Who Runs When?

Federica Izzo

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 cost-less and if office is more valuable than the outside option.

James Madison, the architect of the US constitution, believed that democratic elections primarily serve the purpose of enabling citizens to choose capable leaders. He stated, "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). This viewpoint was echoed by V.O. Key (1956: 10), who argued that the effectiveness of government hinges on the individuals in power. Notably, empirical research increasingly emphasizes the significant influence of leaders' competence on a country's performance (Jones and Olken, 2005; Besley, Montalvo and Reynal-Querol, 2011).

The health of a democratic system thus hinges on two critical questions. Firstly, can voters effectively identify competent politicians while rejecting inadequate ones? Secondly, do highly capable individuals have the willingness to pursue political office? The existing literature extensively addresses the first question but pays considerably less attention to the second. This paper aims to bridge that gap. Specifically, instead of solely examining *whether* competent individuals self-select into politics, I explore *when* good candidates decide to enter the electoral race. To achieve this, I present a dynamic model of elections that investigates how the prevailing environment, such as a moment of crisis or a period of business as usual, influences the supply of good candidates.

The model reveals a significant inefficiency: the quality of the candidate pool diminishes during periods of crisis when competent leadership is most crucial. When a crisis occurs, the ability of the incumbent is tested, prompting forward-looking potential candidates to weigh the benefits of holding office in the present against their future electoral prospects. The potential candidate with the greatest likelihood of delivering a good performance is also the one that has the most to lose from failing, since he initially enjoys a reputation advantage. Therefore, if there is a chance that they may fail to achieve favorable outcomes, this candidate has an incentive to abstain from the race during crises to safeguard their electoral capital for the future. In contrast, the potential candidate who is initially less qualified for office has nothing to lose and is always willing to take the gamble during challenging times to enhance their reputation. 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 not stem from weak electoral incentives, as observed in previous literature. On the contrary, it arises as a consequence of accountability.

The contribution of this paper is therefore threefold. Firstly, it uncovers an overlooked consequence of electoral accountability: when crises have an informational value and forward-looking potential candidates face uncertainty regarding their political ability, electoral accountability can discourage the best candidates from running precisely when they are most needed by voters. Secondly, it identifies the conditions and policies that amplify or mitigate this inefficiency. And finally, it highlights how the rational 'calculus of candidacy' (Rohde, 1979) goes beyond the comparison of the *exogenous cost of running* and the expected rents from office. When considering politicians' dynamic electoral incentives, this calculus must also incorporate *endogenous costs of holding office*.

I study these endogenous costs and the inefficiencies they generate by analyzing a dynamic game that lasts for infinitely many periods. In each period, potential candidates decide whether to enter the race. Running has no cost, 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 delivers 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, indicating 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 country's environment conditions, with periods categorized as either crisis or business as usual. A crisis, such as a global recession or a natural disaster, is an exogenous shock that amplifies the impact of the incumbent's ability. Thus, competent office holders are particularly valuable for voters during crises.

In this context, the environment conditions determine the amount of information voters receive about the incumbent's ability. A crisis serves as 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 their ability. This aligns with findings in the retrospective voting literature, which suggest that crises provide an opportunity for the incumbent to demonstrate their capabilities, but also risk damaging their reputation if they fail to deliver an effective response (see Healy and Malhotra (2013) for a review). Thus, while the value of holding office remains constant across periods, a crisis affects potential candidates' *dynamic* payoff from being elected at the present moment.

From this perspective, being in office during a crisis is a risky proposition as it exposes the incumbent's competence, or lack thereof. The risk is greater for officeholders with a lower probability of being competent. Naive intuition may then suggest that the best potential candidate, with higher expected competence, would be more likely to run during a crisis, leading to positive selection. Surprisingly, the opposite is true.

The best potential candidate, despite having higher chances of crisis management success (and thus lower risk), also possesses valuable electoral capital, resulting in a higher *endogenous* opportunity cost. If the voter learns nothing new, this candidate maintains an electoral advantage in the future. Instead, new information can reveal the incompetence of this initially advantaged candidate. Therefore, the probability of being reelected for a second term is maximized if the candidate first assumes office during a period of business as usual, where their competence is less likely to be tested. This creates a "fear of failure" for the best potential candidate, leading them (if sufficiently patient) to stay out of the race during times of crisis and only enter during stable periods.

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, this candidate 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 least qualified candidate runs during times of crisis, while the most qualified candidate only enters the race during normal periods. Importantly, this holds true even if the best candidate is highly likely to be competent. The presence of even a small amount of uncertainty about their ability to handle a crisis is sufficient 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 least qualified candidate in the pool encourages the best potential candidate to run during times of crisis. This means that policies aimed at attracting better candidates at the bottom level can have a positive "trickle-up" effect on the overall quality of elected politicians, even if those bottom candidates never actually hold office.

Next, I analyze the impact of increasing political salaries on the timing of potential candidates' entry decisions. Previous research suggests that higher salaries can motivate more competent individuals to enter politics(Ferraz and Finan, 2009). In my model, where office rents already exceed the outside option, increasing office benefits doesn't solve the inefficiency regarding the *timing* of entry into the candidate pool.

Finally, I examine the effect of term limits on mitigating adverse selection. I find that increasing term limits can have an ambiguous effect on the incentives for the best potential candidate to run during turbulent times, and thus on voter welfare. If the candidate is confident in their ability, longer term limits can strengthen their incentives to run. However, if the candidate is less likely to be competent, longer term limits further discourage their entry into the race during crises.

Let me emphasize that the theory is built on the key assumption that exogenous crises have an informational value: they influence the inferences voters make based on governance outcomes. In the model, I specifically assume that a crisis *amplifies* the informativeness of governance outcomes, allowing voters to learn about the officeholder's type. However, it's important to note that the discussed inefficiency may still exist when crises *decrease* the informativeness of performance.

Suppose for example even competent officeholders may perform poorly during crises, while they excel during periods of business as usual. In this case, voters benefit the most from competent politicians during normal times, which also represent the periods when governance outcomes are most informative. As a result, potential candidates who are likely to be competent may fear failure and have incentives to stay out of the race during normal times, only running for office during crisis periods. Once again, this leads to the voter having the wrong candidate at the wrong time.

In a more general sense, I demonstrate that under the assumption of fully patient potential candidates, an efficient equilibrium is only possible if the crisis does not have a significant impact on the information environment. This conclusion holds true regardless of whether crises decrease or amplify the informativeness of governance outcomes.

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 lack private information about their ability and, once in office, cannot strategically enhance 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 possess private information about their ability, their decision to enter the race can serve as an informative signal to 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 described above can always be sustained. 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 governance outcome is a function not only of the state of the world and the incumbent's type, but also of their 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. Furthermore, a familiar trade-off arises: the voter cannot simultaneously attract the most competent politician to office and provide sufficient incentives for the politician to exert effort.

Taken together, the results of this paper uncover an inefficiency that can be more or less severe, but is hard to escape when two conditions are present: crises have an informational value, and sufficiently forward-looking potential candidates have some level of uncertainty about their ability to handle them. The source of this inefficiency lies at the core of the accountability relationship between the voters and their representatives. Voters cannot credibly commit to disregarding information that could arise about the incumbent's competence. Ironically, during times when competence matters the most, the officeholder's performance provides the most revealing information, and the candidate most likely to be competent is hesitant to take the gamble.

In the Online Appendix H, I present suggestive evidence supporting the theoretical possibility of this inefficiency. While evaluating individual cases is challenging due to the unobserved pool of potential candidates, analyzing aggregate data provides promising insights. I examine data on US Gubernatorial candidates and find that, consistent with the theory, the probability of no high-quality candidate entering the race nearly doubles during periods of national economic recession, increasing from 15% to 28%. This analysis represents an initial step in assessing the empirical relevance of the model, opening avenues for future research.

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).[1] This literature

[1]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

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 makes two contributions to the existing literature. First, I extend the "calculus of candidacy" framework (Rohde, 1979) to incorporate the *dynamic* electoral incentives of politicians. Second, I examine the *timing* of entry into the race, rather than solely focusing on *whether* good candidates choose to run or not.

The main insight is that potential candidates with long-term political ambitions consider how holding office today affects their future electoral prospects. These strategic considerations are influenced by the environment conditions, specifically the occurrence of a crisis or a period of normalcy. Even when running for office is costless and holding office is more valuable than the alternative (so that running would always be *statically* optimal), potential candidates face the strategic decision of when to enter the race.

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 difficult to defeat the incumbent, in order to avoid wasting resources (see also, among others, Stone and Maisel (2003)). Banks and Kiewiet's formal model uncovers a similar 'incumbency scare-off' effect where good candidates prefer running during open-seat elections rather than challenging a leading incumbent. They assume that a candidate can only enter the race once, creating an opportunity cost for running when the chances of winning are low. In contrast, my model focuses on the potential opportunity cost of holding office rather than the cost of running.

Goodliffe (2005; 2007) shows that when running is costly, incumbents may use campaign spend-

(2008)), rather than quality.

ing to deter strong challengers from entering the race. My model, however, offers a different perspective by providing a rationale for why even weak incumbents may face no serious challenge and why neither party may field a high-quality candidate in open-seat elections. In this setting, even a certain winner may be unwilling to run.

In my model, the cost of holding office is tied to information. Potential candidates recognize that their performance will shape voter beliefs about their competence, which, in turn, will impact future electoral outcomes. This dynamic relationship between performance and voter choices has been widely studied in political economy (see Ashworth (2012) for a review), but my paper is the first to examine its effect on the supply of competent candidates.

Finally, my work is closely related to recent formal theory literature that explores how events beyond the control of officeholders can affect their electoral prospects by shaping voter inferences based on their performance (Ashworth, Bueno de Mesquita and Friedenberg, 2017). While these studies assume the pool of candidates as given, my model examines how crises specifically impact the endogenous supply of competent politicians.

The Baseline Model

Players and actions. Consider a game that lasts for infinitely many periods, $t = 1, 2, \dots$. 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 type ($\theta_i = 0$). The true types of potential candidates are unknown to all players, including the candidates themselves. There is a common belief that a fraction q_P of party P's members are good types. Thus, if a potential candidate belongs to Party 1, the prior probability of them being a good type is q_1, while for Party 2 potential candidates, it is q_2.[2]

In this framework, we can interpret q_P as the reputation or political capital of candidates from party P, which serves as a measure of their expected quality. Specifically, q_P captures the anticipated level of quality for potential candidates within each party. I make the assumption that $0 < q_2 < q_1 < 1$, and thus refer to potential candidates from Party 1 as the advantaged ones, and to potential candidates from Party 2 as the disadvantaged ones.

It is worth noting that in this baseline model, potential candidates do not have private information about their own types. Although this simplification aids in presenting the results and highlighting the underlying strategic incentives underlying, it is plausible in real-world scenarios that politicians have a better understanding of their own competence and ability to handle a crisis. To address this, I extend the model later to incorporate private information for potential candidates (see p. 29). Importantly, this extension demonstrates that the equilibrium results are robust.

Crises. In each period, the country can be in a state of business as usual ($\omega_t = 0$) or face a negative shock ($\omega_t = 1$). A shock represents an *exogenous* crisis, such as economic hardship, war, or a natural disaster. Players have a common prior belief that the probability of a shock occurring in any given period is $\bar{p}$. At the beginning of each period, they receive a public signal $\chi_t \in \{0, 1\}$ indicating the likelihood of a crisis happening during the upcoming term. Specifically, the probabilities are such that $prob(\chi_t = 0|\omega_t = 0) = prob(\chi_t = 1|\omega_t = 1) = \psi > \frac{1}{2}$. The state ω_t is then realized and observed publicly at the start of the officeholder's term.

Governance outcomes. In each period, the officeholder's governance outcome can be either good ($o_t = g$) or bad ($o_t = b$). The probability of a good outcome depends on the state of the world,

[2] 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.

ω_t, and the officeholder's type, θ_I:

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

This formulation assumes that exogenous shocks amplify the impact of the incumbent's type on their performance.[3] During periods of business as usual ($\omega_t = 0$), the officeholder always produces a good outcome. However, in times of crisis ($\omega_t = 1$), the outcome is determined by the incumbent's type. A good type ($\theta_i = 1$) always delivers a good outcome during a crisis, while a bad type ($\theta_i = 0$) never does.[4] This assumption reflects the idea that competent officeholders are more likely to effectively address a crisis and produce a good governance outcome compared to incompetent ones.

Payoffs. Finally, let's define the players' payoffs. Potential candidates are motivated by holding office. Their payoff when they are not in office is set to 0. When they are in office, they receive a payoff of $k > 0$ in each period. Future payoffs are discounted at a rate of δ.

To focus on the incentives and disincentives of holding office, this paper assumes that running for office is costless.[5]

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;

3. Potential candidates choose whether to enter the race;

[3]Throughout the paper, I use the term performance to denote the realization of the governance outcome o_t.

[4]The specific parametrization adopted here is for simplicity. 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 under more general assumptions, and indeed even in a world where crises mute, rater than amplify, the effect of competence (see p. 20).

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

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 pure-strategy stationary Markov equilibria in weakly undominated strategies (henceforth, equilibrium). The restriction to weakly undominated strategies simplifies the proofs but is otherwise without loss of generality. I assume that the voter fully discounts the future, meaning that she only considers her payoff in the current period. This assumption guarantees that, in each period, the candidate with the highest reputation wins the election, regardless of incumbency status. In equilibrium with a forward-looking voter, this may not hold true. If the choice is between a term-limited incumbent and a challenger who is less likely to be competent but can run again in the next period, a forward-looking voter may, under certain conditions, elect the challenger. This is because the term limit would otherwise prevent the voter from effectively using all available information when making her electoral decision in the next period.

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 are always willing to enter the race.*

Running for office is costless, and the value of holding office (k) is higher than the outside option. Therefore, if a potential candidate decides not to enter the race, it must be driven by 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.[6]

However, when it comes to deciding whether to reelect a sitting incumbent, the voter consider the incumbent's performance in office. This paper builds on a crucial insight: the conclusions voters draw from observing the governance outcome depend on 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.[7] Thus, when the country is hit by a negative shock, the voter is able to draw more precise inferences about the incumbent's type.

Under my parametric assumptions, this effect is stark. Let μ_i represent the posterior probability that incumbent i 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 governance outcome in period t. 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:*

[6] 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.

[7] 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'.

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

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

During a period of business as usual ($\omega_t = 0$), both types of incumbents are capable of delivering a good outcome. As a result, the incumbent's performance does not provide any new information to the voter, and their beliefs remain unchanged at the prior. However, in the case of an exogenous crisis ($\omega_t = 1$), the voter is presented with a test of the incumbent's political ability and an opportunity to learn. Despite the crisis being fully exogenous, it can still impact the incumbent's electoral prospects. In fact, the voter's electoral decision may vary depending on the state of the world, even if the governance outcome remains the same.

In what follows, we consider the probability that an incumbent from party P is re-elected after getting to office in period t, *assuming a challenger enters the race.*[8] 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 in $t + 1$ 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 in $t + 1$;*

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

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

[8]In the model, if the potential candidate from the opposing party decides not to enter the race, the incumbent is always reelected. It is important to note that the key insights of the model remain valid even if we consider the possibility that an incumbent who fails to resolve a crisis may be replaced by their own party. I analyse this version of the model in the Online Appendix C.

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. Advantaged incumbents from Party 1 are always reelected if the country experiences a period of business as usual during their first term in office, while incumbents from Party 2 are always ousted. In contrast, under $\omega_t = 1$ governance outcomes are fully informative. Thus, if the country experiences a crisis a good governance outcome is 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. To simplify the statement of the propositions, I will set aside potential candidates' behavior in periods in which they can never win the election unless the other players play dominated strategies, and instead focus on races that are (at least potentially) winnable.

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 any* $0 < q_2 < q_1 < 1$ *in equilibrium*

- *Party-1 PCs never enter the race when the public signal indicates a crisis,* $\chi = 1$*;*
- *Party-2 PCs never enter the race when the public signal indicates normal times,* $\chi = 0$*.*

This Proposition reveals a clear inefficiency: the voter benefits the most from a competent officeholder during a likely crisis. However, only the least qualified candidates choose to enter the race during these periods. On the other hand, the most qualified candidates are willing to run only when a period of business as usual is expected. As a result, the voter ends up with the wrong candidate at the wrong time.

Recall that 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 their political capital and any future electoral prospects (since they cannot reenter the pool of candidates). For patient potential candidates, the strategic challenge is to determine the optimal time to enter the electoral race to maximize their chances of serving 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 their potential challenger decides not to run. However, during a crisis, the disadvantaged incumbent has an opportunity to prove themselves and increase their chances of winning even if the challenger enters the race. Therefore, Party 2 potential candidates maximize their probability of winning two consecutive terms by entering office during times of crisis, even if their probability of being competent is extremely low. In other words, disadvantaged Party 2 candidates always have incentives to gamble for resurrection and seek office during periods of crisis. As a result, they prefer to stay out of the race when the likelihood of a crisis ($\chi_t = 0$) is lower than usual. Notice that this holds true even in a subgame where the election is against an incumbent who failed to solve a previous crisis and is therefore beatable. These potential candidates choose to stay out of the race *precisely* because they do not want to get to office under $\omega = 0$.

On the other hand, a potential candidate from Party 1 faces different incentives. While they have a higher likelihood of being competent and managing a crisis, they also possess valuable electoral capital due to their reputation advantage. They are guaranteed reelection for a second term if they enter office during normal times when no new information is generated about their type. However, if they enter office during a crisis and fail to deliver a good governance outcome, they will be ousted. These advantaged potential candidates experience fear of failure and have incentives to avoid taking the gamble. This holds true even if they are almost certain of their ability to successfully manage a crisis; even the slightest uncertainty is enough to generate these incentives. Therefore, Party 1 potential candidates will choose to stay out of the race when the likelihood of a crisis ($\chi_t = 1$) is high and wait for a better time to enter.

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

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

- *If* $\widehat{\delta}_1 < \delta < 1$*, then in equilibrium a potential candidates from Party 1 never enters when the public signal indicates a crisis;*
- *If* $\widehat{\delta}_2 < \delta < 1$*, then in equilibrium a potential candidates from Party 2 never enters when the public signal indicates normal times;*

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.

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 $\chi_t = 1$ if the incumbent is up for reelection. This is because, 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. An important result describes how the quality at the bottom of the pool influences the incentives of the potential candidate at the top:

Corollary 1. $\widehat{\delta}_1$ *is increasing in* q_2.

When facing the decision to enter an open-seat election under $\chi_t = 1$, a potential candidate from Party 1 must consider the possibility that their opponent is a competent type who can solve the crisis and secure reelection. This is costly for the Party-1 PC as it delays the moment in which they may hope to get to office. Therefore, the higher the probability that candidates from the opposing party are competent (q_2), the stronger the incentives for Party 1 candidates to run even when a crisis is likely ($\frac{\partial \widehat{\delta}_1}{\partial q_2} > 0$).

This result has two important implications. First, it shows the depth of the inefficiency experienced by the voters: their preferred potential candidate has stronger incentives 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.[9]

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

Corollary 2. *$\widehat{\delta}_1$ 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 2 highlights that the inefficiency identified in this paper differs from similar findings in the literature. Existing studies focus on the challenge of attracting competent politicians when the value of holding office is too low compared to the outside option.[10] In other words, adverse selection emerges due to weak electoral incentives. Conversely, in this model, running for office is costless and holding office is always more valuable than the outside option. When potential candidates face some level of uncertainty about their ability, the inefficiency arises as a consequence of electoral accountability. The voter cannot commit to disregarding valuable information that may be revealed about the incumbent. Crises, which are most informative about competence, create a paradoxical situation: the potential candidate with the highest likelihood of surviving a crisis is also the one who has the most to lose and is unwilling to take the risk.

[9] More precisely, when we increase the average quality in the pool of potential candidates by raising the quality of the worst candidate, it creates stronger incentives for the best candidates to enter the race.

[10] Similarly, higher office rents improve voter welfare when they increase the officeholder's incentives to exert costly effort (as in Duggan and Martinelli (2020)). This effect does not emerge in the baseline setup analyzed here, since this is a model of pure selection.

To illustrate the voter's commitment problem, consider a scenario where the voter can commit to ignoring information about the candidates and simply flip a coin to decide whom to elect. In this case, all potential candidates would be willing to enter the race in every period, and adverse selection would not arise. The (myopic) voter's expected equilibrium payoff under commitment, denoted as V^c, can be expressed as $-\lambda\bar{p}\Big(1 - \frac{1}{2}(q_1 + q_2)\Big)$. In contrast, this voter's expected payoff in the adverse selection equilibrium discussed earlier, denoted as V^{eq}, is $-\lambda\bar{p}\Big(\psi(1-q_2)+(1-\psi)(1-q_1)\Big)$. Confirming our intuition, we see that $V^c > V^{eq}$.

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 decrease the informativeness of governance outcomes.

The main intuition that my argument builds on is that exogenous crises may alter the inferences that voters draw upon observing the incumbent's performance. In the paper, I specifically examine a scenario where crises *amplify* the informativeness of governance outcomes, providing the voters with an opportunity to learn about the incumbent's ability. However, it's crucial to note that inefficiencies may still arise when crises *reduce* the informativeness of governance outcomes.

Suppose for example that even competent types perform poorly in times of crises. 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. In turns, this generates the same inefficiency that emerges in the baseline model.

Here, I show that this result holds more generally. Denote $\mu(o_t, \omega_t)$ the posterior probability that the incumbent is a good type conditional on the realization of o_t and ω_t, given the production function mapping the state and the incumbent's type to the governance outcome. In what follows, I will say that crises always amplify the informativeness of governance outcomes if $\mu(b,1) < \mu(b,0)$ and $\mu(g,1) > \mu(g,0)$. Instead, crises always mute the informativeness of governance outcomes if $\mu(b,1) > \mu(b,0)$ and $\mu(g,1) < \mu(g,0)$. Crises do not influence the informativeness of governance outcomes when $\mu(o_t,1) = \mu(o_t,0)$ for all $o_t \in \{g,b\}$.

In the Online Appendix, I show that the the impact of a crisis on the voter's information environment maps directly to the her payoff from a good versus a bad type. When crises amplify information, the voter benefits the most from a good type during crisis periods. Conversely, when crises suppress information, the voter benefits the most from a good type during normal times.[11] This analysis enables us to examine whether the equilibrium entry decision of potential candidates is efficient from the voter's standpoint. In what follows, I say that the equilibrium is inefficient whenever the best potential candidate stays out of the race during periods when the voter would benefit the most from having a competent officeholder, and efficient otherwise.[12]

If the crisis does not have a significant effect on information, then the voter draws similar inferences from the governance outcome under both states (i.e., for any value of o_t we have that $\mu(o_t,1)$ is close to $\mu(o_t,0)$). In turn, this implies that the voter must be using the same retention strategy for Party-1 incumbents under both states, i.e., the same realization of the governance outcome induces the same retention choice during crises and in normal times. In this case, I will say that **the informativeness effect of the environment is weak.** Instead, I will say that **the informativeness effect is strong** whenever the voter adopts a different retention strategy under the two states of the world. Then, we have:

Proposition 3. *Suppose $\delta = 1$. Then, only if the informativeness effect of the environment is weak is there an efficient equilibrium. If the informativeness effect is strong, the equilibrium is always inefficient. This holds true both if crises mute or amplify the informativeness of governance outcomes.*

[11]This aligns with Ashworth, Bueno de Mesquita and Friedenberg (2017), who show that governance outcomes are always more informative under states of the world that amplify the impact of the officeholder's type.

[12]The voter would prefer that all candidates always run, but I use a definition that emphasizes the inefficiency in the *timing* of the candidates' entry decision.

If there are many potential candidates

In the baseline model, each party only has one potential candidate available in each period. However, in reality, the pool of potential candidates consists of multiple politicians. In Appendix D, I address this by extending the model and demonstrate that adverse selection still arises. With multiple potential candidates, in equilibrium each party is able to field a candidate in every election. However, under certain conditions, each party is only able to nominate the worst potential candidate from the pool when a crisis is anticipated.

Suppose that, in each 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 the best candidate h_P. 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 dynamic incentives of the players, let's focus on the case where $\delta = 1$. It is evident that the best potential candidate h_1 faces the same incentives as in the baseline model. Like before, this candidate is willing to enter the race during normal times but chooses not to run during times of crisis. Consequently, the potential candidate l_1 must be willing to enter the race when $\chi = 1$, as this is the only time at which they may win the party nomination.

Now, let's consider the Party-2 potential candidates. The best potential candidate h_2 is guaranteed re-election if they deliver a good outcome during a crisis, which occurs with probability q_2^h. However, if h_2 assumes office during normal times, they can only stay in power if h_1 chooses not to run. This occurs when the public signal at the time of reelection indicates a likely crisis in the next term, i.e., $\chi = 1$. Therefore, if the probability of a signal $\chi = 1$ is higher than q_{h_2}, h_2 prefers to enter the race when $\chi = 0$, and otherwise, they stay out. As a result, in equilibrium, only the worst member of each party is willing to enter the race when a crisis is likely.

Potentially endogenous crises

In the baseline model, I assume that voters are fully aware that the crisis is exogenous. However, in reality, voters often attribute responsibility for a crisis to the party in power, holding them accountable not only for their response to the crisis but also for its occurrence. To incorporate this observation into the model, suppose that when a crisis arises, the voter believes there is a probability η that the crisis is exogenous, while there is a probability of $1-\eta$ that the incumbent is responsible for it. We see that this does not alter the model's insights.

As long as $\eta > 0$, the voter's interim beliefs are non-degenerate and become irrelevant in my setting. This is because the *outcome* of the crisis provides full information. If the incumbent successfully resolves the crisis, they must be a good type, even if they potentially caused it. On the other hand, if the incumbent fails to resolve the crisis, they must be a bad type, even if they didn't cause it. Consequently, if the crisis is resolved, the incumbent will be reelected, and if it is not resolved, the incumbent will be ousted. Therefore, this version of the model is essentially equivalent to the one I analyze.[13]

Suppose instead that η is exactly 0, indicating that voters are completely certain that the incumbent is responsible for the crisis or could not have prevented it. In this scenario, when a crisis occurs, any incumbent will be ousted, regardless of whether the crisis is resolved or not. However, this certainty about responsibility does not change the incentives for the advantaged candidates. They still prefer to avoid assuming office during a crisis, as in the baseline model. On the other hand, the disadvantaged candidates are now indifferent between assuming office under $\chi = 0$ or $\chi = 1$, as in either case they can never be reelected when facing a challenge.

The Role of Parties

The baseline model primarily focuses on individual potential candidates, while the role and function of political parties remain in the background. In this section, I analyze extensions or variants of

[13] More generally, this is true whenever η is sufficiently low relative to the informativeness of the outcome of the crisis.

the model to explore these elements.

The role of parties' reputation. In the baseline model, political parties have a fixed reputation, and the incumbent's performance is solely indicative of their individual ability. However, in reality, party reputation evolves based on the performance of its members while in office. In Appendix E, I consider an amended version of the model to capture this richer environment.

In this extended model, voters face two uncertainties: they are unsure both about individual candidates' capabilities and the overall quality of candidates presented by each political party. The reputation of a party is thus shaped by the collective performance of its members over time, in turn influencing voters' evaluations of individual candidates. Thus, parties (and their candidates) may gain or lose an electoral advantage as the game progresses.

Adverse selection, as observed in the baseline setup, continues to emerge in this extended model. Potential candidates from the party with the highest current reputation have incentives to stay out of the race during a crisis. In fact, adverse selection *always* emerges in equilibrium when $\delta = 1$. However, when potential candidates are not perfectly patient, sustaining this inefficiency is harder than in the baseline model. In the baseline model, the advantaged potential candidate worries about the opponent's ability to solve a crisis, which would result in two consecutive terms out of office. In the extended model, this worry intensifies as the opponent can improve not only their individual reputation but also that of their party, potentially keeping the initially advantaged candidate out of office for multiple periods or even eliminating their electoral lead. Therefore, while the adverse selection equilibrium persists for some parameter values, it becomes harder to sustain (i.e., the parameter region supporting this equilibrium shrinks).

The role of parties' issue ownership. Another important aspect related to parties' reputation is their ownership of specific issues. While the baseline model considers a single dimension of competence, in reality, political parties often have different strengths in various policy areas. For instance, one party may be reputed for its expertise in handling the economy, while another party may have an advantage in foreign affairs.

To account for this, I extend the baseline model in the Online Appendix F. In this extension, I assume that, in each period, one of two different issues becomes salient for the electorate. Each party owns a specific issue: let's say party 1's candidates are more likely to be competent on issue 1, while party 2 has a higher reputation on issue 2.[14]

I demonstrate that when there is some persistence in the salience of issues across periods (if issue 1 is electorally important today, it is more likely to remain important tomorrow), a form of adverse selection continues to emerge. Potential candidates aim to capitalize on their reputation advantage by aligning themselves with the issue their party owns, but they are reluctant to have their competence tested. If they are sufficiently patient, the most competent potential candidate on each dimension never enters the race when the country experiences a crisis on that issue.

The role of parties' recruitment strategy. In addition to the individual decisions of potential candidates, political parties play a critical role in the recruitment and selection of politicians. On one hand, parties can use pressure and selective incentives to encourage their preferred potential candidates to run. On the other hand, parties act as gatekeepers, strategically choosing which candidates to field even if all potential candidates are willing to run.

In the Online Appendix G, I examine a version of the model where parties have access to different pools of candidates with varying expected quality. Specifically, each party has access to a pool with a higher proportion of good candidates and another pool with a lower proportion, and all candidates are always willing to run. The specific type of each individual candidate remains unknown, as in the baseline model. Therefore, each party faces a strategic choice of when to field candidates from the high-quality pool and when to select candidates from the low-quality pool.

When political parties are forward looking and have only a limited supply of candidates from the high-quality pool, adverse selection continues to occur. Each party is concerned with maximizing the number of periods during which one of their candidates holds office. To achieve this goal, it is

[14] The baseline model can be seen as a special case where either the same issue remains salient in every period or competence across issues is correlated.

often optimal to "save" the best potential candidates for periods in which a crisis is unlikely.

Term limits

A growing body of research in political economy examines the effects of term limits on politicians' strategic behavior and voter welfare (See Ashworth (2012, p.194-196) for a brief review). In this section, I explore the impact of term limits within the context of this model. I analyze an amended version 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.

To ensure tractability, I assume that the public signal about the likelihood of a crisis in the upcoming term is (almost) perfectly informative (i.e., $\psi \to 1$). Further, in order to focus on how term limits affect the incentives of potential candidates from Party 1 to enter the race under $\chi_t = 1$, I assume that potential candidates from Party 2 always run.

Increasing the term limit (T) has two effects. Firstly, if a potential candidate from Party 1 chooses not to run and their opponent is a competent type, longer term limits result in a longer delay in accessing office. This strengthens the incentives for Party 1 potential candidates to enter the race, even if a crisis is likely. Secondly, longer term limits raise the opportunity cost of entering the electoral arena at an unfavorable time, leading to stronger incentives to run only when the chances of serving T consecutive terms are maximized. This, in turn, reduces Party-1 PCs' incentives to enter during times of crisis. Thus, the following holds:

Proposition 4. *There exist $\underline{q}_1 < \overline{q}_1$ and $\overline{q}_2$ s.t.*

- *If $q_1 > \overline{q}_1$, then Party-1 potential candidates' incentives to run in times of crisis increase under longer term limits.*
- *If $q_1 < \underline{q}_1$ 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, indicating a higher probability for a Party 1 potential candidate to successfully manage a crisis, the first effect mentioned earlier dominates. Longer term limits increase the willingness of Party 1 potential candidates to run during crisis periods, as they seek to avoid a longer delay in case their opponent is competent. Conversely, if both q_1 and q_2 are small, a Party 1 potential candidate is primarily concerned about being ousted after one term due to a crisis, rather than their opponent proving to be competent. In this case, increasing the term limit (T) reduces the incentive for Party 1 potential candidates to run under $\chi_t = 1$. Thus, the impact of longer term limits on voter welfare remains ambiguous, as it could either exacerbate or alleviate the adverse selection issue identified in the baseline model.

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. 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*).[15]

[15] Ashworth (2005) also considers a setting where the incumbent's type is unknown to all, and his performance is determined by his type and his effort choice. However, the governance outcomes' production function is additively

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).[16] Then, I assume that the probability of a good outcome is:

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

with $\gamma > 0$. Notice that, as γ 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, similar to the baseline model, governance outcomes do not provide any information about the incumbent's type during normal periods ($\omega_t = 0$). However, in the case of a crisis ($\omega_t = 1$), a good outcome serves as a perfect indicator of competence. On the other hand, the informativeness of a bad outcome depends on the voter's expectation of the incumbent's effort level. Let $\mu_1(1, o_t = b, e^a)$ be the posterior probability of a Party-1 incumbent being a good type given a bad outcome during a crisis and the assumed effort level e^a. We have:

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

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

separable (i.e., there is no interaction between the incumbent's ability and his effort choice). As a consequence, in contrast to the setting analyze here, the incumbent cannot manipulate voter learning in equilibrium. In turn, Banks and Sundaram (1998) studies moral hazard and adverse selection together, assuming politicians' types are their private information (see also Duggan (2017)).

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

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

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, i.e., an equilibrium in which a Party-1 incumbent who fails to successfully manage a crisis loses against an untried Party-2 challenger:

Proposition 5. *Suppose the voter uses a conditional retention strategy in equilibrium. Then, in equilibrium potential candidates from Party 1 never enter the race when the public signal indicates a crisis ($\chi_t = 1$), and potential candidates from Party 2 never enter when the signal indicates normal times ($\chi_t = 0$).*

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.

Our next result establishes that, for a sufficiently large γ, the conditional retention strategy is the only one that is sustainable in equilibrium:

Proposition 6. *There exists a threshold $\underline{\gamma}$ s.t. if $\gamma > \underline{\gamma}$, then in equilibrium the voter must use a conditional retention strategy.*

Substantively, this implies that the adverse selection documented in this paper is 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, γ may represent an (inverse) measure of the state's bureaucratic capacity. The higher a polity's bureaucratic capacity (i.e., the lower γ), the more likely that it can survive a crisis even if the sitting office holder is an incompetent type. In this perspective, Proposition 6 indicates that low bureaucratic capacity may also have negative spillovers on the quality of the candidates for political office.

Notice that the results of this extension not only establish the conditional robustness of Proposition 1 but also reveal a trade-off. The voter faces a dilemma: she cannot simultaneously induce the best potential candidate to enter the race *and* incentivize them to exert effort. If the voter adopts a conditional retention strategy that indirectly rewards effort, the best potential candidate is discouraged from entering if $\chi_t = 1$. Under the unconditional retention equilibrium, no adverse selection arises. However, since an incumbent from Party 1's reelection chances are independent of their performance, they never exerts effort in equilibrium.

The trade-off between accountability and selection is a well-known concept in the political agency literature (dating back to Fearon (1999)). I have shown that this trade-off not only affects the voters' ability to identify 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 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 examine how the incentives and strategies of the players change if PCs do have private information about their true type. For example, Gordon, Huber and Landa (2007) analyze a model where the challenger's willingness to run conveys information to voters about the challenger's own ability relative to the incumbent's, leading to positive self-selection of candidates.[17] In my model, if PCs have perfect certainty about their true type, no adverse selection can arise. However, I demonstrate that the inefficiency described in Proposition 1 persists even if PCs have arbitrarily informative private signals about their ability.

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 proba-

[17] See also Caillaud and Tirole (2002) for a model where candidate entry signals electorally valuable information.

bility 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 their own ability. This refinement follows the spirit of Cho and Kreps (1987) (adapted to a repeated game).[18] Restricting attention to pure-strategy equilibria, we have:

Proposition 7. *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.*

During a crisis, the governance outcome provides perfect information about the officeholder's type. As a result, a poor performance in office would harm a politician's reputation beyond any positive signaling value of being willing to run. The strategic problem is therefore equivalent to the baseline model: the gambling aspect dominates the signaling one.

To illustrate this, let's consider the strategic incentives of a potential candidate from Party 1 under $\chi_1 = 1$. By entering the race (deviating from the conjectured strategy), the PC would signal to the voter that they have private information $\phi_1 = 1$. This would increase the voter's interim belief about their ability. However, this is irrelevant for the PC's payoff. If there is no crisis, a Party 1 incumbent is reelected during normal times even if entering the race does not enhance

[18] See Online Appendix B.

their interim reputation. If a crisis does occur, the governance outcome still determines the voter's electoral choice. Hence, PCs from Party 1 face the same strategic incentives as in the baseline.

As for PCs from Party 2, a deviation from the conjectured strategy does not improve their reputation and is therefore never profitable. The adverse selection equilibrium always exists.

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),[19] 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:

Proposition 8. *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 has an informational value: it amplifies both the importance of the office-holder's competence, and the informativeness of governance outcomes. I have shown that, as long as potential candidates face some (albeit potentially small) uncertainty about their ability, electoral accountability may have the perverse consequence of discouraging good candidates from running in times of crisis, precisely when the

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

voter needs them the most. Here, I conclude with a brief discussion of potential avenues for future research.

Avenues for theoretical research. This paper has focused on a world in which voters care exclusively about politicians' competence. An important direction for future research is to incorporate the ideological dimension into the framework analyzed in this paper. Indeed, existing work by Bernhardt, Câmara and Squintani (2011) emphasizes the crucial role of the interaction between politicians' competence and ideology in determining the effectiveness of elections as mechanisms of accountability. It is worth investigating how ideology may affect the adverse selection problem and its implications for voter welfare.

Ideology can potentially influence the adverse selection problem through two channels. On the demand side, as ideological polarization between politicians increases, the relevance of competence for electoral outcomes diminishes. In other words, increased polarization may enable voters to credibly commit to ignoring (at least partially) the information revealed by governance outcomes. This could potentially mitigate the adverse selection problem documented in this paper, but the effect on voter welfare remains ambiguous. On the supply side, a crisis may reshape the feasible policy options available to the office holder. For example, it may broaden the scope for economic reforms by reducing resistance or impose stricter budget constraints. This would, in turn, affect the expected utility of ideologically motivated politicians during challenging times. Increased polarization could then either alleviate or exacerbate the inefficiency identified in this paper.

Further research formalizing these intuitions would help clarify the conditions under which increased polarization improves voter welfare, and identify scenarios where its impact is detrimental.

Avenues for empirical research. From a theoretical standpoint, the inefficiency uncovered in this paper seems to be 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.

In Online Appendix H, 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 1892 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,[20] and the likely ripple effects at the state level, by the time they choose whether to run or not. Consistent with the theory's predictions, the findings show that the proportion of races without high-quality candidates nearly doubles during times of crisis (increasing from 15% to 28%). Notice that this is a hard test of the theory. As discussed earlier, ideological biases in the electorate are likely to mitigate the inefficiency highlighted in this paper. Therefore, if the predicted adverse selection is observed in the entire sample of open-seat elections, it is expected to be even more pronounced in swing states where partisan composition is more evenly balanced. Identifying this correlation is just an initial step in assessing the empirical relevance of the theory. Future research should aim to investigate the causal nature of this relationship and examine if it holds true for other positions[21], as well as under different types of negative shocks such as wars, disasters, or even the Covid-19 pandemic.

References

Ashworth, Scott. 2005. "Reputational dynamics and political careers." *Journal of Law, Economics, and Organization* 21(2):441–466.

Ashworth, Scott. 2012. "Electoral accountability: Recent theoretical and empirical work." *Annual Review of Political Science* 15:183–201.

Ashworth, Scott and Ethan Bueno De Mesquita. 2014. "Is voter competence good for voters?: Information, rationality, and democratic performance." *American Political Science Review* 108(3):565–587.

[20]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)).

[21]While the argument primarily applies to executive offices due to the direct attribution of governance outcomes.

Ashworth, Scott, Ethan Bueno de Mesquita and Amanda Friedenberg. 2017. "Accountability and information in elections." *American Economic Journal: Microeconomics* 9(2):95–138.

Banks, Jeffrey S and D Roderick Kiewiet. 1989. "Explaining patterns of candidate competition in congressional elections." *American Journal of Political Science* pp. 997–1015.

Banks, Jeffrey S and Rangarajan K Sundaram. 1998. "Optimal retention in agency problems." *Journal of Economic Theory* 82(2):293–323.

Bernhardt, Dan, Odilon Câmara and Francesco Squintani. 2011. "Competence and ideology." *The Review of Economic Studies* 78(2):487–522.

Besley, Timothy, Jose G Montalvo and Marta Reynal-Querol. 2011. "Do educated leaders matter?" *The Economic Journal* 121(554):F205–227.

Besley, Timothy and Stephen Coate. 1997. "An economic model of representative democracy." *The quarterly journal of economics* 112(1):85–114.

Brollo, Fernanda, Tommaso Nannicini, Roberto Perotti and Guido Tabellini. 2013. "The political resource curse." *American Economic Review* 103(5):1759–96.

Caillaud, Bernard and Jean Tirole. 2002. "Parties as political intermediaries." *The Quarterly Journal of Economics* 117(4):1453–1489.

Callander, Steven. 2008. "Political motivations." *The Review of Economic Studies* 75(3):671–697.

Caselli, Francesco and Massimo Morelli. 2004. "Bad politicians." *Journal of public economics* 88(3-4):759–782.

Cho, In-Koo and David M Kreps. 1987. "Signaling games and stable equilibria." *The Quarterly Journal of Economics* 102(2):179–221.

Dal Bó, Ernesto, Pedro Dal Bó and Rafael Di Tella. 2006. ""Plata o Plomo?": bribe and punishment in a theory of political influence." *American Political science review* 100(1):41–53.

Downs, George W and David M Rocke. 1994. "Conflict, agency, and gambling for resurrection: The principal-agent problem goes to war." *American journal of political science* pp. 362–380.

Duggan, John. 2017. "Term limits and bounds on policy responsiveness in dynamic elections." *Journal of Economic Theory* 170:426–463.

Duggan, John and César Martinelli. 2020. "Electoral accountability and responsive democracy." *The Economic Journal* 130(627):675–715.

Fearon, James D. 1999. "Electoral accountability and the control of politicians: selecting good types versus sanctioning poor performance." *Democracy, accountability, and representation* 55:61.

Fedele, Alessandro and Paolo Naticchioni. 2016. "Moonlighting politicians: motivation matters!" *German Economic Review* 17(2):127–156.

Ferraz, Claudio and Frederico Finan. 2009. Motivating politicians: The impacts of monetary incentives on quality and performance. Technical report National Bureau of Economic Research.

Goodliffe, Jay. 2005. "When do war chests deter?" *Journal of Theoretical Politics* 17(2):249–277.

Goodliffe, Jay. 2007. "Campaign war chests and challenger quality in Senate elections." *Legislative Studies Quarterly* 32(1):135–156.

Gordon, Sanford C, Gregory A Huber and Dimitri Landa. 2007. "Challenger entry and voter learning." *American Political Science Review* 101(2):303–320.

Healy, Andrew and Neil Malhotra. 2013. "Retrospective voting reconsidered." *Annual Review of Political Science* 16:285–306.

Hirano, Shigeo and James M Snyder Jr. 2019. *Primary elections in the United States.* Cambridge University Press.

Holmström, Bengt. 1999. "Managerial incentive problems: A dynamic perspective." *The review of Economic studies* 66(1):169–182.

Indridason, Indridi H. 2008. “When to run and when to hide: electoral coordination and exit.” *Economics & Politics* 20(1):80–105.

Jacobson, Gary C. 1989. “Strategic politicians and the dynamics of US House elections, 1946–86.” *American Political Science Review* 83(3):773–793.

Jones, Benjamin F and Benjamin A Olken. 2005. “Do leaders matter? National leadership and growth since World War II.” *The Quarterly Journal of Economics* 120(3):835–864.

Mattozzi, Andrea and Antonio Merlo. 2008. “Political careers or career politicians?” *Journal of Public Economics* 92(3-4):597–608.

Messner, Matthias and Mattias K Polborn. 2004. “Paying politicians.” *Journal of Public Economics* 88(12):2423–2445.

Osborne, Martin J and Al Slivinski. 1996. “A model of political competition with citizen-candidates.” *The Quarterly Journal of Economics* 111(1):65–96.

Rohde, David W. 1979. “Risk-bearing and progressive ambition: The case of members of the United States House of Representatives.” *American Journal of Political Science* pp. 1–26.

Stock, James H and Mark W Watson. 2003. “How did leading indicator forecasts perform during the 2001 recession?” *FRB Richmond Economic Quarterly* 89(3):71–90.

Stone, Walter J and L Sandy Maisel. 2003. “The not-so-simple calculus of winning: Potential US house candidates’ nomination and general election prospects.” *The Journal of Politics* 65(4):951–977.

A Proofs, Baseline Model

I focus on pure-strategy stationary Markov perfect equilibria in weakly undominated strategies (henceforth referred to as equilibria). The restriction to Markov strategies requires that in each period t, a potential candidate i's entry decision depends solely on the public signal χ_t, whether the election is an open-seat one or not, $E = o$ or $E = c$, and, in the case of an election against an incumbent, the posterior probability that they are a competent type, μ_I. Here, I use a strenghtened version of Markov strategies whereby 'a past variable that is payoff relevant only if some player plays a strictly dominated strategy in the subgame ought not to be treated as part of the state' (Fudenberg and Tirole, 1991, p. 515). In my model, a term-limited incumbent has strictly dominant strategy to always run for re-election, and for our myopic voter it is strictly dominated to reelect an incumbent who is less likely to be competent than the challenger. Because the beliefs over the incumbent are only payoff-relevant for a potential challenger via the voter's strategy, this gives us that (fixing χ), any subgame in which the difference $\mu_I - q_i$ has the same sign is strategically equivalent for i. Then, i must be using the same strategy in any such subgame.[22]

In order to reduce the notation burden throughout the Appendix, I assume that potential candidates from the same party use the same strategy in equilibrium. Define $Z \in \{-, +\}$ as $Z = +$ if $\mu_I - q_i > 0$ and $Z = -$ if $\mu_I - q_i < 0$. Then, for a potential candidate from party P, a strategy is a mapping $\boldsymbol{\sigma_P} : \{0, 1\} \times \{o, c\} \times \{-, +\} \to \{0, 1\}$. Finally, the voter's reelection decision depends on whether a candidate from Party 1 runs, denoted $\rho_1 \in \{0, 1\}$, whether a candidate form Party 2 runs, $\rho_2 \in \{0, 1\}$, if the election is open or closed, and $Z \in \{-, +\}$ in a closed election. Thus, we can define a strategy for the voter as a mapping $\boldsymbol{\sigma_v} : \{0, 1\}^2 \times \{o, c\} \times \{-, +\} \to \{0, 1\}$.

Given a strategy profile $\boldsymbol{\sigma} = (\boldsymbol{\sigma_1}, \boldsymbol{\sigma_2}, \boldsymbol{\sigma_v})$, we define the continuation payoff to a potential candidate from party $P \in \{1, 2\}$ when the election is open-seat as $V_P^o(\chi; \boldsymbol{\sigma})$ and when the election is closed as $V_P^c(\chi, Z; \boldsymbol{\sigma})$.

[22] This restriction will be useful to characterize the equilibrium strategy of disadvantaged candidates from Party 2.

Lemma 1.

- *Suppose that there is no crisis in period t ($\omega_t = 0$). Then, a Party-1 incumbent gets reelected in $t+1$ 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 in $t+1$;*
  - *if instead the outcome is bad ($o_t = b$), then both Party-1 and Party-2 incumbents get ousted in $t+1$.*

Proof. Recall that once an officeholder is ousted or hits a term limit, his party draws a replacement potential candidate. Thus, any incumbent from Party 1 may only experience a challenge from a new draw from Party 2. Similarly for Party-2 incumbents. Therefore, if a challenger enters the race, then the voter reelects the incumbent from Party P if and only if $\mu_P > q_{-P}$. In an open-seat election, instead, the voter's retention choice is based on her prior beliefs. Further, recall that all new draws from party P have the same prior probability q_P of being a competent type, with $q_1 > q_2$. The Lemma then follows straightforwardly from Remark 2.

□

Lemma A.1. *Suppose $\delta = 1$. Then, each potential candidates' equilibrium payoff is bounded below by k.*

Proof. First, consider potential candidates from Party 1. Suppose these potential candidates adopt the strategy to always enter the race. Recall that a Party-1 candidate always wins in a open-seat election. Thus, depending on the state, a Party-1 potential candidate that enters the game at time t will be elected at either time $t+1$ (if the election is against an incumbent who solved a crisis) or at time t (otherwise). Because $\delta = 1$, the payoff from the conjectured strategy is at least k, regardless of the strategy of the Party-2 PCs. Party-1 potential candidates can never do worse than by adopting the strategy to always run, therefore their equilibrium payoff is bounded below by k.

Now consider potential candidates from Party 2. Assume they adopt the strategy to always run. The continuation value from this strategy depends on the strategy adopted by Party-1 PCs, but we can show that it is weakly larger than k.

First, assume that Party-1 potential candidates always enter the race. Towards a contradiction, suppose there is a Party-2 potential candidate whose equilibrium payoff is strictly less than k. Let t' be the period at which this potential candidate enters the game. Given the restriction to pure strategies, an equilibrium payoff less than k implies that this potential candidate never gets to office. Therefore Party-1 must be in office in every period $t > t'$.[23] Notice that the probability of a crisis in a given period is $\overline{p}$ and the probability that a newly elected Party-1 officeholder fails to solve the crisis is $1 - q_1$. Consequently, the ex ante probability that a Party-1 incumbent experiences a crisis and fails to manage it is $\overline{p}(1 - q_1) > 0$. Because this probability is strictly positive and the game lasts for infinitely many period, starting from any time t, the event that at least *one* incumbent experiences a crisis and fails to manage it over the course of the game occurs with probability 1. However, whenever this occurs $\mu_I = 0$ and the voter strictly prefers to elect the Party-2 candidate over the incumbent. Thus, this Party-2 candidate must win office with probability 1 on the path of play, which contradicts that his equilibrium payoff is less than k.

Second, assume that Party-1 potential candidates stay out of the race under some states. We proceed as above, noting that each state occurs with strictly positive probability in any given period. Thus, starting from any time t, the probability of reaching any of the states over the infinite-horizon game is 1. Therefore, each Party-2 potential candidate will always be able to get to office (in the states where Party-1 PCs choose to stay out) and obtain a payoff of at least k.

Since using the strategy always enter the race is always available, a Potential candidate can always obtain an equilibrium payoff of at least k. Thus, this gives us a lower bound for potential candidates' equilibrium continuation values.

□

[23]The Party-2 PC is never elected, thus the party never draws a new potential candidate. This implies that Party 1 must be in office in each period.

Proposition 1. *Suppose potential candidates are fully patient, i.e.* $\delta = 1$*. Then, for any* $0 < q_2 < q_1 < 1$ *in equilibrium*

- *Party-1 PCs never enter the race when the public signal indicates a crisis,* $\chi = 1$*;*
- *Party-2 PCs never enter the race when the public signal indicates normal times,* $\chi = 0$*.*

Proof. Given Lemma A1 the probability of getting to office over the course of the game is 1 for each potential candidate, regardless of their own and their other players' strategies. As such, for $\delta = 1$ each PC's strategic problem simply amounts to adopting the entry strategy that maximizes the probability of being in office for two consecutive terms, given the strategy of the other players.

From this, we can easily show that any strategy prescribing that Party-1 PCs enter the race under $\chi = 1$ is weakly dominated.

Let $\mathbb{P}_P(\omega)$ be the ex-ante probability that a potential candidate from party P that gets to office at time t is re-elected for a second term when the crisis state at t is ω_t. For a closed-seat election, $E = c$, let $p_P(challenge|\chi, Z)$ be the probability that a Party-P incumbent faces a challenge given χ, $Z = sgn(\mu_I - q_{-P})$, and the strategy $\boldsymbol{\sigma}_{-P}$ for the other party.

From Lemma 1, we know that

$$\begin{aligned} &\mathbb{P}_1(1) = q_1 + (1 - q_1)\Big(1 - E\big[p_1(challenge|\chi, -)\big]\Big), \\ &\text{and} \quad \mathbb{P}_2(0) = 1, \end{aligned} \tag{4}$$

where $E\big[p_1(challenge|\chi, -)\big]$ is a function of $\boldsymbol{\sigma_2}$, and the expectation is over χ. If $\boldsymbol{\sigma_2}$ is s.t. that Party-2 never runs against an incumbent, then $E\big[p_1(challenge|\chi, -)\big] = 0$ and Party-1 PCs are indifferent between all strategies. If instead Party-2 runs against an incumbent under some states, then $E\big[p_1(challenge|\chi, -)\big] > 0$ and and $\mathbb{P}_1(1) < \mathbb{P}_1(0)$. Thus, any strategy prescribing that Party-1 PCs enter a race under $\chi = 1$ is weakly dominated by the strategy to enter if and only if $\chi = 0$.

Next, consider Party-2 PCs. Recall that the restriction to Markov strategies implies that, fixing χ_t, $\boldsymbol{\sigma_1}$ must prescribe the same entry decision for a Party-1 PC in any period in which the election is against a Party-2 incumbent and $\mu_I < q_1$. Thus, whether a Party-2 incumbent experienced a crisis and was unable to solve it, or did not experience a crisis, the probability of facing a challenger in equilibrium is the same. Then, from Lemma 1,

$$\begin{aligned} &\mathbb{P}_2(0) = E\big[p_2(challenge|\chi, -),\\ \text{and} \quad &\mathbb{P}_2(1) = q_2 + (1-q_2)E\big[p_2(challenge|\chi, -)\big], \end{aligned} \tag{5}$$

where now $E\big[p_1(challenge|\chi, -)\big]$ is a function of $\boldsymbol{\sigma}_1$. Notice that when $\delta = 1$ the restriction to Markov strategies Party-1 potential candidate use the same strategy under open-seat election and against a beatable incumbent. Thus, in equilibrium $E\big[p_2(challenge|\chi, -)\big] > 0$ and $\mathbb{P}_2(1) > \mathbb{P}_2(0)$ and we can never sustain an equilibrium in which Party-2 PCs to enter under $\chi = 0$.

□

Lemma A.2. *Let $\delta < 1$. Then, any strategy prescribing to stay out of the race when $\chi = 0$ is strictly dominated for Party-1 PCs. Furthermore, we can never sustain an equilibrium in which Party-2 PCs stay out of the race when $\chi = 1$ and the election is winnable.*

Proof. From the Proof of Proposition 1, $\mathbb{P}_1(0) \geq \mathbb{P}_1(1)$. Furthermore, when $\delta < 1$ PCs are impatient and a delay in getting to office is costly. It follows straightforwardly that any strategy to stay out of the race when $\chi = 0$ is strictly dominated for Party-1 PCs. This result further implies that in any equilibrium we must have $E\big[p_2(challenge|\chi, -)\big] \geq p(\chi = 0) > 0$, and therefore $\mathbb{P}_2(1) > \mathbb{P}_2(0)$. Therefore, we can never sustain an equilibrium in which Party-2 PCs stay out of a winnable election under $\chi = 1$.[24]

□

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

- *If $\widehat{\delta}_1 < \delta < 1$, then in equilibrium a potential candidates from Party 1 never enters when the public signal indicates a crisis;*

[24] By winnable I mean that the Party-2 PC would win should they unilaterally deviate.

- *If $\widehat{\delta}_2 < \delta < 1$, then in equilibrium a potential candidates from Party 2 never enters when the public signal indicates normal times;*

Proof. Given Lemma A2, we know that any strategy prescribing to stay out when $\chi = 0$ is strictly dominated for Party-1 PCs, and any strategy prescribing to stay out when $\chi = 1$, $E = c$ and $Z = -$ can never be sustained in equilibrium. This is useful in reducing the number of strategies that we need to eliminate.

First, we establish that for a sufficiently high δ, in equilibrium Party-1 PCs never use a strategy that prescribes to enter the race when $\chi = 1$. Given the restriction to Markov Perfect equilibria, we must only consider three possible strategies for Party-1 PCs:

- Enter the race iff $\chi = 0$, or $\chi = 1$ and the election is open-seat. Denote this strategy as $\boldsymbol{\sigma}^{0,o}$;
- Enter the race iff $\chi = 0$, or $\chi = 1$ and the election is not open-seat. Denote this strategy as $\boldsymbol{\sigma}^{0,c}$;
- Always enter the race. Denote this strategy as $\boldsymbol{\sigma}^{a}$.

Denote $V^o_{\boldsymbol{\sigma_1}}(\chi; \boldsymbol{\sigma}_2)$ and $V^c_{\boldsymbol{\sigma_1}}(\chi, Z; \boldsymbol{\sigma}_2)$ the continuation values from strategy $\boldsymbol{\sigma_1}$ given the strategy of Party-2 PCs $\boldsymbol{\sigma}_2$ (respectively in open and closed-seat elections).

First, we conjecture an equilibrium which Party-1 uses the strategy to always run, $\boldsymbol{\sigma}^a$. We show there exists a state in which Party-1 PCs can profitably deviate to the strategy run if and only if $\chi = 0$, denoted as $\boldsymbol{\sigma}^0$. It is sufficient to show that one of these inequalities holds $V^o_{\boldsymbol{\sigma}^a}(1; \boldsymbol{\sigma}_2) < V^o_{\boldsymbol{\sigma}^0}(1; \boldsymbol{\sigma}_2)$, $V^c_{\boldsymbol{\sigma}^a}(1, -; \boldsymbol{\sigma}_2) < V^c_{\boldsymbol{\sigma}^0}(1, -; \boldsymbol{\sigma}_2)$ or $V^c_{\boldsymbol{\sigma}^a}(1, +; \boldsymbol{\sigma}_2) < V^c_{\boldsymbol{\sigma}^0}(1, +; \boldsymbol{\sigma}_2)$ for all possible (strictly undominated) $\boldsymbol{\sigma}_2$.

Recall that in equilibrium Party-2 PCs must always run against an incumbent when $\chi = 1$. Denote $\sigma_2^{c,0}$ the probability that Party-2 PCs run against an incumbent when $\chi = 0$, and $\sigma_2^{o,1}$ the probability that Party-2 PCs enter the race under $E = o$ and $\chi = 1$. Further, let π_χ be the probability that $\omega = 1$ given signal χ.

Consider a state where $E = o$ and $\chi = 1$. Then, we have

$$V^o_{\boldsymbol{\sigma}^a}(1; \boldsymbol{\sigma_2}) = k\Big(1 + \delta\big(1 - \pi_1 + \pi_1 q_1 + \pi_1(1 - q_1)p(\chi = 0)(1 - \sigma_2^{c,0})\big)\Big), \tag{6}$$

and

$$\begin{aligned} V^o_{\boldsymbol{\sigma}^0}(1; \boldsymbol{\sigma}_2) =& 0 + \delta\sigma_2^{o,1}\pi_1 q_2\Big(0 + \delta p(\chi = 1)V^o_{\boldsymbol{\sigma}^0}(1; \boldsymbol{\sigma}_2) + \delta p(\chi = 0)K\Big) \qquad (7)\\ &+ \delta(1 - \sigma_2^{o,1}\pi_1 q_2)p(\chi = 0)K \\ &+ \delta(1 - \sigma_2^{o,1}\pi_1 q_2)p(\chi = 1)\Big(0 + \delta p(\chi = 1)V^o_{\boldsymbol{\sigma}^0}(1; \boldsymbol{\sigma}_2) + \delta p(\chi = 0)K\Big), \qquad (8) \end{aligned}$$

where

$$K = k\Big(1 + \delta\big(1 - \pi_0 + \pi_0 q_1 + \pi_0(1 - q_1)p(\chi = 0)(1 - \sigma_2^{c,0})\big)\Big). \tag{9}$$

Rearranging, we have

$$V^o_{\boldsymbol{\sigma}^0}(1; \boldsymbol{\sigma}_2) = \delta\frac{Kp(\chi = 0)\Big(\delta\sigma_2^{o,1}\pi_1 q_2 + (1 - \sigma_2^{o,1}\pi_1 q_2)(1 + \delta p(\chi = 1))\Big)}{1 - \delta^2 p(\chi = 1)\big(\sigma_2^{o,1}\pi_1 q_2 + p(\chi = 1)(1 - \sigma_2^{o,1}\pi_1 q_2)\big)}. \tag{10}$$

Combining the above, we have that $V^o_{\boldsymbol{\sigma}^0}(1; \boldsymbol{\sigma}_2) > V^o_{\boldsymbol{\sigma}^a}(1; \boldsymbol{\sigma}_2)$ iff

$$\begin{aligned} &\frac{Kp(\chi = 0)\Big(\delta\sigma_2^{o,1}\pi_1 q_2 + (1 - \sigma_2^{o,1}\pi_1 q_2)(1 + \delta p(\chi = 1))\Big)}{1 - \delta^2 p(\chi = 1)\big(\sigma_2^{o,1}\pi_1 q_2 + p(\chi = 1)(1 - \sigma_2^{o,1}\pi_1 q_2)\big)} \\ &- k\Big(\frac{1}{\delta} + \big(1 - \pi_1 + \pi_1 q_1 + \pi_1(1 - q_1)p(\chi = 0)(1 - \sigma_2^c)\big)\Big) > 0. \end{aligned} \tag{11}$$

Notice that the LHS is strictly increasing and continuous in δ, and the condition always fails at $\delta = 0$. Next, we show that instead the condition is always satisfied at $\delta = 1$. Plugging in $\delta = 1$ we have

$$\frac{Kp(\chi=0)}{1-p(\chi=1)} - k\Big(1+\big(1-\pi_1+\pi_1 q_1+\pi_1(1-q_1)p(\chi=0)(1-\sigma_2^c)\big)\Big) > 0. \tag{12}$$

Recall that $p(\chi = 0) = 1 - p(\chi = 1)$. Plugging in the value of K, the above reduces to

$$\big(1-\pi_0+\pi_0 q_1+\pi_0(1-q_1)p(\chi=0)(1-\sigma_2^c)\big) \ - \big(1-\pi_1+\pi_1 q_1+\pi_1(1-q_1)p(\chi=0)(1-\sigma_2^c)\big)) > 0, \tag{13}$$

which is always satisfied for any value of σ_2^c since $\pi_0 < \pi_1$. Thus, there must exist a cutoff $\widehat{\delta}_1^a < 1$ s.t. when $\delta > \widehat{\delta}_1^a$, the condition is satisfied for any possible equilibrium strategy of the Party-2 PCs. This cutoff is identified by picking the $\boldsymbol{\sigma_2}$ that minimizes the LHS of 11, and then finding the δ that satisfies the condition with equality.

Notice that, in a subgame where the election is open-seat and $\chi = 1$, the continuation value from the strategy to always run and the continuation value from the strategy to run when $\chi = 0$ or $\chi = 1$ and $E = o$ is the same. Thus, the above analysis also immediately implies that, when $\delta > \widehat{\delta}^a$, we cannot sustain an equilibrium in which Party-1 PCs use strategy $\boldsymbol{\sigma^{0,o}}$.

Finally, consider strategy $\boldsymbol{\sigma^{0,c}}$: enter the race iff $\chi = 0$, or $\chi = 1$ when the election is not open-seat. Notice that

$$V^c_{\boldsymbol{\sigma}^0}(1,-;\boldsymbol{\sigma}_2) = 0 + \delta p(\chi=0)K + \delta p(\chi=1)V^o_{\boldsymbol{\sigma}^0}(1;\boldsymbol{\sigma}_2), \tag{14}$$

and

$$V^c_{\boldsymbol{\sigma}^{0,c}}(1,-;\boldsymbol{\sigma}_2) = V^c_{\boldsymbol{\sigma}^a}(1,-;\boldsymbol{\sigma}_2) = V^o_{\boldsymbol{\sigma}^a}(1;\boldsymbol{\sigma_2}) = k\Big(1+\delta\big(1-\pi_1+\pi_1 q_1+\pi_1(1-q_1)p(\chi=0)(1-\sigma_2^{c,0})\big)\Big), \tag{15}$$

We know from the previous analysis that $V^o_{\boldsymbol{\sigma}^0}(1;\boldsymbol{\sigma}_2) - V^o_{\boldsymbol{\sigma}^a}(1;\boldsymbol{\sigma}_2)$ is strictly increasing and continuous in δ. Therefore, $V^c_{\boldsymbol{\sigma}^0}(1,-;\boldsymbol{\sigma}_2) - V^c_{\boldsymbol{\sigma}^a}(1,-;\boldsymbol{\sigma}_2) = \delta p(\chi=0)K + \delta p(\chi=1)V^o_{\boldsymbol{\sigma}^0}(1;\boldsymbol{\sigma}_2) - V^o_{\boldsymbol{\sigma}^a}(1;\boldsymbol{\sigma}_2)$ is also strictly increasing and continuous in δ.

Straightforwardly, $V^c_{\boldsymbol{\sigma}^0}(1,-;\boldsymbol{\sigma}_2) < V^c_{\boldsymbol{\sigma}^a}(1,-;\boldsymbol{\sigma}_2)$ when $\delta = 0$.

Suppose instead $\delta = 1$. Then, the previous results establish that that $V^o_{\boldsymbol{\sigma}^0}(1;\boldsymbol{\sigma}_2) > V^o_{\boldsymbol{\sigma}^a}(1;\boldsymbol{\sigma}_2)$ for all $\boldsymbol{\sigma}_2$. Further, recall that $V^c_{\boldsymbol{\sigma}^0}(1,-;\boldsymbol{\sigma}_2) = k\Big(1+\delta\big(1-\pi_1+\pi_1 q_1+\pi_1(1-q_1)p(\chi=0)(1-\sigma_2^{c,0})\big)\Big) \leq k\Big(1+\delta\big(1-\pi_0+\pi_0 q_1+\pi_0(1-q_1)p(\chi=0)(1-\sigma_2^{c,0})\big)\Big) = K$ for all values of the parameters. Finally, plugging in $p(\chi=1) = 1-p(\chi=0)$, we have

$$\begin{aligned} &V^c_{\boldsymbol{\sigma}^0}(1,-;\boldsymbol{\sigma}_2) = p(\chi=0)K + (1-p(\chi=0)V^o_{\boldsymbol{\sigma}^0}(1;\boldsymbol{\sigma}_2) > \\ &V^o_{\boldsymbol{\sigma}^0}(1;\boldsymbol{\sigma}_2) = V^c_{\boldsymbol{\sigma}^a}(1,-;\boldsymbol{\sigma}_2), \end{aligned} \tag{16}$$

and thus

$$V^o_{\boldsymbol{\sigma}^0}(1;\boldsymbol{\sigma}_2) - V^o_{\boldsymbol{\sigma}^{0,c}}(1;\boldsymbol{\sigma}_2) > 0 \tag{17}$$

Thus, there must exist a cutoff $\widehat{\delta}^c_1 \geq \widehat{\delta}^a_1$ s.t. for values of $\delta > \widehat{\delta}^c_1$, $V^c_{\boldsymbol{\sigma}^0}(1,-;\boldsymbol{\sigma}_2) > V^c_{\boldsymbol{\sigma}^a}(1,-;\boldsymbol{\sigma}_2)$ for all strategies of Party-2 PCs. This cutoff is identified by fixing the $\boldsymbol{\sigma}_2$ that minimizes the LHS in 17, and findinig the δ that satisfies the condition with equality.

Next, consider PCs from Party 2. We want to establish that, for a sufficiently large δ, in equilibrium these PCs never use the strategy to enter the race when $\chi = 0$. We know from the proof of Lemma A2 that, in each state, the continuation value from a strategy prescribing to stay out when $\chi = 1$ is weakly lower than the continuation value from a strategy to enter when $\chi = 1$, keeping all other components fixed. Thus, we only need to eliminate three possible strategies,

1. Always enter the race;

2. Enter the race iff $\chi = 1$, or $\chi = 0$ and the election is not open-seat;

3. Enter the race iff $\chi = 1$, or $\chi = 0$ and the election is open-seat.

To establish this result it is sufficient to show that, for all (strictly undominated) strategies of the other players, the continuation value from strategy 1 is strictly lower than the continuation value from the strategy to enter iff $\chi = 1$, in the state where $E = c$, $\chi = 0$ and $Z = -$. This also implies that strategies 2 and 3 cannot be sustained in equilibrium, since strategies 1, 2 and 3 yield the same continuation value in a state where $E = c$, $\chi = 0$ and $Z = -$.

Denote $V_a^c(0, -; \boldsymbol{\sigma_1})$ the continuation value from the strategy to always run and $V^c(0, -; \boldsymbol{\sigma_1})$ the continuation value from the strategy to run iff $\chi = 1$. These values obviously depend on the strategy adopted from the other players. Recall that, from Lemma A2, PCs from Party 1 must always enter the race when $\chi = 0$ in equilibrium. Thus, in equilibrium, there are only four possible strategies which Party-1 PCs could use: 1) always enter the race, 2) enter the race if and only if $\chi = 0$, 3) enter the race when $\chi = 0$, or $\chi = 1$ and the election is not open-seat, 4) enter the race when $\chi = 0$, or $\chi = 1$ and the election is open seat.

First, suppose that PCs from Party 1 always enter the race. Then, we have

$$V^c(0, -; \boldsymbol{\sigma_1}) = \delta^2 \Big(\bar{p}(1 - q_1)p(\chi = 0) + 1 - \bar{p}(1 - q_1)\Big) V^c(0, -; \boldsymbol{\sigma_1}) + \delta^2 \bar{p}(1 - q_1)p(\chi = 1)k(1 + \delta\pi_1 q_2), \tag{18}$$

which rearranges to

$$V^c(0, -; \boldsymbol{\sigma_1}) = k \frac{\delta^2 \bar{p}(1 - q_1)p(\chi = 1)(1 + \delta\pi_1 q_2)}{1 - \delta^2 \Big(\bar{p}(1 - q_1)p(\chi = 0) + 1 - \bar{p}(1 - q_1)\Big)}. \tag{19}$$

In contrast, entering the race yields expected payoff

$$V_a^c(0, -; \boldsymbol{\sigma_1}) = k(1 + \delta\pi_0 q_2). \tag{20}$$

Thus, $V^c(0,-;\boldsymbol{\sigma_1}) > V_a^c(0,-;\boldsymbol{\sigma_1})$ iff

$$k\frac{\delta\bar{p}(1-q_1)p(\chi=1)(1+\delta\pi_1 q_2)}{1-\delta^2\Big(\bar{p}(1-q_1)p(\chi=0)+1-\bar{p}(1-q_1)\Big)} - k(\frac{1}{\delta}+\pi_0 q_2) > 0. \tag{21}$$

The LHS is continuous and strictly increasing in δ, and the condition is never satisfied at $\delta = 0$. Suppose instead $\delta = 1$. Then, the condition reduces to

$$1+\pi_1 q_2 > 1+\pi_0 q_2, \tag{22}$$

which is always satisfied since $\pi_1 > \pi_0$. Thus, there must exist an interior value of δ for which the condition is satisfied iff δ is above this threshold.

Second, suppose that PCs from Part 1 enter the race iff $\chi = 0$. Then, we have

$$\begin{aligned} V^c(0,-;\boldsymbol{\sigma_1}) = \quad & \delta p(\chi=1)k\Big(1+\delta(\pi_1 q_2+(1-\pi_1 q_2)p(\chi=1))\Big) \\ & + \delta p(\chi=0)\Big[0+\delta\big(1-\pi_0(1-q_1)p(\chi=1)\big)V^c(0,-;\boldsymbol{\sigma_1}) \\ & + \delta\pi_0(1-q_1)p(\chi=1)k\Big(1+\delta(\pi_1 q_2+(1-\pi_1 q_2)p(\chi=1))\Big)\Big], \end{aligned} \tag{23}$$

In contrast, entering the race yields expected payoff

$$V_a^c(0,-;\boldsymbol{\sigma_1}) = k\Big(1+\delta(\pi_0 q_2+(1-\pi_0 q_2)p(\chi=1))\Big). \tag{24}$$

Rearranging, we obtain that staying out yields higher continuation value iff

$$\begin{aligned} & \delta\frac{k\Big(1+\delta(\pi_1 q_2+(1-\pi_1 q_2)p(\chi=1))\Big)p(\chi=1)\big(1+\delta p(\chi=0)\pi_0(1-q_1)\big)}{1-\delta^2 p(\chi=0)\big(1-\pi_0(1-q_1)p(\chi=1)\big)} \\ & - k\Big(1+\delta(\pi_0 q_2+(1-\pi_0 q_2)p(\chi=1))\Big) > 0. \end{aligned} \tag{25}$$

The LHS is continuous and strictly increasing in δ, and the condition is never satisfied at $\delta = 0$.

Suppose instead $\delta = 1$. Then, the condition reduces to

$$k\Big(1 + (\pi_1 q_2 + (1-\pi_1 q_2)p(\chi = 1))\Big) - k\Big(1 + (\pi_0 q_2 + (1-\pi_0 q_2)p(\chi = 1))\Big) > 0, \tag{26}$$

which is always satisfied. Thus, as above there must exist an interior cutoff for δ s.t. the condition is satisfied iff δ is above the cutoff.

Next, suppose Party-1 PCs enter iff $\chi = 0$, or $\chi = 1$ and the election is not open-seat. Then we have

$$\begin{aligned} V^c(0, -; \boldsymbol{\sigma_1}) =& p(\chi = 1)\delta k\big(1 + \delta\pi_1 q_2\big) + p(\chi = 0)\delta^2\Big(\pi_0(1-q_1)p(\chi = 1)k\big(1 + \delta\pi_1 q_2\big) \\ & \big(1 - \pi_0(1-q_1)p(\chi = 1)\big)V^c(0, -; \boldsymbol{\sigma_1})\Big) \end{aligned} \tag{27}$$

Entering the race yields expected payoff

$$V^c_a(0, -; \boldsymbol{\sigma_1}) = k\big(1 + \delta\pi_0 q_2\big). \tag{28}$$

Rearranging, we have that $V^c(0, -; \boldsymbol{\sigma_1}) > V^c_a(0, -; \boldsymbol{\sigma_1})$ iff

$$\delta\frac{p(\chi = 1)k(1 + \delta\pi_1 q_2)\big(1 + \delta p(\chi = 0)\pi_0(1-q_1)\big)}{1 - \delta^2 p(\chi = 0)\big(1 - \pi_0(1-q_1)p(\chi = 1)\big)} - k(1 + \delta\pi_0 q_2) > 0.$$

The LHS is strictlt increasing and continuous in δ, and the condition is never satisfied at $\delta = 0$. Let $\delta = 1$, the condition reduces to

$$k(1 + \pi_1 q_2) > k(1 + \pi_0 q_2), \tag{29}$$

which is always satisfied. Thus, there must exist an interior cutoff s.t. the condition is satisfied iff δ is above the cutoff.

Finally, suppose Party-1 PCs enter the race iff $\chi = 0$, or $\chi = 1$ and the election is open-seat.

Then we have

$$V^c(0,-;\boldsymbol{\sigma_1}) = \delta^2\Big(1-\bar{p}(1-q_1)p(\chi=1)\Big)V^c(0,-;\boldsymbol{\sigma_1}) \tag{30}$$

$$+\,\delta^2\bar{p}(1-q_1)p(\chi=1)k\big(1+\delta\pi_1 q_2+\delta(1-\pi_1 q_2)p(\chi=1)\big). \tag{31}$$

Entering the race yields expected payoff

$$V_a^c(0,-;\boldsymbol{\sigma_1}) = k\big(1+\delta\pi_0 q_2+\delta(1-\pi_0 q_2)p(\chi=1)\big). \tag{32}$$

Rearranging, staying out yields higher continuation value iff

$$k\frac{\delta^2\bar{p}(1-q_1)p(\chi=1)(1+\delta\pi_1 q_2+\delta(1-\pi_1 q_2)p(\chi=1)\big)}{1-\delta^2\Big(\bar{p}(1-q_1)p(\chi=0)+1-\bar{p}(1-q_1)\Big)} - k(1+\delta\pi_0 q_2+\delta(1-\pi_0 q_2)p(\chi=1)\big) > 0. \tag{33}$$

The LHS is strictly increasing and continuous in δ, and the condition is never satisfied at $\delta = 0$. Suppose instead $\delta = 1$. Then, the condition reduces to

$$k(1+\pi_1 q_2+(1-\pi_1 q_2)p(\chi=1)\big) - k(1+\pi_0 q_2+(1-\pi_0 q_2)p(\chi=1)\big) > 0, \tag{34}$$

which is always satisfied. Again, there must exist an interior cutoff for δ at which the condition is satisfied with equality.

Thus, there must exist a unique $\widehat{\delta}_2$ s.t. the strategy prescribing PCs from Party 2 to enter the race only under $\chi = 1$ is dominant iff $\delta > \widehat{\delta}_2$. The value of $\widehat{\delta}_2$ is found by picking the strategy for Party-1 that minimizes the difference $V^c(0,-;\boldsymbol{\sigma_1}) - V_a^c(0,-;\boldsymbol{\sigma_1})$, and finding the value of δ at which $V^c(0,-;\boldsymbol{\sigma_1}) = V_a^c(0,-;\boldsymbol{\sigma_1})$.

□

Corollary 1. *$\widehat{\delta}_1$ is increasing in q_2.*

Proof. Follows from inspection of the conditions in the proof of Proposition 2, noting that the LHS of 11 and 17 is decreasing in q_2. $\square$

Corollary 2. *$\widehat{\delta}_1$ and $\widehat{\delta}_2$ are not a function of office rents k.*

Proof. Follows from inspection of the conditions in the proof of Proposition 2.

$\square$

For Proposition 3, we move away from the specific functional form adopted in the baseline, and consider a general function mapping the state of the world and the incumbent's type to the governance outcomes. It is reasonable to impose the following assumptions. First, fixing the state, good types are weakly more likely to produce a good outcome than bad types: $p(o_t = g|\theta = 1, \omega) \geq p(o_t = g|\theta = 0, \omega)$. Second, fixing the incumbent's type, the incumbent is more likely to produce a good outcome during normal times than during crises: $p(o_t = g|\theta, \omega = 0) \geq p(o_t = g|\theta, \omega = 1)$. Notice that the baseline model analyzed in the paper satisfies these assumptions.

Proposition 3. *Suppose $\delta = 1$. Then, only if the informativeness effect of the environment is weak is there an efficient equilibrium. If the informativeness effect is strong, the equilibrium is always inefficient. This holds true both if crises mute or amplify the informativeness of governance outcomes.*

Proof. As in the baseline model, when $\delta = 1$ each PC simply adopts the strategy that maximizes the probability of being in office for two consecutive terms, since any other strategy is weakly dominated. Thus, the proof proceeds as for Proposition 1. Here, however, we are only interested in characterizing the behavior of potential candidates from Party 1. Notice that, in equilibrium, a Party-1 incumbent who produced a good outcome must always be re-elected, regardless of how informative the outcome is. Even an uninformative outcome is enough to beat a Party-2 opponent.

Consider instead a bad outcome. Denote $\mu_I(o_t, \omega_t)$ the posterior probability that a Party-1 incumbent is a good type, given the governance outcome and state of the world. Suppose that crises mute informativeness, so that $\mu_I(b, 1) > \mu_I(b, 0)$: a bad outcome induces a lower posterior under $\omega = 0$ than under $\omega = 1$. First, assume that the information effect is sufficiently strong that $\mu_I(b, 1) > q_2 > \mu_I(b, 0)$. Then, a bad outcome during normal times is sufficiently informative that the voter prefers to oust the Party-1 incumbent (if a challenger enters the race). Instead, during a crisis the Party-1 incumbent is always reelected. Straightforwardly, this case is exactly symmetric to the one analyzed in Proposition 1, and any strategy prescribing Party-1 PCs to enter under $\chi = 0$ is weakly dominated.

Suppose instead that the information effect is weaker, and $q_2 > \mu(b, 1) > \mu(b, 0)$. Then, the voter uses the same retention strategy under both states, and (assuming a challenger enters the race) a Party-1 incumbent is re-elected if and only if he produces a good outcome. However, by assumption, good outcomes are (weakly) easier to produce during normal times. Thus, Party-1 PCs never run when $\chi = 1$. Finally, if $\mu_I(b, 1) > \mu_I(b, 0) > q_2$ the voter uses the same retention strategy under both states and Party-1 incumbent is always reelected for both realizations of the governance outcome. Straightforwardly, Party-1 PCs are indifferent between all strategies and an efficient equilibrium exists.

An analogous reasoning applies to the case in which crises amplify information, although here the results are even stronger: the equilibrium is efficient only if the informativeness effect is weak *and* a Party 1 incumbent is always reelected after delivering a bad outcome.

If $\mu_I(b, 0) > q_2 > \mu_I(b, 1)$, a Party-1 incumbent is always re-elected if he experiences no crisis, but is ousted if he fails to manage a crisis. Thus, Party-1 PCs enter never run when $\chi = 1$. If $q_2 > \mu(b, 0) > \mu(b, 1)$, then the voter uses the same retention strategy under both states and the incumbent is releted if and only if he produces a good outcome. By assumption, good outcomes are (weakly) easier to produce during normal times. Thus, Party-1 PCs again never run when $\chi = 1$. Finally, if $\mu_I(b, 0) > \mu_I(b, 1) > q_2$ the Party-1 incumbent is always re-elected under both states and under both outcomes realization. Straightforwardly, Party-1 PCs are indifferent between all strategies.

Finally, to conclude the proof we must establish that when crises increase (decrease) informativeness, the voter gains the most from a competent type during times of crisis (normal times).

First, notice that the voter gains the most from a competent type during normal times if

$$p(o_t = g|\theta = 1, \omega = 0) - p(o_t = g|\theta = 0, \omega = 0) > p(o_t = g|\theta = 1, \omega = 1) - p(o_t = g|\theta = 0, \omega = 1), \tag{35}$$

Vice versa, if

$$p(o_t = g|\theta = 1, \omega = 1) - p(o_t = g|\theta = 0, \omega = 1) > p(o_t = g|\theta = 1, \omega = 0) - p(o_t = g|\theta = 0, \omega = 0). \tag{36}$$

then the voter gains the most from a competent type during crises.

First we show that if crises decrease informativeness, then it must be the case that $p(o_t = g|\theta = 1, \omega = 0) - p(o_t = g|\theta = 0, \omega = 0) > p(o_t = g|\theta = 1, \omega = 1) - p(o_t = g|\theta = 0, \omega = 1)$ and thus the voter gains the most from a competent type during normal times.

Applying Bayes rule, the condition that $\mu_I(g, 1) < \mu_I(g, 0)$ reduces to

$$p(o_t = g|\theta = 1, \omega = 1)\, p(o_t = g|\theta = 0, \omega = 0) < p(o_t = g|\theta = 1, \omega = 0)\, p(o_t = g|\theta = 0, \omega = 1). \tag{37}$$

Similarly, $\mu_I(b, 1) > \mu_I(b, 0)$ is

$$\begin{aligned} &\big(1 - p(o_t = g|\theta = 1, \omega = 1)\big)\big(1 - p(o_t = g|\theta = 0, \omega = 0)\big) > \\ &\big(1 - p(o_t = g|\theta = 1, \omega = 0)\big)\big(1 - p(o_t = g|\theta = 0, \omega = 1)\big). \end{aligned} \tag{38}$$

Rearranging, 38 reduces to

$$\begin{aligned} &p(o_t = g|\theta = 1, \omega = 0) - p(o_t = g|\theta = 0, \omega = 0) + p(o_t = g|\theta = 1, \omega = 1)\, p(o_t = g|\theta = 0, \omega = 0) > \\ &p(o_t = g|\theta = 1, \omega = 1) - p(o_t = g|\theta = 0, \omega = 1) + p(o_t = g|\theta = 0, \omega = 1)\, p(o_t = g|\theta = 1, \omega = 0). \end{aligned} \tag{39}$$

But we know from 37 that $p(o_t = g|\theta = 1, \omega = 1)\, p(o_t = g|\theta = 0, \omega = 0) < p(o_t = g|\theta = 0, \omega = 1)\, p(o_t = g|\theta = 1, \omega = 0)$, therefore 39 implies that $p(o_t = g|\theta = 1, \omega = 0) - p(o_t = g|\theta = 0, \omega = 0) > p(o_t = g|\theta = 1, \omega = 1) - p(o_t = g|\theta = 0, \omega = 1)$.

Using a similar procedure we can establish that the voter gains the most from a competent type during times of crisis when crises increase informativeness.

□

Proposition 4. *There exist $\underline{q}_1 < \overline{q}_1$ and $\overline{q}_2$ s.t.*

- *If $q_1 > \overline{q}_1$, then Party-1 potential candidates' incentives to run in times of crisis increase under longer term limits.*
- *If $q_1 < \underline{q}_1$ and $q_2 < \overline{q}_2$, then Party-1 potential candidates' incentives to run in times of crisis decrease under longer term limits.*

Proof. Here, we want to establish whether the parameter region sustaining an equilibrium in which Party-1 PCs stay out of the race when $\chi = 1$ gets larger or smaller as T increases.

Recall that I assume that Party-2 PCs always enter the race. Suppose that Party-1 potential candidates adopt the strategy to enter the race under $\chi_t = 0$ and stay home otherwise. Straightforwardly a deviation is never profitable in states where $\chi = 0$. Consider instead $\chi = 1$. Continuation value from the conectured strategy in any state where $\chi_t = 1$ and $E = o$ is:

$$\begin{aligned} V^o_{out}(1) =& [q_2\delta^T + (1-q_2)\delta]\, \bar{p} V^o_{out}(1) \\ &+ [q_2\delta^T + (1-q_2)\delta]\,(1-\bar{p})q_1 k \sum_{t=0}^{T-1} \delta^t \\ &+ [q_2\delta^T + (1-q_2)\delta]\,(1-\bar{p})(1-q_1)\Big(k(1+\delta) + k(1-\bar{p})^{T-2}\sum_{t=2}^{T-1}\delta^t + k\bar{p}\sum_{j=1}^{T-3}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t\Big), \end{aligned} \tag{40}$$

which rearranges to

$$V^o_{out}(1) = \frac{[q_2\delta^T+(1-q_2)\delta]\,(1-\bar{p})\Big(q_1 k\sum_{t=0}^{T-1}\delta^t+(1-q_1)\Big(k(1+\delta)+k(1-\bar{p})^{T-2}\sum_{t=2}^{T-1}\delta^t+k\bar{p}\sum_{j=1}^{T-3}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t\Big)\Big)}{1-\bar{p}[q_2\delta^T+(1-q_2)\delta]}. \quad (41)$$

Finally, consider a state where $\chi = 1$, $E = c$ and $Z = -$ (i.e., the election is against a beatable incumbent). Here, the continuation value from the conjectured strategy is a function of the exact value of μ_I, $V^c_{out}(1, \mu_I)$. However, we can establish that this continuation in value is always higher than in states where the election is open-seat, $V^o_{out}(1)$.

If the Party-2 incumbent failed to solve a crisis, then we have

$$\begin{aligned}
&V^c_{out}(1, \mu_I = 0) = \\
&\frac{\delta\,(1-\bar{p})\Big(q_1 k\sum_{t=0}^{T-1}\delta^t + (1-q_1)\big(k(1+\delta) + k(1-\bar{p})^{T-2}\sum_{t=2}^{T-1}\delta^t + k\bar{p}\sum_{j=1}^{T-3}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t\big)\Big)}{1-\bar{p}\delta} > \\
&\frac{[q_2\delta^T + (1-q_2)\delta]\,(1-\bar{p})\Big(q_1 k\sum_{t=0}^{T-1}\delta^t + (1-q_1)\big(k(1+\delta) + k(1-\bar{p})^{T-2}\sum_{t=2}^{T-1}\delta^t + k\bar{p}\sum_{j=1}^{T-3}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t\big)\Big)}{1-\bar{p}[q_2\delta^T + (1-q_2)\delta]} \\
&= V^o_{out}(1). \qquad (42)
\end{aligned}$$

If the incumbent did not experience a crisis so far, then we have

$$\begin{aligned}
&V^c_{out}(1, \mu_I = q_2) = \\
&\frac{[q_2\delta^{T'} + (1-q_2)\delta]\,(1-\bar{p})\Big(q_1 k\sum_{t=0}^{T-1}\delta^t + (1-q_1)\big(k(1+\delta) + k(1-\bar{p})^{T-2}\sum_{t=2}^{T-1}\delta^t + k\bar{p}\sum_{j=1}^{T-3}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t\big)\Big)}{1-\bar{p}[q_2\delta^{T'} + (1-q_2)\delta]} \\
&\frac{[q_2\delta^T + (1-q_2)\delta]\,(1-\bar{p})\Big(q_1 k\sum_{t=0}^{T-1}\delta^t + (1-q_1)\big(k(1+\delta) + k(1-\bar{p})^{T-2}\sum_{t=2}^{T-1}\delta^t + k\bar{p}\sum_{j=1}^{T-3}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t\big)\Big)}{1-\bar{p}[q_2\delta^T + (1-q_2)\delta]} \\
&= V^o_{out}(1), \qquad (43)
\end{aligned}$$

where $T' < T$ is the number of terms lefts before the incumbent hits his term limit.

Finally, note that the value from a deviation from the conjecture (i.e., the value of entering the race), is the same regardless of whether the election is open-seat or not (assuming the incumbent is beatable)[25]:

$$V^o_{enter}(1) = V^c_{enter}(1) = kq_1 \sum_{t=0}^{T-1} \delta^t + k(1-q_1). \tag{44}$$

Thus, the incentives to deviate from the conjectured strategy are stronger when the election is open-seat, and we need only consider such subgames.

Then, the conjectured strategy is easier to sustain in equilibrium under longer term limits if and only if, for all T, we have that

$$\big(V^{out}(1,o)|T - V^e(1,o)|T\big) - \big(V^{out}(1,o)|(T-1) - V^e(1,o)|(T-1)\big) > 0. \tag{45}$$

Plugging in the expressions from above, this reduces to

$$\frac{\left[q_2\delta^T + (1-q_2)\delta\right](1-\bar{p})\Big(q_1\sum_{t=0}^{T-1}\delta^t + (1-q_1)\big((1+\delta) + (1-\bar{p})^{T-2}\sum_{t=2}^{T-1}\delta^t + \bar{p}\sum_{j=1}^{T-3}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t\big)\Big)}{1-\bar{p}[q_2\delta^T + (1-q_2)\delta]} -$$
$$\frac{\left[q_2\delta^{T-1} + (1-q_2)\delta\right](1-\bar{p})\Big(q_1\sum_{t=0}^{T-2}\delta^t + (1-q_1)\big((1+\delta) + k(1-\bar{p})^{T-3}\sum_{t=2}^{T-2}\delta^t + \bar{p}\sum_{j=1}^{T-4}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t\big)\Big)}{1-\bar{p}[q_2\delta^{T-1} + (1-q_2)\delta]}$$
$$-\left(q_1\sum_{t=0}^{T-1}\delta^t - q_1\sum_{t=0}^{T-2}\delta^t\right) > 0. \tag{46}$$

The LHS is continuous in q_1 and q_2, it always fails at $q_1 = 1$ and is always satisfied at $q_2 = q_1 = 0$. Thus, there must exist cutoffs $\underline{q}_1 < \overline{q}_1$ and $\overline{q}_2$ s.t. if $q_1 > \overline{q}_1$, then Party-1 potential candidates' incentives to run in times of crisis increase under longer term limits. Otherwise, if $q_1 < \underline{q}_1$ and $q_2 < \overline{q}_2$, then Party-1 potential candidates' incentives to run in times of crisis decrease under longer term limits.

□

[25] Trivially, in states where the incumbent is unbeatable anything can be sustained in equilibrium.

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 their 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. $\gamma > \max\{\frac{q_1}{1-q_1}, \frac{q_2}{q_1-q_2}\}$

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.[26]

Proposition 5. *Suppose the voter uses a conditional retention strategy in equilibrium. Then, in equilibrium potential candidates from Party 1 never enter the race when the public signal indicates a crisis ($\chi_t = 1$), and potential candidates from Party 2 never enter when the signal indicates normal times ($\chi_t = 0$).*

Proof. Suppose the voter uses a conditional retention strategy, i.e., an incumbent who faces a challenger is always ousted after producing a bad outcome in times of crisis. Lemma A1 continues to hold when the voter uses a conditional retention strategy: in equilibrium each potential candidate will get to office at least once. Further, at $\delta = 1$ a delay in getting to office is not costly. Thus, as for Proposition 1, we must only establish that Party 1 PCs expected value of being elected at time t is higher the lower the probability of $\omega_t = 1$, and vice versa for Party-2 PCs. This guarantees that any strategy to enter the race when $\chi = 1$ is weakly dominated for Party-1 PCs, and that we can never have an equilibrium in which Party-2 PCs enter the race when $\chi = 0$.

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

First, consider Party-1 PCs. Suppose that $\omega_t = 0$. Then, the expected value of getting to office at time t is $2k$: Party-1 PCs are always re-elected after getting to office during normal times, and they do not need to exert any effort. Suppose instead $\omega_t = 1$. Then, the expected value of getting to office at time t is $k - \frac{(e^*(q_1,1))^2}{2} + k\Big(q_1 \frac{e_1^*(q_1,1)+\gamma}{1+\gamma} + (1 - q_1 \frac{e_1^*(q_1,1)+\gamma}{1+\gamma})\big(1 - E\big[p_1(challenge|\chi, -)\big]\big)\Big)$, where $e^*(q_1, 1) \in [0, 1]$ maximizes $k\, q_1 \frac{e(q_1,1)+\gamma}{1+\gamma}\Big(1 - E\big[p_1(challenge|\chi, -)\big]\Big) - \frac{e^2(q_1,1)}{2}$. If $\boldsymbol{\sigma_2}$ is s.t. that Party-2 never enters against an incumbent, then $E\big[p_1(challenge|\chi, -)\big] = 0$, and $k - \frac{(e^*(q_1,1))^2}{2} + k\Big(q_1 \frac{e_1^*(q_1,1)+\gamma}{1+\gamma} + (1 - q_1 \frac{e_1^*(q_1,1)+\gamma}{1+\gamma})\big(1 - E\big[p_1(challenge|\chi, -)\big]\big)\Big) = 2k$. Thus, Party-1 PCs are indifferent between all their strategies. Suppose instead $\boldsymbol{\sigma_2}$ is s.t. $E\big[p_1(challenge|\chi, -)\big] > 0$. Then, $k - \frac{(e^*(q_1,1))^2}{2} + k\Big(q_1 \frac{e_1^*(q_1,1)+\gamma}{1+\gamma} + (1 - q_1 \frac{e_1^*(q_1,1)+\gamma}{1+\gamma})\big(1 - E\big[p_1(challenge|\chi, -)\big]\big)\Big) < 2k$. Thus, any strategy to enter under $\chi = 1$ is weakly dominated by a strategy to enter if and only if $\chi = 0$.

Finally, consider PCs from Party-2. Given Lemma 1, the expected value of getting to office under $\omega = 0$ is $k\Big(1 + \big(1 - E\big[p_2(challenge|\chi, -)\big]\big)\Big)$. Notice that under $\omega = 0$ governance outcomes are uninformative and thus do not influence the incumbent's retention chances, therefore the incumbent has no reason to exert effort. Instead, the expected equilibrium value of being elected under $\omega = 1$ is $k - \frac{(e^*(q_2,1))^2}{2} + k\Big(q_2 \frac{e_1^*(q_2,1)+\gamma}{1+\gamma} + (1 - q_2 \frac{e_2^*(q_2,1)+\gamma}{1+\gamma})\big(1 - E\big[p_2(challenge|\chi, -)\big]\big)\Big)$. Recall that $e_1^*(q_2, 1) \in [0, 1]$ maximizes $k\Big(q_2 \frac{e_1^*(q_2,1)+\gamma}{1+\gamma} + (1 - q_2 \frac{e_2^*(q_2,1)+\gamma}{1+\gamma})\big(1 - E\big[p_2(challenge|\chi, -)\big]\big)\Big)$, therefore $k - \frac{(e^*(q_2,1))^2}{2} + k\Big(q_2 \frac{e_1^*(q_2,1)+\gamma}{1+\gamma} + (1 - q_2 \frac{e_2^*(q_2,1)+\gamma}{1+\gamma})\big(1 - E\big[p_2(challenge|\chi, -)\big]\big)\Big) \geq k\,\Big(1 + \big(1 - E\big[p_2(challenge|\chi, -)\big]\big)\Big)$, where the inequality is weak if Party-1 never runs against an incumbent and strict otherwise. Thus, any strategy to enter under $\chi = 0$ is weakly dominated by a strategy to enter if and only if $\chi = 1$.

$\square$

Proposition 6. *There exists a threshold $\underline{\gamma}$ s.t. if $\gamma > \underline{\gamma}$, then in equilibrium the voter must use a conditional retention strategy.*

Proof. Sufficient condition to guarantee that the equilibrium must *always* feature a conditional retention strategy is that, regardless of the conjectured effort level of the incumbent *and* the anticipated effort from a Party-2 challenger in the next period, the voter always prefers to oust a Party-1 incumbent that failed to solve a crisis. Recall that the posterior probability that the incumbent is a good type conditional on a bad outcome is decreasing in the conjectured level of effort. Thus, the condition requires that the posterior probability that the incumbent is a bad type if he produces a bad outcome is lower than q_2, even if the voter conjectures that the incumbent exerted 0 effort:

$$\mu_1(1, b, 0) < q_2. \tag{47}$$

Plugging in the formula for the posterior, we obtain

$$\frac{q_1(1 - \frac{\gamma}{1+\gamma})}{q_1(1 - \frac{\gamma}{1+\gamma}) + 1 - q_1} - q_2 < 0. \tag{48}$$

The LHS is strictly decreasing and continuous in $\gamma > 0$, and the condition is never satisfied at $\gamma = 0$. Thus, there must exist a threshold $\underline{\gamma}$ s.t. the condition is satisfied if and only if $\gamma > \underline{\gamma}$. $\square$

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 is:

$$1 - \omega + \omega\big[\theta_i + (1 - \theta_i)e\gamma^\dagger\big], \tag{49}$$

where $\gamma^\dagger < 1$. (49) implies that effort and competence 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. $\gamma^\dagger < \frac{q_1 - q_2}{1 - q_2}$

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

Lemma B.1. *In equilibrium, an incumbent from Party 1 who faces a challenger is ousted if he failed to solve a crisis, and re-elected otherwise. An incumbent from Party 2 who faces a challenger is reelected with strictly positive probability if he solved a crisis, and always ousted otherwise.*

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.

Next, I show that an unconditional retention strategy, whereby a Party 2 incumbent is never re-elected, cannot be sustained in equilibrium. Conjecture an equilibrium in which a Party-2 incumbent who delivered a good outcome in times of crisis is always ousted when facing a challenger. Then, it must be the case that Party-2 incumbents always exert effort 0, since their retention chances are not a function of the governance outcome. However, if the incumbent exerts effort 0, a good outcome is a perfect signal of competence. Thus, the voter would strictly prefer to re-elect Party-2 incumbents who delivered a good outcome in times of crisis, a contradiction. □

Finally, I characterize the PCs' optimal entry choice.

Proposition. ***B.1.*** *In equilibrium, PCs from Party 1 never enter under $\chi_t = 1$ and PCs from Party 2 never enter under $\chi_t = 0$.*

Proof. The proof proceeds as for Proposition 5, and is therefore omitted. □

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 $\widehat{\mu}_i(0)$. 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 $\chi_t = 1$). 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),[27] applying D1 to this first deviation gives us the above restriction for out of equilibrium beliefs.[28]

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.2. *In equilibrium, all potential candidates must be using a pooling strategy.*

Proof. First, consider PCs from Party 2. It is easy to see that there can be no separating equilibrium in which a high type is more likely than a low type to enter under $\chi = 0$. Fixing the voter's interim beliefs, the high and low type's expected payoff from getting to office under $\chi_t = 0$ is the same, but the 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 high type must (strictly) prefer to stay out as well. Similarly, there can be no separating equilibrium in which a low type

[27] 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.

[28] 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.

is more likely than a high type to enter under $\chi = 0$. Entering the race under $\chi_t = 0$ would induce interim posterior $\widehat{\mu}_2(0)$, 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, or if he runs unchallenged.[29] Therefore, a deviation to staying out under $\chi_t = 0$ and entering under $\chi_t = 1$ is always profitable.

Next, consider $\chi_t = 1$. First, for a logic symmetric to the above, there can be no separating equilibrium in which a low type enters with higher probability under $\chi = 1$. Furthermore, there can be no 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 $\mu_2(0)$. Conditional on the voter reaching these beliefs, a Party 2 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.

Finally, we show that there can be no equilibrium in which Party 1 PCs play a separating strategy. Consider $\chi = 0$. If entering the race induces posterior $\widehat{\mu}_1 > q_2$, a deviation to always entering is profitable. In contrast, if $\widehat{\mu}_1 < q_2$, a deviation to staying out is profitable. Thus, Party 1 PCs must be adopting a pooling strategy when $\chi = 0$. Next, consider $\chi = 1$. Analogously to what we established 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 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. □

Lemma B.3. *Regardless of the private signal ϕ_i, PCs from Party 2 never enter when $\chi = 0$.*

Proof. Pooling on entering the race under $\chi = 0$ can never be sustained: entering the race induces interim posterior $q_2 < q_1$, with probability of being retained equal to $\pi_0\widehat{\mu}_2(\phi)$. A one-shot deviation to staying out and running in the future induces $\widehat{\mu}_2(h) > q_1$, allowing the Party-2 PC to remain in

[29] Recall that the restriction to Markov strategies implies that a deviation today does not influence the probability of running for re-election unchallenged in the future.

office for two consecutive terms even if no crisis emerges, and is therefore always profitable. Thus, in equilibrium Party 2 PCs must be pooling on staying out under $\chi_t = 0$.

□

Proposition 7. *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. Given Lemma B.3 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 a one-shot deviation to stay out when $\chi = 0$, or enter the race when $\chi_t = 1$. 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. □

Proposition. ***B.2.*** *The game always has a PBE where PCs from Party 1 always enter the race, and PCs from Party 2 enter under $\chi_t = 1$ and stay out under $\chi_t = 0$. Further, the game always has a Perfect Bayesian Equilibrium where PCs from Party 1 enter under $\chi_t = 1$ and stay out under $\chi_t = 0$, and PCs from Party 2 enter under $\chi_t = 1$ and stay out under $\chi_t = 0$. No other pure-strategy Perfect Bayesian Equilibrium exists (beyond the one identified in Proposition 7).*

Proof. Notice that Lemma A1 continues to hold, so the PCs problem amounts to maximizing the probability of being in office twice. First, conjecture an 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. Given the conjectured strategy for Party-2 PCs, the ex-ante probability of being in re-elected is therefore $1 - \pi_0 + \pi_0 \widehat{\mu_1}(\phi_i) + \pi_0\big(1 - \widehat{\mu_1}(\phi_i)\big)p(\chi = 0)$. A one-shot deviation to staying out improves this PC's interim reputation but, due to the coarse nature of elections, does not affect the voter's optimal retention strategy. Therefore, following the conjectured one-stage deviation, the probability of being in office for two consecutive terms is $1 - \bar{p} + \bar{p}\widehat{\mu_1}(\phi_i) + \bar{p}\big(1 - \widehat{\mu_1}(\phi_i)\big)p(\chi = 0) < 1 - \pi_0 + \pi_0\widehat{\mu_1}(\phi_i) + \pi_0\big(1 - \widehat{\mu_1}(\phi_i)\big)p(\chi = 0)$. The deviation is never profitable. Consider instead a subgame in which $\chi_t = 1$. In the conjectured equilibrium, a Party 1 incumbent is re-elected with probability $1-\pi_1+\pi_1\widehat{\mu_1}(\phi_i)+\pi_1\big(1-\widehat{\mu_1}(\phi_i)\big)p(\chi = 0)$. A deviation to staying out of the race today induces interim posterior $\widehat{\mu_1}(0) < q_2$, which implies that, upon getting to office, this PC would not be able to beat a Party-2 challenger if no crisis emerges in his first term. Therefore, the one-shot deviation yields continuation value $k\Big(1 + \bar{p}\widehat{\mu_1}(\phi_i) + \big(1 - \bar{p}\widehat{\mu_1}(\phi_i)\big)p(\chi = 0)\Big) < k\Big(1 + 1 - \pi_1 + \pi_1\widehat{\mu_1}(\phi_i) + \pi_1\big(1 - \widehat{\mu_1}(\phi_i)\big)p(\chi = 0)\Big)$, and is never profitable. Thus, the conjectured equilibrium always exists.

Next, conjecture an 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 when $\chi = 1$. Consider instead $\chi_t = 0$. A deviation to entering the race induces an interim posterior $\widehat{\mu_1}(0) < q_2$, which implies a probability of being re-elected equal to $\pi_0\widehat{\mu_1}(\phi_i) + \big(1 - \pi_0\widehat{\mu_1}(\phi_i)\big)p(\chi = 0)$. In the conjectured equilibrium, a Party 1 incumbent is re-elected with probability $1 - \pi_1 + \pi_1\widehat{\mu_1}(\phi_i) + \pi_1\big(1 - \widehat{\mu_1}(\phi_i)\big)p(\chi = 0) > \pi_0\widehat{\mu_1}(\phi_i) + \big(1 - \pi_0\widehat{\mu_1}(\phi_i)\big)p(\chi = 0)$. Therefore, the deviation is never profitable and the conjectured equilibrium always exists.

□

Proposition 8. *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 $\bar{p}$.[30] Thus, in the adverse selection equilibrium, a Party 1 PC's ex-ante

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

probability of being in office for two terms is $(1-\pi_0)+\pi_0 q_1+\pi_0(1-q_1)p(\chi=0)$. 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 $(1-\pi_1)+\pi_1 q_1+\pi_1(1-q_1)p(\chi=0)$. Finally, consider the unconditional entry equilibrium. The probability that a Party 1 PC remains in office fo two consecutive terms is $(1-\bar{p})+\bar{p}q_1+\bar{p}(1-q_1)(\chi=0)$. Straightforwardly, we have:

$$\begin{gathered}(1-\pi_0)+\pi_0 q_1+\pi_0(1-q_1)p(\chi=0)>\\(1-\bar{p})+\bar{p}q_1+\bar{p}(1-q_1)(\chi=0)>\\(1-\pi_1)+\pi_1 q_1+\pi_1(1-q_1)p(\chi=0)].\end{gathered}\tag{50}$$

Consider now PCs from Party 2. In the adverse selection equilibrium, their ex-ante probability of being to office for two terms is $\pi_1 q_2+(1-\pi_1 q_2)p(\chi=1)$: 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 $\pi_1 q_2+(1-\pi_1 q_2)p(\chi=0)$. In the unconditional entry equilibrium, a Party 2 incumbent is reelected with probability $\pi_1 q_2$. Straightforwardly, $\pi_1 q_2+(1-\pi_1 q_2)p(\chi=1)>\pi_1 q_2$. However, $\pi_1 q_2+(1-\pi_1 q_2)p(\chi=1)>\pi_1 q_2+(1-\pi_1 q_2)p(\chi=0)$ requires that $p(\chi=1)>p(\chi=0)$. Given $prob(\chi_t=0|\omega_t=0)=prob(\chi_t=1|\omega_t=1)=\psi>\frac{1}{2}$, the condition is

$$\bar{p}\psi+(1-\bar{p})(1-\psi)>\bar{p}(1-\psi)+(1-\bar{p})\psi.\tag{51}$$

Recall that $\psi>\frac{1}{2}$. Therefore, the above reduces to $\bar{p}>\frac{1}{2}$.

$\square$

C Suppose Parties Replace Failing Incumbents

Here, I assume that if an incumbents is electorally trailing (i.e., the posterior probability of being a good type is lower than the prior for potential candidates from the other party), its own party draws a replacement candidate, who then chooses whether to run or not. Then, we have

Proposition 9. *Suppose that $\delta = 1$. Then, for all $0 < q_2 < q_1 < 1$, we have that in equilibrium*

- *Potential candidates from Party 1 never enter the race when the public signal indicates a crisis ($\chi_t = 1$);*
- *Potential candidates from Party 2 never enter the race when the public signal indicates normal times ($\chi_t = 0$).*

Proof. As in the baseline case, let $\mathbb{P}_P(\omega)$ be the ex-ante probability that an incumbent from Party-P is re-elected if he first gets to office under ω, given the probability of facing a challenger $p_1(challenge|\chi, -)$. Differently from the baseline, this probability is now a function both of the strategy of PCs from the other party *and* of the possible challenger's from the incumbent own party, that have the chance to run against the incumbent if he fails to solve a crisis. Analogously to the baseline, we have

$$\begin{aligned} &\mathbb{P}_1(1) = q_1 + (1 - q_1)\Big(1 - E\big[p_1(challenge|\chi, -)\big]\Big), \\ &\text{and} \quad \mathbb{P}_2(0) = 1. \end{aligned} \tag{52}$$

Thus, any strategy prescribing Party-1 PCs to enter the race when $\chi = 1$ is again weakly dominated.

Similarly, we have

$$\mathbb{P}_2(0) = E\big[p_2(challenge|\chi, -),$$
$$\text{and} \quad \mathbb{P}_2(1) = q_2 + (1 - q_2)E\big[p_2(challenge|\chi, -)\big]. \tag{53}$$

As established in the proof of Proposition 1, in equilibrium it must be the case that $\mathbb{P}_2(1) > \mathbb{P}_2(0)$, and Party-2 PCs strictly prefer to get to office under $\omega = 1$. Thus, we can never have an equilibrium in which Party-2 PCs enter the race when $\chi = 0$.

□

D Multiple Potential Candidates

In line with the baseline model, I assume that when a politician leaves office, another party member with the same expected ability replaces them in the pool of potential candidates. Therefore, I refer to a generic potential candidate l_P and a generic potential candidate h_P, where $P \in \{1, 2\}$.

Proposition 10. *Let $\delta = 1$. Then, the game always has an equilibrium where one candidate from each party runs in each period. Furthermore, suppose that $q_{h_2} < p(\chi = 1)$. Then, in equilibrium*

- *h_1 and h_2 potential candidates enter the race when $\chi = 0$, and l_1 and l_2 potential candidates enter the race when $\chi = 1$.*

Suppose instead that $q_{h_2} > p(\chi = 1)$. Then, in equilibrium

- *h_1 and l_2 potential candidates enter the race when $\chi = 0$, and l_1 and h_2 potential candidates enter the race when $\chi = 1$.*

Proof. First, notice that h_1 potential candidates face the same problem as in the baseline. Thus, they must stay home when $\chi = 1$ and only enter the race when $\chi = 0$. This implies that l_1 candidates must be willing to run under $\chi = 1$, as otherwise they would never be selected by the party.

Next, consider Party-2 PCs. Let $\mathbb{P}_{h_2}(\omega)$ the probability of a h_2-candidate being re-elected for a second term after getting to office in state ω. Given the Party-1 PCs strategies, we have

$$\begin{aligned} \mathbb{P}_{h_2}(0) &= p(\chi = 1), \\ \text{and} \quad \mathbb{P}_{h_2}(1) &= q_2^h. \end{aligned} \tag{54}$$

Thus, in equilibrium h_2 PCs must enter the race under $\chi = 0$ and stay home otherwise when $q_{h_2} < p(\chi = 1)$. Otherwise, if $q_{h_2} > p(\chi = 1)$, h_2 PCs must enter under $\chi = 1$ and stay home otherwise. Finally, l_2 must run when h_2 is not willing to, as otherwise they would never get to office.[31] □

[31] More precisely, l_2 is indifferent between entering and staying out in open-seat election, or when the election is

E The Role of Parties' Reputation: Uncertain-Pool Model

Suppose that each party P's potential candidates pool contains a proportion Q_P of good types, where $Q_P \in \{q_P^l, q_P^h\}$ is unknown to all and $q_P^l < q_P^h$. Suppose that both the voter and the potential candidates share common prior beliefs on the probability that $Q_P = q_P^h$.

For ease of tractability, I assume that a third dummy candidate, whose probability of being a good type is arbitrarily close to 0, runs for office in each period. This assumption ensures that an incumbent who fails to solve a crisis is always ousted, but otherwise has no impact on the results.

In what follows, I will refer to the advantaged potential candidate as the one that, at time t, is most likely to be a good type. For simplicity, let $\psi \to 1$. Then, we have:

Proposition 11. *Suppose $\delta = 1$. Then, in equilibrium advantaged potential candidates never enter the race when $\chi = 1$.*

Proof. We show that a strategy prescribing an advantaged candidate to enter the race when $\chi = 1$ is weakly dominated by the strategy to enter the race when $\chi = 0$ in any period in which they are advantaged, and when $\chi = 1$ in any period in which they are disadvantaged.

Denote $\mathbb{P}_i(\omega, A, \mu_i)$ the ex-ante probability that i is re-elected for a second term after getting to office under state ω, given their current advantaged status $A \in \{d, a\}$ (**d**isadvantaged or **a**dvantaged) and the posterior probability of being a good type μ_i (a function of the party's past performance in office). Notice that, as in the baseline, $\mathbb{P}_i(0, a, \mu_i) = 1$: governance outcomes are uninformative during normal times, therefore an advantaged candidate is always re-elected if he gets to office under $\omega = 0$. Furthermore, because failure under a crisis induces a posterior $\mu_i = 0$, given the voter's optimal strategy and the presence of the dummy candidate who always runs we have that $\mathbb{P}_i(1, a, \mu_i) = \mathbb{P}_i(1, d, \mu_i) = \mu_i$. Also notice that, because beliefs are a martingale, $\mathbb{P}_i(1, A, \mu_i) = E\big[\mathbb{P}_i(1, A, \mu_i)\big]$, where the expectation is over μ_i. Finally, Lemma A1 continues to hold, and therefore each potential candidate always gets to office during the course of the game in equilibrium, regardless of the candidate and the other player's strategies.

against an incumbent and $\mu_I > q_{l_2}$, but they strictly prefer to run when h_2 stays out and the Party-1 incumbent failed to solve a crisis.

Thus, we have that an advantaged candidate's expected payoff from entering the race under $\chi = 1$ is $k\Big(1 + \mathbb{P}_i(1, a, \mu_i)\Big)$. Instead, the continuation value from the alternative strategy (enter the race when $\chi = 0$ in any period in which they are advantaged, and when $\chi = 1$ in any period in which they are disadvantaged), can be expressed as a weighted average: $\beta k\big(1 + \mathbb{P}_i(0, a, \mu_i)\big) + (1 - \beta)k\Big(1 + \mathbb{P}_i(1, d, \mu_i)\Big)$, where the weight β is the probability of maintaining the advantage in the future, given beliefs and the strategy of the other players. Since $\mathbb{P}_i(1, a, \mu_i) = \mathbb{P}_i(1, d, \mu_i)$ and $\mathbb{P}_i(0, a, \mu_i) = 1 > \mathbb{P}_i(1, d, \mu_i)$, we have that $\beta k\big(1 + \mathbb{P}_i(0, a, \mu_i)\big) + (1 - \beta)k\Big(1 + \mathbb{P}_i(1, d, \mu_i)\Big) > k\Big(1 + \mathbb{P}_i(1, a, \mu_i)\Big)$. Therefore, any strategy prescribing an advantaged candidate to enter the race when $\chi = 1$ is weakly dominated by the strategy to enter the race when $\chi = 0$ in any period in which they are advantaged, and when $\chi = 1$ in any period in which they are disadvantaged.

□

Thus, for fully patient potential candidates, the fact that voter faces uncertainty over the pool of candidates in each party does not eliminate the inefficiency highlighted in the baseline.

However, a second set of incentives also arises when potential candidates are not fully patient, $\delta < 1$. Advantaged potential candidates may be worried that if they let their disadvantaged opponent run under a crisis, the opponent will be able to build a reputation for the party and permanently gain an advantage. When potential candidates are impatient, this reduces the expected value of staying out compared to the baseline model, generating stronger incentives to run even if a crisis is likely.

The analysis under $\delta < 1$ is substantially more complex than the case of fully patient candidates. Thus, I impose the following simplifying assumptions to ensure tractability. First, I assume that $q_P^l = 0$ for both $P \in \{0, 1\}$. Under this assumption, a bad outcome realization in a crisis allows the voter to learn the type of the incumbent, but is not fully informative of the quality of the party's pool. In contrast, a good outcome realization under a crisis allows the voter to learn that the incumbent is a good type *and* must come from a party with proportion $q_P^h > 0$ of good types. Second, I assume that potential candidates from Party 2 always enter the race, and focus on characterizing behavior for Party-1 PCs in periods in which they have an advantage.

The next result shows that an equilibrium in which advantaged Party-1 candidates stay out of the race when $\chi_t = 1$ is harder to sustain than in the baseline. Below, I refer to this extended version of the model as the uncertain-pool model. Let $\tilde{q}_t^2$ be the posterior probability that $Q_P = q_P^h$, as a function of the history at time t, ans suppose that at time t $\tilde{q}_t^2 q_2^h < \tilde{q}_t^1 q_1^h < q_h^2$: Party-1 is advantaged today, but will lose the advantage if a politician from Party-2 proves able to solve a crisis. Then, we have:

Proposition 12. *Suppose $\delta < 1$. Conjecture an equilibrium in which advantaged potential candidates from Party 1 enter the race under $\chi_t = 0$ and stay out under $\chi_t = 1$. This equilibrium is harder to sustain in the uncertain-pool model than in the baseline (i.e., the parameter region sustaining the conjectured equilibrium shrinks).*

Proof. First, notice that when uncertainty over the pool of candidates is resolved, then the game is equivalent to the baseline. Consider instead states in which Party-1 is advantaged but uncertainty is not resolved yet, so that Party-1 PCs may lose their advantage in the future. Straightforwardly, Party-1 PCs have no profitable deviation from the conjectured strategy in when. $\chi_t = 0$.

Consider instead states where $\chi_t = 1$. Recall that, as established in the proof of Proposition 4, a deviation from the conjectured strategy is more attractive when the election at time t is an open-seat one, so we only need to consider such subgames. We will establish that the no-deviation condition is more binding in the uncertain-pool model than in the baseline model.

First, consider the uncertain-pool model. The conjectured strategy yields a Party-1 potential candidate continuation value

$$V_{UP}^o(1) = o + \delta(1 - \tilde{q}_t^2\, q_2^h)[(1-\bar{p})k(1+\delta) + \bar{p}\delta V_{UP}^o(1)] + \delta^2 \tilde{q}_t^2\, q_2^h V^d, \tag{55}$$

where V^d is the continuation value starting from a period in which party-1 potential candidates are disadvantaged, since the voter has updated that the party-2 candidates are drawn from the pool with a higher share of good types.

Instead, a deviation to entering the race yields payoff

$$k\big(1+\delta\tilde{q}_t^1 q_1^h\big). \tag{56}$$

Consider instead the baseline model. In the baseline model the conjectured strategy yields a Party-1 potential candidate continuation value

$$V_B^o(1) = o + \delta(1-q_2)[(1-\bar{p})k(1+\delta) + \bar{p}\delta V_B^o(1)] + \delta^2 q_2[(1-\bar{p})k(1+\delta) + \bar{p}V_B^o(1)], \tag{57}$$

A deviation to entering the race yields

$$k\big(1+\delta q_1\big) \tag{58}$$

Setting $\tilde{q}_t^2\, q_2^h = q_2$ and $\tilde{q}_t^1\, q_1^h = q_1$, we have $k\big(1+\delta\tilde{q}_t^1 q_1^h\big) = k\big(1+\delta q_1\big)$. Further, it is easy to see that $V_B^o(1) > V_{UP}^o(1)$. We can in fact rewrite

$$V_B^o(1) = \frac{\delta(1-q_2)(1-\bar{p})k(1+\delta) + \delta^2 q_2[(1-\bar{p})k(1+\delta) + \bar{p}V_B^o(1)]}{1-\delta^2(1-q_2)\bar{p}}, \tag{59}$$

and

$$V_{UP}^o(1) = \frac{\delta(1-\tilde{q}_t^2 q_2^h)(1-\bar{p})k(1+\delta) + \delta^2\tilde{q}_t^2 q_2^h V^d}{1-\delta^2(1-\tilde{q}_t^2 q_2^h)\bar{p}}. \tag{60}$$

Therefore, setting $\tilde{q}_t^2\, q_2^h = q_2$ and $\tilde{q}_t^1\, q_1^h = q_1$, $V_B^o(1) > V_{UP}^o(1)$ iff

$$(1-p)k(1+\delta) + \bar{p}V_B^o(1) > V^d \tag{61}$$

The equilibrium continuation value of a disadvantaged candidate must be lower than that of an advantaged one, which implies $V^d < \bar{p}V_B^o(1) + (1-\bar{p})k(1+\delta)$. Thus, setting $\tilde{q}_t^2\, q_2^h = q_2'$ and $\tilde{q}_t^1\, q_1^h = q_1'$, we must have $V_B^o(1) - k\big(1+\delta q_1'\big) > V_{UP}^o(1) - k\big(1+\delta\tilde{q}_t^1 q_1^h\big)$.

□

F Multidimensional Competence: The Role of Parties' Issue Ownership

Suppose there are two dimensions over which the country may experience a crisis $\iota \in \{\iota_1, \iota_2\}$, say the economy and the foreign affairs. As in the baseline, players observe a public signal χ_t^ι indicating the likelihood of a crisis materializing on issue ι in period t. For simplicity, we exclude the possibility of two crisis materializing at the same time. So χ_t^ι may take one of three values $1_{\iota_1}, 1_{\iota_2}$ or 0.

Suppose that in each period, one or the other dimension is electorally salient, i.e., the voter bases her electoral decision in period t purely on the candidates' expected ability on one issue or the other. An issue is always electorally salient if the public signal indicates a crisis on that issue. Otherwise, if the public signal indicates normal time, issue ι_1 is salient with probability ν_{ι_1}, and issue 2 with the complement probability.

Party P's potential candidates are drawn from a pool containing a share q_P^ι of issue-ι competent types. Thus, each potential candidate may be competent on one issue, both, or neither. This version of the model is essentially equivalent to the baseline if we assume that $q_1^{\iota 1} > q_2^{\iota 1}$ *and* $q_1^{\iota 2} > q_2^{\iota 2}$. Here, let us instead assume that $q_1^{\iota 1} > q_2^{\iota 1}$ and $q_1^{\iota 2} < q_2^{\iota 2}$: party 1 potential candidates are ex-ante better on issue ι_1, and party 2 ones on ι_2. I will focus on the case in which potential candidates are fully patient, $\delta = 1$.

Proposition 13. *Let $\delta = 1$. Then, in equilibrium*

- *Potential candidates from Party 1 never enter race when issue ι_1 is salient and $\chi_t = 1$, and*
- *Potential candidates from Party 2 never enter the race when issue ι_2 is salient and $\chi_t = 1$.*

Proof. As in the baseline model, fully patient potential candidates simply choose the entry strategy that (conditional on winning) maximizes their chance of remaining in office for two consecutive terms, as any other strategy is weakly dominated. In particular, we can show that any strategy prescribing Party-1 PCs to enter when $\iota = \iota_1$ and $\chi = 1$ is weakly dominated by a strategy to stay home when $\iota = \iota_1$ and $\chi = 1$, and run when $\iota = \iota_1$ and $\chi = 0$, fixing all other components of the strategy.

Denote $\mathbb{P}_P(\iota, \omega_t)$ the ex-ante probability of retention for a party-P potential candidate that gets to office in period t, if the salient dimension at time t is ι and the state is ω. Let ν denote the ex-ante probability that issue ι_1 is salient in a given period (that is, the probability that $\chi_t^\iota = 1_{\iota_1}$ plus the probability that $\chi_t^\iota = 0$ times ν_{ι_1}).

Consider first potential candidates from Party 1. Suppose that issue ι_1 is salient in period t, and $\omega_t = 1$. Then, the probability of being re-elected for a second term after getting to office in period t is

$$\mathbb{P}_1(\iota_1, 1) = \nu\Big(q_1^{\iota_1} + (1 - q^{\iota_1})(1 - E\big[p_1(challenge|\iota_1)\big]\Big) + (1 - \nu)(1 - E\big[p_1(challenge|\iota_2)]\big), \quad (62)$$

where $p_P(challenge|\iota)$ is the probability that a Party-P incumbent faces a challenger when issue ι is salient at the time of re-election, as a function of the Party-2 PCs strategy, $\boldsymbol{\sigma}_2$. Recall that the expectation is over χ. If issue ι_1 is salient in period $t+1$, with probability ν, the Party-1 incumbent is reelected if he proved able to solve the issue-ι_1 crisis in period t or if he failed but Party-2 PCs stay out of the race. If instead ι_2 becomes the salient issue, then the Party-1 is disadvantaged, since his competence on that issue has not been tested and $q_1^{\iota_2} < q_2^{\iota_2}$. Thus, he will win if and only if running unopposed.

Similarly, we can compute :

$$\mathbb{P}_1(\iota_1, 0) = \nu + (1 - \nu)(1 - E\big[p_1(challenge|\iota_2)\big]. \quad (63)$$

Probabilities of retention when ι_2 is salient at time t are calculated in a similar way.

We have that $\mathbb{P}_1(\iota_1, 0) \geq \mathbb{P}_1(\iota_1, 1)$, where the inequality is weak if $\boldsymbol{\sigma_2}$ is s.t. Party-2 never runs against the incumbent and strict otherwise. Thus, any strategy prescribing PCs from Party 1 to enter when ι_1 and $\chi = 1$ and is weakly dominated by a strategy to stay home when ι_1 and $\chi = 1$ and enter if ι_1 and $\chi = 0$, keeping all other components of the strategy fixed.

The argument for Party-2 PCs is exactly symmetric, and is therefore omitted.

$\square$

Thus, very much in the spirit of the baseline, endogenous self-selection of potential candidates leads to inefficient entry decisions. In equilibrium, the voter never gets the most competent candidate on the currently salient issue when the country is experiencing a crisis on that dimension.

G The Role of Parties' Recruitment Strategy

In this section, I consider a version of the game where the parties, rather than the individual candidates, are the strategic actors. In other words, the potential candidates are always willing to run, and the parties decide who to nominate. We will assume that each party has access to two pools of candidates, one with a proportion q_l^p of good types and the other with a larger proportion q_h^p. Thus, in each period in which both pools are still available, each party can choose a candidate from the low pool, or one from the high pool, where the latter has a higher probability of being a competent type and thus a stronger electoral capital. The type of each individual candidate is unknown to all, but the pool from which the candidate is selected is common knowledge. In each period in which a party has one of its candidates in office, the party obtains payoff k. In any other period, the party obtains a 0. let $q_l^2 < q_l^1 < q_h^2 < q_h^1$, so that party 1 remains the ex-ante advantaged one, as in the baseline. We will assume that a party replaces an incumbent who failed to manage a crisis. Parties discount future payoffs at a rate δ.

We will see that, when the parties have a limited supply of candidates from the high pool, adverse selection continues to emerge analogously to the model with strategic candidates. For simplicity, suppose that each party has only one potential candidate available from the high pool, while they have an infinite supply of candidates from the low pool. Further, let $\psi \to 1$.

Proposition 14. *Let $\delta \to 1$. Then*

- *In any period in which the election is open-seat and both parties still have the high-pool candidate available, Party 2 nominates the high-pool candidate iff $\chi_t = 1$ and Party 1 never nominates the high-pool candidate;*
- *In any period in which only Party 2 has the high-pool candidate available, Party 2 nominates the high-pool candidate iff $\chi_t = 0$;*
- *In any period in which only Party 1 has the high-pool candidate available, Party 1 is indifferent between nominating the high and the low pool candidate;*

- *In a period in which the high-pool candidate from Party 2 is in office and up for re-election, Party-1 nominates the high-pool candidate if $\mu_I = q_2$ and is indifferent otherwise.*

Proof. Notice that a low-pool candidate from Party 2 can never get to office, since Party 1 can replace any failing incumbent with a low-pool candidate, which beats a low-pool candidate from Party 2. This implies that in any period in which the Party-2 high-pool candidate is no longer available (and not in office), Party 1 is always indifferent between nominating the high-pool candidate (if is still available) and a low-pool one.

Consider instead a subgame in which the high-pool Party-2 candidate is the incumbent officeholder. If the incumbent has experienced a crisis, then Party 1 is indifferent: nominating a high-type is either not necessary or not sufficient to win in this period, and it has no effect on the payoff from next period. Suppose instead that the incumbent has not experienced a crisis. Then, Party 1 wins today if and only if it nominates the high-pool candidate. Thus, selecting the high-pool candidate yields continuation value $k + \delta\frac{k}{1-\delta}$. In contrast, nominating the low-pool candidate yields $\delta\frac{k}{1-\delta}$. For any δ strictly lower than 1, Party 1 strictly prefers to nominate the high-pool candidate in this subgame.

Consider instead a subgame in which the Party-1 high-pool candidate is no longer available.

As $\delta \to 1$, Party 2 problem amounts to maximizing the probability that the high-pool candidate is in office twice (since the low-pool candidate can never win). If the Party-2 high candidate gets to office under $\chi_t = 0$, the probability of being reelected is 1. If instead $\chi_t = 1$, the probability of being reelected is q_h^2. Thus, as $\delta \to 1$, Party-2 must be adopting the strategy to select the high-pool candidate iff $\chi_t = 0$ in subgames in which Party-1 has no high-pool candidate available.

Finally, consider subgames in which both parties still have the high-pool candidate available. First, we can establish that in equilibrium Party 1 never nominates the high-pool candidate in these subgames. Suppose that Party 2 also never nominates the high-pool candidate. Then, Party 1 is guaranteed to get to office in every period if it always nominates low-pool candidates, with continuation value $\frac{k}{1-\delta}$. By nominating the high type, instead the Party obtains at most $k(1+\delta) + \delta^2 V^{dis} < \frac{k}{1-\delta}$, where $V^{dis} < \frac{k}{1-\delta}$ is the continuation value starting from a period in which Party-2 is the only one to have a high-pool candidate available. Suppose instead that Party 2 nominates the high-pool candidate under at least one realization of χ_t, say $\chi_t = 1$. Then, under $\chi_t = 1$ by nominating the low-pool candidate Party 1 gets continuation value

$$0 + \delta(1 - q_h^2)\frac{k}{1-\delta} + q_h^2\delta^2\frac{k}{1-\delta}. \tag{64}$$

In contrast, by nominating the high-pool candidate Party 1 obtains

$$q_h^1\Big(k(1+\delta) + \delta^2 V^{dis}\Big) + (1 - q_h^1)\Big(k + \delta V^{dis}\Big), \tag{65}$$

Thus, nominating the low-pool candidate is optimal iff

$$\delta(1 - q_h^2)\frac{k}{1-\delta} + q_h^2\delta^2\frac{k}{1-\delta} > q_h^1\Big(k(1+\delta) + \delta^2 V^{dis}\Big) + (1 - q_h^1)\Big(k + \delta V^{dis}\Big), \tag{66}$$

which rearranges to

$$\delta\frac{k}{1-\delta}(1 - q_h^2(1-\delta)) - \delta V^{dis}(1 - q_h^1(1-\delta)) > k(1 + \delta q_h^1). \tag{67}$$

Notice that $\delta\frac{k}{1-\delta}(1-q_h^2(1-\delta)) - \delta V^{dis}(1-q_h^1(1-\delta)) > \delta\frac{k}{1-\delta}(1-q_h^2(1-\delta)) - \delta V^{dis}(1-q_h^2(1-\delta)) > 0$ for any value of δ. Further, letting $\delta \to 1$, $\frac{k}{1-\delta} - V^{dis} \to 2k$ (since Party 2 would be able to get their high-pool candidate to office for two periods if Party 1 has burnt theirs), and the above reduces to

$$2k > k(1 + q_h^1), \tag{68}$$

which is always true.

Next, consider periods in whcih $\chi_t = 0$. Then, given the conjectured strategy for Party 2, by nominating a low-pool candidate Party 1 gets continuation value $V \geq k + \delta^3\frac{k}{1-\delta}$. This is because the worse case scenario if Party-1 nominates a low-pool candidate today is that is that in the next period Party-2 nominates the high-pool candidate, who is then re-elected for a second term.

Nominating the high-type instead yields

$$k(1+\delta)+\delta^2 V^{dis}. \tag{69}$$

Thus, sufficient condition for Party 1 to prefer nominating a low-pool candidate is

$$k+\delta^3\frac{k}{1-\delta}\geq k(1+\delta)+\delta^2 V^{dis}, \tag{70}$$

which rearranges to

$$\delta^2(\delta\frac{k}{1-\delta}-V^{dis})\geq k. \tag{71}$$

As $\delta\to 1$, $\delta^2(\delta\frac{k}{1-\delta}-V^{dis})\to k$, so the above is always satisfied.

A similar argument applied to the other possible strategies for Party 2 yields the result that in equilibrium Party 1 never selects the high-pool candidate in subgames in which both parties have the pool available.

Given this strategy from Party 1, Party 2 must be nominating the high-pool candidate in some state in equilibrium, as otherwise it would never get to office. Again, as $\delta\to 1$, Party 2's problem amounts to maximizing the probability that the high-pool candidate is in office twice. Recall that Party 1 would nominate the high-pool candidate if necessary and sufficient to beat a Party 2 high-type incumbent. Then, if the Party-2 high candidate gets to office under $\chi_t=0$, the probability of being reelected is 0. If instead $\chi_t=1$, the probability of being reelected is q_h^2. Thus, as $\delta\to 1$, Party-2 must be adopting the strategy to select the high-pool candidate iff $\chi_t=1$ in subgames in which Party 1 still has the high-pool candidate availble. $\square$

H 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 mayor of a major city), and zero otherwise.[32] 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.[33]

[32]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.

[33]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).

Thus, I run the following regression:

$$y_t = \alpha + \beta S_t + \epsilon_t \tag{72}$$

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.[34]

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 average (p. value 0.018).[35]

[34]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.

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