-seat election if their opponent also chooses to enter the race. Unless they are running unopposed, these PCs can only ever win a race if the incumbent is up for reelection and performed poorly in the previous term. Thus, the ex-ante probability that a Party-1 politician is a competent type has no impact on Party-2 PCs incentives to enter the race, and $\frac{\partial \widehat{\delta}_2}{\partial q_1} = 0$.

Finally, it is important to highlight that increasing office rents has no effect on the potential candidates' entry choice in this setting:

Corollary 3. $\widehat{\delta}_1$ *and* $\widehat{\delta}_2$ *are not a function of office rents* k.

Potential candidates face a trade-off between getting to office as soon as possible, and staying in office for as many periods as possible. Trivially, increasing the value of holding office k therefore has no impact on their incentives to run.

Corollary 3 emphasizes that the nature of the inefficiency documented in this paper is different from seemingly similar results presented in the literature. Extant works highlight the difficulty of attracting good politicians if the value of holding office is too low to compensate for their outside option. In other words, adverse selection emerges due to weak electoral incentives. Here, the opposite is true. In this model, running is costless and holding office is always more valuable than the outside option. The inefficiency emerges precisely as a perverse consequence of electoral accountability. The voter cannot credibly commit to ignoring valuable information that may be revealed about the incumbent. Precisely because competence matters the most in times of crisis, this is also when governance outcomes are most informative. The PC who is most likely to survive a crisis is also the one who has the most to lose, and is therefore unwilling to take the risk. These results speak to an open debate in the literature: is voter competence actually good for voters? Scholars have argued that a more informed electorate may paradoxically induce officeholders to exert less effort, or adopt worse policies (Ashworth and De Mesquita, 2014). This paper suggests that the problem runs even deeper, as it may prevent voters from attracting competent politicians to office in the first place.

Discussion and robustness

If crises mute the effect of competence. The key assumption this model builds on is that exogenous crises may alter the inferences that voters draw upon observing the incumbent's performance. In other words, crises have an informational value. Here, I have assumed in particular that crises *amplify* the impact of the officeholder's ability: competence matters more under $\omega_t = 1$, which in turn implies that governance outcomes are more informative under this realization of the state of the world. However, it is important to emphasize that the inefficiency uncovered in this paper continues to emerge even if crises *mute* the impact of the incumbent's ability, rather than amplify it. For example, we may imagine that even competent types perform poorly in times of crisis. Instead, competence is useful to improve the incumbent's performance during periods of business as usual. Then, the voter benefits the most from a competent politician during normal times, but

this is also the state under which governance outcomes are most informative. As a consequence, the PC who is most likely to be competent experiences fear of failure and has incentives to stay out of the race under $\chi_t = 0$, running for office only during periods of crisis. Again, the voter gets the wrong candidates at the wrong time.

More generally, Ashworth, Bueno de Mesquita and Friedenberg (2017) show that governance outcomes are always more informative under realizations of the state of the world that amplify the impact of the officeholder's type. This is true regardless of the assumptions on the function mapping the incumbent's ability and the state of the world to governance outcomes, as long as this function satisfies the monotonic likelihood ratio property. Thus, the main strategic logic underlying the inefficiency highlighted here would continue to emerge beyond the specific assumptions about outcomes, and their production function, I adopted in this model.

If solving a crisis is always valuable. In the baseline model, potential candidates care exclusively about the rents of being in office. However, one alternative possibility is that politicians also obtain a benefit from successfully managing a crisis, above and beyond the impact it has on the voter's beliefs and thus their reelection chances. After all, wartime presidents such as Churchill or FDR are remembered precisely for their leadership during turbulent times. This can be easily incorporated in the setup described above by assuming that an incumbent obtains a legacy payoff g from delivering a good governance outcomes during times of crisis, in addition to the office rents k which are always accrued regardless of the governance outcome and state of the world. Then, as long as k is sufficiently large relative to g,[10] the results of the baseline model continue to hold under this alternative assumption. The desire to remain in office for as long as possible dominates the wish to build a legacy by delivering a good outcome during a crisis, and the best candidate in the pool is unwilling to take the risk.

If there are many potential candidates. In the baseline model, each party draws one

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[10]In particular, under $\delta = 1$ the condition is $k > \frac{q_1 g}{1-q_1}$.

potential candidate in each period. In reality, the pool of potential candidates contains multiple politicians. In Appendix C, I incorporate this observation in an extended version of the model and show that, as in the baseline, the best potential candidate will never want to run during times of crisis if he is sufficiently patient. Furthermore, even with multiple potential candidates, under some conditions only the worst one across all parties is willing to enter the race under $\chi_t = 1$.

Suppose that, in the first period, each party P has two potential candidates, l_P and h_P. Let their respective probability of being competent be $q_P^l < q_P^h$. To avoid trivialities, assume $q_2^l < q_1^l < q_2^h < q_1^h$. If both potential candidates l_P and h_P are willing to enter the race, party P selects candidate l_P with probability π_P^l and h_P with probability $1 - \pi_P^l$. π_P^l may be small, but I impose that it is strictly larger than 0. As in the baseline, I assume that once a politician leaves office, another party member with the same expected ability enters the pool of potential candidates. Thus, in the discussion below I refer to a generic potential candidate l_P and a generic potential candidate h_P, for $P \in \{1, 2\}$.

To illustrate the players' dynamic incentives, let us focus on the case of $\delta = 1$. It is easy to see that l_2 and h_1 face exactly the same incentives as in the baseline. In each period, l_2 is the worst potential candidate across the two parties. As such, he has nothing to lose from holding office in times of crises. Indeed, the probability of being reelected for a second term is maximized if he gets to office under $\omega_t = 1$. In equilibrium, l_2 is therefore always willing to run under $\chi_t = 1$, and always chooses to stay home under $\chi_t = 0$. The opposite is true for h_1, the best potential candidate. As in the baseline, this potential candidate is willing to enter during normal times, but always chooses to stay home in times of crisis. Consider now potential candidate h_2, the second best. If he gets to office during periods of crisis, he is always guaranteed re-election if he is able to deliver a good outcome, which occurs with probability q_2^h. Instead, if he is first elected under $\omega_t = 0$, he will not be retained for a second term if h_1 is willing to run against him and is selected by Party 1. A similar symmetric reasoning holds for l_1. Thus, if q_2^h and q_1^l are not too high relative to π_1^l and π_2^l, only the worst potential candidate across both parties is willing to enter the race during times of crisis.

Term limits

A burgeoning literature in political economy analyzes how term limits influence politicians' strategic behavior and, in turn, voter welfare (See Ashworth (2012, p.194-196) for a brief review). What is the impact of term limits in my setting? Do longer term limits improve voter welfare? In order to address these questions, I analyze an amended version of the baseline model where officeholders are subject to a limit of T terms in office, and I look at how potential candidates' optimal entry choice varies with T.

For purposes of tractability, I impose that the public signal about the likelihood of a crisis in the upcoming term is (almost) perfectly informative (i.e., $\psi \to 1$). Further, I assume that if an officeholder fails to solve a crisis, his own party replaces him with a new draw. Notice that under this assumption the optimal strategy of Party-2 potential candidates is trivial. The assumption in fact implies that these candidates can only get to office if they run in an open-seat election and their opponent chooses to stay out. Since PCs from Party 1 never stay out during normal times, Party-2 PCs have a dominant strategy to always run, regardless of the realization of the public signal χ_t. Therefore, I focus on how term limits influence Party-1 potential candidates' willingness to enter the race under $\chi_t = 1$.

Here, increasing T has a twofold effect. On one hand, if a potential candidate from Party 1 chooses to stay out of the race and his opponent turns out to be a competent type, longer term limits imply a longer delay in getting to office. This increases Party-1 PCs' incentives to enter the race even if a crisis is likely. On the other hand, longer term limits increase the opportunity cost of a mistimed entry in the electoral arena, thereby increasing the incentives to run only when the probability of being retained in office for T consecutive terms is maximized. This, in turn, reduces Party-1 PCs' incentives to enter during times of crisis. Thus, the following holds:

Proposition 3. *There exist $\underline{q_1}$, $\overline{q_1}$ and $\overline{q_2}$ s.t.*

- *If $q_1 > \underline{q_1}$, then Party-1 potential candidates' incentives to run in times of crisis increase under longer term limits.*

- If $q_1 < \overline{q_1}$ and $q_2 < \overline{q_2}$, then Party-1 potential candidates' incentives to run in times of crisis decrease under longer term limits.

If q_1 is large, a PC from Party 1 is likely to be able to solve a crisis. Thus, the first effect described above dominates: longer term limits make Party-1 PCs more willing to run in times of crisis, in order to avoid a longer wait in the event their opponent turns out to be good. In contrast, if q_1 and q_2 are small, a Party-1 PC is very worried that if he gets to office and experiences a crisis he would be ousted after a first term, and not very worried that his opponent would prove himself. Thus, increasing T makes Party-1 PCs less likely to run under $\chi_t = 1$ (in the sense of set inclusion). The effect of increasing term limits on voter welfare is therefore ambiguous, as it may either worsen or mitigate the adverse selection documented in the baseline.

Beyond the normative implications, Proposition 3 emphasizes that researchers should consider the mediating effect of the quality of the political class when they empirically evaluate how term limits impact governance outcomes.

Beyond Self-Selection

For presentation purposes, I have so far abstracted from issues typically at the core of political agency models: moral hazard and asymmetric information. In this section, I discuss if and how introducing these additional elements impacts the models' conclusions (formal proofs are in Online Appendix B). For ease of presentation, I focus on fully patient politicians (i.e., $\delta = 1$)).

Moral hazard

The baseline model is one of pure selection: officeholders cannot invest effort to improve their performance, which is determined solely by their type and the state of the world. While this is a useful simplification to isolate the mechanism behind the results, it suppresses an important channel through which politicians' strategic choices may impact voter learning. A recent literature in fact emphasizes that, even absent any private information, the officeholder's effort choice influences

the inferences voters draw upon observing his performance. 'From the voters' perspective, the governance outcome (...) is the realization of a statistical experiment that generates information about the incumbent' (Ashworth, Bueno de Mesquita and Friedenberg, 2017, p. 1). Different levels of effort generate different experiments. Therefore, the incumbent's effort choice determines the informativeness of his performance (*ibid*).

Here, I analyze whether the adverse selection documented in the baseline survives in this richer strategic setting. I extend the model to allow the probability of a good outcome to be a function of the incumbent's effort choice. Formally, after observing the state realization ω_t, the officeholder chooses a level of effort $e_t \in [0,1]$, at a cost $-\frac{e_t^2}{2}$. In line with the career concerns framework (Holmström, 1999), the voter does not observe the incumbent's effort choice. I consider a setting where effort and ability are complements (i.e., the impact of the office holder's effort on his performance is increasing in the probability of being a good type).[11] Then, I assume that the probability of a good outcome is:

$$p(o_t = g|\omega_t, \theta, e_t) = [1 - \omega_t + \omega_t\theta_i]\,(\frac{e_t + \xi}{1 + \xi}), \tag{2}$$

with $\xi > 0$. Notice that, as ξ increases, the marginal impact of the incumbent's effort on his performance in times of crisis (weakly) decreases and the impact of his type (weakly) increases. Thus, we can interpret this parameter as indicating the relative importance of competence and effort in determining the probability that the incumbent successfully manages a crisis.

Equation 2 implies that, as in the baseline, governance outcomes convey no information about the incumbent's type during a period of business as usual ($\omega_t = 0$). Suppose instead a crisis emerges ($\omega_t = 1$). Then, a good outcome is a perfect signal of competence. The informativeness of a bad outcome instead depends on the level of effort the voter expects from the incumbent. Denote $\mu_1(1, o_t = b, e^a)$ the posterior probability that a Party-1 incumbent is a good type, conditional on a bad outcome in times of crisis and the conjectured effort e^a. We have:

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[11]In Appendix B, I also analyze the case in which effort and competence are substitutes, and show that the results are qualitatively identical.

$$\mu_1(1, o_t = b, e^a) = \frac{q_1(1 - \frac{e^a + \xi}{1+\xi})}{q_1(1 - \frac{e^a + \xi}{1+\xi}) + 1 - q_1}. \tag{3}$$

The lower e^a, the less informative a bad outcome is, the higher $\mu_i(1, o_t = b, e^a)$.

As a consequence, the possibility of multiple equilibria arises. Suppose that a politician from Party 1 is in office in the first period. The voter may expect him to exert a sufficiently low level of effort that $\mu_1(1, o_t = b, e^a) > q_2$, and thus choose to reelect him even after a bad outcome, or she may conjecture an effort choice higher than this threshold, and thus opt to oust him if $o_t = b$. Depending on parameter values, one or both of these conjectures are sustainable in equilibrium (the voter does not observe the incumbent's effort choice but, in equilibrium, her conjecture must be correct):

Lemma 3. *There exist unique $\widehat{q}_2 \leq \widetilde{q}_2$ s.t.*

- *An equilibrium in which an incumbent from Party 1 is always reelected exists if and only if $q_2 < \widetilde{q}_2$ (unconditional retention);*

- *An equilibrium in which an incumbent from Party 1 is ousted after a bad outcome in times of crisis, and reelected otherwise, exists if and only if $q_2 \geq \widehat{q}_2$ (conditional retention).*

Moving backwards, consider the PCs strategy. Straightforwardly, if an incumbent from Party 1 is always reelected in equilibrium, PCs from Party 1 are always willing to run and, once in office, will exert no effort. Conversely, adverse selection always emerges in a conditional retention equilibrium:

Proposition 4. *Suppose the voter uses a conditional retention strategy in equilibrium. Then, potential candidates from Party 1 enter when the public signal indicates normal times ($\chi_t = 0$) and stay out otherwise, and potential candidates from Party 2 enter when the signal indicates a crisis ($\chi_t = 1$) and stay out otherwise.*

If the voter commits to a conditional retention strategy, PCs face the same strategic incentives that emerge in the baseline model. Therefore, their optimal entry strategy is identical.

A Corollary of Lemma 3 establishes that, for a sufficiently large ξ, the conditional retention strategy is the only one that is sustainable in equilibrium:

Corollary 4. *Suppose that* $1 + \xi > \frac{q_1(1-q_2)}{q_2(1-q_1)}$. *Then,* $\widehat{q}_2 = \widetilde{q}_2 = 0$.

Substantively, this implies that the adverse selection documented in this paper is more likely to materialize under more complex crises, whose solution is particularly reliant on competent leadership rather than simply on the officeholder's willingness to invest time and resources to address the issue. Under an alternative interpretation, ξ may represent an (inverse) measure of the state's bureaucratic capacity. The higher a polity's bureaucratic capacity (i.e., the lower ξ), the more likely that it can survive a crisis even if the sitting office holder is an incompetent type. In this perspective, Corollary 4 indicates that low bureaucratic capacity may also have negative spillovers on the quality of the candidates for political office.

Notice that, beyond establishing the (conditional) robustness of Proposition 1, the results of this extension reveal a trade-off: the voter can never induce the best PC to enter the race *and* incentivize him to exert effort. If the voter uses a conditional retention strategy that (indirectly) rewards effort, she induces the best PC to stay out of the race if $\chi_t = 1$. Under the unconditional retention equilibrium, no adverse selection ever emerges. However, because his reelection chances do not depend on his performance, an incumbent from Party 1 never exerts any effort in equilibrium. This confirms the intuition that emerges in the baseline model: the root of the inefficiency documented in this paper lies with the voter's commitment problem (i.e., her inability to commit to ignoring valuable information that governance outcomes may reveal about the incumbent).

The one between accountability and selection is a familiar tradeoff in the political agency literature (dating back to Fearon (1999)). I have shown that this trade-off may impact not only voters' ability to recognize a good incumbent (as, e.g., in Ashworth, Bueno de Mesquita and Friedenberg (2017)), but also their capacity to attract competent politicians to office.

Asymmetric Information

So far, I assumed that PCs have no private information about their own underlying ability. Abstracting from the signaling problem that would generate from asymmetric information allowed me to focus on the 'gambling' aspect of the candidates' choice. However, it is important to analyze if and how the players' incentives and strategies change if PCs have some private information about their true type. For example, Gordon, Huber and Landa (2007) consider a model with endogenous entry where the fact itself that the challenger is willing to run conveys information to the voters about his own ability relative to the incumbent's (and show that positive self-selection emerge as a result).[12] In my setting, no adverse selection can ever emerge if PCs know their true type with absolute certainty. However, I show that the inefficiency documented in Proposition 1 survives even if PCs observe arbitrarily informative private signals.

Suppose that, upon being drawn from the pool, each PC observes a private signal of his own ability $\phi_i \in \{0, 1\}$, accurate with probability $p_\phi < 1$. Denote $\widehat{\mu}_i(\phi_i)$ the (interim) posterior probability that candidate i is a good type, as a function of his private information. To avoid trivialities, let $\widehat{\mu}_1(0) < q_2 < q_1 < \widehat{\mu}_2(1)$. I assume that an off-the-equilibrium-path deviation to entering the race under $\chi_t = 0$ leads the voter to form interim posterior $\widehat{\mu}_i(0)$, and an unexpected exit leads her to form beliefs $\widehat{\mu}_i(1)$. The converse holds under $\chi_t = 1$: an unexpected entry leads the voter to form interim posterior $\widehat{\mu}_i(1)$, while an unexpected exit induces posterior $\widehat{\mu}_i(0)$. In short, entering when a crisis is likely (unlikely) induces the voter to believe the candidate observed a good (bad) signal about his own ability. This refinement follows the spirit of Cho and Kreps (1987) (adapted to a repeated game).[13]

The following holds:

Proposition 5. *The game always has a Perfect Bayesian Equilibrium where*

- *Potential candidates from Party 1 enter the race when the public signal indicates normal times* ($\chi_t = 0$) *and stay out when the signal indicates a crisis* ($\chi_t = 1$), *regardless of the private*

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[12]See also Caillaud and Tirole (2002) for a model where candidate entry signals electorally valuable information.
[13]See Online Appendix B.

signal ϕ_1, and

- *Potential candidates from Party 2 enter the race when the public signal indicates a crisis ($\chi_t = 1$) and stay out when the signal indicates normal times ($\chi_t = 0$), regardless of the private signal ϕ_2.*

During a crisis, the governance outcome perfectly reveals the officeholder's type. As a consequence, a bad performance in office would damage a politician's reputation above and beyond any positive signaling value that being willing to run might have. The strategic problem is therefore equivalent to the baseline model: the gambling aspect dominates the signaling one.

To see this, consider the strategic incentives facing a PC from Party 1 under $\chi_1 = 1$. By entering the race (and thus deviating from the conjectured strategy), he would signal to the voter that he observed private information $\phi_1 = 1$. This would increase the voter's interim posterior on his ability. However, this is payoff-irrelevant. If no crisis emerges, a Party 1 incumbent is reelected during normal times even if entering the race does not improve his interim reputation. If instead a crisis does materialize, the governance outcome will still determine the voter's electoral choice.[14] Therefore, PCs from party 1 face the same strategic incentives as in the baseline model.

Similarly for PCs from Party 2. Entering the race when the public signal indicates that a crisis is unlikely does not improve their reputation. Therefore, as in the baseline, their optimal strategy is to only enter the race under $\chi_t = 1$.

Notice that Proposition 5 holds under any arbitrarily informative private signal ϕ_i (i.e., even if p_ϕ is arbitrarily close to 1). Regardless of how large is the asymmetry of information between the voter and the PCs (and even if PCs are almost certain of their true ability), it is not enough to always incentivize the best potential candidate to enter the race. Indeed, while the adverse selection equilibrium is not unique (as it is often the case in signaling games),[15] the analysis demonstrates that the inefficiency may be hard to escape. Recall that $\bar{p}$ is the ex-ante probability of a crisis emerging in any give period t. Then, we have that:

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[14]Notice that this does not require that governance outcomes are fully informative during crises. It simply requires outcomes to be more informative than PCs' private signals.

[15]See Proposition B.2. in the Online Appendix.

Proposition 6. *Suppose that $\bar{p} > \frac{1}{2}$. Then, all potential candidates' expected utility in the adverse selection equilibrium is higher than in any other equilibrium.*

Despite the equilibrium multiplicity, the adverse selection equilibrium may therefore emerge as a natural focal point of the game.

Conclusion: Avenues for Future Research

Do the right candidates choose to run for office at the right time? I have addressed this question by analyzing a model of repeated elections, in which potential candidates are career politicians who differ in the probability of being a competent type. The key feature of the model is that, in each period, the country faces either a normal situation or a crisis. A crisis amplifies both the importance of the office-holder's competence, and the informativeness of governance outcomes. I have shown that, in a world with these features, electoral accountability may have the perverse consequence of discouraging good candidates from running in times of crisis, precisely when the voter needs them the most. Here, I conclude with a brief discussion of potential avenues for future research.

Avenues for empirical research. From a theoretical standpoint, the inefficiency uncovered in this paper seems to be extremely robust to altering the model in several directions. An obvious next step would be to investigate whether it emerges empirically: do we actually observe that high-quality candidates are less likely to run for office during periods of crisis? To the best of my knowledge, the empirical literature has yet to provide an answer to this question, which therefore opens avenues for future research.

In Online Appendix D, I take a first preliminary step in this direction. I analyze how the quality of the pool of candidates for Gubernatorial elections in the US varies during periods of *national-level* economic recession, with data on all open-seat elections from 1982 to 2016 (from Hirano and Snyder Jr (2019)). This analysis builds on the assumption that potential candidates are able to observe (or anticipate) a national-level recession,[16] and the likely ripple effects at the state level, by

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[16]Several observable indicators, such as a rise in unemployment or a reduction of consumer spending, often precede the official start of a recession (Stock and Watson (2003, p. 6)).

the time they have to take the final decision whether to run or not. In line with the predictions of the theory, I find that the average share of races in which no high-quality candidate enters the pool almost doubles in times of crisis (jumping from 15% to 28%). Identifying this raw correlation is, obviously, just a first step in evaluating the empirical relevance of the theory. Besides investigating the causal nature of this relationship, future research should confirm that it also emerges for other offices[17] and under different kinds of negative shocks (e.g., wars, disasters, or even the Covid-19 pandemic). Further, empirical scholars may leverage the predictions of Proposition 3 to investigate the effects of term limits on the quality of political candidates.

Avenues for theoretical research. This paper has focused on a world in which voters care exclusively about politicians' competence. A natural direction to develop this research agenda is to integrate within this framework the ideological dimension of voters' and politicians' preferences. A relevant question is if (and when) ideology mitigates or exacerbates the inefficiency documented in this paper, and what is the overall effect on voters' welfare.

I speculate that ideology may influence the adverse selection problem via two channels. From the demand side, as ideological polarization between politicians increases, the competence dimension becomes less relevant for electoral outcomes. In other words, ideological polarization may allow voters to credibly commit to ignoring (at least in part) information that governance outcomes reveal about the office holder. This may, in turn, mitigate the adverse selection problem highlighted in this paper, with ambiguous implications for voters' welfare. On the supply side, we may argue that a crisis alters the set of policies that can be feasibly implemented by the office holder. For example, a crisis may expand this set by lowering resistance against economic reforms, or may contract it by imposing stricter budget constraints. This would, in turn, alter ideologically motivated politicians' expected utility from being in office during challenging times, with increased polarization either mitigating or worsening the inefficiency highlighted in this paper. Future research formalizing these intuitions would help clarify the conditions under which increased ideological polarization may improve voters' overall welfare, and identify scenarios in which the impact would instead be

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[17]Keeping in mind that the argument applies most naturally to executive offices, where attribution of responsibility for governance outcome is more straightforward.

harmful.

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A   Proofs, Baseline Model

Lemma 1.

- *Suppose that there is no crisis in period t ($\omega_t = 0$). Then, a Party-1 incumbent gets reelected but a Party-2 incumbent gets ousted;*

- *Suppose instead that there is a crisis in period t ($\omega_t = 1$). We have that:*

    - *if the governance outcome is good ($o_t = g$), then both Party-1 and Party-2 incumbents get reelected;*

    - *if instead the outcome is bad ($o_t = b$), then both Party-1 and Party-2 incumbents get ousted.*

Proof. Recall that once an officeholder is ousted or hits a term limit, his party draws a replacement candidate. Thus, any incumbent from Party 1 may only experience a challenge from a new draw from Party 2, and vice versa. Further, recall that all new draws from party P have the same probability q_P of being a competent type, with $q_1 > q_2$. The Lemma follows straightforwardly.   □

Proposition 1. *Suppose potential candidates are fully patient, i.e., $\delta = 1$. Then, for all $0 < q_2 < q_1 < 1$ the game has a unique equilibrium:*

- *Potential candidates from Party 1 enter the race if the public signal indicates normal times ($\chi_t = 0$), and stay out if the signal indicates a crisis ($\chi_t = 1$);*

- *Potential candidates from Party 2 enter the race if the public signal indicates a crisis ($\chi_t = 1$) and stay out if the signal indicates normal times ($\chi_t = 0$).*

Proof. PCs are fully patient, i.e., $\delta = 1$. Furthermore, since they are infinitely lived, the probability of getting to office once over the course of the game is 1 for each of them. In addition, recall that when an incumbent is outvoted he cannot re-enter the pool of candidates. As such, each PC's strategic problem simply amounts to identifying the entry strategy that maximizes the probability of being in office for two consecutive terms. It is straightforward to see that these strategies coincide

with the ones identified in Proposition 1. A Party 1 incumbent is always reelected if $\omega_t = 0$ during his first term in office. In contrast, he will be ousted after delivering a bad outcome under a crisis (unless he runs unopposed). Thus, this PC's expected dynamic value from getting to office in period t is *decreasing* in the probability that $\omega_t = 1$. Therefore, PCs from Party 1 have a strictly dominant strategy to run under $\chi_t = 0$ and stay home otherwise. Consider instead PCs from Party 2. An incumbent from Party 2 that gets to office under $\omega_t = 0$ will only be able to get re-elected if his potential challenger decides to stay out of the race. In contrast, the probability of being re-elected after a crisis is strictly positive even in a contested election. PCs from party 2 therefore have a strictly dominant strategy to run under $\chi_t = 1$ and stay home otherwise.

$\square$

Lemma 2. *In equilibrium, PCs from Party 1 never choose to stay out of the race if the public signal indicates normal times ($\chi_t = 0$), and PCs from Party 2 never choose to stay out if it indicates a crisis ($\chi_t = 1$).*

Proof. As highlighted in the proof to Proposition 1, Party-1 potential candidates maximize their probability of being in office for two consecutive terms if they are first elected under $\omega_t = 0$. Thus, these potential candidates have no static or dynamic incentives to stay out of the race under $\chi_t = 0$. A similar but symmetric argument applies to Party-2 potential candidates under $\chi_t = 1$. $\square$

Proposition 2. *There exist unique $\widehat{\delta}_1 \in (0,1)$ and $\widehat{\delta}_2 \in (0,1)$ such that:*

- *Potential candidates from from Party 1 have strictly dominant strategy to run when the public signal indicates normal times ($\chi_t = 0$) and stay home otherwise if and only if $\delta > \widehat{\delta}_1$;*

- *Potential candidates from from Party 2 have strictly dominant strategy to run when the public signal indicates a crisis ($\chi_t = 1$) and stay home otherwise if and only if $\delta > \widehat{\delta}_2$.*

Proof. Consider first a randomly drawn Party-2 PC. Suppose he follows the strategy to stay home under $\chi_1 = 0$ and run otherwise. Then we can write his expected discounted payoff in any subgame s.t. $\chi_t = 0$ as:

$$0 + \delta V_2(\delta, q_2). \tag{4}$$

Notice that $\frac{\partial V_2(\delta, q_2)}{\partial q_2} > 0$. The prescribed strategy would imply that a politician from Party 2 will only get to office under times of crisis. The ex-ante probability of being re-elected after serving a first term during times of crisis is increasing in the probability of being competent, therefore $V_2(\delta, q_2)$ is increasing in q_2. Furthermore, $\frac{\partial V_2(\delta, q_2)}{\partial \delta} > 0$. The more patient the PC is, the higher his future expected payoff (fixing his opponents' strategies).

Suppose instead that the PC chooses to enter the race. Denote π_{χ_t} the probability of a crisis in period t given χ_t. Then, we can write his expected payoff (conditional on winning the election) as:

$$k + (1 - \pi_0)\delta k p(unopposed) + \pi_0 \left[q_2 \delta k + (1 - q_2)\delta k p(unopposed) \right] , \tag{5}$$

where $p(unopposed)$ is the probability that the PC drawn from Party 1 chooses not to run (always strictly lower than 1 given Lemma A.1.). Recall in fact that an incumbent from Party 2 in office under $\omega_t = 0$ will never win against a randomly drawn challenger from Party 1. Thus, this incumbent will only be re-elected if the other party is unable to field a viable candidate.

Therefore, necessary and sufficient condition for the conjectured strategy to be strictly dominant is:

$$V_2(\delta, q_2) - \frac{k}{\delta} - (1 - \pi_0)k p(unopposed) - \pi_0[q_2 k + (1 - q_2)k p(unopposed)] > 0. \tag{6}$$

Recall that $V_2(\delta, q_2)$ is increasing in δ. Straightforwardly, fixing $p(unopposed)$ (that is, fixing the other players' strategies), the LHS is increasing in δ. The condition always fails at $\delta = 0$ and is always satisfied at $\delta = 1$. Thus, there must exist an interior $\widehat{\delta_2}$ at which $LHS(6) = 0$.

Consider now a randomly drawn PC from Party 1. Suppose the PC follows the strategy to stay home under $\chi_1 = 1$ and run otherwise. Then we can write his expected discounted payoff in any subgame s.t. $\chi_t = 1$ as

$$0 + \delta V_1(\delta, q_1). \tag{7}$$

Notice that $V_1(\delta, q_1)$ is increasing in δ: the more patient the politician is, the higher his future

expected payoff (fixing his opponents' strategies).

Suppose instead that the PC chooses to enter the race. Then, we can write his expected payoff (conditional on winning the election) as:

$$k + \pi_1 \delta k[q_1 + (1 - q_1)p(unopposed)] + (1 - \pi_1)\delta k. \tag{8}$$

Thus, necessary and sufficient condition for the prescribed strategy to be strictly dominant is:

$$V_1(\delta, q_1) - \frac{k}{\delta} - \pi_1 k[q_1 + (1 - q_1)p(unopposed)] - (1 - \pi_1)k > 0. \tag{9}$$

Recall that $V_1(\delta, q_1)$ is increasing in δ. Fixing $p(unopposed)$ (that is, fixing the other players' strategies), the LHS is increasing in δ, always fails at $\delta = 0$ and is always satisfied at $\delta = 1$. Thus, there must exist an interior $\widehat{\delta}_1$ at which $LHS(9) = 0$. This concludes the proof. □

Corollary 1.

- $\widehat{\delta}_1$ is increasing in q_1;

- There exists a unique $\widehat{\psi}$ s.t. if $\psi > \widehat{\psi}$, then $\widehat{\delta}_2$ is decreasing in q_2. Otherwise, if $\psi < \widehat{\psi}$, then $\widehat{\delta}_2$ is increasing in q_2.

Proof. Notice that $\mu_1 > \mu_0$, therefore it must be the case that $\frac{\partial V_1(\delta, q_1)}{\partial q_1} < \mu_1 k[1 - p(unopposed)]$ and LHS(9) is decreasing in q_1.

Next, consider PCs from party 2. Notice that $\frac{\partial V_2(\delta, q_2)}{\partial q_2} - k\pi_0(1 - p(unopposed))$ is increasing in ψ. As the public signal becomes more precise, π_1 increases (which in turns increases $V_2(\delta, q_2)$), and π_0 decreases. Further, $\frac{\partial V_2(\delta, q_2)}{\partial q_2} > 0$. It is then easy to verify that $\frac{\partial V_2(\delta, q_2)}{\partial q_2} - k\pi_0(1 - p(unopposed)) > 0$ when π_0 is sufficiently close to 0 (i.e., ψ is sufficiently large). Next, we can show that $\frac{\partial V_2(\delta, q_2)}{\partial q_2} - k\pi_0(1 - p(unopposed)) < 0$ when π_0 is sufficiently close to $\bar{p}$ (i.e., ψ is sufficiently small). This follows from the fact that $\frac{\partial V_2(\delta, q_2)}{\partial q_2} < k\pi_1(1 - p(unopposed))$ and $\pi_1(1 - p(unopposed)) = \pi_0(1 - p(unopposed))$ when $\psi = \frac{1}{2}$ (i.e., when $\pi_0 = \pi_1 = \bar{p}$). Thus, there must exist an interior $\widehat{\psi}$ s.t. $\frac{\partial V_2(\delta, q_2)}{\partial q_2} - k\pi_0(1 - p(unopposed)) = 0$. □

Corollary 2.

- $\widehat{\delta}_1$ is increasing in q_2;

- $\widehat{\delta}_2$ is not a function of q_1.

Proof. The discussion in the main body clarifies that $\frac{\partial V_1(\delta)}{\partial q_2} < 0$ and $\frac{\partial V_2(\delta)}{\partial q_1} = 0$. □

Corollary 3. $\widehat{\delta}_1$ and $\widehat{\delta}_2$ are not a function of office rents k.

Proof. Follows from the observation that, for all $i \in \{1, 2\}$, $V_i(\delta)$ can be expressed as $k\Lambda_i$, for some Λ_i s.t. $\frac{\partial \Lambda_i}{\partial k} = 0$.

□

Proposition 3. *There exist $\underline{q_1}$, $\overline{q_1}$ and $\overline{q_2}$ s.t.*

- *If $q_1 > \underline{q_1}$, then Party-1 potential candidates' incentives to run in times of crisis increase under longer term limits.*

- *If $q_1 < \overline{q_1}$ and $q_2 < \overline{q_2}$, then Party-1 potential candidates' incentives to run in times of crisis decrease under longer term limits.*

Proof. Suppose that a Party-1 potential candidate adopts the strategy to enter the race under $\chi_t = 0$ and stay home otherwise. Then, his expected continuation payoff in any subgame s.t. $\chi_t = 1$ is:

$$V_1^o(\delta, T) = \bar{p}V_1^o(\delta, T)[q_2\delta^T + (1 - q_2)\delta]$$

$$+ (1 - \bar{p})[q_2\delta^T + (1 - q_2)\delta]\left[q_1 k \sum_{t=0}^{T-1} \delta^t + (1 - q_1)(k + k(1 - \bar{p})^{T-2} \sum_{t=1}^{T-1} \delta^t + k\bar{p} \sum_{t=1}^{T-2} \sum_{j=1}^{t} (1 - \bar{p})^{t-1}\delta^j)\right]$$

(10)

Which rearranges to

$$V_1^o(\delta, T) =$$

$$k\frac{(1-\bar{p})[q_2\delta^T + (1-q_2)\delta]\left[q_1\sum_{t=0}^{T-1}\delta^t + (1-q_1)(1+(1-\bar{p})^{T-2}\sum_{t=1}^{T-1}\delta^t + \bar{p}\sum_{t=1}^{T-2}\sum_{j=1}^{t}(1-\bar{p})^{t-1}\delta^j)\right]}{1-\bar{p}[q_2\delta^T + (1-q_2)\delta]}$$

$$(11)$$

Notice that this payoff does not depend on the Party-2 potential candidates' strategy.[18]

Suppose instead the Party-1 potential candidate chooses to enter the race. Then, his expected payoff is

$$V_t^e(\delta, T) = kq_1\sum_{t=1}^{T-1}\delta^t + k(1-q_1) \tag{12}$$

Notice that, as in the baseline, $V_1^o(\delta, T) > V_1^e(\delta, T)$ always fails at $\delta = 0$ and is always satisfied at $\delta = 1$. This implies that, *for each value of q_1 and q_2, there exist cutoff(s) $\underline{\delta}(q_1, q_2) \le \overline{\delta}(q_1, q_2)$ s.t. the condition fails for $\delta < \underline{\delta}$ and is satisfied for $\delta > \overline{\delta}$.*

Then, the candidate's incentives to run are lower under longer term limits if and only if, for all T, we have that

$$V_1^o(\delta, T) - V_t^e(\delta, T) - V_1^o(\delta, T-1) + V_t^e(\delta, T-1) > 0$$

Plugging in the expressions from above, this reduces to

---

[18]Recall that in any equilibrium Party-2 potential candidates must be entering the race under times of crisis.

$$\frac{(1-\bar{p})[q_2\delta^T + (1-q_2)\delta]\left[q_1\sum_{t=0}^{T-1}\delta^t + (1-q_1)(1+(1-\bar{p})^{T-2}\sum_{t=1}^{T-1}\delta^t + \bar{p}\sum_{t=1}^{T-2}\sum_{j=1}^{t}(1-\bar{p})^{t-1}\delta^j)\right]}{1-\bar{p}[q_2\delta^T + (1-q_2)\delta]}$$

$$-\frac{(1-\bar{p})[q_2\delta^{T-1} + (1-q_2)\delta]\left[q_1\sum_{t=0}^{T-2}\delta^t + (1-q_1)(1+(1-\bar{p})^{T-3}\sum_{t=1}^{T-2}\delta^t + \bar{p}\sum_{t=1}^{T-3}\sum_{j=1}^{t}(1-\bar{p})^{t-1}\delta^j)\right]}{1-\bar{p}[q_2\delta^{T-1} + (1-q_2)\delta]}$$

$$-q_1\delta^{T-1} > 0$$

The LHS is continuous in q_1 and q_2, it always fails at $q_1 = 1$ and is always satisfied at $q_2 = q_1 = 0$. This concludes the proof. $\qquad\square$

B Beyond Self-Selection

B.1 Moral Hazard

Notice that in this setting a term-limited incumbent always exerts zero effort. This implies that the voter may find it optimal to oust the incumbent, even if the challenger has lower reputation. This would, intuitively, eliminate the dynamic channel that lies at the core of my model. Therefore, I impose the following assumption to guarantee that an incumbent who is a good type with probability 1 is always reelected, and that an incumbent from Party 1 who maintains his initial reputation is re-elected against an untried challenger from Party 2 (notice that this also implies that Party 1 PCs always win in open seat elections):

Assumption 1. $\xi > \max\{\frac{q_1}{1-q_1}, \frac{q_2}{q_1-q_2}\}$

Formally, these conditions guarantee that the voter prefers to re-elect an incumbent with higher reputation even if the challenger is expected to exert effort of 1 in the first period in office.[19]

We can now pin down the voter's equilibrium retention strategy as a function of the governance outcome, state of the world, incumbent's expected ability and his conjectured level of effort (e^a). Lemma B.1. describes voter's equilibrium behavior in contested elections:

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[19]I assume that $k < 1$, to guarantee interior effort.

Lemma B.1. *Suppose that $\omega_t = 0$. Then, an incumbent from Party 1 would always be re-elected and an incumbent from Party 2 would always be ousted. Suppose instead that $\omega_t = 1$. Then,*

- *A Party 2 incumbent would always be reelected after delivering $o_t = g$ and ousted otherwise;*

- *A Party 1 incumbent would always be reelected after delivering $o_t = g$;*

- *Fixing a conjectured level of effort e^a, there exists a unique $q_2^\dagger(e^a) \in [0, 1]$ s.t.*

    - *When $q_2 > q_2^\dagger(e^a)$ the voter would prefer to oust an incumbent from Party 1 after $o_t = b$*

    - *When $q_2 < q_2^\dagger(e^a)$ the voter would prefer to reelect an incumbent from Party 1 after $o_t = b$*

Proof. First, notice that (as in the baseline model), governance outcomes are uninformative under $\omega_t = 0$. Therefore, given Assumption 1, under $\omega_t = 0$ the voter always retains any Party 1 incumbent and replaces any Party 2 incumbent. Next, suppose that $\omega_t = 1$. Notice that $\mu_i(1, g, e^a) = 1$, therefore (given Assumption 1) any incumbent will always be re-elected after a good outcome. Further, $\mu_2(1, b, e^a) < q_1$, therefore a Party 2 incumbent is always ousted after a bad outcome. Finally, consider the last point. Notice that, if $\omega_{t+1} = 0$, the voter expects both a term limited incumbent and a first period office holder to exert zero effort in the next period (since under $\omega = 0$ the incumbent's re-election chances are not a function of his performance). This implies that the voter's re-election choice is conditional on $\omega_{t+1} = 1$. Denote $\mu_i(1, o_t, e^a)$ the posterior probability that incumbent i is a good type, conditional on $\omega_t = 1$, the observed outcome and the conjectured level of effort e^a. The voter will find it optimal to retain a Party 1 incumbent after $o_t = b$ iff:

$$\mu_1(1, b, e^a) \frac{\xi}{1 + \xi} > q_2 \frac{e_2^*(q_2, 1) + \xi}{1 + \xi}, \tag{13}$$

where $\mu_1(1, b, e^a) = \frac{q_1(1 - \frac{e^a + \widehat{\xi}}{1 + \xi})}{q_1(1 - \frac{e^a + \xi}{1 + \xi}) + 1 - q_1}$ and $e_2^*(q_2, 1)$ is the equilibrium effort an incumbent from Party 2 would exert under $\omega = 1$. Given the voter's retention strategy, $e_2^*(q_2, 1)$ maximizes $kq_2(\frac{e + \xi}{1 + \xi}) - \frac{e^2}{2}$. Thus, we have: $e_2^*(q_2, 1) = \frac{kq_2}{1 + \xi}$. Therefore, fixing e^a, there exists a $q_2^\dagger(e^a) \in [0, 1]$ s.t. the voter strictly prefer to oust the Party 2 incumbent after $o_t = b$ if $q_2 > q_2^\dagger(e^a)$ and she prefers to retain him if otherwise. $q_2^\dagger(e^a)$ is s.t. (13) holds with equality.

$\square$

Lemma 3. *There exist unique $\widehat{q}_2 \leq \widetilde{q}_2$ s.t.*

- *An equilibrium in which an incumbent from Party 1 is always reelected exists if and only if $q_2 < \widetilde{q}_2$ (unconditional retention);*

- *An equilibrium in which an incumbent from Party 1 is ousted after a bad outcome in times of crisis, and reelected otherwise, exists if and only if $q_2 \geq \widehat{q}_2$ (conditional retention).*

Proof. Suppose that the voter retains a Party 1 incumbent who delivered a bad outcome under $\omega_t = 1$ with probability σ. Then, the incumbent's equilibrium effort satisfies $e_1^*(S, q_1) = \frac{kq_1(1-\sigma)}{1+\xi}$. Recall that, in equilibrium, the voter's conjecture about the incumbent's effort choice must be correct. Thus, an unconditional retention equilibrium (i.e., $\sigma = 1$) can be sustained if and only if:

$$\frac{q_1(1 - \frac{\xi}{1+\xi})}{q_1(1 - \frac{\xi}{1+\xi}) + 1 - q_1} \frac{\xi}{1+\xi} \geq q_2 \left(\frac{kq_2 + \xi(1+\xi)}{(1+\xi)^2} \right). \tag{14}$$

Notice that the the LHS is not a function of q_2, while the RHS is increasing in q_2. The condition is always satisfied at $q_2 = 0$ but always fails at $q_2 = q_1$. Thus, there exists a unique $\widetilde{q}_2$ s.t. the unconditional retention equilibrium exists if and only if $q_2 < \widetilde{q}_2$. $\widetilde{q}_2$ is s.t. (14) holds with equality.

Next, conjecture an equilibrium in which $\sigma = 0$. An equilibrium of this form exist if and only if:

$$\frac{q_1(1 - \frac{\frac{kq_1}{1+\xi} + \widehat{\xi}}{1+\xi})}{q_1(1 - \frac{\frac{kq_1}{1+\xi} + \xi}{1+\xi}) + 1 - q_1} \frac{\xi}{1+\xi} < q_2 \left(\frac{kq_2 + \xi(1+\xi)}{(1+\xi)^2} \right). \tag{15}$$

(15) is always satisfied at $q_2 = q_1$ and fails at $q_2 = 0$. Thus, there exists a unique $\widehat{q}_2$ s.t. the unconditional retention equilibrium exists if and only if $q_2 > \widehat{q}_2$. $\widehat{q}_2$ is s.t. (15) holds with equality. Finally, notice that $\widehat{q}_2 \leq \widetilde{q}_2$.

$\square$

Corollary 4. *Suppose that $1 + \xi > \frac{q_1(1-q_2)}{q_2(1-q_1)}$. Then, $\widehat{q}_2 = \widetilde{q}_2 = 0$.*

Proof. The condition guarantees that $\mu_1(1, b, 0) < q_2$, which is sufficient to ensure that the voter always prefers to oust an incumbent from Party 1 after a bad outcome in times of crisis. $\square$

Proposition 4. *Suppose the voter uses a conditional retention strategy in equilibrium. Then, potential candidates from Party 1 enter when the public signal indicates normal times ($\chi_t = 0$) and stay out otherwise, and potential candidates from Party 2 enter when the signal indicates a crisis ($\chi_t = 1$) and stay out otherwise.*

Proof. First, notice that Party 2 PCs have a strictly dominant strategy to enter the race under $\chi_t = 1$ and stay out otherwise. In particular, notice that the possibility to exert effort does not alter this: their equilibrium dynamic value of being elected at time t is decreasing in the probability that $\omega_t = 1$.

Similarly, under a conditional retention strategy, Party 1 PCs face the same incentives that emerge in the baseline. If they get to office under $\omega_t = 0$, they are guaranteed reelection and need exert no effort. Under $\omega_t = 1$, reelection is conditional on $o_t = g$ and requires effort. Straightforwardly, (fully patient) Party 1 PCs find it optimal to stay home under $\chi_t = 1$ and enter otherwise. $\square$

B.1.1 Moral Hazard - Substitutes

In this section I analyze an alternative version of the Moral Hazard model. Formally, I assume that, given level of effort $e \in [0, 1]$, the probability that an an incumbent of type θ_i produces a good governance outcome in state ω_t is:

$$(\omega_t \theta_i + 1 - \omega_t) + [1 - (\omega_t \theta_i + 1 - \omega_t)]e\xi^\dagger, \tag{16}$$

where $\xi^\dagger < 1$. (16) implies that effort and type are **substitutes**: the marginal impact of the incumbent's effort on the governance outcome is *decreasing* in the probability that $\theta_i = 1$.

As in the complements case, in this setting a term-limited incumbent always exerts $e = 0$, which may induce the voter to prefer a freshman candidate with lower expected ability to a term limited incumbent (as long as the incumbent is not a competent type for sure). Assumption 2 guarantees

that an incumbent from Party 1 that maintains his initial reputation is re-elected against a challenger from Party 2 (even if a freshman candidate is expected to exert effort 1 in the first period in office):

Assumption 2. $\xi^\dagger < \frac{q_1 - q_2}{1 - q_2}$

The voter's equilibrium retention strategy is analogous to the two periods model:

Lemma B.2. *Suppose that $\omega_1 = 0$. Then, an incumbent from Party 1 would always be reelected and one from Party 2 would always be ousted, irrespective of the (anticipated) effort choice (e^a).*

Suppose instead that $\omega_1 = 1$. Then,

- *A Party 1 incumbent would always be re-elected after delivering $o_t = g$, and ousted otherwise;*

- *A Party 2 incumbent would always be ousted after delivering $o_t = b$;*

- *Fixing an anticipated level of effort e^a, there exists a unique $q_1^\dagger(e^a) \in [0, 1]$ s.t.*

    - *When $q_1 > q_1^\dagger(e^a)$ the voter would prefer to oust an incumbent from Party 2 after $o_t = g$*

    - *When $q_1 < q_1^\dagger(e^a)$ the voter would prefer to reelect an incumbent from Party 2 after $o_t = g$*

Proof. Notice that, as in the baseline, governance outcomes are uninformative under $\omega_t = 0$. Therefore, any Party 1 incumbent is always retained and any Party 2 incumbent is always ousted. Further, under $\omega_t = 1$ bad outcomes induce a posterior of 0. Finally, consider the last point. Recall that a second-term office holder always exerts effort 0. Therefore, the voter chooses to retain a Party 2 incumbent who delivered a good outcome in times of crisis if and only if:

$$\mu_2(1, g, e^a) > q_1 + (1 - q_1)e_1^*(1, q_1)\xi^\dagger, \tag{17}$$

where $\mu_2(1, g, e^a) = \frac{q_2}{q_2 + (1 - q_2)e^a\xi^\dagger}$ is the posterior probability that the incumbent is a good type, given conjectured level of effort e^a, and $e_1^*(1, q_1) = (1 - q_1)\xi^\dagger k$ is the equilibrium effort choice of a Party 1 incumbent in his first period in office under $\omega_t = 1$.

Notice that the LHS is not a function of q_1, while $\frac{\partial RHS}{\partial q_1} > 0$. (17) fails at $q_1 = 1$ and is satisfied at $q_1 = q_2$. Thus, for each e^a there exists a unique $q_1^\dagger(e^a)$ s.t. the voter prefers to retain the incumbent if $q_1 < q_1^\dagger(e^a)$, and oust him otherwise. $q_1^\dagger(e^a)$ is s.t. (17) holds with equality. $\qquad\square$

Next, I show that the unconditional retention strategy (whereby a Party 2 incumbent is never re-elected) cannot be sustained in equilibrium.

Lemma B.3. *In equilibrium, the voter re-elects a Party 2 incumbent who delivered a good outcome in times of crisis with strictly positive probability.*

Proof. Let $\sigma \in [0,1]$ be the retention probability after a good outcome in times of crisis. Then, a party 2 incumbent's equilibrium effort choice satisfies $e_2^*(1, q_2) = (1 - q_2)\sigma\xi^\dagger k$. From Lemma 2A, we know that $\sigma = 0$ can be sustained in equilibrium if and only if $\mu_2(1, g, 0) \leq q_1 + (1 - q_1)e_1^*(1)\xi^\dagger$. However, notice that $\mu_2(1, g, 0) = 1$: if the incumbent exerts effort 0, a good outcome is a perfect signal of competent. Therefore, the conjectured equilibrium does not exist. $\qquad\square$

Finally, I characterize the PCs' optimal entry choice.

Proposition. B.1. *In equilibrium, all PCs from Party 1 enter under $\chi_t = 0$ and stay out under $\chi_t = 1$, and all PCs from Party 2 enter under $\chi_t = 1$ and stay out under $\chi_t = 0$.*

Proof. Notice that under $\omega_t = 0$ a Party 1 incumbent is guaranteed re-election while exerting effort 0. Straightforwardly, this implies that the expected (dynamic) payoff of getting to office in time t is decreasing in the probability of a crisis. Thus, these PCs' optimal entry choice is as in the baseline. Next, consider Party 2 PCs. In equilibrium, a good outcome in times of crisis ensures re-election with positive probability. Therefore, these PCs face the same strategic problem they face in the baseline. In particular, notice that getting to office under $\omega_t = 1$ and exerting effort 0 would yield a Party 2 incumbent a strictly higher payoff than getting to office under $\omega_t = 0$. Thus, the expected (dynamic) payoff of entering the race at time t is increasing in the probability of a crisis. $\qquad\square$

B.2 Asymmetric Information

Here, I adopt the following refinement for out of equilibrium beliefs: an unexpected entry by candidate i under $\chi_t = 0$ leads the voter to form interim posterior $\widehat{\mu}_i(0)$, and an unexpected exit leads her to form interim posterior $\widehat{\mu}_i(1)$. The converse holds under $\chi_t = 1$: an unexpected entry induces beliefs $\widehat{\mu}_i(1)$, and an unexpected exit induces $\widehat{\mu}_i(0)$. This refinement follows the spirit of D1 (Cho and Kreps 1987), adapted to a repeated game: assuming that the voter's interim posterior is fixed after the first off-the-equilibrium-path deviation (i.e., her beliefs in the remainder of the game do not change as a function of the PC's entry strategy),[20] applying D1 to this first deviation gives us the above restriction for out of equilibrium beliefs.[21] The logic is intuitive. An incumbent who is more likely to be competent is also more likely to be reelected under $\omega_t = 1$. Therefore, a low type benefits more than a high type from an off-the-equilibrium path deviation to staying out under $\chi_t = 1$ (entering under $\chi_t = 0$), and a high type benefits more from an off-the-equilibrium path deviation to staying out under $\chi_t = 0$ (entering under $\chi_t = 1$).

First, notice that under $\omega_t = 1$ governance outcomes determine the incumbent's electoral fate, regardless of the voter's interim posterior:

Remark 3. *All incumbents are always re-elected after a good outcome in times of crisis and ousted after a bad outcome in times of crisis.*

Proof. This follows straightforwardly from the fact that governance outcomes in times of crisis are fully informative, while the informativeness of PCs' private signals is bounded away from 1. □

Lemma B.4. *Regardless of the private signal ϕ_i, all PCs from Party 2 always enter the race under $\chi_t = 1$ and stay out under $\chi_t = 0$.*

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[20]This is not necessarily true in a PBE: because off-the-equilibrium-path beliefs are not restricted, the voter could potentially reach a new posterior in every period following a first deviation (until the PC enters a race and is hit by a crisis). Here, I exclude this possibility by assuming that, after the voter reaches a degenerate belief on the probability that i observed signal $\phi_i = 1$, her beliefs on ϕ_i can no longer change. In the same spirit, I also assume that if PC i separates at time t, an off-the-equilibrium-path deviation in the remainder of the game has no impact on interim beliefs.

[21]This refinement does not pin down out of equilibrium beliefs in a period in which PC i pools on entering the race but loses. I assume that following a deviation the voter forms the same beliefs that survive the refinement conditional on i winning the election under the same realization of χ_t.

Proof. First, it is easy to see that there can be no separating or semi-separating equilibrium in which a high type is more likely than a low type to enter under $\chi = 0$. A high type's expected payoff from getting to office under $\chi_t = 1$ is higher than a low type's. Therefore, if the low type (weakly) prefers to stay out under $\chi_t = 0$, the low high must (strictly) prefer to stay out as well. Similarly, there can be no separating or semi-separating equilibrium in which a low type is more likely than a high type to enter under $\chi = 0$. Entering the race under $\chi_t = 0$ induces interim posterior $\widehat{\mu_2}(0) < q_2$, which would in turn imply that a Party 2 incumbent would only be re-elected if a crisis emerges and he is able to solve it. Regardless of the impact on the voter's interim beliefs, a deviation to staying out under $\chi_t = 0$ and entering under $\chi_t = 1$ is always profitable. Similarly, pooling on entering the race can never be sustained: as above, entering the race induces interim posterior $\widehat{\mu_2}(0) < \widehat{\mu_1}(0) < q_1$. A deviation to staying out induces $\widehat{\mu_2}(h) > q_1$ and is always profitable. Thus, in equilibrium Party 2 PCs must be pooling on staying out under $\chi_t = 0$.

Next, consider $\chi_t = 1$. First, there can be no separating or semi-separating equilibrium in which a low type enters with higher probability under $\chi = S$. A high type's expected payoff from getting to office under $\chi_t = 1$ is higher than a low type's. Therefore, if the low type (weakly) prefers to enter under $\chi_t = 1$, the high type must (strictly) prefer to enter as well. Next, there can be no separating or semi-separating equilibrium in which a high type enters with higher probability under $\chi_t = 1$. This would imply that, conditional on staying out, the voter forms interim posterior lower than q_2, which in turn determines that the low type prefers to get to office under $\chi_t = 1$. Thus, Party 2 PCs must be pooling on entering under $\chi_t = 1$ (pooling on staying out can never be sustained since it would imply that these PCs never get to office).

□

Proposition 5. *The game always has a Perfect Bayesian Equilibrium where*

- *Potential candidates from Party 1 enter the race when the public signal indicates normal times ($\chi_t = 0$) and stay out when the signal indicates a crisis ($\chi_t = 1$), regardless of the private signal ϕ_1, and*

- *Potential candidates from Party 2 enter the race when the public signal indicates a crisis ($\chi_t = 1$) and stay out when the signal indicates normal times ($\chi_t = 0$), regardless of the private signal ϕ_2.*

Proof. From Lemma B.4., Party 2 PCs have no profitable deviation. Consider now PCs from Party 1. In the conjectured adverse selection equilibrium, they remain in office for two consecutive terms if no crisis emerges, or if a crisis emerges and they are able to solve it. The same holds after an off-the-equilibrium-path deviation to only entering the race under $\chi_t = 1$. However, the probability of a crisis is higher under $\chi_t = 1$, which implies that this deviation always decreases a Party 1 PC's expected payoff. The conjectured equilibrium always exists. $\qquad\square$

Proposition. *B.2.* *The game always has a PBE where all PCs from Party 1 always enter the race, and all PCs from Party 2 always enter under $\chi_t = 1$ and stay out under $\chi_t = 0$. Further, the game always has a Perfect Bayesian Equilibrium where all PCs from Party 1 always enter under $\chi_t = 0$ and stay out under $\chi_t = 1$, and all PCs from Party 2 always enter under $\chi_t = 1$ and stay out under $\chi_t = 0$. No other Perfect Bayesian Equilibrium exists (beyond the one identified in Proposition 4).*

Proof. First, consider the equilibrium in which all Party 1 PCs always enter the race. Under $\chi_t = 0$, a Party 1 PC enters the race and (conditional on winning) is always re-elected if no crisis emerges. The probability of being in re-elected is therefore $1 - p_t(0) + p_t(0)\widehat{\mu}_1(\phi_i)$. A deviation to staying out improves this PC's interim reputation but, due to the coarse nature of elections, does not affect his electoral chances under normal times. Therefore, following the conjectured deviation, the probability of being in office for two consecutive terms if entering the race in times of crisis is $1 - p_t(1) + p_t(1)\widehat{\mu}_1(\phi_i) < 1 - p_t(0) + p_t(0)\widehat{\mu}_1(\phi_i)$. The deviation is never profitable. Suppose instead that $\chi_t = 1$. In the conjectured equilibrium, a Party 1 incumbent is re-elected with probability $1 - p_t(1) + p_t(1)\widehat{\mu}_1(\phi_i)$. Conjecture a deviation to staying out of the race. This deviation induces interim posterior $\widehat{\mu}_1(0) < q_2$, which implies that, upon getting to office, this PC would not be able to remain in office for two consecutive periods if no crisis emerges in his first term. Therefore, the deviation is never profitable and the conjectured equilibrium always exists.

Next, consider the equilibrium in which all Party 1 PCs enter the race under $\chi_t = 1$ and stay out otherwise. The above reasoning shows that no player has a profitable deviation under $\chi_t = 1$. Consider instead $\chi_t = 0$. A deviation to entering the race induces an interim posterior $\widehat{\mu}_1(0) < q_2$. Conditional on the voter reaching these beliefs, a Party 1 PC would prefer to be in office under $\omega_t = 1$. Therefore, the deviation is never profitable and the conjectured equilibrium always exists.

Finally, there can be no equilibrium in which Party 1 PCs play a separating or semi-separating strategy. Consider $\omega_t = 0$. If entering the race induces posterior $\widehat{\mu}_1(0) > q_2$, a deviation to always entering is profitable. In contrast, if $\widehat{\mu}_1(0) < q_2$, a deviation to staying out is profitable. Suppose instead that entering induces posterior $\widehat{\mu}_1(0) = q_2$. Notice that this is possible only if, in equilibrium, the low type enters for sure and the high type mixes.[22] In this case, staying out induces posterior $\widehat{\mu}_1(1) > q_2$. Thus, both types have a profitable deviation to always stay out and wait for the next period in which $\chi_t = 0$. Thus, Party 1 PCs must be adopting a pooling strategy under $\chi_t = 0$.

Next, consider $\omega_t = 1$. As for the Party 2 PCs, there can be no separating or semi-separating equilibrium in which the low type enters with higher probability under $\chi_t = 1$. Conjecture instead a fully separating equilibrium in which the high type enters under $\chi_t = 1$. In the conjectured equilibrium, staying out of the race under $\chi_t = 1$ induces an interim posterior $\widehat{\mu}_1(0) < q_2$. Conditional on the voter reaching these beliefs, a Party 1 PC would prefer to be in office under $\omega_t = 1$. Therefore, the low type would always find it profitable to imitate the high type, and the conjectured equilibrium never exists. For a similar reasoning there can be no equilibrium in which Party 1 PCs adopt a mixed strategy under $\chi_t = 1$, and staying out induces posterior lower than q_2. Next, notice that if staying out induces a posterior higher than q_2, both types have a profitable deviation to stay out (waiting one more period always increases the PC 's expected payoff). Finally, suppose that staying out induces a posterior equal to q_2 (which is possible if the high type mixes and the low type stays out for sure). Then, it must be the case than in any subsequent period staying out of the race under $\chi_t = 1$ would induce posterior strictly lower than q_2, and the mixing can no longer be sustained. Therefore, a Party 1 PC can only be adopting a mixed strategy in the first period in which he en-

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[22]Recall that, as for Party 2 PCs, the low type must be entering with weakly higher probability than the high type under $\omega_t = 0$.

counters a signal $\chi_t = 1$. Further, notice that there can be no equilibrium in which the PC always enters the race under $\chi_t = 0$ in subsequent periods: both types would have a profitable deviation to stay out upon observing $\chi_t = 0$, so as to regain their electoral advantage (by inducing posterior $\mu_1(1)$),[23] and enter the race after that. Thus, the conjectured equilibrium may only be sustained if the Party 1 PC adopts a mixed strategy upon first observing signal $\chi_t = 1$, and in subsequent periods pools on entering the race under $\chi_t = 1$ and on staying out under $\chi_t = 0$. However, notice that in this case both types would have a profitable deviation to always enter upon first observing signal $\chi_t = 1$ (since in this first period doing so induces interim posterior $\widehat{\mu}_1(1)$ and guarantees reelection if no crisis emerges). Thus, no mixed strategy can be sustained in equilibrium.   □

Proposition 6. *Suppose that $\bar{p} > \frac{1}{2}$. Then, all potential candidates' expected utility in the adverse selection equilibrium is higher than in any other equilibrium.*

Proof. First, consider PCs from Party 1. Given the martingale property of posterior beliefs, the expected posterior that i is a good type equals q_i, and the expected posterior probability of a crisis at time t equals $\bar{p}$.[24] Thus, in the adverse selection equilibrium, a Party 1 PC's ex-ante probability of being in office for two terms is $(1 - p_t(0)) + p_t(0)q_1 + p_t(0)(1 - q_1)[\bar{p}(1 - \psi) + (1 - \bar{p})\psi]$. Suppose instead that the PC only enters the race under $\chi_t = 1$. Then, the ex-ante probability of being in office for two terms is $(1 - p_t(1)) + p_t(1)q_1 + p_t(1)(1 - q_1)[\bar{p}(1 - \psi) + (1 - \bar{p})\psi]$. Finally, consider the unconditional entry equilibrium. The probability that a Party 1 PC remains in office fo two consecutive terms is $(1 - \bar{p}) + \bar{p}q_1 + \bar{p}(1 - q_1)[\bar{p}(1 - \psi) + (1 - \bar{p})\psi]$. Straightforwardly, we have:

$$(1 - p_t(0)) + p_t(0)q_1 + p_t(0)(1 - q_1)[\bar{p}(1 - \psi) + (1 - \bar{p})\psi] > \tag{18}$$

$$(1 - \bar{p}) + \bar{p}q_1 + \bar{p}(1 - q_1)[\bar{p}(1 - \psi) + (1 - \bar{p})\psi] >$$

$$(1 - p_t(1)) + p_t(1)q_1 + p_t(1)(1 - q_1)[\bar{p}(1 - \psi) + (1 - \bar{p})\psi].$$

Consider now PCs from Party 2. In the adverse selection equilibrium, their ex-ante probability of

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[23]Recall that the voter's interim beliefs would be fixed after this first deviation.

[24]Precisely, the probability of a crisis in the first period in which i is drawn from the pool.

being to office for two terms is $\bar{p}q_2 + (1 - \bar{p}q_2)[\bar{p}\psi + (1 - \bar{p})(1 - \psi)]$: a Party 2 incumbent wins the second period election if a crisis emerges in the first term and he is able to solve it, or if the *second* period public signal indicates a crisis, thus inducing his opponent to stay out of the race. Similarly, if Party PCs candidates only enter under $\chi_t = 1$, a Party 2 PC is in office for two terms with probability $\bar{p}q_2 + (1 - \bar{p}q_2)[\bar{p}(1 - \psi) + (1 - \bar{p})\psi]$. In the unconditional entry equilibrium, a Party 2 incumbent is reelected with probability $\bar{p}q_2$. Straightforwardly, if and only if $\bar{p} > \frac{1}{2}$ we have that:

$$\bar{p}q_2 + (1 - \bar{p}q_2)[\bar{p}\psi + (1 - \bar{p})(1 - \psi)] > \bar{p}q_2, \tag{19}$$

and

$$\bar{p}q_2 + (1 - \bar{p}q_2)[\bar{p}\psi + (1 - \bar{p})(1 - \psi)] > \bar{p}q_2 + (1 - \bar{p}q_2)[\bar{p}(1 - \psi) + (1 - \bar{p})\psi]. \tag{20}$$

$\square$

C   Multiple Potential Candidates

Proposition. *C.1.* *In equilibrium,*

- *All l_2 potential candidates always enter the race under $\chi_t = 1$ and stay home under $\chi_t = 0$;*

- *All h_1 potential candidates always enter the race under $\chi_t = 0$ and stay home under $\chi_t = 1$;*

Proof. The proof is as for Proposition 1, and is therefore omitted. $\square$

Proposition. *C.2.*

- *Suppose that $q_2^h < \pi_1^l$. Then, all h_2 potential candidates always enter the race under $\chi_t = 0$ and stay home under $\chi_t = 1$. Otherwise, if $q_2^h > \pi_1^l$, then all h_2 potential candidates always enter the race under $\chi_t = 1$ and stay home under $\chi_t = 0$;*

- *Suppose that $q_1^l < \pi_2^l$. Then, all l_1 potential candidates always enter the race under $\chi_t = 0$ and stay home under $\chi_t = 1$. Otherwise, if $q_1^l > \pi_2^l$, then all l_1 potential candidates always enter the race under $\chi_t = 1$ and stay home under $\chi_t = 0$;*

Proof. Recall that at $\delta = 1$, a potential candidate's optimal strategy is the one that maximizes the probability of being in office for two consecutive terms. Consider an h_2 potential candidate. If he gets to office under $\omega_t = 0$, his probability of being retained is $p(unopposed)(1 - \pi_1^l) + \pi_1^l$. Instead, if he gets to office under $\omega_t = 1$, the probability of being retained is $q_2^h + (1 - q_2^h)p(unopposed)$.[25] Thus, h_2 potential candidates stay home under $\chi_t = 1$ and enter under $\chi_t = 0$ if and only if

$$p(unopposed)(1 - \pi_1^l) + \pi_1^l > q_2^h + (1 - q_2^h)p(unopposed), \tag{21}$$

which reduces to

$$q_2^h < \pi_1^l. \tag{22}$$

A similar reasoning applies to l_1 potential candidates. $\qquad\square$

D   An analysis of Gubernatorial Elections

The aim of this section is not to provide a test of the model, but simply to take a first step in that direction and present some suggestive evidence that the inefficiency it highlights may be more than a mere theoretical possibility. To this aim, I analyze data on gubernatorial candidates in the US, from 1892 to 2016 (from Hirano and Snyder 2019). In my model, a potential candidate's quality is represented by the prior probability of being a competent type (q_i). This finds a clear correspondence in the dataset, that captures candidates' expected 'ability to perform the tasks associated with the office they are seeking' (Hirano and Snyder 2019: 89) and thus deliver a good governance outcome (p. 94). This measure is coded as a a binary variable, taking value one if the candidate has prior relevant experience (i.e., in a major statewide executive position or as the

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[25]Here, I do not allow a primary challenger against a sitting incumbent. Relaxing this assumption would have no impact on the qualitative results below.

mayor of a major city), and zero otherwise.[26] While in my model quality is a continuous variable, a clear implication of the theory under a binary measure of quality is that the probability that no high-quality candidate is willing to enter the race is higher in periods of crisis. Thus, I focus on open-seat elections and code my outcome variable as the share of races in year t in which no high-quality candidate enters the pool. I consider the whole pool of primary candidates (rather than looking directly at the general election), in order to isolate (as much as possible) the supply-side problem from potential strategic considerations at the party level. Finally, I use the NBER coding of *national-level* recessions to identify exogenous (to the individual state and governor) crises.[27] Thus, I run the following regression:

$$y_t = \alpha + \beta S_t + \epsilon_t \tag{23}$$

y_t is the share of open-seat races in year t where no primary candidate is a high-quality one. S_t is a binary indicator taking value one if a national-level recession occurs during year t and zero otherwise.[28]

In line with the predictions of the theory, the coefficient β is positive. In a non-crisis year, roughly 15% of all open-seat races see both parties unable to field a high-quality candidate (i.e., no high-quality candidate takes part in either primary). In a crisis year, this share jumps to 28% on

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[26]While previous experience is a standard measure of quality in the literature, it is somewhat problematic in my setting: if a candidate has previous experience this implies that voters have potentially more information about his true type, and this information may be good or bad. However, we could argue (in line with my assumption in the infinite-horizon model), that if an elected official is exposed to a shock and reveals himself as a low type, he is ousted and can never re-enter the pool of candidates, whether for the same position or for higher office. Under this assumption, candidates with previous relevant experience are, on average, of higher quality. Nonetheless, future research should evaluate the robustness of the results to alternative measures of quality.

[27]Let me note that the analysis in Jacobson (1989) is somewhat related. Jacobson looks at how national economic conditions influence the likelihood that incumbents faces a high-quality challenger in congressional elections. He finds that high-quality challengers are more likely to run when a co-partisan of the incumbent is in the White House, and national economic conditions are poor. The mechanism hypothesized is orthogonal to mine: the incumbent's party is blamed for poor economic outcomes at the national level, which reduces the incumbent's electoral strength. This increases the likelihood that a challenger is able to win, thereby attracting high-quality challengers to the race. Here, I focus on open-seat elections, where this mechanism has no bite (recall that my outcome variable is the probability that *neither* party is able to filed a high-quality candidate).

[28]In some states primaries occur several months before the general election. Reassuringly, the results are robust to coding t as a non-crisis year if the the recession only emerges the second half.

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average (p. value 0.018).[29]

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[29]These results are robust to clustering the standard errors at the state level.