Learning to Love Democracy: Electoral Accountability, Government Performance, and the Consolidation of Democracy*

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Abstract

A central promise of democracy is to deliver good governance by holding politicians accountable for their performance in office. I explain why, in new democracies, elections may fail as an instrument of electoral accountability and thereby precipitate the breakdown of democracy. I model the process by which elections allow candidates to build reputations for performing well and weed out those candidates that cannot be deterred from performing poorly by the threat of removal from office. This process fails when repeated dissatisfaction with the performance of individual politicians turns into doubts about the value of democracy as a political system. When successful, this process gradually strengthens voters’ belief that elections can deliver political accountability and leads to the consolidation of democracy, a state in which democratic breakdowns no longer occur. This theory explains why new and poor democracies are more vulnerable to breakdown than old and rich ones, why economic recessions lead to democratic breakdowns, and why, in new democracies, public support for democracy declines during economic downturns.

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1 Introduction

Economic recession is one of the most robust predictors of the breakdown of democracy. Between 1848 and 2008, a democracy was more than twice as likely to revert to dictatorship during an economic decline than during a period of economic growth. This association between economic decline and democratic breakdown is especially relevant for young or poor democracies: When democracies break down, nine in ten do so before they are 20 years old or when their annual GDP per capita is less than $4,900. Figure 1 illustrates this association by separately plotting non-parametric estimates of the hazard of a democratic breakdown during economic recessions and expansions. The rise of the Nazi Party in the Weimar Republic amidst the hardship of the Great Depression and Russia’s return to authoritarianism under Vladimir Putin following the chaos of its transition to democracy are merely two, prominent examples of the existential danger that economic downturns may represent for young democracies.

Yet while the empirical association between economic decline and the breakdown of democracy has been examined extensively, the causal process that connects the two is not well understood. Democratic theory suggests that an economic recession – as far as voters attribute it to the incumbent’s performance in office – should be punished like any other poor performance by an elected politician: voters should replace the incumbent with a challenger (Pitkin 1967; Dahl 1971; Przeworski et al. 1999). In other words, existing theories of electoral accountability assume that the political consequences of poor government performance will be contained exclusively within the boundaries of the democratic process. In turn, we lack an explanation for a major consequence of poor government performance in new democracies: the breakdown of democracy itself.

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1 GDP per capita is measured in 1990 international Geary-Khamis dollars and comes from Maddison (2008). Haggard and Kaufman (1995) provide an early analysis of the relationship between economic recessions and the breakdown of democracy. This association is robust to controlling for various covariates and estimation techniques; see e.g. Bernhard et al. (2001), Boix (2003), Cheibub (2007), and Przeworski et al. (2000).
Figure 1: The hazard of democratic breakdowns during economic recessions (annual decline in GDP per capita) and expansions (annual increase in GDP per capita), 1948-2007

Why then does poor government performance lead to the mere sacking of the incumbent in some democracies but results in the very breakdown of democracy in others? Why are young and poor democracies more likely to revert to authoritarianism in the face of a recession than older and richer ones? I provide a new explanation for these puzzles as well as several other, prominent regularities uncovered in the empirical research on transitions to democracy, political accountability, and popular attitudes towards democracy.

My central, theoretical contribution is to provide a new explanation for, first, why some, especially new and poor, democracies break down, and second, why some democracies are more likely to consolidate than others. More specifically, I explain i) why, in new democracies, repeated dissatisfaction with the performance of individual politicians can turn into doubts about the value of democracy as a political system and thereby precipitate its breakdown and ii) how politicians’ gradual acquisition of reputations for good performance strengthens the
public’s trust in the ability of democracy to produce good governance through political accountability and thus enhances a democracy’s chances of survival. These arguments provide new theoretical microfoundations for the process of democratic consolidation and a precise statement of the causal connection between government performance in new democracies, public attitudes towards democracy, and the survival of democracy.

The theoretical model that I develop in this paper also provides a new, unified explanation for a number of key, empirical findings. Specifically, I explain why i) economic recessions precipitate democratic breakdowns (Haggard and Kaufman 1995; Przeworski et al. 2000; Bernhard et al. 2001), ii) rich democracies are more stable (Lipset 1959; Przeworski et al. 2000; Boix and Stokes 2003), iii) new democracies are more vulnerable to breakdown than established ones (Linz 1978; Gasiorowski and Power 1998; Bernhard et al. 2003), and iv) public support for democracy declines during economic downturns in new but not established democracies (Mishler and Rose 2001; Dalton 2004; Córdova and Seligson 2009). These associations have been established empirically, but currently lack explicit, theoretical microfoundations.

I start with the observation that a central promise of democracy is to deliver good governance by holding politicians accountable for their performance in office. In new democracies, this promise is harder to fulfill for two, related reasons: First, the period after a transition to democracy – when political parties tend to be weak and the party system in flux – is exceptionally favorable for the entry of candidates who see politics as their “one-time opportunity to get rich” and compete for office only to exploit it for personal gain. Second, because candidates have yet to form reputations for good performance, voters find it particularly challenging to distinguish between those candidates who only run for office to exploit it and those who would be willing to perform well in office if faced with the proper incentives.

I show that in new democracies, elections may completely fail as an instrument of political
accountability. I examine the process by which policy outcomes in new democracies shape voters’ expectations about whether democracy can in fact deliver political accountability – and thus better and more responsive governance than dictatorship. After a succession of policy failures, voters’ dissatisfaction with the performance of individual politicians can turn into doubts about whether democracy as a political system can deliver good governance. Elections fail as an instrument of political accountability when a mutually reinforcing cycle of expectations emerges in which voters no longer find it worthwhile to distinguish among candidates based on their performance and conclude that “all politicians are crooks,” while even those politicians who would otherwise respond to electoral incentives rationally choose to exploit office for personal gain. In turn, a public that is so disillusioned with democratic governance will lack the key rationale for defending democracy against a leader or group with authoritarian aspirations.

However, I also demonstrate that under certain conditions elections allow candidates to build reputations for performing well and, over time, allow voters to weed out “bad” candidates, who cannot be deterred from exploiting office for personal gain by the threat of a removal. As their competitors’ reputations improve, bad candidates – who enter politics only to exploit office – see their chances of re-election decline and eventually leave politics. The latter more likely occurs in rich democracies, where sufficiently attractive, non-political careers are available. Once such bad candidates leave politics, a succession of policy failures can no longer shake voters’ faith in the ability of elections to deliver accountability to the extent that they would conclude that “democracy does not work.” We may call this state, in which the breakdown of democracy is no longer a risk, a consolidated democracy. To put it metaphorically, in a consolidated democracy, voters’ expectations and politicians’ behavior positively reinforce each other to the extent that a few bad apples can no longer spoil the whole bunch.
In the next section, I relate my theoretical motivation and results to research on electoral accountability and democratic consolidation. I then develop a new formal model of electoral accountability in new democracies and study its implications for democratic consolidation and breakdown. In section 4, I examine the empirical implications of my claims and show that they account for key findings in empirical research on democratic transitions and popular attitudes towards democracy. Additionally, I perform a self-standing statistical analysis of predictions that have not been previously tested. I conclude by discussing the implications of my arguments for democratic theory. Detailed proofs of all technical results can be found in a supplementary appendix.

2 Electoral Accountability and the Consolidation of Democracy

In this paper, I offer a new explanation for why elections may fail as an instrument of political accountability in new democracies and thereby precipitate their breakdown. I model the process by which popular dissatisfaction with the performance of individual politicians turns into doubts about the value of democracy as a political system. After a series of policy failures, even voters who are initially optimistic about the ability of elections to produce political accountability may conclude that their particular democracy has been captured by politicians who only see elected office as an opportunity for personal gain. Political accountability ultimately fails when such pessimistic expectations fuel a mutually reinforcing cycle of voter apathy and corrupt candidate behavior. The resulting disenchantment with democracy dampens the public’s willingness to defend democracy against attempts to subvert it, thus
eliminating a key barrier to politicians or groups with authoritarian ambitions.²

However, I also explain when and why the success of elections as an instrument of accountability in new democracies leads to their consolidation. Unfortunately, most discussions of democratic consolidation remain vague about the precise causal mechanism that connects government performance in new democracies, public attitudes towards democracy, and the survival of democracy. The model that I develop offers specific, theoretical microfoundations for the process of democratic consolidation.

My arguments are consistent with two distinct notions of democratic consolidation in the research on democratic transitions. According to one of these notions, which we may call substantive, consolidation describes a process of attitudinal change that results in widespread popular acceptance of democracy (Almond and Verba 1963; Diamond 1999; Linz and Stepan 1996). Linz and Stepan (1996, 16), for instance, prominently characterized consolidated democracies as those in which

“a strong majority of public opinion, even in the midst of major economic problems and deep dissatisfaction with incumbents, holds the belief that democratic procedures and institutions are the most appropriate way to govern collective life...”

Notably, the present model explains how popular beliefs about the value of democracy that accord with the above notion of consolidation emerge endogenously. Here, a democracy consolidates when candidates who are willing to perform well in office establish reputations that are sufficiently strong so that those candidates who compete for office only to exploit it for personal gain conclude that their chances of assuming or maintaining office are too small to be

²Casper and Taylor (1996) emphasize the mass public’s role during transitions to democracy; here, the focus is on the mass public’s role in preventing democratic breakdowns. Consistently with the claims in this paper, historical research on military coups suggests that they are most likely to succeed in a climate of public indifference towards or frustration with the government in office, see e.g. Luttwak (1968, 30,35-37), Nordlinger (1977, 64,94-95), and Booth and Seligson (2009, 185-189).
worth the costs of running for office and withdraw from politics. In turn, once a democracy consolidates, voters conclude that democracy can in fact deliver political accountability and they correctly interpret policy failures as the result of the uncertainty inherent in policy-making rather than the capture of electoral politics by candidates bent on exploiting office for personal gain. Crucially, the present argument outlines the specific mechanism responsible for attitudinal changes that result in widespread popular acceptance of democracy.

My arguments also contribute to our understanding of another notion of democratic consolidation, which we may call *prospective*. According to this notion, consolidation implies a democracy’s continuing survival (Gasiorowski and Power 1998; Schedler 1998). As I have outlined above, consolidation occurs when candidates who run for office only to exploit it leave politics because competing for or maintaining office becomes increasingly difficult as their competitors’ reputations improve. However, I show that this only occurs when sufficiently attractive, non-political careers are available. In poor democracies, where politics may be “the most profitable game in town,” even increasingly competitive elections may not discourage such bad candidates from running for office.

This argument thus offers a new explanation for one of the most prominent empirical findings in the research on transitions to democracy: the positive association between the survival of democracy and income per capita (Lipset 1959; Przeworski et al. 2000). My arguments imply that poor democracies will either take longer to consolidate or not consolidate at all. By contrast, voters in consolidated democracies – which are more likely to be rich – have an incentive to defend democracy against groups with authoritarian ambitions because these democracies deliver political accountability and thus better governance than dictatorships. Hence I outline the specific mechanism by which democracy becomes “the only game in town.”

I develop my theoretical arguments about democratic consolidation and breakdowns with

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3See, however, Acemoglu et al. (2009).
4See Di Palma (1990, 113), Przeworski (1991, 26), and Linz and Stepan (1996, 5).
the help of a new formal model of electoral accountability. I depart from classic models of electoral accountability (see e.g. Ferejohn 1986) in two ways that capture the distinct challenges to accountability in new democracies.\(^5\) First, I allow for the possibility that after a transition to democracy, some candidates enter politics as their “one-time opportunity to get rich,” and therefore the threat of a removal from office cannot deter them from exploiting office for personal gain. Indeed, evidence from new democracies indicates that political corruption is a major concern for voters (Treisman 2000; Chang and Chu 2006; Keefer 2007), and that political parties that may otherwise limit the entry of such “bad” candidates are frequently the vehicles for their corrupt ambitions (Grzymała-Busse 2007).

Voters in new democracies must therefore use elections in order to both weed out such “bad” candidates as well as to motivate “normal” candidates – who do respond to electoral incentives – to perform in a desirable manner. I demonstrate that elections may fail to accomplish both of these ends if voters conclude that political competition has been captured by candidates of the “bad” type. I build on Myerson (2006), who shows that electoral accountability may fail if forward-looking voters hold pessimistic expectations about any politician’s performance. A key contribution of the analysis in the next section is to show how, because of poor government performance, voters and candidates rationally abandon a focal equilibrium in which elections deliver accountability for one in which fail to do so.

The second departure from classic models of electoral accountability that brings this model closer to the political realities in new democracies is that voters have the choice to either acquire and assess a politician’s performance at a small cost or to ignore such information.\(^6\) This assumption reflects the difficulties that voters confront when evaluating politicians’


\(^6\)This option to remain “rationally ignorant” (Downs 1957) is consistent with a large literature on the role of information in the democratic process (see e.g Lupia and McCubbins 1998), which finds that voters habitually, and often intentionally, do not seek out relevant political facts.
performance in new democracies: transitions to democracy frequently occur in countries where voters lack previous democratic experience, where a history of government-controlled media facilitates the incumbent’s influence over news coverage, and where large-scale political and economic reforms occur simultaneously.\(^7\) Therefore even those voters who would like to acquire unbiased information about politicians’ performance before elections may find the cost of doing so non-negligible.\(^8\)

This new model of electoral accountability contributes to research on the failures of political accountability in new democracies and weakly institutionalized settings.\(^9\) According to Caselli and Morelli (2004) and Messner and Polborn (2004), for instance, poor democratic performance may be the consequence of the comparative advantage that low-quality candidates have in competing for political office. The present paper argues that the entry of such low-quality candidates is especially likely in new democracies. Here, however, the incentives of such low-quality candidates to leave politics strengthen as their competitors’ reputations for good performance improve, which results in the consolidation of democracy.

The present paper shares the explicit focus on challenges to accountability in new democracies with Keefer (2007) and Keefer and Vlaicu (2007), who argue that, particularly in new democracies, politicians may favor clientelistic policies when they lack the credibility to make electoral promises to deliver public goods because investment in such credibility is costly. A central, new feature of the present analysis is a focus on the mutually reinforcing relationship between politicians’ incentives for acquiring reputations for good performance, voters’ evolving

\(^7\)Besley and Prat (2006) develop a model of political collusion between the government and formally free media; Besley and Burgess (2002) and Snyder and Strömberg (2010) study the relationship between voters’ access to information about government performance and accountability empirically.

\(^8\)The magnitude of such monitoring cost may in turn be mediated by political institutions, see e.g. Powell and Whitten (1993) and Hellwig and Samuels (2008).

\(^9\)For empirical research on accountability in new democracies, see Tucker (2006), Pacek et al. (2009), Roberts (2008), and Gehlbach et al. (2010). A related literature studies agency and accountability problems in dictatorships and across regimes types; see Besley and Kudamatsu (2007), Bueno de Mesquita et al. (2003), Debs (2008), Egorov and Sonin (2005), and Gehlbach and Keefer (2008).
beliefs about whether politicians can in fact be motivated to be accountable, and actual government performance. My key contribution is to show that voters’ scepticism about whether elections can deliver accountability may be self-fulfilling.

Finally, throughout this paper, I focus on democratic elections as first of all an instrument of accountability. Hence, I depart from Boix (2003) and Acemoglu and Robinson (2005) who view elections as a mechanism for resolving conflicts over the redistribution of wealth. According to their arguments, democracy cannot survive in economically unequal countries because violence rather than elections is the preferred way of resolving such conflicts when inequality is high. By contrast, I emphasize the role of elections as an instrument of accountability and argue that democracies may break down when elections fail to deliver accountability and thus better governance than a dictatorship. This latter argument helps us better understand the failure of democracy in countries without a severe redistributive conflict – such as Russia – where poor governance after the transition to democracy lead to widespread disenchantment with democracy, and in turn, ambivalence about alternative, authoritarian forms of government (Rose et al. 2006).

3 A Model of Democratic Consolidation and Breakdown

Consider the following electoral accountability game between a voter and two candidates \((i = 1, 2)\). At the beginning of any period \(t \in \{1, 2, \ldots \}\), one of the two candidates is the incumbent and either behaves in office or exploits office. A candidate who exploits office adopts policies that benefit himself at the expense of the voter. More precisely, behaving in office is costly to an incumbent, \(c > 0\), whereas exploiting it is costless. Any candidate prefers exploiting office to behaving in office. Additionally, each candidate prefers to remain in office in the next term rather than be replaced by the challenger. I normalize the payoffs from being in
office and out of office to \( w > 0 \) and 0, respectively.

The voter does not observe the incumbent’s action directly, instead she either monitors or ignores the incumbent’s performance. If she monitors the incumbent’s performance, she observes a policy outcome, which is an informative but imperfect signal of the incumbent’s action. More precisely, the outcome \( O \) is either a policy success or failure, \( O \in \{ S, F \} \). If the incumbent behaves, the voter observes a policy success with probability \( \gamma_b \) and a policy failure with probability \( 1 - \gamma_b \). If the incumbent exploits office, the corresponding probability of a success is \( \gamma_e \). I assume that \( 0 < \gamma_e < \frac{1}{2} < \gamma_b < 1 \), so that policies may fail even if the incumbent behaves but are less likely to do so than when the incumbent exploits office and vice versa. In order to keep the formal analysis as simple as possible, I assume that the voter does not discriminate between the two candidates in her decision to monitor or ignore the incumbent’s performance, and I let \( \gamma_e = 1 - \gamma_b \).

At the end of the period, the voter either keeps or replaces the incumbent with the challenger. The voter prefers a policy success to a policy failure, with the corresponding payoffs \( s > 0 \) and 0.\(^{10} \) Since \( \gamma_b > \gamma_e \), the voter prefers that the incumbent behaves in office rather than exploits it. However, if the voter ignores the incumbent’s performance, she does not observe the policy outcome and must decide whether to keep or replace the incumbent without such information. On the other hand, the candidates observe the voter’s actions as well as policy outcomes, but each candidate only observes his own action. The candidates and the voter discount future payoffs by a discount factor \( \delta_i, \delta \in (0, 1) \), respectively. I will notationally distinguish between \( \delta_i \) and \( \delta \) only when I focus on player-specific discount factors.

The following two assumptions distinguish this accountability game from standard models of electoral accountability and lead to a new equilibrium dynamic and predictions: First, each

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\(^{10}\)I only consider a single, representative voter in order to focus on the problem of motivating desirable candidate performance. In a setting with many voters, the preferences of all voters about the incumbent’s action in office would be identical. In effect, I am assuming that any single voter sees elections as an opportunity to act strategically vis-à-vis the candidates rather than other voters.
candidate may be one of two types. A candidate is normal if the threat of a removal from office will deter him from exploiting it. Thus for a normal candidate, \( w > c \). On the other hand, a candidate is bad, if he would prefer exploiting to behaving even if a removal from office was a sure consequence of such an action, \( c > w \). Therefore we may alternatively think of \( c \) as the benefit from exploiting office, and of the bad candidate type as one for whom the benefit from exploiting office in the present term is more attractive than re-election for another term. But note that the normal type of a candidate is no angel: if not threatened with a removal from office, he would prefer to exploit it rather than behave in office, too. Importantly, a candidate’s type is his private information: the voter does not know the candidates’ types, and each candidate knows his own type but not the type of the other candidate. As I discussed earlier, the second, new assumption in this setting is that the voter can choose whether to monitor or ignore the incumbent’s performance and monitoring entails a cost \( m > 0 \).

3.1 Electoral Accountability without Bad Candidates

Before examining the equilibrium behavior in this accountability game, it is useful to consider the problem of electoral accountability in a simpler setting, with only the normal type of candidate. Such a setting is closer to standard models of electoral accountability and we may use results based on this simpler setting as a benchmark against which we can compare the results that emerge in the more complex setting with normal as well bad types of candidates.

When only normal candidates are present, the threat of a removal from office following a policy failure will motivate them to behave in office, as long as both the voter and the candidates are sufficiently patient. More specifically, the following strategies constitute an equilibrium: in any period, the voter monitors the incumbent and conditions his re-election on a policy success, and each candidate behaves in office, as long as the voter conditioned re-election on a policy success in any previous period. Otherwise, the voter ignores policy outcomes, uses a
re-election rule that is unrelated to actual policy outcomes, and each candidate exploits office.\footnote{The restriction to grim trigger punishments and pure strategies simplifies our analysis by avoiding re-election rules that condition on the history of play in possibly complex ways. Banks and Sundaram (1993) and Myerson (2006) employ such trigger strategies in repeated models of electoral accountability.}

To see that these strategies constitute an equilibrium, suppose that the voter conditioned re-election on a policy success in any previous period and consider candidate $i$’s expected discounted payoff $u_i^t(b)$ from behaving in office,

$$u_i^t(b) = w - c + \delta_i[\gamma_b u_i^t(b) + (1 - \gamma_b)u_i^C],$$

(1)

where $u_i^C$ is candidate $i$’s expected discounted payoff when he is out of office and candidate $j$ behaves in office,

$$u_i^C = \delta_i[\gamma_b u_i^C + (1 - \gamma_b)u_i^t(b)].$$

(2)

Solving (1) and (2) for $u_i^t(b)$ we obtain

$$u_i^t(b) = \frac{(1 - \gamma_b\delta_i)(w - c)}{(1 - \delta_i)[1 - \delta_i(\gamma_b - \gamma_e)]}.$$

Candidate $i$ prefers behaving to exploiting as long as behaving yields a greater expected discounted payoff than a one-shot deviation to exploiting,

$$u_i^t(b) \geq w + \delta_i[\gamma_e u_i^t(b) + (1 - \gamma_e)u_i^C],$$

or equivalently,

$$\delta_i \geq \frac{c}{(\gamma_b - \gamma_e)w} = \delta_i^*.$$

Observe that the threshold discount factor $\delta_i^*$ is positive, increasing in $c$ and $\gamma_e$, decreasing in $w$ and $\gamma_b$, and smaller than 1 as long as $w > c/(\gamma_b - \gamma_e) = w$. Thus candidates have stronger
incentives to behave in office when they value office highly, the cost of behaving is low, and when the policy outcome is a more informative signal of the incumbent’s action.

Now consider the voter’s incentive to monitor the incumbent’s performance and condition re-election on a policy success. When she does so and the candidates behave in office, her expected discounted payoff is

\[ v = \gamma_b s - m + \delta v = \frac{\gamma_b s - m}{1 - \delta}. \]

On the other hand, both candidates will exploit office following any period in which the voter ignores the incumbent’s performance. In turn, the voter prefers to monitor the incumbent’s performance and condition re-election on a policy success as long as

\[ v \geq \gamma_b s + \delta v, \quad \text{where} \quad v = \frac{\gamma_e s}{1 - \delta}, \]

or equivalently

\[ \delta \geq \frac{m}{(\gamma_b - \gamma_e) s} = \delta^*. \]

Note that the voter’s threshold discount factor \( \delta^* \) is positive, increasing in \( m \) and \( \gamma_e \), decreasing in \( s \) and \( \gamma_b \), and smaller than 1 as long as \( s > m/(\gamma_b - \gamma_e) = \frac{s}{\delta} \). Thus the voter is willing to monitor the incumbent’s performance and condition re-election on a policy success when she values policy successes highly, the cost of monitoring is low, and when the policy outcome is a more informative signal of the incumbent’s action.\(^{12}\)

To summarize, we see that in this benchmark setting – with only the normal type of

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\(^{12}\)When the voter ignores the incumbent’s performance, her post-election payoff will be informative about the policy outcome, but she will not be able to use that information to discipline the incumbent because of the ensuing grim trigger regime. For instance, we may view the eventual realization of the payoff as the outcome of a reform that occurs too late for the voter to use it when voting. An alternative formulation that avoids such post-election informativeness would replace monitoring cost by costly voting.
candidate—the threat of a removal from office after a policy failure motivates both candidates to behave in office as long as the candidates and the voter are sufficiently patient, \( \delta_i \geq \delta_i^* \) and \( \delta \geq \delta^* \). In order to restrict attention to interesting scenarios in what follows, I assume that these conditions on patience as well as the associated lower bounds on \( w \) and \( s \), \( w \geq w \) and \( s \geq s \), hold. Accordingly, we may say that, with only the normal type of candidate, electoral accountability succeeds when \( \delta_i \geq \delta_i^* \), \( \delta \geq \delta^* \), \( w \geq w \), and \( s \geq s \).

**Proposition 1.** In a subgame perfect equilibrium with only normal types, each candidate behaves in office while the voter monitors and conditions re-election on a policy success, as long as \( \delta_i \geq \delta_i^* \), \( \delta \geq \delta^* \), \( w \geq w \), and \( s \geq s \), and the voter monitored and conditioned re-election on a policy success in any previous period.

**Proof.** Follows directly from the text.

### 3.2 The Trap of Pessimistic Expectations

Consider now whether electoral accountability succeeds once we let each candidate be either the normal or bad type, which is privately observed by each candidate. The timing of moves is as follows: At time \( t = 0 \), nature determines the type of each candidate and determines (with equal probability) which candidate will be the incumbent in period one. Independently, each candidate \( i \) will be normal with some probability \( \pi^0 \) and bad with probability \( 1 - \pi^0 \). The following stage game ensues in each subsequent period \( t = 1, 2, \ldots, \infty \). First, the voter either monitors or ignores the incumbent’s performance. Second, the incumbent either behaves in office or exploits office. Third, nature determines whether the policy outcome is a success or a failure and, if the voter monitored the incumbent’s performance, she observes the outcome. Finally, the voter either keeps or replaces the incumbent.

I will examine the perfect Bayesian equilibria of this repeated game. Since the bad type of
the incumbent always exploits office, we only look for equilibrium strategies for the normal type and the voter. Consider the set of strategies examined above, according to which the voter monitors the incumbent and conditions re-election on a policy success, and each normal candidate behaves in office, as long as the voter monitored the incumbent’s performance and conditioned re-election on a policy success in any previous period.

For any period $t \geq 1$, denote by $\pi^t_i$ the voter’s belief that candidate $i$ is normal. Equivalently, we may call $\pi^t_i$ candidate $i$’s reputation for behaving in office. Denote the voter’s initial, possibly distinct beliefs about each candidate’s type by $(\pi^0_1, \pi^0_2)$. The voter updates her belief $\pi^{t+1}_i(O)$ about the incumbent’s type using Bayes’ rule. If the voter monitors the policy outcome, then after observing a policy success in period $t$, the voter’s belief that the incumbent is normal in period $t + 1$ will increase to

$$\pi^{t+1}_i(\pi^t_i, S) = \frac{\gamma_b \pi^t_i}{\gamma_b \pi^t_i + \gamma_e(1 - \pi^t_i)}.$$

On the other hand, if the voter observes a policy failure in period $t$, her belief that the incumbent is normal in period $t + 1$ will decline to

$$\pi^{t+1}_i(\pi^t_i, F) = \frac{(1 - \gamma_b) \pi^t_i}{(1 - \gamma_b) \pi^t_i + (1 - \gamma_e)(1 - \pi^t_i)}.$$

If the voter ignores the policy outcome in any period $t - 1$, then the normal type of candidate exploits office in any following period and the voter’s belief about both candidates’ type remains constant across periods, $\pi^{t+1}_i(\pi^t_i, k) = \pi^t_i$. Finally, candidates update their beliefs about each other’s type according to Bayes’ rule as well, but they observe the policy outcome in any period. When convenient, I will instead denote the two candidate’s reputations by $\pi^{(l)}_1$ and $\pi^{(k)}_2$, where $l$ and $k$ index the ordered set of voter’s beliefs about each candidate.

Can the voter motivate normal candidates to behave in office by conditioning re-election on
a policy success? Consider a scenario in which the voter comes to believe that both candidates are most likely of the bad type. That is, $\pi_i^t$ is close to zero for $i = 1, 2$. Because monitoring policy outcomes is costly, there will be a level of $\pi_i^t$ at which the voter concludes that monitoring candidate performance is not worth its cost, since both candidates are most likely bad and will exploit office regardless of the voter’s actions. In turn, the voter should ignore policy outcomes. Anticipating this, even a normal incumbent will exploit office. Therefore after a series of policy failures, electoral accountability may fail even if both candidates are normal and willing to behave in office if sufficiently motivated.

I now examine when the above dynamic depicts an equilibrium. When candidate 1 is the incumbent in period $t$ and the voter’s beliefs about the candidates are $\pi_1^{(k)}$ and $\pi_2^{(l)}$, her payoff from monitoring candidate performance in office and conditioning re-election on a policy success is

$$v^1(\pi_1^{(k)}, \pi_2^{(l)}) = \pi_1^{(k)}v^{1N} + (1 - \pi_1^{(k)})v^{1B},$$

where $v^{1N}$ and $v^{1B}$ are the voter’s expected discounted payoffs from the normal and the bad type of incumbent 1, respectively. When the normal type behaves in office, the voter’s expected discounted payoff is

$$v^{1N} = -m + \gamma_b(s + \delta v^{1N}) + (1 - \gamma_b)\delta v^2(\pi_1^{(k-1)}, \pi_2^{(l)}),$$

where $v^2(\pi_1^{(k-1)}, \pi_2^{(l)})$ is the voter’s payoff when candidate 2 replaces 1 in office in period $t + 1$ after a policy failure. Because the bad type always exploits office, the voter’s expected discounted payoff from a bad incumbent 1 is

$$v^{1B} = -m + \gamma_e(s + \delta v^{1B}) + (1 - \gamma_e)\delta v^2(\pi_1^{(k-1)}, \pi_2^{(l)}).$$

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Intuitively, the voter’s payoff from monitoring candidate performance in office and conditioning re-election on a policy success in (3) is increasing in each candidate’s reputation. As the candidates’ reputations decline, the voter’s expected per-period payoff approaches $\gamma c s - m$, which is less than $\gamma c s$, the expected per-period payoff that the voter would obtain if she ignored the incumbent’s performance. Hence for some $\pi_j^{(t)}$, there will be a threshold belief $\pi_i^{(k)} = \pi_i(\pi_j^{(t)})$ such that if a policy failure occurs in the current period and the incumbent’s reputation drops to $\pi_i^{(k-1)}$, the voter prefers to ignore candidate performance in any period in which candidate $i$ enters office. Recall that $\nu = \gamma c s / (1 - \delta)$ is the payoff that the voter obtains when both candidates exploit office while the voter ignores the incumbent’s performance. Thus for $i = 1, 2$,

$$\pi_i(\pi_j) = \min \pi_i \text{ such that } v^i(\pi_1^{(k)}, \pi_2^{(k)}) > \nu.$$ (4)

In the appendix, I show that incumbent $i$’s threshold reputation $\pi_i(\pi_j)$ is weakly decreasing in the challenger’s current reputation $\pi_j$. That is, the stronger candidate $j$’s reputation, the worse candidate $i$ must perform before the voter gives up on monitoring candidate performance. Thus in new democracies, one candidate’s success in office is a positive externality from which all candidates benefit.

Furthermore, I show that the threshold reputation $\pi_i(\pi_j)$ may not exist when $\pi_j$ is above some threshold $\pi_j > 0$. In other words, the voter will not give up on monitoring candidate performance when candidate $i$ is in office, as long as her belief that candidate $j$ is the normal type is high enough: the voter must believe sufficiently strongly that both candidates are crooks, before she gives up on monitoring policy outcomes.

These results imply that once a candidate whose reputation dropped below the threshold $\pi_i(\pi_j)$ enters office, the voter no longer monitors candidate performance and uses a re-election rule that is unrelated to actual policy outcomes. That is, electoral accountability fails.
Importantly, once the threshold $\pi_i(\pi_j)$ has been crossed, voter's skepticism about candidate behavior is self-fulfilling: even a normal incumbent – one who would be willing to behave in office if threatened with a removal from office otherwise – will choose to exploit office. Accordingly, we may call this equilibrium the *trap of pessimistic expectations.*

**Proposition 2.** In a perfect Bayesian equilibrium,

(i) If $\pi_i^1 \geq \pi_i(\pi_j)$ and as long as the voter monitored and conditioned re-election on a policy success in any previous period, the normal candidate behaves in office, and the voter monitors policy outcomes and conditions re-election on a policy success. Otherwise, the normal candidate exploits office and the voter ignores policy outcomes, using a re-election rule that is unrelated to the policy outcome.

(ii) The belief threshold $\pi_i(\pi_j)$ is weakly decreasing $\pi_j$.

(iii) If $\delta > \frac{m}{\gamma_e(\gamma_0 - \gamma_e) s}$, the belief threshold $\pi_i(\pi_j)$ does not exist for sufficiently high values of $\pi_j$.

*Proof.* See appendix.

### 3.3 The Breakdown of Democracy

The above analysis implies that a sequence of policy failures may result in a complete failure of electoral accountability. Once a democracy enters the trap of pessimistic expectations, elections no longer motivate normal candidates to behave in office and candidates’ performance no longer affects their chances of retaining office. Therefore, the voter has no stake in defending democracy against an attempt to subvert it, and in turn, the candidates may resort to non-democratic ways in order to maintain or acquire power. Thus the failure of electoral accountability may precipitate the breakdown of democracy.

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13This result may appear to depend on the assumption that only two candidates compete. I relax this assumption in section 3.4.
I will now extend the above accountability game and show that the breakdown of democracy will be an equilibrium outcome whenever a democracy enters the trap of pessimistic expectations. The main reason why the voter will no longer resist any attempt to subvert democracy lies in the voter’s scepticism about the ability of democracy to deliver good governance – the origins of which I examined above. I will therefore present the simplest extension of the accountability game that captures this intuition.

Suppose that at the beginning of any period \( t = 1, 2, \ldots, \infty \), before any of the existing moves in the accountability game, each candidate decides whether to subvert or comply with democracy. If both candidates comply, the stage game continues as previously. If an attempt to subvert democracy occurs, the voter either acquiesces or defends democracy; defending democracy is associated with a cost \( d > 0 \). If the voter acquiesces, the game ends in a breakdown of democracy and the voter receives the discounted payoff \( v \). If only one candidate subverts democracy, the candidate who subverts enters office and obtains the per-period payoff \( b \) in any subsequent period, while the other candidate obtains the payoff 0. If both candidates subvert, each assumes office with a probability of 1/2. If the voter defends democracy, any attempt to subvert democracy fails, any candidate that attempts to subvert democracy leaves the game, receives a negative payoff \( u < 0 \), a new candidate enters the game in his place, and the stage game continues as previously.

These extensions imply that once a democracy enters the trap of pessimistic expectations, both candidates subvert, the voter acquiesces, and the game ends in a breakdown of democracy. In order to account for the cost of defending democracy, I now modify the definition of the threshold \( \pi_i(\pi_j) \) in (4) to

\[
\pi_i(\pi_j) = \min \pi_i \text{ such that } v^i(\pi_1^{(k)}, \pi_2^{(l)}) - d > v.
\]  

(5)
Accordingly, we may call \( \pi_i(\pi_j) \) in (5) the *breakdown threshold*. Importantly, as long as candidate reputations are above the breakdown threshold, the voter has an incentive to defend democracy for a sufficiently small cost \( d \), because her expected payoff under a democracy \( v^i(\pi_1^{(k)}, \pi_2^{(l)}) \) is greater than her payoff once democracy breaks down \( \pi \).

**Proposition 3.** In a perfect Bayesian equilibrium, if \( \pi^t_i \geq \pi_i(\pi_j) \), \( d < \frac{(\lambda-\gamma)s-m}{1-\delta} \), and as long as the voter monitored and conditioned re-election on a policy success in any previous period, both candidates comply with democracy, and the voter defends democracy. Otherwise, both candidates subvert democracy, and the voter acquiesces.

*Proof.* See appendix. \( \square \)

### 3.4 Reputation Building and Democratic Consolidation

My analysis so far implies that as long as the incumbent’s reputation is above \( \pi_i(\pi_j) \), the voter will monitor incumbent performance, and that this will in turn motivate the candidates to behave in office. In the long run, however, any democracy will fall into the trap of pessimistic expectations: with a positive probability, a sequence of policy failures will occur that is sufficiently long to bring any incumbent’s reputation under the breakdown threshold \( \pi_i(\pi_j) \). This happens because I have assumed that the pool of candidates that compete for office is fixed. I now relax that assumption and let candidates enter and exit politics.

Suppose that at the beginning of any period \( t = 1, 2, \ldots, \infty \), before any other moves in the game, each of two candidates decides whether to *run* or *exit*. Any candidate that exits obtains a per-period payoff \( x > 0 \) from an alternative career. New candidates are drawn at random from a large *candidate pool* with an unknown share of normal types \( \pi \); I refer to \( \pi \) as the *quality* of the pool. The voter holds an initial belief about the quality of the pool \( \pi^0 \) and updates it to \( \pi^t \) according to Bayes’ rule at the end of each period \( t \). As previously, the voter only re-elects
an incumbent after a policy success. However, at the beginning of any period, the voter now optimally replaces the challenger with a new candidate from the pool if the challenger’s current reputation $\pi_i^t$ is worse than the voter’s current belief about the quality of the pool, $\pi_i^t < \pi^t$.

This process continues until there are two candidates willing to run at the beginning of any period. The timing of the moves in the rest of the period is as previously.

In this section, I show that once the incumbent’s reputation grows past a consolidation threshold $\pi_i(\pi_j)$ a bad challenger will exit and no bad challenger will run again. After this occurs, equilibrium strategies in this game will be identical to those in the accountability game with normal types only, which I examined earlier. Hence once candidate reputations are sufficiently strong, electoral accountability succeeds. As previously, however, repeated failures by several candidates may lower the voter’s belief about the quality of the candidate pool to the extent that a democracy falls into the trap of pessimistic expectations and breaks down.

Observe that the expected discounted payoff to a normal and bad type of candidate 1 when he is the incumbent, $u_{1N}^I(\pi_1^{(k)}, \pi_2^{(l)})$ and $u_{1B}^I(\pi_1^{(k)}, \pi_2^{(l)})$, does not directly depend on the challenger’s type, and is

$$u_{1N}^I(\pi_1^{(k)}, \pi_2^{(l)}) = w - c + \delta[\gamma_b u_{1N}^I(\pi_1^{(k+1)}, \pi_2^{(l)}) + (1 - \gamma_b)u_{1N}^C(\pi_1^{(k-1)}, \pi_2^{(l)})],$$

$$u_{1B}^I(\pi_1^{(k)}, \pi_2^{(l)}) = w + \delta[\gamma_e u_{1B}^I(\pi_1^{(k+1)}, \pi_2^{(l)}) + (1 - \gamma_e)u_{1B}^C(\pi_1^{(k-1)}, \pi_2^{(l)})].$$

Meanwhile, the expected discounted payoff to a challenger of either type is directly affected by the incumbent’s type. For instance, when the normal type of candidate 1 is the challenger, his payoff is

$$u_{1N}^C(\pi_1^{(k)}, \pi_2^{(l)}) = \delta\left(\pi_2^{(l)}[\gamma_b u_{1N}^C(\pi_1^{(k)}, \pi_2^{(l+1)}) + (1 - \gamma_b)u_{1N}^I(\pi_1^{(k)}, \pi_2^{(l+1)})] + (1 - \pi_2^{(l)})[\gamma_e u_{1N}^C(\pi_1^{(k)}, \pi_2^{(l-1)}) + (1 - \gamma_e)u_{1N}^I(\pi_1^{(k)}, \pi_2^{(l-1)})]\right).$$
In the appendix, I show that the expected discounted payoff to both the normal and the bad type of challenger is decreasing in the incumbent’s reputation. Furthermore, the normal type of challenger obtains a greater expected discounted payoff than the bad type when the incumbent’s reputation approaches 1. That is

$$\lim_{\pi_j \to 1^-} u^{C}_{iN}(\pi^{(k)}_1, \pi^{(l)}_2) > \lim_{\pi_j \to 1^-} u^{C}_{iB}(\pi^{(k)}_1, \pi^{(l)}_2).$$

Both of these results are intuitive: because normal types – who behave in office – are more likely to get re-elected, both a bad and a normal type of challenger expects to return to office sooner if the incumbent is a bad type. However, a bad challenger expects to stay in office shorter than a normal type and therefore obtains a smaller expected payoff than the normal type.

These results imply that once the incumbent’s reputation $\pi_i$ is sufficiently strong, there will be a range of discounted exit payoffs $u(\text{exit}) = x/(1 - \delta)$, for which bad types of challenger prefer to exit but normal types prefer to run. The bad type of challenger will exit when the incumbent’s reputation $\pi_i$ approaches 1 as long as $u(\text{exit}) > \lim_{\pi_i \to 1^-} u^{C}_{jB}(\pi^{(k)}_1, \pi^{(l)}_2)$. The normal type of challenger will run even as the incumbent’s reputation $\pi_i$ approaches 1 as long as $u(\text{exit}) < \lim_{\pi_i \to 1^-} u^{C}_{jN}(\pi^{(k)}_1, \pi^{(l)}_2)$. Suppose therefore that

$$\lim_{\pi_i \to 1^-} u^{C}_{jB}(\pi^{(k)}_1, \pi^{(l)}_2) < u(\text{exit}) < \lim_{\pi_i \to 1^-} u^{C}_{jN}(\pi^{(k)}_1, \pi^{(l)}_2)$$

and denote the highest value of the incumbent’s reputation at which the bad challenger types still prefer running to exiting by $\pi_i(\pi_j)$. That is,

$$\pi_i(\pi_j) = \max \pi_i \text{ such that } u^{C}_{jB}(\pi^{(k)}_1, \pi^{(l)}_2) \geq u(\text{exit}).$$

Once $\pi_i^* > \pi_i(\pi_j)$, any bad challenger has exited and any bad candidate that nature may draw to run will exit as well. A bad type of candidate may still be in office, but he will exit as soon as he is replaced in office, since the new incumbent will now be normal for sure. Denote the period in which this occurs by $T^*$. Then from period $T^*$ onward, only normal types of
candidates will compete and the voter’s consistent belief is \( \pi_i^t = 1 \) for \( i = 1, 2 \). In turn, the voter will correctly interpret any policy failure as the result of bad luck rather than an incumbent being bad. Consequently, this democracy can no longer enter the trap of pessimistic expectations and break down.

Accordingly, we may call any equilibrium of this accountability game in which \( \pi_i^t > \pi_i(\pi_j) \) a consolidated democracy, the set of threshold beliefs \( \pi_i(\pi_j) \) the consolidation threshold, and time \( T^* \) the consolidation time. By contrast, the set of equilibria in which candidate reputations are at or above the breakdown but at or below the consolidation thresholds may be called a transitional democracy.

**Proposition 4.** In a perfect Bayesian equilibrium, bad types of candidates exit and normal types run if \( \pi_i^t > \pi_i(\pi_j) \), \( u(\text{exit}) \in \left( \lim_{\pi_j \to 1^-} u_{iB}(\pi_1^{(k)}, \pi_2^{(l)}), \lim_{\pi_j \to 1^-} u_{iN}(\pi_1^{(k)}, \pi_2^{(l)}) \right) \), and as long as the voter monitored and conditioned re-election on a policy success in any previous period.

*Proof.* See appendix. \( \square \)

### 3.5 An Illustration

According to my analysis, the voter’s and candidates’ equilibrium strategies constitute a process of endogenous change in the voter’s beliefs about the type of candidates that she is facing and, eventually, about whether democracy can deliver accountability. An incumbent’s equilibrium action determines the most likely policy outcome, which in turn shapes the voter’s belief about the incumbent’s type. While changes in the voter’s beliefs occur, a democracy is transitional. Eventually however, this process results in one of two, potential outcomes: either the breakdown or the consolidation of democracy. I now illustrate this dynamic with examples and simulations of the equilibrium behavior predicted by this model.

Suppose \( s = 1, m = 0.2, w = 1, c = 0.1, d = 1, \gamma_b = 0.7, \) and \( \delta_i = \delta = 0.95 \). In Figure 2, I
Figure 2: Breakdown and consolidation thresholds when candidate 1 (solid lines) and 2 (dashed lines) is the incumbent. Thin dotted lines plot the set of candidate reputations that may occur in equilibrium.

plot the breakdown and consolidation thresholds $\pi_i(\pi_j)$ and $\pi_i(\pi_j)$. The thin dotted lines plot the set of candidate reputations, while thick solid and dashed lines plot the breakdown and consolidation thresholds when candidate 1 and 2 is the incumbent, respectively. As I showed earlier, the breakdown threshold when candidate $i$ is the incumbent $\pi_i(\pi_j)$ is weakly decreasing in the challenger’s reputation $\pi_j$ and may nor bind if the challenger’s reputation is sufficiently strong.

Thus we see that any democracy in which the voter’s initial beliefs about candidate types lie above the breakdown but below the consolidation thresholds will begin as a transitional democracy. By contrast, polities in which initial beliefs about candidates are so pessimistic that they lie below both breakdown thresholds will start in the trap of pessimistic expectations and are doomed to break down.\textsuperscript{14} Meanwhile, those polities in which initial beliefs are so

\textsuperscript{14}Myerson (2006) shows that federal constitutions enable the emergence of good political reputations even in
optimistic that they lie above one of the consolidation thresholds will consolidate immediately. For most real-world cases, however, a reasonable set of initial beliefs will be neither too pessimistic to result in an immediate breakdown of democracy nor too optimistic to lead to an immediate consolidation of democracy.\textsuperscript{15}

4 Implications for the Empirical Study of Democratic Survival

The model of democratic consolidation and breakdown that I examined has a number of new implications for empirical research on democratic survival. First, the long-run statistical distribution of several outcomes that have been prominently examined in the literature on democratic survival – notably the timing of the breakdown and the consolidation of democracy – directly follow from the equilibrium behavior in the model. Theoretically informed knowledge of these distributions may in turn be used to guide the choice of appropriate statistical techniques for the analysis of data on democratic survival. Second, my analysis leads to a new, intuitive prediction about the relationship between economic downturns, the age of democracy, and the likelihood of democratic breakdowns that has not been previously examined in the literature: the effect of economic downturns on democratic breakdowns should be conditional on the age of democracy. This prediction is supported by an empirical analysis that I conduct in this section. Finally, the model in section 3 predicts several substantive, empirical associations between policy outcomes, voter attitudes, and the survival of democracy. Some of

\textsuperscript{15}Empirically, these initial beliefs may be the product of previous democratic experience (as in Czechoslovakia), reputations that candidates acquired because the dictatorship prior to the transition to democracy allowed for some electoral competition (as in Mexico), or the exposure to democracy via neighboring countries (as in East Germany). The last alternative is consistent with the finding that democracies that are surrounded by other democracies are more like to endure (see e.g. Brinks and Coppedge 2006); the present model thus offers a mechanism that explains this finding.
these associations have been examined empirically, but often without an explicit statement of the underlying, theoretical microfoundations. Importantly, the present model provides such microfoundations.

As the numerical illustration suggests, the voter’s and candidates’ equilibrium strategies imply a particular, long-run statistical distribution of democratic breakdowns. If the voter’s initial beliefs about candidate types are in the empirically plausible range that defines a transitional democracy, for instance \( \pi^0 = (0.5, 0.7) \), then it takes at least two consecutive policy successes for a democracy to consolidate. Meanwhile, it takes at least five consecutive policy failures for a democracy to fall into the trap of pessimistic expectations and then break down. Note that candidate 2’s two consecutive policy successes will be sufficient for consolidation, but it takes at least two failures by each candidate before a democracy breaks down. That is, a single, successful candidate can bring about the consolidation of democracy, but with a sufficiently optimistic combination of initial beliefs, it will take at least two failures by each of the two candidates before a democracy breaks down.

What percentage of democracies will eventually consolidate and what percentage will break down? The equilibrium path of this game can be statistically represented by a discrete-time absorbing Markov chain where any belief vector that lies above the breakdown but below the consolidation thresholds constitutes a transient state whereas transitions to belief vectors immediately below or above these thresholds constitute transitions to the absorbing states of breakdown and consolidation, respectively. While a democracy is transitional, only transitions to neighboring states occur with a positive probability. These probabilities depend on the type of candidate in office and are thus either \( \gamma_b \) and \( 1 - \gamma_b \) or \( \gamma_e \) and \( 1 - \gamma_e \). Since the two absorbing states can be reached in one or more steps from any transient state, a democracy will eventually either consolidate or break down. After 100,000 simulations following the initial belief vector \( \pi^0 = (0.5, 0.7) \) and \( \pi = 0.7 \), 23.8% of democracies eventually break down, 76.2%
Figure 3: (Simulation generated) distribution of transitional, consolidated, and failed democracies over time (left) and the probability that a surviving democracy is consolidated (right) consolidate, and the median times to breakdown and consolidation are 8 and 7, respectively.\textsuperscript{16}

This long-run equilibrium behavior has two key implications for the statistical analysis of data on democratic survival. First, breakdown and consolidation are competing risks. As time progresses, transitional democracies either consolidate or break down and the fraction of transitional democracies among surviving democracies decreases. Figure 3 illustrates this dynamic. Crucially, given the limitations of large-N data, we typically cannot directly distinguish consolidated democracies from transitional ones. In turn, the data on surviving democracies will be a mixture of transitional and consolidated democracies, and the latter will survive arbitrarily long. Proper inference for such data must therefore account for the possibility that, as time progresses, a fraction of surviving democracies will no longer be at the risk of a breakdown.

The long-run equilibrium behavior in our model thus suggests a particular shape of the hazard rate of democratic breakdowns. Recall that in the empirically plausible case when any

\textsuperscript{16}In the appendix, I plot the simulated distribution of time to breakdown and consolidation. The simulated distribution of time to breakdown is close to its distribution in actual data.
democracy starts as a transitional democracy, it takes $k > 0$ more policy failures than successes before a democracy falls into the trap of pessimistic expectations and breaks down. Thus the hazard rate of democratic breakdowns will be zero during the first $k - 1$ periods. Thereafter, the hazard rate will be a mixture of two hazard rates, each corresponding to the type of one of the two candidates. Because of the discrete nature of transition to the absorbing state of breakdown, the hazard rate may fluctuate sharply between neighboring time periods. However, it will generally first be increasing and then decreasing over a sufficiently large interval and converge to zero as all transitional democracies either consolidate or break down.\textsuperscript{17} This dynamic is illustrated in Figure 4, which plots the hazard rate of democratic breakdowns after policy failures, using simulation results from the previous section. Hence the equilibrium behavior in our model suggests that statistical models for the analysis of democratic survival should allow for a hazard rate that is sufficiently flexible to describe an increase followed by decrease in the hazard rate of democratic breakdown.\textsuperscript{18}

4.1 Economic Downturns, the Age of Democracy, and Democratic Breakdowns

The long-run equilibrium behavior in the consolidation model also leads a new prediction about the relationship between economic downturns, the age of democracy, and the likelihood of democratic breakdowns. As Figure 4 illustrates, the probability that a surviving democracy breaks down after a policy failure converges to zero as a democracy grows older. Adopting economic downturns as a measure of policy failures, the present model implies that the effect of

\textsuperscript{17}The probability mass function of the time of democratic breakdowns follows a generalization of the stochastic process by which a sequence of Bernoulli trials ends after $k$ more successes than failures.

\textsuperscript{18}Among standard parametric survival models, the loglogistic, lognormal and the generalized gamma parameterizations of the hazard rate satisfy this requirement but the Weibull does not. Estimates based the loglogistic, lognormal and the generalized gamma parameterizations indeed yield a hazard rate that is first increasing and then decreasing. The semi-parametric Cox model does not impose any restrictions on the shape of the hazard rate and is thus most flexible. See e.g. Box-Steffensmeier and Jones (2004, Chapters 3 and 4).
economic downturns on democratic breakdowns will be *conditional* on the age of democracy. More precisely, this effect should be positive and statistically significant early on in the life of a democracy but vanishing over time. Thus after some point, the likelihood of democratic breakdowns during economic downturns should be statistically indistinguishable from the likelihood of breakdowns during expansions. In Figure 4, the solid line that plots the 4-period moving average of the hazard rate can be viewed as a continuous-time approximation of the hazard of democratic breakdowns following policy failures implied by our model. We see that as a democracy ages, this hazard becomes indistinguishable from zero under an arbitrarily strict significance level.

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19Economic downturns are only one among many plausible empirical indicators of policy failures. In fact, the rule of law, provision of public goods, or corruption would be more accurate measures of policy outcomes, as conceptualized in the model in Section 3. Unfortunately, these indicators are only available for a very small subset of country-years.
In order to evaluate this hypothesis properly, we need to estimate the effect of economic downturns on democratic breakdowns before and after an unknown change-point in time $\tau$. I therefore estimate a change-point Cox survival model, according to which the effect of economic growth $\beta$ on the hazard rate $\lambda$ changes at an unknown point in time $\tau$,

$$
\lambda(t, Z, X) = \lambda_0 \exp[\beta_{t \leq \tau} Z + \beta_{t > \tau} Z + \gamma' X].
$$

In (6), $\lambda_0$ is an unspecified baseline hazard rate, $\beta_{t \leq \tau}$ and $\beta_{t > \tau}$ capture the time-dependent effect of growth $Z$ on the hazard rate $\lambda$, and $\gamma$ is a vector of coefficients that capture the time-independent effect of control covariates $X$ on the hazard rate $\lambda$. The unknown change-point $\tau$ is estimated along with the coefficients $\beta_{t \leq \tau}$, $\beta_{t > \tau}$, and $\gamma$ by maximizing the partial log-likelihood of the Cox model over a set of candidate change-points corresponding to all breakdown times in the data.\(^{20}\)

I use data on democratic survival that cover the period 1841-2007 and are based on the regime type data compiled by Przeworski et al. (2000), Boix (2003), and Cheibub and Gandhi (2005). The complete data contain 4,390 democracy-years with 73 breakdowns in 193 democratic spells from 133 countries. My key covariate of interest is GDP growth which is based on data in Maddison (2008). I also include controls typically employed in the literature on democratic survival (see e.g. Przeworski et al. 2000; Bernhard et al. 2001; Boix 2003; Cheibub 2007; Ulfelder and Lustik 2007). I control for GDP per capita, fuel and ore exports (a dummy variable that takes the value one if a country’s fuel and ore production amounts to more than 40% of its exports and zero otherwise), the constitutional foundation for the

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\(^{20}\)I estimate a change-point Cox model because it does not rely on parametric assumptions about the shape of the baseline hazard rate. Thus any estimated changes in the effect of economic downturns on the likelihood of democratic breakdowns will be due this change and not due to a possibly misspecified, parametric restriction placed on the shape of the baseline hazard rate. The literature on the Cox model with a change-point is large; see e.g. Matthews and Farewell (1982), Liang et al. (1990), and Luo et al. (1997).
executive (parliamentary, presidential, or mixed), the type of the dictatorship that preceded the transition to democracy (military, civilian, monarchy, Communist, or not-independent), the fraction of a democracy’s neighbors that were democratic in any given year, and a Cold War period effect (a dummy that takes the value one between the years 1945 and 1990, and zero otherwise.) These data come from Maddison (2008), the World Bank (2008), Cheibub and Gandhi (2005), and my own data collection. After accounting for missing covariates, the data cover 3,769 democracy-years with 72 breakdowns in 173 democratic spells from 138 countries.

Table 1 summarizes estimation results from the change-point model. Model 1 preserves the largest number of observations, model 2 incorporates all control covariates, and model 3 controls for any unobserved, spell-level heterogeneity by including random effects (frailty). Estimated coefficients are presented in the form of hazard ratios: a coefficient greater than 1 implies that the associated covariate raises the relative risk of democratic breakdowns.

My theoretical analysis predicts that economic growth will at first significantly reduce the risk of breakdowns, \( \beta_{t \leq \tau} < 1 \), but that this effect should become statistically insignificant over time, \( \beta_{t > \tau} = 1 \). Estimates from all models in Table 1 support this prediction: each percentage point decline in economic growth raises the risk of a democratic breakdown by about 5%, as long as a democracy has existed for no more than 22 years. The first and third quartiles of growth are 0.10 and 4.45; an interquartile decrease in economic growth thus corresponds to an 80% increase in the risk of a democratic breakdown. Yet after the age of 22 years, the effect of growth on breakdowns is no longer statistically significant. Furthermore, one-tailed Wald and likelihood-ratio tests reject the null hypothesis \( \beta_{t \leq \tau} = \beta_{t > \tau} \) at 5% and 10% significance levels, respectively. Hence we see support for the conditional, time-dependent effect of economic decline on the hazard of a democratic breakdown, as predicted by the theoretical model in

\[ \text{A fixed-effects model is not suitable here because several covariates do not vary over time and many democracies do not experience a breakdown. These covariates and observations would have to be dropped from a fixed-effect estimation; see Beck and Katz (2001) and Cameron and Trivedi (2005, 701-2).} \]

\[ \text{There are eight breakdowns in a total of 2,350 country-years after the change-point estimate of 22 years.} \]
Table 1: The time-dependent effect of economic decline on the hazard of democratic breakdowns

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<thead>
<tr>
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<th>Partial (1)</th>
<th>Full (2)</th>
<th>RE (3)</th>
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<tr>
<td><strong>GDP growth before</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \tau ), ( \beta_{t \leq \tau} )</td>
<td>0.960***</td>
<td>0.952***</td>
<td>0.952***</td>
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<td></td>
<td>(0.012)</td>
<td>(0.013)</td>
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<tr>
<td><strong>GDP growth after</strong></td>
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<tr>
<td>( \tau ), ( \beta_{t &gt; \tau} )</td>
<td>1.101</td>
<td>1.134</td>
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<tr>
<td></td>
<td>(0.077)</td>
<td>(0.099)</td>
<td>(0.115)</td>
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<td><strong>Log of GDP per capita</strong></td>
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<td></td>
<td>0.462***</td>
<td>0.527***</td>
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<td></td>
<td>(0.067)</td>
<td>(0.104)</td>
<td>(0.099)</td>
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<tr>
<td><strong>Fuel and ore exporter</strong></td>
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<tr>
<td></td>
<td>0.984</td>
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<tr>
<td></td>
<td>(0.265)</td>
<td>(0.265)</td>
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<tr>
<td><strong>Presidential (v. parliamentary)</strong></td>
<td>1.073</td>
<td>1.073</td>
<td>(0.315)</td>
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<tr>
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<td>(0.295)</td>
<td>(0.315)</td>
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<td><strong>Mixed (v. parliamentary)</strong></td>
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<td>1.206</td>
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<td>2.009*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.580)</td>
<td>(0.584)</td>
<td></td>
</tr>
<tr>
<td><strong>Monarchy (v. civilian)</strong></td>
<td>1.836</td>
<td>1.836</td>
<td>(1.073)</td>
</tr>
<tr>
<td></td>
<td>0.944</td>
<td>0.944</td>
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</tr>
<tr>
<td><strong>Communist (v. civilian)</strong></td>
<td>2.341</td>
<td>2.341</td>
<td>(1.642)</td>
</tr>
<tr>
<td></td>
<td>(1.547)</td>
<td>(1.642)</td>
<td></td>
</tr>
<tr>
<td><strong>Cold War</strong></td>
<td>2.982***</td>
<td>2.982***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.844)</td>
<td>(0.909)</td>
<td></td>
</tr>
<tr>
<td><strong>Democratic neighbors</strong></td>
<td>0.240***</td>
<td>0.240***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.112)</td>
<td>(0.113)</td>
<td></td>
</tr>
<tr>
<td><strong>Change-point ( \tau )</strong></td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td><strong>Wald test of</strong></td>
<td>3.77**</td>
<td>4.06**</td>
<td>2.97**</td>
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<tr>
<td>( H_0 : \beta_{t \leq \tau} = \beta_{t &gt; \tau} )</td>
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<td></td>
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<tr>
<td><strong>LR test of</strong></td>
<td>2.55</td>
<td>2.95*</td>
<td>2.95*</td>
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<tr>
<td>( H_0 : \beta_{t \leq \tau} = \beta_{t &gt; \tau} )</td>
<td></td>
<td></td>
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<tr>
<td><strong>Variance of the random effect</strong></td>
<td>–</td>
<td>–</td>
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<tr>
<td><strong>Log-likelihood</strong></td>
<td>-328.574</td>
<td>-298.223</td>
<td>-297.828</td>
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<tr>
<td><strong>Democratic country-years</strong></td>
<td>4,117</td>
<td>3,769</td>
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<td><strong>Democratic spells</strong></td>
<td>177</td>
<td>173</td>
<td>173</td>
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<tr>
<td><strong>Democratic breakdowns</strong></td>
<td>74</td>
<td>72</td>
<td>72</td>
</tr>
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</table>

**Note:** A change-point Cox survival model, coefficients are expressed as hazard ratios, Breslow method for ties. Significance levels *10%, **5%, ***1%; robust standard errors in parentheses. Gamma distributed, spell-level random effects (frailty).

**Data Sources:** See text. All covariates are lagged by one year.
5 Conclusion

Why would voters in a new democracy ever conclude that “all politicians are crooks” and that “democracy does not work?” After all, democratic theorists from Madison (1788) to Dahl (1971) tell us that elections under democracy give voters a unique opportunity to hold politicians accountable for their performance in office. Hence if the government performs poorly, voters should blame the incumbent, not the political system.

In this paper, I explain the precise mechanism by which repeated dissatisfaction with the performance of individual politicians turns into doubts about the value of democracy as a political system. I have argued that, in new democracies, the success of elections as an instrument of accountability critically depends on two, interdependent beliefs: voters’ belief that politicians will respond to electoral incentives and politicians’ expectation that voters will punish them for poor performance in office. If voters instead believe that “all politicians are crooks”, and therefore any attempt to discriminate among them based on their performance is a waste of time, then all politicians will “act like crooks”, even if most of them would be willing to behave in office if given proper incentives.

I have shown that this vicious cycle of self-fulfilling pessimistic expectations is particularly likely to emerge in new democracies, after repeatedly disappointing government performance. In these circumstances, voters may rationally conclude that electoral competition has been captured by politicians who only see elected office as an opportunity for personal gain and that their particular democracy – rather than democracy as an abstract ideal – cannot deliver governance that is any better than under a dictatorship. Qualitative evidence corroborates that such a “trap of pessimistic expectations” indeed occurs. One observer of Azerbaijan’s 2000
parliamentary election remarked that “the low voter turnout was a sign of political apathy among a substantial part of the population, who expected . . . that voting would not change anything. They had no confidence that the fragmented opposition parties could run the country better than the present regime or that they would be any less prone to corruption” (Cornell 2001, 129). Commenting on the 2009 regional elections in Russia, another observer noted that “the apparent brazenness of the [electoral] fraud and the absence of a spirited reaction says a lot about the deep apathy in Russia, where people grew disillusioned with politics under Communism and have seen little reason to alter their view.” Moreover, statements such as “all crows under heaven are equally black” (O’Brien and Li 2006, 125-6) or “it makes no sense to replace a full tiger with a hungry wolf” (Li and O’Brien 1996, 34) exemplify the public disenchantment with village elections in China after their failure to restrain corrupt behavior by local officials. In each of these instances, the advent of democratic institutions was at first heralded with great enthusiasm. The arguments that I have presented help us to understand the causes of this reversal of initial optimism as well as the ensuing ambivalence about the value of democracy.

Finally, my findings point to the importance of institutions that regulate the entry of candidates into politics after a transition to democracy. Political parties, sub-national elections, primaries, and bureaucracies all have the potential to limit the entry of low-quality candidates into politics by acting as institutional filters. However, in the period after a transition to democracy, such institutions are frequently underdeveloped and may be captured by the very types of candidates whose entry they might otherwise restrain (Grzymala-Busse 2007).

I have shown that candidate reputations have the potential to play a key selection role during the post-transition period by discouraging the entry of low-quality candidates. Yet because reputations take time to develop, undesirable policy outcomes can have a

---

disproportionately adverse effect on a democracy’s chances of survival despite the best efforts of the candidate in office. My analytical results suggest that factors that help voters to evaluate candidates’ performance with lesser effort and greater precision will accelerate the formation of informative political reputations. Therefore during this period, assistance to new democracies – for instance by strengthening the civil society and independent media – may be decisive for the success of democracy.

References


Gehlbach, Scott, Konstantin Sonin, and Ekaterina Zhuravskaya. 2010. “Businessman Candi-


Supplementary Appendix to “Learning to Love
Democracy: Electoral Accountability, Government
Performance, and the Consolidation of Democracy”

This Appendix contains proofs and explanations of those technical results that do not
follow directly from the discussion in the text. I also include a table of descriptive statistics
for covariates in the empirical analysis in section 4 of the paper.

Proposition 2

The following lemmas will be useful in proving the claims in Proposition 2. Throughout, I
will be using the assumption $\gamma_e = 1 - \gamma_b$.

Lemma 1. $v^{iN} > v^{iB}$.

Proof. Recall that the voter’s expected discounted payoff when candidate $i$ is in office is

\[
v^i(\pi_1^{(k)}, \pi_2^{(l)}) = \pi_i^{(k)} v^{iN} + (1 - \pi_i^{(k)}) v^{iB}, \tag{1}
\]

\[
v^{iN} = -m + \gamma_b (s + \delta v^{iN}) + (1 - \gamma_b) \delta v^j (\pi_1^{(k-1)}, \pi_2^{(l)}), \tag{2}
\]

\[
v^{iB} = -m + \gamma_e (s + \delta v^{iB}) + (1 - \gamma_e) \delta v^j (\pi_1^{(k-1)}, \pi_2^{(l)}). \tag{3}
\]

We can rewrite (2) and (3) as

\[
v^{iN} = \frac{\gamma_b s - m + (1 - \gamma_b) \delta v^j (\pi_1^{(k-1)}, \pi_2^{(l)})}{1 - \gamma_b \delta},
\]

\[
v^{iB} = \frac{\gamma_e s - m + (1 - \gamma_e) \delta v^j (\pi_1^{(k-1)}, \pi_2^{(l)})}{1 - \gamma_e \delta}.
\]
After some algebra, we obtain

\[ v_i^N - v_i^B = \frac{(\gamma_b - \gamma_e) \left[ s - \delta m - (1 - \delta) v^j(\pi_1^{(k-1)}, \pi_2^{(l)}) \right]}{(1 - \gamma_e \delta)(1 - \gamma_b \delta)}. \tag{4} \]

The discussion in section 3.1 implies that, if both candidates were normal, the voter’s expected discounted payoff would be \( \frac{\gamma s - m}{1-\delta} \). Alternatively, if both candidates were bad, the voter’s expected discounted payoff would be \( \frac{\gamma s - m}{1-\delta} \). Since \( \frac{\gamma s - m}{1-\delta} > \frac{\gamma e - m}{1-\delta} \), and \( v^j(\pi_1^{(k-1)}, \pi_2^{(l)}) \) is a linear combination of \( v^iN \) and \( v^iB \), \( v^j(\pi_1^{(k-1)}, \pi_2^{(l)}) \) cannot be smaller than \( \frac{\gamma s - m}{1-\delta} \) and larger than \( \frac{\gamma e - m}{1-\delta} \). After substituting \( v^j(\pi_1^{(k-1)}, \pi_2^{(l)}) = \frac{\gamma s - m}{1-\delta} \) into (4), we see that

\[ v_i^N - v_i^B = \frac{(\gamma_b - \gamma_e) \left[ (1 - \gamma_b) s + (1 - \delta) m \right]}{(1 - \gamma_e \delta)(1 - \gamma_b \delta)} > 0. \]

After substituting \( v^j(\pi_1^{(k-1)}, \pi_2^{(l)}) = \frac{\gamma s - m}{1-\delta} \) into (4), we obtain

\[ v_i^N - v_i^B = \frac{(\gamma_b - \gamma_e) \left[ (1 - \gamma_b) s + (1 - \delta) m \right]}{(1 - \gamma_e \delta)(1 - \gamma_b \delta)} > 0. \]

\[ \square \]

**Lemma 2.** \( v^i(\pi_1^{(k)}, \pi_2^{(l)}) \) is increasing in \( \pi_i \) and \( \pi_j \).

**Proof.** According to (1),

\[ v^i(\pi_1^{(k)}, \pi_2^{(l)}) = \pi_i^{(k)} v^iN + (1 - \pi_i^{(k)}) v^iB = \pi_i^{(k)} [v^iN - v^iB] + v^iB. \]

According to Lemma 1, \( v^iN - v^iB > 0 \). Thus \( v^i(\pi_1^{(k)}, \pi_2^{(l)}) \) is increasing in \( \pi_i \).

To see that \( v^i(\pi_1^{(k)}, \pi_2^{(l)}) \) is increasing in \( \pi_j \), substitute \( v^iN \) from (4) and \( v^iB \) from (4)
into (1) and rewrite as

\[
\pi_i^{(k)} \gamma_b s - m + (1 - \pi_i^{(k)}) \gamma_e s - m + \left[ \pi_i^{(k)} \left( \frac{1 - \gamma_b}{1 - \gamma_e} \right) + (1 - \pi_i^{(k)}) \left( \frac{1 - \gamma_e}{1 - \gamma_b} \right) \right] \delta v^j(\pi_1^{(k-1)}, \pi_2^{(l)}).
\]

Since the term multiplying \( v^j(\pi_1^{(k-1)}, \pi_2^{(l)}) \) is positive and, by the same argument as above, \( v^j(\pi_1^{(k-1)}, \pi_2^{(l)}) \) is increasing in \( \pi_j \), then \( v^i(\pi_1^{(k)}, \pi_2^{(l)}) \) must be increasing in \( \pi_j \).

**Lemma 3.** \( \lim_{\pi_j \to 0^+} \left[ \lim_{\pi_i \to 0^+} v^i(\pi_1^{(k)}, \pi_2^{(l)}) \right] = \frac{\gamma_e s - m}{1 - \delta} \).

**Proof.** From (1),

\[
\lim_{\pi_i \to 0^+} v^i(\pi_1^{(k)}, \pi_2^{(l)}) = v^iB = -m + \gamma_e(s + \delta v^iB) + (1 - \gamma_e)\delta v^j(\pi_1^{(k-1)}, \pi_2^{(l)}).
\]

By an analogous argument,

\[
\lim_{\pi_j \to 0^+} \left[ \lim_{\pi_i \to 0^+} v^i(\pi_1^{(k)}, \pi_2^{(l)}) \right] = \lim_{\pi_j \to 0^+} v^iB = -m + \gamma_e(s + \delta v^iB) + (1 - \gamma_e)\delta v^jB. \tag{5}
\]

For \( i = 1, 2 \), (5) describes a system of two linear equations in two unknowns with the solution

\[
v^iB = \frac{\gamma_e s - m}{1 - \delta}.
\]

**Lemma 4.** \( \pi_i(\pi_j^{(l)}) \) exists for some \( \pi_j^{(l)} \).

**Proof.** Recall that the expected discounted payoff that the voter obtains when both candidates exploit office while the voter ignores the incumbent’s performance is

\[
v = \frac{\gamma_e s}{1 - \delta}.
\]

Therefore jointly, Lemmas 2 and 3 imply that, for some \( \pi_j^{(l)} \), there will be a threshold belief \( \pi_i(\pi_j^{(l)}) = \pi_i^{(k)} \) such that, if a policy failure occurs in the current period
and the incumbent’s reputation drops to \( \pi_i^{(k-1)} \), the voter prefers to ignore candidate performance in any period in which candidate \( i \) enters office.

**Lemma 5.** If \( \delta > \frac{m}{\gamma_e(\gamma_b - \gamma_e)s} \), \( \pi_i(\pi_j^{(l)}) \) does not exist if \( \pi_i \to 0^+ \) and \( \pi_j \to 1^- \).

Since \( \lim_{\pi_i \to 0^+} v^i(\pi_1^{(k)}, \pi_2^{(l)}) = v^{iB} \) and \( \lim_{\pi_j \to 1^-} v^i(\pi_1^{(k)}, \pi_2^{(l)}) = v^{jN} \), (1) implies that

\[
\begin{align*}
v^{iB} &= -m + \gamma_e(s + \delta v^{iB}) + (1 - \gamma_e)\delta v^{jN}, \\
v^{jN} &= -m + \gamma_b(s + \delta v^{jN}) + (1 - \gamma_b)\delta v^{iB}.
\end{align*}
\]

Solving this system of two equations in two unknowns, we obtain

\[
v^{iB} = \frac{[\gamma_e + \gamma_b(\gamma_b - \gamma_e)\delta]s - m}{1 - \delta}.
\]

Then \( \pi_i(\pi_j^{(l)}) \) will not exist if \( v^{iB} > \gamma_e s / (1 - \delta) \), or equivalently,

\[
\delta > \frac{m}{\gamma_e(\gamma_b - \gamma_e)s}.
\]

Note that the above is a more stringent requirement on \( \delta \) than the assumption that \( \delta \geq \frac{m}{(\gamma_b - \gamma_e)s} \) from section 3.1 of the paper.

**Lemma 6.** \( \pi_i(\pi_j) \) is weakly decreasing in \( \pi_j \).

**Proof.** Suppose candidate \( i \) is in office and the voter’s beliefs about \( i \) and \( j \), \( \pi_i^{(k)} \) and \( \pi_j^{(l)} \), are at the threshold \( \pi(\pi_j^{(l)}) = \pi_i^{(k)} \). By lemma 2, \( v^i(\pi_1^{(k)}, \pi_2^{(l)}) \) is increasing in \( \pi_j \). Then an increase from \( \pi_j^{(l)} \) to \( \pi_j^{(l+1)} \) will either be sufficiently large so that both \( v^i(\pi_1^{(k)}, \pi_2^{(l+1)}) > v \) and \( v^i(\pi_1^{(k-1)}, \pi_2^{(l+1)}) > v \), in which case \( \pi_i^{(k)} \) will no longer be a threshold belief, or the increase from \( \pi_j^{(l)} \) to \( \pi_j^{(l+1)} \) will not be sufficiently large and \( v^i(\pi_1^{(k)}, \pi_2^{(l+1)}) > v \) but \( v^i(\pi_1^{(k-1)}, \pi_2^{(l+1)}) < v \). \( \Box \)
Proof of Proposition 2: Lemmas 4-6 prove all claims in Proposition 2. Figure 1 portrays the breakdown threshold $\pi_1(\pi_2)$.

Proposition 3

Proof of Proposition 3: As long as the voter defends democracy, any candidate will comply with democracy because his per-period payoff is nonnegative, regardless of whether he is in office or out of office. By contrast, if the voter defends democracy and the candidate subverts democracy, he receives a negative payoff $u < 0$. If the voter acquiesces, the candidate who unilaterally subverts democracy obtains the per-period payoff $w$, which is greater than the per-period payoff that he would obtain under democracy, $\frac{1}{2}w$. Meanwhile, a candidate who subverts democracy while the other candidate does so raises his expected
per-period payoff from 0 to $\frac{1}{2}w$. Thus on the breakdown threshold, the voter’s acquiescence and both candidates’ subversion of democracy are sequentially rational.

Let $\bar{d}$ be the maximum value of $d$ for which the voter will defend democracy. By arguments analogous to those in Lemma 3,

$$\lim_{\pi_j \to 1^-} \left[ \lim_{\pi_i \to 1^-} \nu_i^{(k)}(\pi_1^{(k)}, \pi_2^{(l)}) \right] = \frac{\gamma_b s - m}{1 - \delta} = \bar{v}.$$ 

Thus $\bar{v}$ is the largest expected discounted payoff that the voter can obtain under democracy. In turn, the voter will defend democracy for a nonempty set of beliefs $(\pi_1^{(k)}, \pi_2^{(l)})$ as long as

$$\bar{v} - \bar{d} > v \quad \text{or equivalently} \quad \frac{\gamma_b s - m}{1 - \delta} - \delta > \frac{\gamma_e s}{1 - \delta}.$$ 

Solving for $d$, we obtain

$$\bar{d} = \frac{(\gamma_b - \gamma_e)s - m}{1 - \delta}.$$ 

Proposition 4

The following lemmas will be useful in proving the claims in Proposition 4.

Lemma 7. $u_{iB}^I(\pi_1^{(k)}, \pi_2^{(l)}) > u_{iB}^C(\pi_1^{(k)}, \pi_2^{(l)})$ and $u_{iN}^I(\pi_1^{(k)}, \pi_2^{(l)}) > u_{iN}^C(\pi_1^{(k)}, \pi_2^{(l)})$.

Proof. In any state $(\pi_1^{(k)}, \pi_2^{(l)})$, a candidate obtains a positive per-period payoff while in office ($w - c$ for the normal type, $w$ for the bad type) but a zero per-period payoff while out of office. The state $(\pi_1^{(k)}, \pi_2^{(l)})$ only affects candidate $i$’s probability of returning to office, via candidate $j$’s type. Candidate $i$’s probability of re-election (when he is the incumbent) is smallest when $i$ is bad, while his probability of return to office (when he is
the challenger) is greatest when \( j \) is bad. Suppose that is the case; then

\[
\begin{align*}
u_{iB}^I &= w + \delta [\gamma_e u_{1B}^I + (1 - \gamma_e) u_{1B}^C], \\
u_{iB}^C &= \delta [(1 - \gamma_e) u_{1B}^I + \gamma_e u_{1B}^C].
\end{align*}
\]

Solving for \( u_{iB}^I \) and \( u_{iB}^C \), we obtain

\[
\begin{align*}
u_{iB}^I &= \frac{w(1 - \gamma_e \delta)}{(1 - \delta)(1 + \delta - 2\gamma_e \delta)} \quad \text{and} \quad u_{iB}^C = \frac{w(1 - \gamma_e \delta)}{(1 - \delta)(1 + \delta - 2\gamma_e \delta)}. \tag{6}
\end{align*}
\]

We see that \( u_{iB}^I > u_{iB}^C \). Therefore, \( i \)'s expected discounted expected payoff must be greater when he is the incumbent than when he is the challenger for all other combinations of \( i \)'s types and beliefs about \( j \)'s type. The existence of the breakdown threshold does not affect this conclusion since the expected discounted expected payoff after the threshold is the same for both the incumbent and the challenger.

**Lemma 8.** \( \lim_{\pi_j \to 1^-} u_{iB}^C(\pi_{1}^{(k)}, \pi_{2}^{(l)}) > \lim_{\pi_j \to 1^-} u_{iB}^C(\pi_{1}^{(k)}, \pi_{2}^{(l)}) \).

**Proof.** As \( \pi_2 \to 1^- \), the expected discounted payoff for the normal type of candidate 1 in and out of office can be characterized by

\[
\begin{align*}
u_{1N}^I &= w - c + \delta [\gamma_b u_{1N}^I + (1 - \gamma_b) u_{1N}^C], \\
u_{1N}^C &= \delta [\gamma_b u_{1N}^I + (1 - \gamma_b) u_{1N}^C].
\end{align*}
\]

Solving the system for \( u_{1N}^C \), we obtain

\[
\lim_{\pi_i \to 1^-} u_{1N}^C(\pi_{1}^{(k)}, \pi_{2}^{(l)}) = \frac{(1 - \gamma_b)\delta(w - c)}{(1 - \delta)(1 + \delta - 2\gamma_b \delta)}.
\]
As $\pi_2 \to 1^-$, the expected discounted payoff for the bad type of candidate 1 in and out of office can be characterized by

$$u^I_{1B} = w + \delta[\gamma_e u^I_{1B} + (1 - \gamma_e)u^C_{1B}],$$

$$u^C_{1B} = \delta[\gamma_b u^I_{1B} + (1 - \gamma_b)u^C_{1B}].$$

Solving the system for $u^C_{1B}$, we obtain

$$\lim_{\pi_i \to 1^-} u^C_{1B}(\pi_1^{(k)}, \pi_2^{(l)}) = \frac{(1 - \gamma_b)\delta w}{(1 - \delta)}.$$

We see that $\lim_{\pi_i \to 1^-} u^C_{1N}(\pi_1^{(k)}, \pi_2^{(l)}) > \lim_{\pi_i \to 1^-} u^C_{1B}(\pi_1^{(k)}, \pi_2^{(l)})$ as long as

$$\frac{(1 - \gamma_b)\delta(w - c)}{(1 - \delta)(1 + \delta - 2\gamma_b\delta)} > \frac{(1 - \gamma_b)\delta w}{(1 - \delta)}$$

$$(w - c) > w(1 + \delta - 2\gamma_b\delta)$$

$$-c > \delta w(1 - 2\gamma_b)$$

$$-c > \delta w(\gamma_b - \gamma_e)$$

$$\delta > \frac{c}{w(\gamma_b - \gamma_e)}.$$

The last inequality was assumed to hold for the candidate’s discount factors in section 3.1 of the paper.

Proof of Proposition 4: Lemma 8 implies that, as $\pi_j \to 1^-$ there will be a range of discounted exit payoffs $u(\text{exit}) = x/(1 - \delta)$, for which bad types of challenger prefer to exit but normal types prefer to run. Denote the highest value of the incumbent’s reputation at which the bad challenger types still prefer running to exiting, $u^C_{jB}(\pi_1^{(k)}, \pi_2^{(l)}) \geq u(\text{exit})$, by
We need to verify that as long as

\[
\frac{(1 - \gamma_b) \delta w}{(1 - \delta)} < u(\text{exit}) < \frac{(1 - \gamma_b) \delta (w - c)}{(1 - \delta)(1 + \delta - 2\gamma_b \delta)},
\]

neither type of challenger has an incentive to exit in states below the threshold \(\pi_i(\pi_j)\).

Recall that after the breakdown threshold is crossed, each candidate obtains the expected discounted payoff \(\frac{w}{2(1 - \delta)}\). We can check that \(\frac{w}{2(1 - \delta)} > \lim_{\pi_i \to 1^-} u_C^1(\pi_1^{(k)}, \pi_2^{(l)}),\)

\[
\frac{w}{2(1 - \delta)} > \frac{(1 - \gamma_b) \delta w}{(1 - \delta)}, \\
\frac{1}{2} > (1 - \gamma_b) \delta.
\]

Thus the bad challenger’s expected discounted payoff cannot be less than \(\frac{(1 - \gamma_b) \delta w}{(1 - \delta)}\) for any \((\pi_1^{(k)}, \pi_2^{(l)})\). Similarly, \(\frac{w}{2(1 - \delta)} > \lim_{\pi_i \to 1^-} u_C^N(\pi_1^{(k)}, \pi_2^{(l)}),\)

\[
\frac{w}{2(1 - \delta)} > \frac{(1 - \gamma_b) \delta (w - c)}{(1 - \delta)(1 + \delta - 2\gamma_b \delta)}, \\
\frac{1}{2} w(1 + \delta - 2\gamma_b \delta) > (1 - \gamma_b) \delta (w - c), \\
(1 - \delta) w + 2\gamma_b \delta c > 0.
\]

Thus the normal challenger’s expected discounted payoff cannot be less than \(\frac{(1 - \gamma_b) \delta (w - c)}{(1 - \delta)(1 + \delta - 2\gamma_b \delta)}\) for any \((\pi_1^{(k)}, \pi_2^{(l)})\). In turn, neither type of challenger will have an incentive to exit in states below the threshold \(\pi_i(\pi_j)\).

We also need to verify that the voter’s modified strategy to replace the challenger with a new candidate from the pool if the challenger’s current reputation \(\pi_i^{\prescript{-}t}\) is smaller than the voter’s current belief about the quality of the pool, \(\pi_i^{t} < \pi_i^{t}\), is optimal. A candidate’s reputation declines only after policy failures, hence the voter only needs to consider

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whether to replace a challenger in period \( t \) if the challenger was an incumbent in period \( t - 1 \) and failed in office. To simplify the analysis, I assume that the voter forgets the reputation of any candidate that he replaced. According to Lemma 2, the voter’s payoff is increasing in the candidates’ reputation and thus the threat not to vote for a challenger with a reputation \( \pi_i^t < \pi^t \) is credible.

Finally, the voter updates his belief about the quality of the pool \( \pi^t \) according to Bayes’ rule as follows. Suppose that the voter’s initial belief about the quality of the pool \( \pi^0 \) corresponds to the expected value of a beta distribution with parameters \( N^0 \) and \( B^0 \), \( Beta(N^0, B^0) \). Thus \( \pi^0 = \frac{N^0}{N^0 + B^0} \). The voter’s belief about the quality of the pool \( \pi^t \) is only relevant after policy failures, when the voter considers whether to replace candidate \( i \) who just failed in office with a new candidate from the pool. The voter expects candidate \( i \) to be normal if \( \pi_i^t \geq 1/2 \) and bad otherwise. Then according to Bayes’ rule, the voter’s posterior belief about the quality of the pool \( \pi^t \) in period \( t \) is

\[
Beta(N^0 + N^t, B^0 + B^t),
\]

where \( N^t \) and \( B^t \) is the number of distinct candidates that the voter has concluded were normal and bad by period \( t \), respectively. Hence the voter’s posterior expectation about the quality of the pool in period \( t \) is

\[
\pi^t = \frac{N^0 + N^t}{N^0 + N^t + B^0 + B^t}.
\]

The voter’s belief about the quality of the pool \( \pi^t \) is decreasing in the number of candidates that the voter has concluded were bad. Thus with a positive probability, after sufficiently many policy failures, the voter’s belief about the quality of the pool \( \pi^t \) and, in
turn, about any candidate will drop arbitrarily low. Hence arguments in Proposition 2 apply and the trap of pessimistic expectations may occur in equilibrium.

The Numerical Example

The numerical example can only be approximated, since the number of transient states (transitional democracy) is potentially infinite (because the voter’s belief about any single candidate may drop arbitrarily low for some parameter values.) I first choose a large set of beliefs $\{\pi^{(1)}, \ldots, \pi^{(M)}\}$ that the voter may hold about each candidate. The transition between the $M^2$ states can be described by $2M^2$ linear equations in $2M^2$ unknowns, $M^2$ equations for each candidate. The system has a full rank and thus yields a unique solution for the voter’s and candidates’ expected discounted payoffs in each state. I started by assuming that bad challenger types exit when the voter’s belief about the incumbent becomes larger than $\pi^{(M)}$ and that the trap of pessimistic expectations occurs if the voter’s belief about the incumbent becomes smaller than $\pi^{(1)}$. I then repeatedly adjusted the
transition matrix for those states in which the solved expected discounted payoffs violated either the breakdown threshold (the voter was expected to monitor in a state in which her computed payoff was less than the breakdown payoff) or the consolidation threshold (a challenger was expected to run in a state in which his payoff was lower that the exit payoff), until I arrived at a set of voter’s and candidates’ expected discounted payoffs that is consistent with all thresholds.

In Figure 2, I plot the distribution of time to breakdown and consolidation based on the simulations in the paper. We see that the simulated distribution of time to breakdown is close to its distribution in actual data, which I plot in the bottom part of Figure 3.
Table 1: Descriptive statistics of covariates in the change-point analysis in section 4 of the paper

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std.Dev.</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP growth</td>
<td>2.126</td>
<td>5.397</td>
<td>Maddison (2008)</td>
</tr>
<tr>
<td>Log of GDP per capita</td>
<td>8.426</td>
<td>0.933</td>
<td>Maddison (2008)</td>
</tr>
<tr>
<td>Fuel and ore exporter</td>
<td>0.133</td>
<td>0.340</td>
<td>World Bank (2008)</td>
</tr>
<tr>
<td>Presidential</td>
<td>0.310</td>
<td>0.466</td>
<td>Przeworski et al. (2000), Cheibub and Gandhi (2005)</td>
</tr>
<tr>
<td>Mixed</td>
<td>0.100</td>
<td>0.299</td>
<td>Przeworski et al. (2000), Cheibub and Gandhi (2005)</td>
</tr>
<tr>
<td>Military</td>
<td>0.244</td>
<td>0.430</td>
<td>Cheibub and Gandhi (2005)</td>
</tr>
<tr>
<td>Monarchy</td>
<td>0.064</td>
<td>0.245</td>
<td>Cheibub and Gandhi (2005)</td>
</tr>
<tr>
<td>Communist</td>
<td>0.048</td>
<td>0.214</td>
<td>Author</td>
</tr>
<tr>
<td>Cold War</td>
<td>0.414</td>
<td>0.493</td>
<td>Author</td>
</tr>
<tr>
<td>Democratic neighbors</td>
<td>0.583</td>
<td>0.338</td>
<td>Author, Correlates of War Project (2006), Przeworski et al. (2000), Boix (2003), Cheibub and Gandhi (2005)</td>
</tr>
</tbody>
</table>

*Note:* The unit of observation is country-year.

**Empirical analysis**

Table 1 contains descriptive statistics of variables in the empirical analysis in section 4 of the paper.

**References**


