Who Runs When?

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Abstract

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

Keywords: Endogenous Candidates, Crises and Accountability, Crises and Information, Gambling in Elections.

Supplementary material for this article is available in Appendices A to H in the online edition

James Madison argued that democratic elections primarily serve the purpose of enabling citizens to choose capable leaders (Federalist Papers 57). The health of a democratic system thus hinges on two critical questions. First, can voters effectively identify competent politicians while rejecting inadequate ones? Second, are highly capable individuals willing 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.

To this aim, I present a dynamic model to explore not only *whether* but also *when* good candidates choose to enter the electoral race. In each period, potential candidates for office decide whether to run. These potential candidates differ in their reputation, which indicates the probability of being a good type, but their true ability is initially unknown. However, in each period, the country may face a crisis, which puts the officeholder's ability to the test and hence alters voters' evaluation of the incumbent. Thus, the environment influences how potential candidates weigh the benefits of holding office today against their long-term electoral prospects. In equilibrium, they condition their decision to run or not in each period on whether a crisis is expected in the upcoming term.

One might expect that the best potential candidates, those with highest expected competence, would also be the most likely to run in times of crisis. Surprisingly, the opposite is true. The potential candidate with the highest likelihood of successfully managing the crisis also has the most to lose from failing, since he initially enjoys a reputation advantage. Therefore, this candidate has an incentive to abstain from the race during crises to safeguard his electoral capital for the future.[1] In contrast, the potential candidate who is initially less qualified for office has little to lose. Thus, he is always willing to take the gamble during challenging times to enhance his reputation. The model therefore reveals a significant inefficiency: the quality of the candidate pool diminishes during periods of crisis, exactly when competent leadership is most crucial. Voters get the *wrong candidates* at the *wrong time*.

This inefficiency does not stem from weak electoral incentives, as observed in previous

[1]This extends the logic of Banks and Kiewiet (1989), as I discuss in more detail below.

literature. Instead, it emerges even if running is costless and the payoff from holding office is higher than the outside option, and thus entering the race is always statically optimal. The source of the problem lies in the accountability relationship between voters and their representatives. Voters cannot commit to disregarding new information about the incumbent's competence. The officeholder's performance is the most revealing when competence is most critical, and the candidate who is most likely to be competent is hesitant to take the gamble.

The contribution of this paper is threefold. First, it uncovers an overlooked consequence of electoral accountability that can discourage the best candidates from running precisely when they are most needed by voters. Second, it identifies conditions and policies that either amplify or mitigate this inefficiency. Finally, it highlights how the rational 'calculus of candidacy' (Rohde, 1979) extends beyond comparing the *exogenous costs of running* and the expected rents from office, and must instead include the *endogenous costs of holding office.*

Contributions to the Literature. A small number of works in the political economy literature study the endogenous supply of good politicians (Caselli and Morelli, 2004; Dal Bó, Dal Bó and Di Tella, 2006; Mattozzi and Merlo, 2008; Fedele and Naticchioni, 2016; Brollo et al., 2013). These works build 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)). My paper contributes to this literature in two ways. First, I analyze how dynamic electoral incentives influence this calculus of candidacy. Second, I examine the *timing* of entry into the race, rather than just *whether* good candidates choose to run.

This paper is most closely related to Banks and Kiewiet (1989) and Jacobson (1989), who establish, theoretically and empirically, that good candidates may prefer not to run against an incumbent who is hard to beat (see also Stone and Maisel (2003) and Goodliffe (2007)). This 'incumbency scare-off' effect arises due to the opportunity cost of *running* for office (in Banks and Kiewiet, candidates can only run once). In contrast, my model focuses on the opportunity cost of *holding* office, and thus provides a rationale for why even weak incumbents may face no serious challenge, and why all parties may field low-quality candidates in open-seat races. In my model, even a certain winner may be unwilling to run.

My theory builds on the intuition that the environment influences the informativeness of governance outcomes (as in Ashworth, Bueno de Mesquita and Friedenberg (2017)). How this impacts electoral incentives has been widely studied in political economy, but my paper is the first to examine the effect on the supply of competent candidates.

Finally, the model's results speak to an open debate: is voter competence good for voters? Scholars have argued that a more informed electorate may paradoxically induce officeholders to exert less effort (Ashworth and De Mesquita, 2014) or implement inefficient policies (Gailmard and Patty, 2019). My paper suggests the problem runs even deeper, as it may prevent voters from attracting competent politicians to office in the first place.

The Model

Consider a game that lasts $\mathcal{T}$ periods. 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, the potential candidates (hereafter, PCs) simultaneously choose whether to run for office.[2] A representative voter chooses whom to elect. Officeholders are subject to a two-term limit. When an incumbent leaves office—whether because he hits the term limit or is voted out—he can never run again,[3] and a replacement PC is drawn from the same pool of party members.

In each period t, the country is in a state of business as usual ($\omega_t = 0$) or faces an *exogenous* crisis ($\omega_t = 1$), such as a war, economic hardship, or a natural disaster. ω_t is i.i.d., with $\Pr(\omega_t = 1) = \bar{p}$. At the start of each period, players receive a public signal of the likelihood of a crisis in the upcoming term, $\chi_t \in \{0, 1\}$, with $\Pr(\chi_t = 0|\omega_t = 0) = \Pr(\chi_t = 1|\omega_t = 1) = \psi \in (\frac{1}{2}, 1)$. True true state ω_t is revealed at the start of the officeholder's term.

[2]If no PC is willing to run, a dummy candidate who only lives for one period takes office.

[3]This assumption intuitively implies that losing office harms politicians' careers, but is stronger than necessary.

Each PC i is either a good type ($\theta_i = 1$) or a bad type ($\theta_i = 0$), with θ_i ex-ante unknown to all. There is a common belief that a fraction q_P of Party P's members are good, so the probability of a PC from Party P being a good type is q_P.[4] Let $0 < q_2 < q_1 < 1$.

The incumbent's type, θ_I, and the state of the world, ω_t, determine the realization of governance outcomes, which are either good ($o_t = g$) or bad ($o_t = b$). The probability of a good outcome is $\Pr(o_t = g) = 1 - \omega_t + \omega_t\theta_I$. Thus, crises amplify the impact of the incumbent's ability. When $\omega_t = 0$, outcomes are always good, but under a crisis ($\omega_t = 1$), only a competent incumbent can deliver a good outcome.

PCs are motivated by holding office, which yields payoff $k > 0$ in each period. Their payoff when not in office is fixed at 0. To focus on the incentives and disincentives of *holding* office, I assume running is costless. PCs discount their future payoffs at a rate of $\delta \in (0, 1)$. Finally, the voter cares about governance outcomes: she incurs a cost when $o_t = b$ and receives 0 when $o_t = g$. I assume that she fully discounts the future. This guarantees she always prefers to elect the candidate who is most likely to be a good type, regardless of their incumbency status.[5] To sum up, in each period t the game proceeds as follows:

1. The crisis signal $\chi_t \in \{0, 1\}$ is publicly observed;

2. PCs choose whether to enter the race;

3. The voter chooses whom to elect;

4. The state $\omega_t \in \{0, 1\}$ is publicly revealed;

5. The governance outcome $o_t \in \{g, b\}$ realizes and is publicly observed;

6. Period-t payoffs realize. If the incumbent leaves office, its party draws a replacement PC.

Analysis

We begin by analyzing the voter's problem. In an open-seat election, her decision only depends on prior beliefs over the candidates' abilities. Instead, when evaluating an incumbent,

[4]When a new PC is drawn, another politician with the same type is born into the pool.

[5]In Appendix G, I show this is not always true if the voter is forward-looking.

the voter considers his performance in office. Here, because crises amplify the effect of competence on outcomes, they also increase the informativeness of the incumbent's performance.

Under the baseline model's assumptions, this effect is stark. During normal times ($\omega_t = 0$), both types of incumbents are equally likely to deliver good outcomes, so the voter learns nothing and retains prior beliefs. Instead, in a crisis ($\omega_t = 1$), the incumbent's ability is tested: a good outcome indicates a competent incumbent, while a bad outcome reveals incompetence. Lemma 1 analyzes the voter's retention decision when a Party-P incumbent elected at t faces a challenger at $t + 1$:

Lemma 1. *If there is no crisis in period t, $\omega_t = 0$, then a Party-1 incumbent is always reelected at $t + 1$ and a Party-2 incumbent is always ousted. Instead, if there is a crisis, $\omega_t = 1$, then the incumbent is reelected at $t+1$ if and only if the governance outcome is good.*

A politician who leaves office cannot run again, therefore, an incumbent may only face an untried PC from the opposing party. With $q_2 < q_1$, a Party-1 (Party-2) incumbent is ex-ante advantaged (disadvantaged). When $\omega_t = 0$, no new information emerges, and an advantaged (disadvantaged) incumbent is reelected (ousted). When $\omega_t = 1$, the governance outcome reveals the incumbent's competence, and $o_t = g$ is necessary and sufficient for reelection.

The Candidates' Problem: A Three-Period Model. We now turn to the PCs' problem, starting with a three-period setting, $\mathcal{T} = 3$. In the final period of the game, PCs face a static problem where running is costless and holding office is more valuable than the outside option, $k > 0$. Thus, all PCs weakly prefer to enter the race (strictly if the election is winnable), regardless of the likelihood of a crisis. Under $\mathcal{T} = 3$, the same logic extends to the previous period, $t = 2$. PCs would never give up office today for the possibility of holding office *once* in the future, therefore have no incentives to stay out of the race at $t = 2$ (see Lemma A-1).

In the first period, PCs face different incentives. When deciding whether to run, PCs consider how assuming office today affects their chances of winning two consecutive terms. That is, they consider the endogenous opportunity cost of holding office today. This depends on the PC's initial reputation and the probability of a crisis in the first period. To concisely present equilibrium strategies for PCs from both parties, I consider an open-seat race.

Proposition 1. *Let $\mathcal{T} = 3$. There exist $\underline{\delta} < 1$ and $\overline{q}_2 \in (0, 1)$ such that, if $\delta > \underline{\delta}$ and $q_2 < \overline{q}_2$, then, in any subgame perfect Nash equilibrium:*

- *When $\chi_1 = 1$, the Party-1 PC stays out, the Party-2 PC runs and wins at $t = 1$;*
- *When $\chi_1 = 0$, the Party-1 PC runs and wins at $t = 1$.*

A Party-2 incumbent who held office during normal times is reelected if and only if his potential challenger decides not to run. In a crisis, however, this disadvantaged incumbent can prove competence and boost reelection chances. Thus, the Party-2 PC maximizes his probability of winning two consecutive terms by entering office during times of crisis, even if his likelihood of being competent is extremely low. As such, the Party-2 PC has no reason to avoid the race when the public signal indicates a crisis and is always willing to gamble.

The Party-1 PC is more likely to be competent and able to manage a crisis, but he also holds valuable electoral capital due to his reputation advantage. He is guaranteed reelection for a second term if he enters office during normal times, because no new information about his competence will emerge. However, he risks being ousted if there is a crisis during his first term, because he could be revealed as incompetent. Therefore, a Party-1 PC maximizes his chances of being reelected twice if he gets to office when $\chi_t = 0$, even if he is highly confident in his ability. He thus experiences fear of failure and is incentivized to avoid the gamble.

However, two conditions must be met for these incentives to dominate. First, the Party-1 PC must be sufficiently patient; otherwise, he would prefer to take office immediately, even at the risk of damaging his future electoral prospects. Second, the Party-2 opponent must be unlikely to be a good type; otherwise, the Party-1 PC risks the opponent proving competent during a crisis and securing reelection. When these conditions are satisfied, the Party-1 PC stays out of the race at $t = 1$ if the public signal indicates a crisis, in order to preserve his electoral capital for the second period when a crisis is less likely.

The Infinite-Horizon Model. Finally, I extend the model to an infinite horizon. This allows me to further clarify Party-2 PC's incentives, and shows the results are not driven by end-period effects. I consider pure-strategy stationary Markov perfect equilibria (MPE).[6]

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

- *If $\delta > \widehat{\delta}_1$, there does not exist a MPE where a Party-1 PC runs and wins when $\chi_t = 1$;*
- *If $\delta > \widehat{\delta}_2$, there does not exist a MPE where a Party-2 PC runs and wins when $\chi_t = 0$.*

In any period of the infinite horizon, PCs face incentives similar to those at $t = 1$ in the $\mathcal{T} = 3$ model. Therefore, when sufficiently patient, PCs always choose the entry strategy maximizing their chances of being reelected twice. Advantaged Party-1 PCs prefer to take office when a crisis is unlikely, so they never enter a winnable race when $\chi_t = 1$. Conversely, disadvantaged Party-2 PCs, motivated to seek office during a crisis, prefer to stay out under $\chi_t = 0$. Notice that in the $\mathcal{T} = 3$ model a Party-2 PC is indifferent between running or not in the first period when $\chi_1 = 0$, since the Party-1 PC always runs and wins. Under a longer time horizon, instead, Party-2 PCs *strictly* prefer not to run when $\chi_t = 0$ even in subgames where they could win for sure (against an incumbent who failed to solve a previous crisis).

Notice that, for a sufficiently high δ, the equilibrium is inefficient for any q_2 (and q_1). However, as noted above, when choosing whether to enter an open-seat election under $\chi_t = 1$, a Party-1 PC considers the risk that the opponent might solve the crisis and secure reelection (i.e., q_2). This is costly, as it delays the Party-1 PC's opportunity to attain office:

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

Ironically, the best PC is most incentivized to stay out when the alternative candidate is very poor. Yet, this suggests that recruiting better candidates at the bottom of the pool may improve the quality of *elected* politicians, even if such candidates never take office.

[6] An incumbent who leaves office cannot run again, so first-term incumbents always weakly prefer to run for reelection. Hereafter, the term PC refers to a non-incumbent.

Discussion and Robustness

I conclude by presenting several extensions, that build on the infinite-horizon model.[7]

Moral Hazard. In Appendix B, I extend the model to allow officeholders to invest effort in order to improve their performance. When PCs are sufficiently patient, the equilibrium of this extended model can have one of two forms. In the first, Party 1 PCs are always willing to run but, once in office, exert no effort and are always reelected. In the second, Party 1 PCs *would* exert effort during crises, but on-path choose to stay home and only run during normal times. These results establish the conditional robustness of Proposition 2, and reveal that the voter faces a familiar trade-off, between accountability ad selection (Fearon, 1999; Ashworth, Bueno de Mesquita and Friedenberg, 2017).

Asymmetric Information. A second extension in Appendix C relaxes the assumption that PCs have no private information about their own ability. Under asymmetric information, a PC's willingness to enter the race when a crisis is likely (unlikely) may induce the voter to believe the candidate observed a good (bad) signal about their type. Nonetheless, as long as this private signal is less informative than the outcome of a crisis (as in my model), the game always has an equilibrium where Party 1 PCs run under $\chi_t = 0$ and stay out otherwise. This inefficient equilibrium is not always unique but, when crises are ex-ante likely, it is Pareto-preferred by the PCs, and may thus emerge as a natural focal point.

Term limits. In Appendix D, I study the impact of increasing term limits. I show that the effect is twofold. First, if a PC from Party 1 chooses not to run and their opponent proves competent, then longer term limits result in a longer delay in accessing office. This strengthens the incentives for Party-1 PCs to enter the race, even if a crisis is likely. Second, longer term limits raise the opportunity cost of entering the electoral arena at an unfavorable time. This creates stronger incentives to run only during normal times and stay out during times of crisis. Depending on the values of q_1 and q_2, one or the other effect may dominate. Thus, longer term limits could either exacerbate or alleviate the inefficiency identified here.

[7] In Appendix F, I analyze additional extensions, which confirm the results' robustness.

Inefficiency, a More General Result. Thus far, I have assumed that governance outcomes are always good when $\omega_t = 0$, but competence is necessary for a good outcome if $\omega_t = 1$. As such, voters learn nothing about the incumbent's ability during normal times, but everything during crises. In Appendix E, I show that the identified inefficiency persists with a more general production function, and even when crises *mute* information. Under a general production function, the *informativeness effect* of the environment is given by the difference in the precision of the voter's posterior conditional on o_t, under each state $\omega_t = 1$ and $\omega_t = 0$. As long as PCs are sufficiently patient, the equilibrium is always inefficient when this informativeness effect is sufficiently strong. If crises mute information, the voter benefits most from a good type during normal times, but Party-1 PCs are only willing to hold office during crises. Conversely, whenever crises amplify information, good types are most needed during crises, and Party-1 PCs are only willing to run during normal times.

Avenues for Future Research. This paper has uncovered a critical inefficiency: the best PC is sometimes unwilling to run precisely when voters need him most. In Appendix H, I take a first step in assessing the results' empirical relevance. I analyze how the quality of the pool of Gubernatorial candidates in the US varies during periods of *national-level* economic recession, with data on open-seat elections from 1892 to 2016 (from Hirano and Snyder Jr (2019)). Consistent with my theory, the proportion of races without high-quality candidates nearly doubles during times of crisis (from 15% to 28%). Identifying this correlation is just an initial step, but hopefully provides a useful starting point for future research.

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Appendix A: Main Results

Recall that q_P is the *prior* probability that an incumbent from Party P is a good type, and o_t is the governance outcome in period t. Let μ_P^I denote the *posterior* probability that an incumbent from Party P is a good type. Then, applying Bayes rule:

Remark A-1.

- *If there is no crisis in period t ($\omega_t = 0$), then governance outcomes are uninformative and $\mu_P^I = q_P$;*
- *If a crisis emerges in period t ($\omega_t = 1$), then governance outcomes are fully informative and:*
  - *if the outcome is good ($o_t = g$), then $\mu_P^I = 1$;*
  - *if instead the outcome is bad ($o_t = b$), then $\mu_P^I = 0$.*

Lemma 1. *If there is no crisis in period t, $\omega_t = 0$, then a Party-1 incumbent is always reelected at $t + 1$ and a Party-2 incumbent is always ousted. Instead, if there is a crisis, $\omega_t = 1$, then the incumbent is reelected at $t+1$ if and only if the governance outcome is good.*

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, and vice versa. Therefore, if a challenger enters the race, then the voter prefers to reelect the incumbent from Party P if and only if the posterior probability that he is a $\theta = 1$ type is higher than the prior probability for a new candidate from party $-P$. Thus, the the voter prefers the incumbent if $\mu_P^I \geq q_{-P}$, and the challenger otherwise. Given Remark A-1, if $\omega_t = 0$ then the voter prefers to reelect an incumbent from Party P if and only if $q_P \geq q_{-P}$. By assumption, $q_1 > q_2$. Thus, if $\omega_t = 0$ then the voter always prefers to reelect an incumbent from Party 1 and to oust an incumbent from Party 2.

Finally, if $\omega_t = 1$ then the governance outcome reveals the incumbent's competence, therefore $o_t = g$ is necessary and sufficient for the voter to prefer reelecting the incumbent. □

Lemma A-1. *Consider a period $t \in \{2, 3\}$. In any subgame perfect Nash equilibrium, the PC with the highest probability of being a good type in period t always runs.*

Proof. Recall that, in equilibrium, in each period t the voter must elect the candidate with the highest probability of being a good type in that period. Additionally, notice that the voter can never be indifferent between the candidates because $0 < q_2 < q_1 < 1$, and a crisis fully reveals the incumbent's type.

We begin from the last period of the game, $t = 3$. Consider the PC with the highest probability of being a good type. Given the voter's strategy, running always gives this PC a payoff k, while staying home gives a payoff of 0. Thus, in any equilibrium the PC with the highest probability of being a good type must always run.

Next, we move back to the second period, $t = 2$.

First, suppose that the PC with the highest probability of being a good type in period 2 is a first-period incumbent. Recall that such a PC is term-limited and cannot run again in period 3. However, if he runs for reelection in period 2 he will win a second term. Therefore, for this PC, running at $t = 2$ gives a payoff of k, while staying home gives a payoff of 0. Thus, such an incumbent must always run in equilibrium.

Second, suppose the PC with the highest probability of being a good type in period 2 is not an incumbent. Let ζ denote the ex-ante probability that this PC is reelected in period 3 if he wins the election in period 2.[8] For this PC, running in period $t = 2$ yields payoff $k + \delta\zeta k$. Staying out of the race at $t = 2$ instead yields *at most* the payoff $0 + \delta k$, that is, his dynamic payoff assuming he wins the election in period $t = 3$. Therefore, a sufficient condition for the PC with the highest probability of being a good type to always in run in period 2 is that $\zeta > 0$, which we now prove. To see this, first note that the precision of the

[8]In equilibrium, this probability is an expectation over governance outcomes, with the mapping from outcome realization to reelection probability as characterized in Lemma 1.

public signal χ_t is bounded away from 1, $\psi < 1$. Therefore, the probability of a crisis in any period t is strictly larger than 0, regardless of the realization of χ_t. Additionally, because $q_1 > 0$ and $q_2 > 0$, any potential candidate who is not an incumbent has a strictly positive probability of generating the good outcome in a crisis. Thus, by Lemma 1, there is a strictly positive probability that the voter reelects the second-period incumbent in period 3, $\zeta > 0$, as desired.

□

Proposition 1. *Let* $\mathcal{T} = 3$. *There exist* $\underline{\delta} < 1$ *and* $\overline{q}_2 \in (0, 1)$ *such that, if* $\delta > \underline{\delta}$ *and* $q_2 < \overline{q}_2$, *then, in any subgame perfect Nash equilibrium:*

- *When* $\chi_1 = 1$, *the Party-1 PC stays out, the Party-2 PC runs and wins at* $t = 1$;
- *When* $\chi_1 = 0$, *the Party-1 PC runs and wins at* $t = 1$.

Proof. Recall that in equilibrium a Party-1 PC always wins an open-seat election if he decides to run. Furthermore, by Lemmas 1 and A-1, if there is no crisis during his first term in period t, or there is a crisis and he solves it, then a Party-1 incumbent always runs and is reelected for a second term in period $t + 1$. Instead, if there is a crisis and he is unable to solve it, which occurs with probability $\Pr(\omega_t = 1)(1 - q_1)$, then he is not reelected in period $t + 1$.

Suppose first that $\chi_1 = 0$. Then the Party-1 PC's expected payoff from running in the first period is $k\Big(1 + \delta\big(1 - \Pr(\omega_1 = 1|\chi_1 = 0)(1 - q_1)\big)\Big)$. The payoff from staying out is *at most* equal to $\delta k\Big(1 + \delta\big(1 - \bar{p}(1 - q_1)\big)\Big)$, by assuming the PC wins the second-period election. Recall that $\bar{p}$ is the ex-ante probability of a crisis in any given period. Thus, the Party-1 PC strictly prefers to run in period 1 where $\chi_1 = 0$ if

$$\begin{aligned} & k\Big(1 + \delta\big(1 - \Pr(\omega_1 = 1|\chi_t = 0)(1 - q_1)\big)\Big) \\ & \qquad > \delta k\Big(1 + \delta\big(1 - \bar{p}(1 - q_1)\big)\Big). \end{aligned} \tag{A-1}$$

By Bayes rule, $\Pr(\omega_1 = 1|\chi_t = 0) < \bar{p}$, thus inequality (A-1) is always satisfied. If $\chi_t = 0$

the Party-1 PC always runs in period 1 and, since the election is open seat and $q_1 > q_2$, is always elected.

Suppose instead that $\chi_t = 1$. To start, we verify that the conjectured strategies in the proposition are an equilibrium for δ sufficiently high and q_2 sufficiently low. First, we show the Party-2 PC has no profitable deviation from the conjectured strategies. By Lemmas 1 and A-1, if a Party-2 PC gets to office in period t he is reelected for a second term in period $t+1$ if and only if there is a crisis during his first term in period t and he is able to solve it, which occurs with probability $\Pr(\omega_t = 1)\, q_2$. Then, the Party-2 PC's expected payoff in the conjectured equilibrium is $k\Big(1 + \delta \Pr(\omega_1 = 1|\chi_t = 1) q_2\Big)$. A deviation to staying home today and running tomorrow yields *at most* expected payoff $\delta k(1 + \delta \bar{p} q_2)$, by supposing that the Party-2 PC anticipates getting to office tomorrow. Thus, the Party-2 PC strictly prefers to run if

$$k\Big(1 + \delta \Pr(\omega_1 = 1|\chi_t = 1) q_2\Big) > \delta k(1 + \delta \bar{p} q_2). \tag{A-2}$$

By Bayes rule, we have that $\Pr(\omega_1 = 1|\chi_t = 1) > \bar{p}$. Therefore condition (A-2) is always satisfied, and the deviation is never profitable.

Consider instead the decision of the Party-1 PC. We show that not running is the best response to the Party-2 PC's strategy of running. If the Party-1 PC does not run, then the Party-2 PC wins office. If while in office the Party-2 PC experiences a crisis and is able to solve it, then the Party-2 PC will run and be reelected in period 2. In this case, the Party-1 PC only holds office in period 3, because the election will be open seat and $q_1 > q_2$. Otherwise, if there is no crisis in period 1 or if there is a crisis but the Party-2 PC fails to solve it, then by Lemmas 1 and A-1 the Party-1 PC will run and win office in period 2. Thus, the Party-1 PC's expected payoff if he does not deviate from the conjectured strategy is: $\Pr(\omega_1 = 1|\chi_t = 1)\, q_2\, \delta^2 k + \Big(1 - \Pr(\omega_1 = 1|\chi_t = 1) q_2\Big) \delta k \Big(1 + \delta\big(1 - \bar{p}(1 - q_1)\big)\Big)$. In contrast, a deviation to entering the race yields $k\Big(1 + \delta(1 - Pr(\omega_1 = 1|\chi_t = 1)(1 - q_1))\Big)$, because he wins office today and loses office in period 2 if and only if there is a crisis and he fails to solve it. Therefore, the conjectured equilibrium can be sustained if and only if

$$\Pr(\omega_1 = 1|\chi_t = 1)q_2\delta^2 k + \Big(1 - \Pr(\omega_1 = 1|\chi_t = 1)q_2\Big)\delta k\Big(1 + \delta\big(1 - \bar{p}(1 - q_1)\big)\Big) \\ -k\Big(1 + \delta(1 - \Pr(\omega_1 = 1|\chi_t = 1)(1 - q_1))\Big) > 0. \qquad \text{(A-3)}$$

The LHS of the above condition is continuous and convex in δ, and therefore maximized at $\delta = 0$ or $\delta = 1$. Furthermore, the condition fails at $\delta = 0$. Thus, if it holds at $\delta = 1$ then by continuity there must exist a threshold $\underline{\delta} \in (0, 1)$ s.t. the condition is satisfied if and only if $\delta > \underline{\delta}$. To identify the conditions under which $\underline{\delta}$ exists, we plug in $\delta = 1$ in (A-3) and, re-arranging, we obtain:

$$q_2 < \frac{(1 - q_1)\Big(\Pr(\omega_1 = 1|\chi_t = 1) - \bar{p}\Big)}{\Pr(\omega_1 = 1|\chi_t = 1)\Big(1 - \bar{p}(1 - q_1)\Big)} \equiv \overline{q}_2. \qquad \text{(A-4)}$$

Thus, if $q_2 < \overline{q}_2$, there exists an $\underline{\delta} \in (0, 1)$ such that conjectured equilibrium can be sustained if and only if $\delta > \underline{\delta}$. Otherwise, if $q_2 > \overline{q}_2$, the conjectured equilibrium dopes not exist. Notice that $\overline{q}_2$ is always strictly larger than 0 given $\Pr(\omega_1 = 1|\chi_t = 1) > \bar{p}$.

To conclude the proof, we show that when $\delta > \underline{\delta}$ and $q_2 < \overline{q}_2$, the equilibrium characterized in the proposition is unique. First, condition (A-2) implies that we can never sustain an equilibrium in which no PC runs, since the Party-2 PC would have a profitable deviation. Second, when condition (A-3) is met, an equilibrium in which both PCs run cannot be sustained because the Party-1 PC would have a profitable deviation to not running. Finally, we show that when condition (A-3) is satisfied we cannot sustain an equilibrium in which the PC from Party 1 runs and the PC from Party 2 stays out. To derive a contradiction, suppose that the Party 1 PC runs and the Party 2 PC stays out. Recall that if no PC is willing to run in period t, then a dummy candidate who is only alive for one period assumes office. Then, the no-deviation condition for the Party-1 PC in the conjectured equilibrium is:

$$k\Big(1+\delta(1-\Pr(\omega_t=1|\chi_t=1)(1-q_1))\Big)$$
$$-\delta k\Big(1+\delta(1-\bar{p}(1-q_1)\Big)>0. \tag{A-5}$$

which always fails under (A-3) since $\delta k\Big(1+\delta(1-\bar{p}(1-q_1)\Big) > \Pr(\omega_1=1|\chi_t=1)q_2\delta^2 k + \Big(1-\Pr(\omega_1=1|\chi_t=1)q_2\Big)\delta k\Big(1+\delta\big(1-\bar{p}(1-q_1)\big)\Big)$.

Thus, when (A-3) is satisfied, the unique equilibrium strategy profile requires the Party-1 PC to stay out and for the Party-2 PC to run in period 1 when $\chi_t = 1$.

□

Infinite-Horizon Model

I focus on pure-strategy stationary Markov perfect equilibria (henceforth referred to as equilibria). In what follows, I use the term potential candidates to refer to non-incumbents. In this model, the restriction to Markov strategies requires that in each period t, a potential candidate i's entry decision may depend solely on the public signal $\chi_t \in \{0,1\}$, whether the election is an open-seat one or not, $E_t = o$ or $E_t = c$ (for closed-seat election), and, in the case of an election against an incumbent, the posterior probability that they are a competent type, denoted as μ_t^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). For the myopic voter it is strictly dominated to reelect an incumbent who is less likely to be competent than the challenger. Furthermore, recall that an incumbent who leaves office can never run again. Thus, assuming the voter does not use strictly dominated strategies, a first-term incumbent has strictly dominant strategy to always run for reelection whenever μ_t^I is higher than the prior probability that a potential candidate from the other party is a good type. This implies that (fixing χ_t), any subgame in which the difference $\mu_t^I - q_i$ has the same sign is strategically equivalent for PC i. Then, i must be using the same strategy in any such subgame.

In order to reduce notation throughout the Appendix, I impose that potential candidates from the same party use the same strategy in equilibrium. Define $Z \in \{-,+\}$ as $Z_t = +$ if $\mu_t^I - q_i > 0$ and $Z_t = -$ if $\mu_t^I - q_i < 0$. 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-seat or closed-seat, and $Z \in \{-,+\}$ in a closed-seat 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 $V_P^o(\chi_t; \boldsymbol{\sigma})$ and when the election is not open-seat as $V_P^c(\chi_t, Z_t; \boldsymbol{\sigma})$.

I begin by establishing some preliminary results that will be useful to prove Proposition 2.

Lemma A-2. *In equilibrium, each potential candidate holds office for at least one period over the course of the game.*

Proof. First, consider a potential candidate from Party 1. Conjecture an equilibrium in which this PC never holds office, thus, his equilibrium payoff is 0. Since $q_1 > q_2$, in this conjectured equilibrium the Party-1 PC must be adopting the strategy to not run in open-seat elections, since otherwise he would be elected. Suppose this PC deviates from the conjectured strategy, to the strategy to always enter the race. By Lemma 1, 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 at time t is against an incumbent who solved a crisis, or at time t, otherwise. Thus, the payoff from the deviation is at least δk, strictly larger than 0. The deviation is profitable, and the conjectured equilibrium cannot be sustained, implying that in equilibrium each Party-1 PC must hold office at least once.

Now consider a potential candidate from Party 2. Proceeding as above, conjecture an equilibrium in which a Party-2 PC never holds office, which yields a payoff of 0. In this conjectured equilibrium, this Party-2 PC must be adopting a strategy to stay out of the race when $E_t = c$ and $Z_t = -$, as otherwise he would be elected in such periods. Suppose this PC deviates to a strategy to always enter the race. The continuation value from this deviation depends on the strategy adopted by Party-1 PCs. However, we now prove that the payoff from this deviation is always strictly larger than 0, regardless of the strategy used by Party-1 PCs. We split the argument into two cases, depending on the strategy used by Party-1 PCs.

First, assume that Party-1 potential candidates always enter the race. Towards a contradiction, suppose the Party-2 PC's payoff following the deviation is 0. A payoff of 0 implies that this Party-2 PC never gets to office following the deviation. Therefore a Party-1 candidate must be in office in every period.[9] Notice that the probability of a crisis in a given period is $\overline{p} > 0$ and the probability that a newly elected Party-1 officeholder fails to solve the crisis is $1 - q_1 > 0$. 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* Party-1 incumbent experiences a crisis and fails to manage it over the course of the game occurs with probability 1. However, whenever this occurs the voter forms posterior $\mu_t^I = 0$ and strictly prefers to elect the Party-2 candidate over the incumbent. Thus, if Party-2 PC deviates to always running then he must win office with probability 1 on the path of play, which yields payoff strictly larger than 0. Therefore, an equilibrium in which Party-1 potential candidates always enter the race and Party-2 potential candidates never hold office does not exist.

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

[9]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.

given period. Thus, starting from any time t, the probability of reaching any of the states over the infinite-horizon game is 1. Therefore, the Party-2 potential candidate will always be able to get to office following the deviation (in the states where Party-1 PCs choose to stay out) and obtain a payoff strictly larger than 0. Hence, an equilibrium in which Party-1 potential candidates stay out under some states and Party-2 potential candidates never hold office does not exist.

$\square$

Lemma A-3. *In any MPE:*

- *Party-1 PCs always enter the race in any period t where $E_t = c$, $Z_t = -$ and $\chi_t = 0$;*
- *Party-1 PCs always enter the race in any period t where $E_t = o$ and $\chi_t = 0$;*
- *Party-2 PCs always enter the race in any period t where $E_t = c$, $Z_t = -$ and $\chi_t = 1$.*

Proof. Given a strategy profile $\boldsymbol{\sigma}$, 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 reelected for a second term at $t+1$ if the crisis state at t is ω_t, where I suppress the dependence of $\mathbb{P}_P(\omega)$ on $\boldsymbol{\sigma}$. Further, let π_χ denote the probability that $\omega_t = 1$ given signal χ_t, $\pi_\chi = \Pr(\omega_t = 1|\chi_t)$.

We begin by considering Party-1 PCs. Conjecture an equilibrium in which Party-1 PCs stay out of the race in some period t where $\chi_t = 0$, $E_t = c$ and $Z_t = -$, or where $\chi_t = 0$ and $E_t = o$. The continuation value from following the conjectured strategy and staying out of the race today is *at most* equal to the maximum between

$$\delta\Big[\pi_0 k\Big(1 + \delta\mathbb{P}_1(1)\Big) + (1 - \pi_0)k\Big(1 + \delta\mathbb{P}_1(0)\Big)\Big], \tag{A-6}$$

if the Party-1 PC gets to office at $t+1$ under $\chi_t = 0$, and

$$\delta\Big[\pi_1 k\Big(1 + \delta\mathbb{P}_1(1)\Big) + (1 - \pi_1)k\Big(1 + \delta\mathbb{P}_1(0)\Big)\Big], \tag{A-7}$$

if the Party-1 PC gets to office at $t+1$ under $\chi_t = 1$.

In contrast, the Party-1 PC's continuation value from deviating and running for office today is

$$\pi_0 k\Big(1+\delta\mathbb{P}_1(1)\Big)+(1-\pi_0)k\Big(1+\delta\mathbb{P}_1(0)\Big), \tag{A-8}$$

since a Party-1 PC always wins if he runs in an open-seat election, or against an incumbent when $Z_t = -$.

Thus, the conjectured equilibrium can be sustained only if

$$\begin{aligned}&\pi_0 k\Big(1+\delta\mathbb{P}_1(1)\Big)+(1-\pi_0)k\Big(1+\delta\mathbb{P}_1(0)\Big)\\ \leq \max\Big\{&\delta\Big[\pi_0 k\Big(1+\delta\mathbb{P}_1(1)\Big)+(1-\pi_0)k\Big(1+\delta\mathbb{P}_1(0)\Big)\Big],\delta\Big[\pi_1 k\Big(1+\delta\mathbb{P}_1(1)\Big)+(1-\pi_1)k\Big(1+\delta\mathbb{P}_1(0)\Big)\Big]\Big\}\end{aligned} \tag{A-9}$$

Given Remark A-1 and recalling that $q_1 > q_2$, in any Markov equilibrium we must have

$$\mathbb{P}_1(0) = 1 \geq E[p_1(challenge)]q_1 + 1 - E[p_1(challenge)] = \mathbb{P}_1(1), \tag{A-10}$$

where $E[p_P(challenge)] \geq 0$ is the ex-ante probability that a Party-P incumbent elected at time t faces a challenge at time $t+1$, given the strategy $\boldsymbol{\sigma}_{-P}$ for PCs from the other party (the expectation is over the realization of χ_{t+1}).[10]

Recall that $\pi_1 > \pi_0$. Thus, for any $\delta \in (0,1)$, we have that

$$\begin{aligned}&\pi_0 k\Big(1+\delta\mathbb{P}_1(1)\Big)+(1-\pi_0)k\Big(1+\delta\mathbb{P}_1(0)\Big)\\ &>\delta\Big[\pi_0 k\Big(1+\delta\mathbb{P}_1(1)\Big)+(1-\pi_0)k\Big(1+\delta\mathbb{P}_1(0)\Big)\Big]\\ &\geq\delta\Big[\pi_1 k\Big(1+\delta\mathbb{P}_1(1)\Big)+(1-\pi_1)k\Big(1+\delta\mathbb{P}_1(0)\Big)\Big].\end{aligned} \tag{A-11}$$

[10]Recall that, given the restriction to Markov strategies, the equilibrium probability of an incumbent facing a challenger at $t+1$ if $Z_{t+1} = -$ is not a function of the realization of ω at time t.

Therefore, condition (A-9) fails, and the conjectured equilibrium cannot be sustained.

Consider instead Party-2 PCs. We proceed as for the proof for the Party-1 PCs. To establish a contradiction, conjecture an equilibrium in which Party-2 PCs stay out of the race at a time t where $\chi_t = 1$, $E = c$ and $Z = -$. At time t, a Party-2 PC's continuation value from the conjectured equilibrium is *at most* equal to the maximum between

$$\delta\pi_0 k\Big(1 + \delta\mathbb{P}_2(1)\Big) + (1 - \pi_0)k\Big(1 + \delta\mathbb{P}_2(0)\Big), \tag{A-12}$$

and

$$\delta\pi_1 k\Big(1 + \delta\mathbb{P}_2(1)\Big) + (1 - \pi_1)k\Big(1 + \delta\mathbb{P}_2(0)\Big), \tag{A-13}$$

In contrast, a deviation to the strategy of running at time t where $\chi_t = 1$, $E = c$ and $Z = -$ yields payoff

$$\pi_1 k\Big(1 + \delta\mathbb{P}_2(1)\Big) + (1 - \pi_1)k\Big(1 + \delta\mathbb{P}_2(0)\Big). \tag{A-14}$$

In any Markov perfect equilibrium we must have

$$\mathbb{P}_2(0) = 1 - E[p_2(challenge)], \tag{A-15}$$

and

$$\mathbb{P}_2(1) = E[p_2(challenge)]q_2 + 1 - E[p_2(challenge)]. \tag{A-16}$$

Recall that $\pi_1 > \pi_0$. Thus, for any $\delta \in (0, 1)$:

$$\pi_1 k\Big(1+\delta\mathbb{P}_2(1)\Big)+(1-\pi_1)k\Big(1+\delta\mathbb{P}_2(0)\Big) >$$
$$max\{\delta\pi_1 k\Big(1+\delta\mathbb{P}_2(1)\Big)+(1-\pi_1)k\Big(1+\delta\mathbb{P}_2(0)\Big),\delta\pi_0 k\Big(1+\delta\mathbb{P}_2(1)\Big)+(1-\pi_0)k\Big(1+\delta\mathbb{P}_2(0)\Big)\}. \tag{A-17}$$

The deviation is profitable and the conjectured equilibrium never exists.

□

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

- *If $\delta > \widehat{\delta}_1$, there does not exist a MPE where a Party-1 PC runs and wins when $\chi_t = 1$;*
- *If $\delta > \widehat{\delta}_2$, there does not exist a MPE where a Party-2 PC runs and wins when $\chi_t = 0$.*

Proof. We begin by considering Party-1 PCs. First, we show that, for a sufficiently high δ, there exists no equilibrium in which Party-1 PCs run and win the race in a period t where $\chi_t = 1$ and the election is open-seat. To establish a contradiction, conjecture that such an equilibrium exists. Denote as $\widehat{\boldsymbol{\sigma}}$ the strategy profile in the conjectured equilibrium. Recall that π_χ is the probability of $\omega_t = 1$ conditional on χ_t, and $E[p_P(challenge)]$ is the ex-ante probability of a Party-P incumbent facing a challenger in equilibrium. The continuation value from the conjectured strategy at time t is

$$V_1^o(1;\widehat{\boldsymbol{\sigma}}) = k\Big(1+\delta\pi_1(q_1+(1-q_1)(1-E[p_1(challenge)]))+\delta(1-\pi_1)\Big), \tag{A-18}$$

where $E[p_1(challenge)]$ is a function of $\widehat{\boldsymbol{\sigma}}_2$.

In contrast, deviating to the strategy of staying out today and running in the next open-seat election regardless of the signal χ_t, which we denote as $\boldsymbol{\sigma}_1^{all}$, yields value

$$V_1^o(1;\widehat{\boldsymbol{\sigma}}_2,\boldsymbol{\sigma}_1^{all}) = k\delta\big(1-\pi_1 q_2+\delta(\pi_1 q_2)\big)\Big(1+\delta\bar{p}\big(q_1+(1-q_1)(1-E[p_1(challenge)])\big)+\delta(1-\bar{p})\Big) \tag{A-19}$$

Thus, the conjectured equilibrium exists only if (A-18)>(A-19):

$$\begin{aligned} 1+\delta\pi_1\Big[q_1+(1-q_1)\big(1-E[p_1(challenge)]\big)\Big]+\delta(1-\pi_1) \\ -\delta\big(1-\pi_1 q_2+\delta(\pi_1 q_2)\big)\Big(1+\delta\bar{p}\big(q_1+(1-q_1)(1-E[p_1(challenge)])\big)+\delta(1-\bar{p})\Big) > 0 \end{aligned} \tag{A-20}$$

Given Lemma A-3, $E[p_1(challenge)]$ must always be strictly larger than 0 in equilibrium. The LHS of (A-20) is continuous and concave in $\delta\in(0,1)$, and therefore it must be minimized at $\delta=0$ or $\delta=1$. Furthermore, since $\pi_1>\bar{p}$, the condition always fails at $\delta=1$. Therefore, fixing a a value of $E[p_1(challenge)]$ (and thus a strategy $\boldsymbol{\sigma}_2$ for the Party-2 PCs), (A-20) fails for a sufficiently high δ. Hence, to identify a sufficient condition for the conjectured equilibrium not to exist, we must identify a cutoff in δ s.t. if δ is above this cutoff (A-20) fails for *any* $E[p_1(challenge)]$. To identify this cutoff, we then choose the $E[p_1(challenge)]$ that maximizes the LHS of condition (A-20), and find the δ that solves the condition with equality, which I denote as $\widehat{\delta}_1$.

Next, we show that, when $\delta>\widehat{\delta}_1$, there exists no equilibrium in which Party-1 PCs run and win the race in a period t where $\chi_t=1$ and the election is not open-seat. To establish a contradiction, conjecture such an equilibrium exists. As above, the continuation value from following the conjectured strategy at time t is

$$V_1^c(1,-;\widehat{\boldsymbol{\sigma}}) = k\Big(1+\delta\pi_1(q_1+(1-q_1)(1-E[p_1(challenge)]))+\delta(1-\pi_1)\Big), \tag{A-21}$$

Instead, a deviation to a staying out today, and running in the next open-seat election regardless of the signal χ_t, yields value

$$V_1^c(1, -; \widehat{\boldsymbol{\sigma}}_2, \boldsymbol{\sigma}_1^{all}) = k\delta\Big(1 + \delta\bar{p}\big(q_1 + (1-q_1)(1 - E[p_1(challenge)])\big) + \delta(1-\bar{p})\Big) \tag{A-22}$$

Thus, the conjectured equilibrium exists only if

$$\begin{aligned} 1 + \delta\pi_1(q_1 + (1-q_1)(1 - E[p_1(challenge)])) + \delta(1-\pi_1) \\ -\delta\Big(1 + \delta\bar{p}\big(q_1 + (1-q_1)(1 - E[p_1(challenge)])\big) + \delta(1-\bar{p})\Big) \geq 0 \end{aligned} \tag{A-23}$$

Notice that the LHS of (A-23) is smaller than the LHS of (A-20). Thus, when condition (A-20) fails, condition (A-23) fails as well. Therefore, $\delta > \widehat{\delta}_1$ is sufficient to guarantee that there exists no equilibrium in which Party-1 PCs run and win the race at a time t where $\chi_t = 1$.

Finally, consider Party-2 PCs. From Lemma (A-3), Party-1 PCs always run when $\chi_t = 0$ and $E = o$. Thus, Party-2 PCs can never get to office in this state in equilibrium. Conjecture instead an equilibrium in which Party-2 PCs run and win the election at some t where $\chi_t = 0$ and $E = c$ (i.e., $\chi_t = 0$ and the election is against a Party-1 incumbent who failed to solve a previous crisis).

The continuation value from following the conjectured strategy at time t is

$$V_2^c(0, -; \widehat{\boldsymbol{\sigma}}) = k\Big(1 + \delta\pi_0\big(q_2 + (1-q_2)E[p_2(challenge)]\big) + \delta(1-\pi_0)\big(1 - E[p_2(challenge)]\big)\Big) \tag{A-24}$$

where $E[p_2(challenge)]$ is a function of $\widehat{\boldsymbol{\sigma}}_1$.

Suppose instead the Party-2 PC deviates to the strategy of staying out today and always run in the future for both realizations of χ_t, denoted as $\boldsymbol{\sigma}_2^{all}$. This deviation yields a continuation payoff *at least*:

$$
\begin{aligned}
&V_2^c(0,-;\widehat{\boldsymbol{\sigma}}_1,\boldsymbol{\sigma}_2^{all}) = \\
&\delta^2\pi_0(1-q_1)k\Big(1+\delta\bar{p}\big(q_2+(1-q_2)E[p_2(challenge)]\big)+\delta(1-\bar{p})\big(1-E[p_2(challenge)]\big)\Big) \\
&+\delta^2\big(1-\pi_0(1-q_1)\big)V_2^c(0,+;\widehat{\boldsymbol{\sigma}}_1,\boldsymbol{\sigma}_2^{all}).
\end{aligned} \tag{A-25}
$$

(A-25) is the worst case scenario for the Party-2 PC, because it assumes that a Party-1 PC always wins in open-seat elections, and in his first term in office experience a crisis with the lowest probability π_0 (which maximizes his probability of being reelected).

Noting that the continuation value of being out of office at time t against a term-limited incumbent is not a function of Z, we have that $V_2^c(0,-;\widehat{\boldsymbol{\sigma}}_1,\boldsymbol{\sigma}_2^{all}) = V_2^c(0,+;\widehat{\boldsymbol{\sigma}}_1,\boldsymbol{\sigma}_2^{all})$. Thus, rearranging, (A-25) becomes

$$
\frac{\delta^2\pi_0(1-q_1)}{1-\delta^2(1-\pi_0(1-q_1))}\Big(1+\delta\bar{p}\big(q_2+(1-q_2)E[p_2(challenge)]\big)+\delta(1-\bar{p})\big(1-E[p_2(challenge)]\big)\Big) \tag{A-26}
$$

Therefore, the conjectured equilibrium exists only if

$$
\begin{aligned}
&1+\delta\pi_0\big(q_2+(1-q_2)E[p_2(challenge)]\big)+\delta(1-\pi_0)\big(1-E[p_2(challenge)]\big) \\
&-\frac{\delta^2\pi_0(1-q_1)}{1-\delta^2(1-\pi_0(1-q_1))}\Big(1+\delta\bar{p}\big(q_2+(1-q_2)E[p_2(challenge)]\big)+\delta(1-\bar{p})\big(1-E[p_2(challenge)]\big)\Big)>0
\end{aligned} \tag{A-27}
$$

The LHS of condition (A-27) is continuous and concave in $\delta \in [0,1]$, and therefore it must be minimized at $\delta = 0$ or $\delta = 1$. Furthermore, the condition always fails at $\delta = 1$.

Therefore, fixing a a value of $E[p_2(challenge)]$ (and thus a strategy $\boldsymbol{\sigma}_1$ for the Party-1 PCs), (A-27) fails for a sufficiently high δ. Hence, to identify a sufficient condition for the conjectured equilibrium not to exist, we must identify a cutoff in δ s.t. if δ is above this cutoff (A-27) fails for *any* $E[p_2(challenge)]$. To identify this cutoff, we then choose the $E[p_1(challenge)]$ that maximizes the LHS of condition (A-27), and find the δ that solves the condition with equality. This value is the cutoff $\widehat{\delta}_2$. $\square$

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

Proof. Follows from inspection of condition (A-20), noting that the LHS is increasing in q_2. $\square$

Extensions

In the remainder of the appendix, I often analyze the case where δ is large, which allows me characterize the potential candidates' optimal strategy as the one that maximizes the probability of being in office for two consecutive terms. Specifically, to streamline the proofs, I often consider $\delta \to 1$. Note, because the players payoffs' are continuous in δ and all the proofs below use strict inequalities, all the results would continue to hold for all δ sufficiently high.

Appendix B: Moral Hazard

Moral Hazard - Complements

Here, 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. First, I consider a setting where effort and ability are complements (i.e., the impact of the office holder's effort on his performance is increasing in the probability of being a good type).[11] Then, I assume that the probability of a good outcome is:

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

with $\gamma > 0$.

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

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

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 reelected 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 reelect an incumbent with higher reputation even if the challenger is expected to exert effort of 1 in the first period in office.[12]

Equation B-1 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. Applying Bayes rule, we obtain:

Remark B-1. *Let $\mu_1^I(\omega_t = 1, o_t = b, e^a)$ 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:*

$$\mu_1^I(\omega_t = 1, o_t = b, e^a) = \frac{q_1(1 - \frac{e^a+\gamma}{1+\gamma})}{q_1(1 - \frac{e^a+\gamma}{1+\gamma}) + 1 - q_1}. \tag{B-2}$$

The lower e^a, the less informative a bad outcome is, the higher $\mu_1^I(\omega_t = 1, o_t = b, e^a)$. As a consequence, the possibility of multiple equilibria arises. Suppose that a politician from Party 1 is in office in the first period. The voter may expect them to exert a sufficiently low level of effort that $\mu_1^I(\omega_t = 1, o_t = b, e^a) > q_2$, 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

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

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 B-1. *Let $\delta \to 1$, and suppose the voter uses a conditional retention strategy in equilibrium. Then, there does not exist an MPE where*

- *Potential candidates from Party 1 run and win the race when $\chi_t = 1$;*
- *Potential candidates from Party 2 run and win the race when $\chi_t = 0$.*

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. Conjecture an equilibrium in which a Party-1 PC runs and wins the race at some time t where $\chi_t = 1$. Recall 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. Thus, as $\delta \to 1$, the continuation value from following the conjectured strategy at time t is

$$\pi_1\Big(k - \frac{(e^*(q_1,1))^2}{2} + k\Big(q_1\frac{e_1^*(q_1,1)+\gamma}{1+\gamma} + (1 - q_1\frac{e_1^*(q_1,1)+\gamma}{1+\gamma})\big(1 - E\big[p_1(challenge)\big]\big)\Big) + (1-\pi_1)2k, \tag{B-3}$$

where $e^*(q_1, 1) \in [0, 1]$ maximizes $k\, q_1\frac{e(q_1,1)+\gamma}{1+\gamma}\Big(1 - E\big[p_1(challenge)\big]\Big) - \frac{e^2(q_1,1)}{2}$.

In contrast, as $\delta \to 1$, a deviation to staying out today and only running in the future when $\chi_t = 0$ yields continuation value

$$\pi_0\Big(k - \frac{(e^*(q_1,1))^2}{2} + k\Big(q_1\frac{e_1^*(q_1,1)+\gamma}{1+\gamma} + (1 - q_1\frac{e_1^*(q_1,1)+\gamma}{1+\gamma})\big(1 - E\big[p_1(challenge)\big]\big)\Big) + (1-\pi_0)2k. \tag{B-4}$$

Lemma A-3 continues to hold, therefore in equilibrium it must be the case that $E\big[p_1(challenge)\big] > 0$. Furthermore, recall that $\pi_1 > \pi_0$. Thus,

$$\pi_1\Big(k - \frac{(e^*(q_1,1))^2}{2} + k\Big(q_1\frac{e_1^*(q_1,1)+\gamma}{1+\gamma} + (1-q_1\frac{e_1^*(q_1,1)+\gamma}{1+\gamma})\big(1-E\big[p_1(challenge)\big]\big)\Big)\Big) + (1-\pi_1)2k <$$
$$\pi_0\Big(k - \frac{(e^*(q_1,1))^2}{2} + k\Big(q_1\frac{e_1^*(q_1,1)+\gamma}{1+\gamma} + (1-q_1\frac{e_1^*(q_1,1)+\gamma}{1+\gamma})\big(1-E\big[p_1(challenge)\big]\big)\Big) + (1-\pi_0)2k. \tag{B-5}$$

Therefore, the deviation is always profitable and the conjectured equilibrium cannot be sustained.

Finally, consider PCs from Party-2. Given Lemma 1, as $\delta \to 1$, the expected value of getting to office under $\omega = 0$ is $k\Big(1 + \big(1 - E\big[p_2(challenge)\big]\big)\Big)$. Instead, as $\delta \to 1$, the expected equilibrium value of being elected under $\omega = 1$ is $k - \frac{(e^*(q_2,1))^2}{2} + k\Big(q_2\frac{e_1^*(q_2,1)+\gamma}{1+\gamma} + (1 - q_2\frac{e_2^*(q_2,1)+\gamma}{1+\gamma})\big(1 - E\big[p_2(challenge)\big]\big)\Big)$. Recall that $e_1^*(q_2,1) \in [0,1]$ maximizes $k\Big(q_2\frac{e_1^*(q_2,1)+\gamma}{1+\gamma} + (1 - q_2\frac{e_2^*(q_2,1)+\gamma}{1+\gamma})\big(1 - E\big[p_2(challenge)\big]\big)\Big)$, therefore $k - \frac{(e^*(q_2,1))^2}{2} + k\Big(q_2\frac{e_1^*(q_2,1)+\gamma}{1+\gamma} + (1 - q_2\frac{e_2^*(q_2,1)+\gamma}{1+\gamma})\big(1 - E\big[p_2(challenge)\big]\big)\Big) > k\Big(1 + \big(1 - E\big[p_2(challenge)\big]\big)\Big)$. Thus, an equilibrium in which a Party-1 PC runs and wins the race at a time t when $\chi_t = 0$ can never be sustained, as this PC always has a profitable deviation to stay out today and only run under $\chi_t = 1$.

$\square$

Proposition B-2. *There exists a threshold $\underline{\gamma}$ s.t. if $\gamma > \underline{\gamma}$, then in equilibrium the voter must use a conditional retention strategy, i.e., the incumbent is always ousted after delivering bad outcome under $\omega_t = 1$.*

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:

$$\mu_1^I(1, b, 0) < q_2. \tag{B-6}$$

Plugging in the formula for the posterior, we obtain

$$\frac{q_1(1 - \frac{\gamma}{1+\gamma})}{q_1(1 - \frac{\gamma}{1+\gamma}) + 1 - q_1} - q_2 < 0. \tag{B-7}$$

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 $\gamma > \underline{\gamma}$. □

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 incumbent of type θ_I produces a good governance outcome in state ω_t is:

$$1 - \omega_t + \omega_t\big[\theta_I + (1 - \theta_I)e\gamma^\dagger\big], \tag{B-8}$$

where $\gamma^\dagger < 1$. (B-8) 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. Assumption 2 guarantees that an incumbent from Party 1 that maintains his initial reputation is reelected 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 baseline model. Suppose the incumbent faces a challenger. Then:

Lemma B-1. *In equilibrium, an incumbent from Party 1 who faces a challenger is ousted if he failed to solve a crisis, and reelected 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 reelected, 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 reelect Party-2 incumbents who delivered a good outcome in times of crisis, a contradiction. □

Proposition B-3. *Suppose $\delta \to 1$. Then, there does not exist an MPE where*

- *Potential candidates from Party 1 run and win the race when $\chi_t = 1$;*
- *Potential candidates from Party 2 run and win the race when $\chi_t = 0$.*

Proof. The proof proceeds as for Proposition B-1, and is therefore omitted. □

Appendix C: Asymmetric Information

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 $\widehat{\mu}_P(\phi_i)$ the (interim) posterior probability that candidate i from party P 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 adopt the following refinement for out of equilibrium beliefs: an unexpected entry by candidate i from party P under $\chi_t = 0$ leads the voter to form interim posterior $\widehat{\mu}_P(0)$, and an unexpected exit leads her to form interim posterior $\widehat{\mu}_P(1)$. The converse holds under $\chi_t = 1$: an unexpected entry induces beliefs $\widehat{\mu}_P(1)$, and an unexpected exit induces $\widehat{\mu}_P(0)$. 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),[13] applying D1 to this first deviation gives us the above restriction for out of equilibrium beliefs.[14]

[13]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.

[14]This refinement does not pin down off-the-equilibrium-path beliefs in a period in which PC i pools on entering the race but loses. I assume that following a deviation the voter forms

First, notice that under $\omega_t = 1$ governance outcomes determine the incumbent's electoral fate, regardless of the voter's interim posterior. Suppose that a challenger enters the race, then:

Lemma C-1. *All incumbents are always reelected after producing 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. $\square$

Lemma C-2. *Suppose $\delta \to 1$. In any perfect Bayesian equilibrium, all potential candidates must be using a pooling strategy.*

Proof. We begin by considering PCs from Party 2. First, we show that there can be no separating equilibrium in which a high type runs under $\chi_t = 0$. Fixing the voter's interim beliefs, the high and low type's expected payoff from getting to office under $\omega_t = 0$ is the same, but the high type's expected payoff from getting to office under $\omega_t = 1$ is higher than a low type's. The probability of $\omega_t = 0$ is higher under $\chi_t = 0$, 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 runs under $\chi_t = 0$. 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 reelected if a crisis emerges and he is able to solve it, or if he runs unchallenged. The probability of a crisis is higher when $\chi_t = 1$. Therefore, a deviation to staying out today and only running in the future when $\chi_t = 1$ must increase the probability of being reelected for two consecutive terms. Further, as $\delta \to 1$, delay is costless. The deviation is always profitable for the low type.

---

the same beliefs that survive the refinement conditional on i winning the election under the same realization of χ_t.

Next, suppose that $\chi_t = 1$. First, for a logic symmetric to the above, there can be no separating equilibrium in which a low type enters under $\chi_t = 1$. Furthermore, there can be no separating equilibrium in which a high type enters under $\chi_t = 1$. To establish a contradiction, conjecture such an equilibrium exists. In the conjectured equilibrium, upon observing a Party-2 PC that stays out or the race when $\chi_t = 1$, the voter forms interim posterior $\widehat{\mu}_2(0)$. 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. Suppose that $\chi_t = 0$. If entering the race induces posterior $\widehat{\mu}_1(1) > q_2$, both types prefer to enter and separation cannot be sustained. In contrast, if $\widehat{\mu}_1(0) < q_2$, both types would prefer to stay out and only run under $\chi_t = 1$, and separation cannot be sustained. Thus, Party 1 PCs must be adopting a pooling strategy when $\chi_t = 0$. Next, suppose $\chi_t = 1$. Analogously to what we established for the Party 2 PCs, there can be no separating equilibrium in which the low type enters under $\chi_t = 1$, since, as $\delta \to 1$, a deviation to imitating the high type would always be profitable. 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. $\square$

Lemma C-3. *Suppose $\delta \to 1$. In any perfect Bayesian equilibrium, Party-2 PCs run when $\chi_t = 1$ and stay out when $\chi_t = 0$, regardless of the private signal ϕ_i.*

Proof. First, we show that in equilibrium Party-2 PCs never run when $\chi_t = 0$. To establish a contradiction, conjecture an equilibrium in which Party-2 PCs run when $\chi_t = 0$, regardless of the private signal (we know that separation cannot be sustained in equilibrium). In the conjectured equilibrium, entering the race at a time t where $\chi_t = 0$ induces interim posterior

$q_2 < q_1$. As a consequence, as $\delta \to 1$, in the conjectured equilibrium a Party-2 PC obtains continuation value

$$k\Big(1 + \pi_0\widehat{\mu}_2(\phi) + (1 - \pi_0\widehat{\mu}_2(\phi))(1 - E[p_2(challenge)])\Big) \tag{C-1}$$

A one-shot deviation to staying out today and running in the future under $\chi_t = 1$ induces beliefs $\widehat{\mu}_2(1) > q_1$. Thus, as $\delta \to 1$, the continuation value from the deviation is

$$k\Big(1 + \pi_1\widehat{\mu}_2(\phi) + (1 - \pi_1\widehat{\mu}_2(\phi))(1 - E[p_2(challenge)]) + 1 - \pi_1\Big), \tag{C-2}$$

which is strictly higher than (C-1). Thus, we cannot sustain an equilibrium in which Party-2 PCs run when $\chi_t = 0$. Since Lemma A-2 continues to hold, this implies that in equilibrium Party-2 PCs must run when $\chi_t = 1$.

□

Proposition C-1. *Suppose $\delta \to 1$. The game always has a perfect Bayesian equilibrium where*

- *Potential candidates from Party 1 enter the race when $\chi_t = 0$ and stay out when $\chi_t = 1$, regardless of the private signal ϕ_1, and*
- *Potential candidates from Party 2 enter the race when $\chi_t = 1$ and stay out when $\chi_t = 0$, regardless of the private signal ϕ_2.*

Proof. Given Lemma C-3, Party 2 PCs have no profitable deviation. Consider now PCs from Party 1. Suppose first that $\chi_t = 1$. As $\delta \to 1$, the continuation value from following the conjectured strategy is

$$k(1 + 1 - \pi_0 + \pi_0\widehat{\mu}_1(\phi_i) + (1 - \pi_0\widehat{\mu}_1(\phi_i))(1 - E[p_1(challenge)]), \tag{C-3}$$

because in the conjectured equilibrium each Party-1 PC will get to office under $\chi_t = 0$ and the voter's interim beliefs remain at the prior $q_1 > q_2$. Notice that, given the equilibrium strategy for Party-2 PCs, $E[p_1(challenge)] = \Pr(\chi_t = 1)$.

A deviation to entering the race induces the voter to form interim beliefs $\widehat{\mu}_1(1) > q_1$. However, because of the coarseness of elections, this does not change the voter's retention strategy. Thus, as $\delta \to 1$, the continuation value following the deviation is

$$k(1 + 1 - \pi_1 + \pi_1 \widehat{\mu}_1(\phi_i) + (1 - \pi_1 \widehat{\mu}_1(\phi_i))(1 - E[p_1(challenge)]). \tag{C-4}$$

Since $\pi_1 > \pi_0$, the deviation is not profitable.

Suppose instead $\chi_t = 0$. As above, as $\delta \to 1$ the continuation value from following the conjectured strategy is

$$k(1 + 1 - \pi_0 + \pi_0 \widehat{\mu}_1(\phi_i) + (1 - \pi_0 \widehat{\mu}_1(\phi_i))(1 - E[p_1(challenge)]). \tag{C-5}$$

A one-shot deviation to staying out of the race induces the voter to form beliefs $\widehat{\mu}_1(1) > q_1$, but does not change the probability of being in office twice for the already advantaged Party-1 PC (due to the coarse nature of elections). Thus, the deviation is not strictly profitable, and the conjectured equilibrium always exists.

□

Proposition C-2. *Suppose $\delta \to 1$. 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 C-1.*

Proof. Lemma C-3 characterizes the equilibrium behavior of PCs from Party-2. Here, we must therefore only consider Party-1 PCs.

We begin by showing that an equilibrium in which Party-1 PCs always enter the race always exists. We will proceed by conjecturing such an equilibrium, and showing that Party-1 PCs have no profitable deviation. First, suppose $\chi_t = 0$. As $\delta \to 1$, the continuation value from following the conjectured strategy is

$$k\Big(1 + 1 - \pi_0 + \pi_0\widehat{\mu}_1(\phi_i) + \pi_0\big(1 - \widehat{\mu}_1(\phi_i)\big)\Pr(\chi_t = 0)\Big). \tag{C-6}$$

A one-shot deviation to staying out improves a Party-1 PC's interim reputation but, due to the coarse nature of elections, does not affect the voter's optimal retention strategy. Therefore, as $\delta \to 1$, the payoff from the deviation is

$$k\Big(1 + 1 - \bar{p} + \bar{p}\widehat{\mu}_1(\phi_i) + \bar{p}\big(1 - \widehat{\mu}_1(\phi_i)\big)\Pr(\chi_t = 0)\Big). \tag{C-7}$$

Recall that $\bar{p} > \pi_0$, thus the deviation is never profitable.

Next, suppose $\chi_t = 1$. As $\delta \to 1$, the continuation value from following the conjecture strategy and getting to office at time t is

$$k\Big(1 + 1 - \pi_1 + \pi_1\widehat{\mu}_1(\phi_i) + \pi_1\big(1 - \widehat{\mu}_1(\phi_i)\big)\Pr(\chi_t = 0)\Big). \tag{C-8}$$

A one-shot 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, as $\delta \to 1$, the one-shot deviation yields strictly lower continuation value equal to

$$k\Big(1 + \bar{p}\widehat{\mu}_1(\phi_i) + \big(1 - \bar{p}\widehat{\mu}_1(\phi_i)\big)\Pr(\chi_t = 0)\Big), \tag{C-9}$$

and is never profitable. Thus, the conjectured equilibrium always exists.

Next, we show that an equilibrium in which Party 1 PCs enter the race under $\chi_t = 1$ and stay out otherwise always exists. The above reasoning shows that Party-1 PCs have no profitable deviation when $\chi_t = 1$.

Suppose instead $\chi_t = 0$. As $\delta \to 1$, the continuation value from following the conjectured strategy is

$$k\Big(1 + 1 - \pi_1 + \pi_1\widehat{\mu}_1(\phi_i) + \pi_1\big(1 - \widehat{\mu}_1(\phi_i)\big)\Pr(\chi_t = 0) > \pi_0\widehat{\mu}_1(\phi_i) + \big(1 - \pi_0\widehat{\mu}_1(\phi_i)\big)\Pr(\chi_t = 0)\Big). \tag{C-10}$$

A deviation to entering the race induces an interim posterior $\widehat{\mu}_1(0) < q_2$, which, as $\delta \to 1$, implies a strictly lower continuation value equal to

$$k\Big(1 + \pi_0\widehat{\mu}_1(\phi_i) + \big(1 - \pi_0\widehat{\mu}_1(\phi_i)\big)\Pr(\chi_t = 0)\Big) \tag{C-11}$$

Therefore, the deviation is never profitable and the conjectured equilibrium always exists.

□

Proposition C-3. *Suppose that $\delta \to 1$ and $\bar{p} > \frac{1}{2}$. Then, all potential candidates' expected utility in the adverse selection equilibrium is higher than in any other equilibrium.*

Proof. Note that, as $\delta \to 1$, each PC gets a higher payoff in the adverse selection equilibrium if and only if the probability of being in office twice is higher than in any other equilibrium. 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 $\bar{p}$.[15] Thus, in the adverse selection equilibrium, a Party 1 PC's ex-ante probability of being in office for two terms is $(1-\pi_0)+\pi_0 q_1+\pi_0(1-q_1)\Pr(\chi_t = 0)$. 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 $(1 - \pi_1) + \pi_1 q_1 + \pi_1(1 - q_1)\Pr(\chi_t = 0)$. Finally, consider the

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

unconditional entry equilibrium. The probability that a Party 1 PC remains in office for two consecutive terms is $(1-\bar{p})+\bar{p}q_1+\bar{p}(1-q_1)(\chi_t=0)$. Straightforwardly, we have:

$$
\begin{aligned}
(1-\pi_0)+\pi_0 q_1+\pi_0(1-q_1)\Pr(\chi_t=0) &> \\
(1-\bar{p})+\bar{p}q_1+\bar{p}(1-q_1)(\chi_t=0) &> \\
(1-\pi_1)+\pi_1 q_1+\pi_1(1-q_1)\Pr(\chi_t=0)]. &\qquad \text{(C-12)}
\end{aligned}
$$

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

$$\bar{p}\psi+(1-\bar{p})(1-\psi)>\bar{p}(1-\psi)+(1-\bar{p})\psi. \qquad \text{(C-13)}$$

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

□

Appendix D: Term Limits

In this section, 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 ψ is arbitrarily close to 1. Abusing notation, I will then use $V_P^o(\chi, Z; \boldsymbol{\sigma})$ and $V_P^c(\chi; \boldsymbol{\sigma})$ to denote the continuation values evaluated at $\psi \approx 1$. 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.

Proposition D-1. *For any $\delta \in (0, 1)$, there exist $\underline{q}_1 < \overline{q}_1$ and $\overline{q}_2$ s.t.*

- *If $q_1 > \overline{q}_1$, then an equilibrium in which Party-1 potential candidates stay out of the race when $\chi_t = 1$ is harder to sustain under longer term limits;*
- *If $q_1 < \underline{q}_1$ and $q_2 < \overline{q}_2$, then an equilibrium in which Party-1 potential candidates stay out of the race when $\chi_t = 1$ is easier to sustain under longer term limits.*

Proof. Recall that I assume that Party-2 PCs always enter the race. Conjecture an equilibrium in which Party-1 potential candidates stay out of the race when $\chi_t = 1$ (which implies they must run when $\chi_t = 0$). Straightforwardly, the Party-1 PCs have no profitable deviation in subgames where $\chi_t = 0$. Suppose instead $\chi_t = 1$. If the election is against a Party-2 incumbent who solved a previous crisis, $Z = +$, a Party-1 PC has no profitable deviation since the incumbent is always reelected. Thus, in what follows we must only consider subgames where $E = o$, or $E = c$ and $Z = -$.

First, notice that the continuation value from following the conjectured strategy, i.e., staying out of the race at time t when $\chi_t = 1$, is weakly lower if $E_t = o$ than if $E_t = c$ and $Z = -$. This follows from two observations. First, the posterior probability that a Party-2 incumbent is a good type conditional on $Z = -$ is weakly lower than the prior q_2. Second, if today's election is open-seat and a Party-2 PC gets to office, he can hold office for T terms before hitting the limit. If the election is not open-seat and a Party-2 incumbent gets reelected, he can be in office *at most* $T - 1$ more periods before hitting the limit. These observations imply that the ex-ante probability that a Party-1 PC can win the next election at $t + 1$ if they stay out at time t is (weakly) higher when $E_t = c$. Next, notice that the continuation value from a one-shot deviation to entering the race at time t when $\chi_t = 1$

is the same regardless of whether $E_t = o$, or $E_t = c$ and $Z = -$. Thus, the no-deviation condition is more binding when $E_t = o$. Therefore, the conjectured equilbrium exists if and only if a Party-1 PC has no profitable deviation when $\chi_t = 1$ and $E_t = o$.

Suppose then that $\chi_t = 1$ and $E_t = o$. The continuation value from following the conjectured strategy is:

$$\begin{aligned} V_1^o(1, \boldsymbol{\sigma}) =& [q_2\delta^T + (1-q_2)\delta]\, \bar{p}\, V_1^o(1, \boldsymbol{\sigma}) \\ &+ [q_2\delta^T + (1-q_2)\delta]\, (1-\bar{p})\, q_1 k \sum_{t=0}^{T-1} \delta^t \\ &+ [q_2\delta^T + (1-q_2)\delta]\, (1-\bar{p})(1-q_1)\Big(k(1+\delta) + k(1-\bar{p})^{T-2} \sum_{t=2}^{T-1} \delta^t + k\bar{p} \sum_{j=1}^{T-3} \sum_{t=2}^{j+1} (1-\bar{p})^j \delta^t\Big), \end{aligned} \tag{E-1}$$

which rearranges to

$$\begin{aligned} V_1^o(1, \boldsymbol{\sigma}) =& \\ & \frac{[q_2\delta^T + (1-q_2)\delta]\, (1-\bar{p})\Big(q_1 k \sum_{t=0}^{T-1} \delta^t\Big)}{1-\bar{p}[q_2\delta^T + (1-q_2)\delta]} \\ &+ \frac{[q_2\delta^T + (1-q_2)\delta]\, (1-\bar{p})(1-q_1)\Big(k(1+\delta) + k(1-\bar{p})^{T-2} \sum_{t=2}^{T-1} \delta^t + k\bar{p} \sum_{j=1}^{T-3} \sum_{t=2}^{j+1} (1-\bar{p})^j \delta^t\Big)}{1-\bar{p}[q_2\delta^T + (1-q_2)\delta]} \end{aligned} \tag{E-2}$$

The continuation value from deviating, and entering the race, is

$$V_1^o(1, \boldsymbol{\sigma}_2, \boldsymbol{\sigma}_1^{run}) = kq_1 \sum_{t=0}^{T-1} \delta^t + k(1-q_1). \tag{E-3}$$

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

$$\Big(V_1^o(1,\boldsymbol{\sigma})|T - V_1^o(1,\boldsymbol{\sigma}_2,\boldsymbol{\sigma}_1^{run})|T\Big) > \Big(V_1^o(1,\boldsymbol{\sigma})|(T-1) - V_1^o(1,\boldsymbol{\sigma}_2,\boldsymbol{\sigma}_1^{run})|(T-1)\Big). \tag{E-4}$$

Plugging in the expressions from above, this reduces to

$$\frac{[q_2\delta^T + (1-q_2)\delta]\,(1-\bar{p})\Big(q_1\sum_{t=0}^{T-1}\delta^t + (1-q_1)\big((1+\delta) + (1-\bar{p})^{T-2}\sum_{t=2}^{T-1}\delta^t + \bar{p}\sum_{j=1}^{T-3}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t\big)\Big)}{1-\bar{p}[q_2\delta^T + (1-q_2)\delta]}$$
$$\frac{[q_2\delta^{T-1} + (1-q_2)\delta]\,(1-\bar{p})\Big(q_1\sum_{t=0}^{T-2}\delta^t + (1-q_1)\big((1+\delta) + k(1-\bar{p})^{T-3}\sum_{t=2}^{T-2}\delta^t + \bar{p}\sum_{j=1}^{T-4}\sum_{t=2}^{j+1}(1-\bar{p})^j\delta^t}{1-\bar{p}[q_2\delta^{T-1} + (1-q_2)\delta]}$$
$$-\left(q_1\sum_{t=0}^{T-1}\delta^t - q_1\sum_{t=0}^{T-2}\delta^t\right) > 0. \tag{E-5}$$

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 the conjectured equilibrium is harder to sustain under longer term limits. Otherwise, if $q_1 < \underline{q}_1$ and $q_2 < \overline{q}_2$, then the conjectured equilibrium is easier to sustain under longer term limits.

□

Appendix E: Inefficiency, a More General Result

In this section, we move away from the specific functional form adopted in the baseline model, and consider a general function mapping the state of the world $\omega_t \in \{0,1\}$ and the incumbent's type $\theta_I \in \{0,1\}$ to the realization of the governance outcome, $o_t \in \{b,g\}$. 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: $p(o_t = g|\theta_I = 1, \omega_t) \geq p(o_t = g|\theta_I = 0, \omega_t)$. Second, fixing the incumbent's type, the incumbent is more likely to produce a good outcome during normal times than during crises: $p(o_t = g|\theta_I, \omega_t = 0) \geq p(o_t = g|\theta_I, \omega_t = 1)$. Notice that the baseline model analyzed in the main body satisfies these assumptions.

In what follows, denote $\mu_t^I(o_t, \omega_t)$ the posterior probability that the incumbent is a good type conditional on the realization of o_t and ω_t, given the production function. I will say that crises always amplify the informativeness of governance outcomes if $\mu_t^I(b,1) < \mu_t^I(b,0)$ and $\mu_t^I(g,1) > \mu_t^I(g,0)$. Instead, crises always mute the informativeness of governance outcomes if $\mu_t^I(b,1) > \mu_t^I(b,0)$ and $\mu_t^I(g,1) < \mu_t^I(g,0)$. Crises do not influence the informativeness of governance outcomes when $\mu(o_t,1) = \mu(o_t,0)$ for all $o_t \in \{g,b\}$. Furthermore, I adopt the following definition

Definition E-1. *The informativeness effect of a crisis is weak if the voter uses the same retention strategy for Party-1 incumbents under the two states, i.e., the same outcome realization o_t always induces the same retention decision, regardless of whether it was produced under $\omega_t = 1$ or $\omega_t = 0$. Otherwise, if for some $o_t \in \{0,1\}$ the voter makes a different retention decision when the outcome is produced under $\omega_t = 1$ versus $\omega_t = 0$, the informativeness effect is strong.*

Proposition E-1. *Suppose $\delta \to 1$. If the informativeness effect is strong, then the equilibrium is always inefficient, i.e., there does not exist an MPE in which Party-1 PCs run and win the race in periods where the voter would benefit most from having a competent officeholder. This holds true both if crises mute or amplify the informativeness of outcomes.*

Proof. First, we must establish that when crises amplify (mute) informativeness, the voter gains the most from a competent type during times of crisis (normal times).

Notice that the voter gains the most from a competent type during normal times if

$$p(o_t = g|\theta_I = 1, \omega_t = 0) - p(o_t = g|\theta_I = 0, \omega_t = 0) > p(o_t = g|\theta_I = 1, \omega_t = 1) - p(o_t = g|\theta_I = 0, \omega_t = 1). \tag{E-1}$$

Vice versa, if

$$p(o_t = g|\theta_I = 1, \omega_t = 1) - p(o_t = g|\theta_I = 0, \omega_t = 1) > p(o_t = g|\theta_I = 1, \omega_t = 0) - p(o_t = g|\theta_I = 0, \omega_t = 0), \tag{E-2}$$

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

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

If crises mute informativeness, we have that $\mu_t^I(g, 1) < \mu_t^I(g, 0)$ and $\mu_t^I(b, 1) > \mu_t^I(b, 0)$. Applying Bayes rule, the condition that $\mu_t^I(g, 1) < \mu_t^I(g, 0)$ reduces to

$$p(o_t = g|\theta_I = 1, \omega_t = 1)\, p(o_t = g|\theta_I = 0, \omega_t = 0) < p(o_t = g|\theta = 1, \omega_t = 0)\, p(o_t = g|\theta_I = 0, \omega_t = 1). \tag{E-3}$$

Similarly, $\mu_t^I(b, 1) > \mu_t^I(b, 0)$ reduces to

$$\begin{aligned}&\big(1 - p(o_t = g|\theta = 1, \omega = 1)\big)\big(1 - p(o_t = g|\theta_I = 0, \omega_t = 0)\big) > \\ &\big(1 - p(o_t = g|\theta = 1, \omega = 0)\big)\big(1 - p(o_t = g|\theta_I = 0, \omega_t = 1)\big).\end{aligned} \tag{E-4}$$

Rearranging, E-4 reduces to

$$\begin{aligned}&p(o_t = g|\theta = 1, \omega = 0) - p(o_t = g|\theta_I = 0, \omega_t = 0) + p(o_t = g|\theta_I = 1, \omega_t = 1)\, p(o_t = g|\theta_I = 0, \omega_t = 0) > \\ &p(o_t = g|\theta_I = 1, \omega_t = 1) - p(o_t = g|\theta_I = 0, \omega_t = 1) + p(o_t = g|\theta_I = 0, \omega_t = 1)\, p(o_t = g|\theta = 1, \omega = 0).\end{aligned} \tag{E-5}$$

We know from E-3 that $p(o_t = g|\theta_I = 1, \omega_t = 1)\, p(o_t = g|\theta_I = 0, \omega_t = 0) < p(o_t = g|\theta_I = 0, \omega_t = 1)\, p(o_t = g|\theta = 1, \omega = 0)$, therefore E-5 implies that $p(o_t = g|\theta = 1, \omega = 0) - p(o_t = g|\theta_I = 0, \omega_t = 0) > p(o_t = g|\theta_I = 1, \omega_t = 1) - p(o_t = g|\theta_I = 0, \omega_t = 1)$, and the voter benefits from the most from a competent type during normal times.

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

Next, we establish that an efficient equilibrium exists only if the informativeness effect is weak. As $\delta \to 1$, each PC simply adopts the strategy that maximizes the probability of being in office for two consecutive terms. Here, 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 reelected, regardless of how informative the outcome is. Even an uninformative outcome is enough to beat a Party-2 opponent.

Consider instead a Party-1 incumbent's retention chances after deilvering a bad outcome. Suppose that crises mute informativeness, so that $\mu_t^I(b, 1) > \mu_t^I(b, 0)$: a bad outcome induces a lower posterior under $\omega = 0$ than under $\omega = 1$. First, assume that the informativeness effect is strong, i.e., the voter uses a different retention strategy under the two states. This requires that $\mu_t^I(b, 1) > q_2 > \mu_t^I(b, 0)$. That is, 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 the baseline model, and there is no equilibrium where Party-1 PCs run and win the race under $\chi_t = 0$.

Suppose instead that the informativeness effect is weak, so that the voter uses the same retention strategy under both states. We must consider two cases: (1) $q_2 > \mu_t^I(b, 1) > \mu_t^I(b, 0)$, and (2) $\mu_t^I(b, 1) > \mu_t^I(b, 0) > q_2$. If $q_2 > \mu_t^I(b, 1) > \mu_t^I(b, 0)$, assuming a challenger enters the race, a Party-1 incumbent is reelected if and only if he produces a good outcome. However, by assumption, good outcomes are (weakly) easier to produce during normal times. Thus, the probability of a Party-1 incumbent being reelected for two consecutive terms is higher if $\omega_t = 0$ during his first term in office. As a consequence, in equilibrium Party-1 PCs must enter a winnable race when $\chi_t = 0$ and the equilibrium is efficient. Finally, if $\mu_t^I(b, 1) > \mu_t^I(b, 0) > q_2$, a 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.

First, suppose that the informativeness effect is strong, which implies $\mu_t^I(b,0) > q_2 > \mu_t^I(b,1)$. This case is the one analyzed in the baseline: a Party-1 incumbent is always reelected if he experiences no crisis, but is ousted if he fails to manage a crisis. Thus, there exists no equilibrium in which Party-1 PCs run and win the race when $\chi_t = 1$. Next, suppose the informativeness effect is weak. As above, we must consider two cases. If $q_2 > \mu_t^I(b,0) > \mu_t^I(b,1)$, then the incumbent is reelected if and only if he produces a good outcome. By assumption, good outcomes are (weakly) easier to produce during normal times. Thus, there exists no equilibrium in which Party-1 PCs run and win the race when $\chi_t = 1$. Finally, if $\mu_t^I(b,0) > \mu_t^I(b,1) > q_2$ a Party-1 incumbent is always reelected under both states and under both outcomes realization. Straightforwardly, Party-1 PCs are indifferent between all strategies and an efficient equilibrium exists.

□

Appendix F: Additional Robustness

Multiple Potential Candidates

In the baseline model, each party has one potential candidate in each period. Suppose instead that, in each period, each party P has two potential candidates, l_P and h_P. Let their respective probability of being competent be $q_{l_P} < q_{h_P}$. To avoid trivialities, assume $q_{l_2} < q_{l_1} < q_{h_2} < q_{h_1}$. 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 $P \in \{1,2\}$.

Proposition F-1. *Suppose* $\delta \to 1$*. There exists no MPE in which* h_1 *potential candidates run and win the race when* $\chi_t = 1$*. Furthermore, if* $q_{h_2} < \Pr(\chi_t = 1)$*, then there exists no MPE in which* h_2 *candidates run and win the race when* $\chi_t = 1$*.*

Proof. First, notice that h_1 potential candidates face the same problem as in the baseline. Thus, there exists no MPE in which h_1 potential candidates run and win the race when $\chi_t = 1$. In equilibrium, these PCs must run when $\chi_t = 0$. This implies that l_1 candidates must be willing to run under $\chi_t = 1$, 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 reelected for a second term after getting to office at time t under ω_t. Given the Party-1 PCs' equilibrium strategies, and since $q_{l_1} < q_{h_2} < q_{h_1}$, in equilibrium we must have

$$\begin{aligned} &\mathbb{P}_{h_2}(0) = \Pr(\chi_t = 1), \\ \text{and} \quad &\mathbb{P}_{h_2}(1) = q_{h_2}. \end{aligned} \tag{F-1}$$

Thus, $q_{h_2} < \Pr(\chi_t = 1)$, as $\delta \to 1$ we cannot have an equilibrium where h_2 run and win the race when $\chi_t = 1$, as h_2 PCs would have a profitable deviation to only run when $\chi_t = 0$. □

If the Voter Updates About Parties' Reputations

In the baseline model, political parties have a fixed reputation, and the incumbent's performance is solely indicative of their individual ability. However, we may imagine that a party's reputation evolves based on the performance of its members while in office. Here, 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.

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

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 ψ be arbitrarily close to 1. Then, we have:

Proposition F-2. *Suppose $\delta \to 1$. Then, there does not exist an MPE in which advantaged potential candidates run and win the race when $\chi_t = 1$.*

Proof. Denote $\mathbb{P}_i(\omega_t, A_t, \mu_t^I)$ the ex-ante probability that i is reelected for a second term after getting to office under state ω, given their current advantaged status $A_t \in \{d, a\}$ (**d**isadvantaged or **a**dvantaged) and the posterior probability of being a good type μ_t^I (a function of the party's past performance in office). Notice that, as in the baseline, $\mathbb{P}_i(0, a, \mu_t^I) = 1$: governance outcomes are uninformative during normal times, therefore an advantaged candidate is always reelected if he gets to office under $\omega_t = 0$. Furthermore, because failure under a crisis induces a posterior $\mu_t^I = 0$, given the voter's optimal strategy and the presence of the dummy candidate who always runs we have that $\mathbb{P}_i(1, a, \mu_t^I) = \mathbb{P}_i(1, d, \mu_t^I) = \mu_t^I$. Also notice that, because beliefs are a martingale, $\mathbb{P}_i(1, A, \mu_t^I) = E\big[\mathbb{P}_i(1, A, \mu_t^I)\big]$, where the expectation is over μ_t^I.

To establish a contradiction, conjecture an equilibrium in which an advantaged potential candidate runs and wins the race at a time t where $\chi_t = 1$. As $\delta \to 1$, an advantaged candidate's continuation value from the conjectured strategy is $k\Big(1 + \mathbb{P}_i(1, a, \mu_t^I)\Big)$. Consider a deviation to an alternative strategy to enter the race when $\chi_t = 0$ in any period in which they are advantaged, and when $\chi_t = 1$ in any period in which they are disadvantaged. As $\delta \to 1$, the payoff from this deviation can be expressed as a weighted average: $\beta k\big(1 + \mathbb{P}_i(0, a, \mu_t^I)\big) + (1 - \beta)k\Big(1 + \mathbb{P}_i(1, d, \mu_t^I)\Big)$, where the weight β is the probability of maintaining the advantage in the future, given beliefs and the strategy of the other players. Since $\mathbb{P}_i(1, a, \mu_t^I) = \mathbb{P}_i(1, d, \mu_t^I)$ and $\mathbb{P}_i(0, a, \mu_t^I) = 1 > \mathbb{P}_i(1, d, \mu_t^I)$, we have that $\beta k\big(1 + \mathbb{P}_i(0, a, \mu_t^I)\big) + (1 - \beta)k\Big(1 + \mathbb{P}_i(1, d, \mu_t^I)\Big) > k\Big(1 + \mathbb{P}_i(1, a, \mu_t^I)\Big)$. Therefore, the deviation is profitable and the conjectured equilibrium does not exist.

□

Crises Perceived as Endogenous

In the baseline model, I assume that voters are fully aware that the crisis is exogenous. Yet, in reality voters often attribute responsibility for an exogenous crisis to the officeholder, holding him accountable not only for his 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 that the incumbent is responsible for it. Formally, assume that the voter's beliefs satisfy $p(\theta_I = 1|\omega_t = 1) = \eta < q_i$.[16]

Proposition F-3. *The equilibrium behavior of Party-1 PCs is as characterized in Proposition 2.*

Proof. In this setting, the voter forms interim beliefs about θ_I upon observing ω_t. The emergence of a crisis constitutes a negative signal, while $\omega_t = 0$ induces the voter to update upward. These interim beliefs, however, are irrelevant for Party-1 PCs retention. As in the baseline model, a Party-1 PC is always reelected if $\omega_t = 0$. If $\omega_t = 1$, the voter revises her interim beliefs upon observing the realization of o_t. Because o_t is fully informative under

[16]Notice that this is not the *true* conditional probability, but simply the one perceived by the voter as a consequence of her mis-attribution of responsibility.

ω_1, the voter's interim beliefs become electorally irrelevant.[17] As a consequence, a Party-1's incumbent probability of being reelected for a second term at $t+1$ conditional on the value of ω_t is exactly as in the baseline model. Thus, Party-1 PCs face the same strategic problem, and their equilibrium behavior is as characterized in Proposition 2.[18]

□

If Parties Replace Failing Incumbents

In this section, 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), his own party draws a replacement candidate, who then chooses whether to run in a primary against the incumbent or not. The primary candidate who is most likely to be a good type gets selected to run in the general election. Then, we have

Proposition F-4. *Suppose $\delta \to 1$. Then, there exists no MPE in which*

- *Potential candidates from Party 1 enter and win the race when $\chi_t = 1$;*
- *Potential candidates from Party 2 enter and win the race when $\chi_t = 0$.*

Proof. As in the baseline case, let $\mathbb{P}_P(\omega)$ be the ex-ante probability that an incumbent from Party-P is reelected if he first gets to office under ω, given the probability of facing a challenger $p_1(challenge)$. 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

[17] More generally, this is true whenever $\eta > 0$ is sufficiently low relative to the informativeness of the outcome of the crisis.

[18] I note that Party-2 PCs may face different incentives from those emerging in the baseline, if $\omega_t = 0$ is a sufficiently good signal for the voter. In this case, Party-2 PCs may be incentivized to run under $\chi_t = 0$ and avoid a crisis.

$$\mathbb{P}_1(1) = q_1 + (1 - q_1)\Big(1 - E\big[p_1(challenge)\big]\Big),$$
$$\text{and} \quad \mathbb{P}_2(0) = 1. \tag{F-2}$$

As in the baseline, $\mathbb{P}_1(0) > \mathbb{P}_1(1)$, and as $\delta \to 1$ an equilibrium in which PCs from Party 1 run and win the race when $\chi_t = 0$ cannot be sustained.

Similarly, we have

$$\mathbb{P}_2(0) = 1 - E\big[p_2(challenge),$$
$$\text{and} \quad \mathbb{P}_2(1) = q_2 + (1 - q_2)\Big(1 - E\big[p_2(challenge)\big]\Big). \tag{F-3}$$

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, as $\delta to 1$ we can never have an equilibrium in which Party-2 PCs run and win the race when $\chi_t = 0$.

□

Multidimensional Competence and Parties' Issue Ownership

While the baseline model considers a single dimension of competence, political parties often have different strengths in various policy areas. In this section, I extend the model to account for this possibility.

Suppose that 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 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. Thus, χ_t and ω_t may take one of three values $1_{\iota_1}, 1_{\iota_2}$ or 0, where $\Pr(\chi_t = 0|\omega_1 = 1_{\iota_1}) = \Pr(\chi_t = 0|\omega_1 = 1_{\iota_2})$.

Suppose that in each period, one or the other dimension is electorally salient $S_t \in \{\iota_1, \iota_2\}$, 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 maintain the assumption introduced in the previous section, 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), his own party draws a replacement candidate, who then chooses whether to run in a primary against the incumbent or not.

Proposition F-5. *Suppose $\delta \to 1$. Then, there exists no equilibrium in which*

- *Potential candidates from Party 1 run and win the race when $\chi_t = 1_{\iota_1}$;*
- *Potential candidates from Party 2 enter and win the race when $\chi_t = 1_{\iota_2}$.*

Proof. As in the baseline model, fully patient potential candidates simply choose the entry strategy that maximizes their chance of remaining in office for two consecutive terms. Denote $\mathbb{P}_P(\omega_t)$ the ex-ante probability of retention for a party-P incumbent that first got to office in period t. Let ν denote the ex-ante probability that issue ι_1 is salient in a given period (that is, the probability that $\chi_t = 1_{\iota_1}$ plus the probability that $\chi_t = 0$ times ν_{ι_1}).

Consider first potential candidates from Party 1. Suppose that $\omega_t = 1_{\iota_1}$. Then, the probability of being reelected for a second term in period $t+1$ after getting to office in period t is

$$\mathbb{P}_1(1_{\iota_1}) = \nu\Big(q_1^{\iota_1}+(1-q^{\iota_1})(1-E\big[p_1(challenge|\iota_1)]\big]\Big)+(1-\nu)(1-E\big[p_1(challenge|\iota_2)]\big]), \quad \text{(F-4)}$$

where $E[p_P(challenge|\iota)]$ is the probability that a Party-P incumbent faces a challenger when issue ι is salient at $t+1$, as a function of the Party-2 PCs strategy, $\boldsymbol{\sigma}_2$, and the expectation is over χ_t. 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 runs unopposed. 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:

$$\mathbb{P}_1(0) = \nu + (1-\nu)(1-E\big[p_1(challenge|\iota_2)\big]. \quad \text{(F-5)}$$

Probabilities of retention when $\omega = 1_{\iota_2}$ is salient at time t are calculated in a similar way.

$\mathbb{P}_1(0) > \mathbb{P}_1(1_{\iota_1})$[19] and, as $\delta to 1$, the conjectured equilibrium cannot be sustained since the Party-1 PC has a profitable deviation to staying out when $\chi_t = 1_{\iota_1}$ and only running in the future when $\chi_t = 0$.

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

□

Thus, very much in the spirit of the baseline, endogenous self-selection of potential can-

[19]The restriction to Markov strategies and the assumption that $\Pr(\chi_t = 0|\omega_1 = 1_{\iota_1}) = \Pr(\chi_t = 0|\omega_1 = 1_{\iota_2})$ imply that each PC must be adopting the same entry strategy in each period where χ_t has the same realization. Thus, in equilibrium we must have that the probability of an incumbent facing a challenger, in the primary or the general. is always strictly greater than 0 in the conjectured equilibrium.

didates 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.

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 ψ be arbitrarily close to 1.

Proposition F-6. *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 reelection, Party-1 nominates the high-pool candidate if* $\widehat{\mu}_t^I = q_2$ *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 office-holder. 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

$$0 + \delta(1-q_h^2)\frac{k}{1-\delta} + q_h^2\delta^2\frac{k}{1-\delta}. \tag{F-6}$$

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

$$q_h^1\Big(k(1+\delta)+\delta^2 V^{dis}\Big) + (1-q_h^1)\Big(k+\delta V^{dis}\Big), \tag{F-7}$$

Thus, nominating the low-pool candidate is optimal iff

$$\delta(1-q_h^2)\frac{k}{1-\delta} + q_h^2\delta^2\frac{k}{1-\delta} > q_h^1\Big(k(1+\delta)+\delta^2 V^{dis}\Big) + (1-q_h^1)\Big(k+\delta V^{dis}\Big), \tag{F-8}$$

which rearranges to

$$\delta\frac{k}{1-\delta}(1-q_h^2(1-\delta)) - \delta V^{dis}(1-q_h^1(1-\delta)) > k(1+\delta q_h^1). \tag{F-9}$$

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

$$2k > k(1 + q_h^1), \tag{F-10}$$

which is always true.

Next, consider periods in whcih $\chi_t = 0$. 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 reelected for a second term.

Nominating the high-type instead yields

$$k(1 + \delta) + \delta^2 V^{dis}. \tag{F-11}$$

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

$$k + \delta^3 \frac{k}{1-\delta} \geq k(1 + \delta) + \delta^2 V^{dis}, \tag{F-12}$$

which rearranges to

$$\delta^2 (\delta \frac{k}{1-\delta} - V^{dis}) \geq k. \tag{F-13}$$

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 available. $\square$

Appendix G: A Result with a Forward-Looking Voter

Proposition G-1. *Suppose the voter is forward-looking. Then, an incumbent who is more likely to be a good type than the challenger is not always reelected.*

Proof. Consider $\mathcal{T} = 3$. In the last period, the voter faces a static problem and thus always prefers the candidate who is most likely to be a good type. I show that this is not always true in the previous periods. Suppose for simplicity that $\bar{p} = 1$, i.e., the country will certainly experience a crisis in each period, and the voter is fully patient. Further, suppose all PCs are always willing to run at $t = 2$ and $t = 3$ (as they do in equilibrium in the three-period game). Then, if an incumbent from Party P is up for reelection at the end of period 1, the voter prefers to oust him iff

$$-\lambda(1 - \widehat{\mu}_P^I) - \lambda(1 - q_1) < -\lambda(1 - q_{-P})(1 + (1 - q_P)), \tag{G-1}$$

where λ is the cost the voter pays if $o_t = b$. If the incumbent is reelected at $t = 2$, then the third-period race will be an open-seat one and the Party-1 PC will be elected. If the incumbent is ousted, the challenger from Party -P is elected today and replaced tomorrow if he fails to deliver a good outcome.

Rearranging, the above condition reduces to

$$\widehat{\mu}_P^I < q_{-P} + q_2(1 - q_1). \tag{G-2}$$

Thus, the incumbent may be ousted even if $\widehat{\mu}_P^I > q_{-P}$, i.e., he is more likely to be competent than the challenger. In other words, 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. $\square$

Appendix 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.[20] 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

[20] 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.

national-level recessions to identify exogenous (to the individual state and governor) crises.[21] Thus, I run the following regression:

$$y_t = \alpha + \beta S_t + \epsilon_t \tag{G-3}$$

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.[22]

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).[23]

[21] 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).

[22] 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.

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