Transparency, Protest and Democratic Stability∗

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Abstract

Democratic rule is maintained so long as all actors in the political system comply with the institutional rules of the game – democratic institutions must be self-enforcing. We examine the role of transparency in supporting a democratic equilibrium. Transparency improves the functioning of elections: in transparent polities, elections more effectively resolve adverse selection problems between the public and their rulers. Transparency increases popular satisfaction with democracy and inhibits challenges to the democratic order. We provide a game-theoretic model, test these claims, and find they enjoy empirical support. Transparency is associated with a reduction in both the probability of democratic collapse and of the irregular removal of democratic leaders. Transparency stabilizes democratic rule.

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When and why do democratic regimes enjoy periods of stable rule? When, contrastingly, will democracy be prone to instability and autocratic reversions? Recent events in Egypt, the Ukraine, and Thailand render these questions, which have long been at the center of political science, all the more relevant.

For democracy to be stable, it must be self-enforcing: all political actors agree to comply with the ‘rules of the game’ (Linz, 1978; Schedler, 1998; Schmitter, 1992). When all other actors choose to comply with democratic norms, no one actor can have an incentive to unilaterally deviate (Przeworski, 1991, 2005; Weingast, 1997).

Recent work focuses on the compliance of political elites with the democratic equilibrium. Two theoretical perspectives dominate this literature: One emphasizes intertemporal trade-offs faced by political leaders. For democracy to remain stable, elites facing electoral defeat must prefer to accept this (temporary) set-back and await the (uncertain) prospect of future electoral victory, rather than resorting to force to implement their preferred agenda (e.g., Boix, 2003; Boix and Stokes, 2003; Przeworski, 1991, 2005; Przeworski, Rivero and Xi, 2013; Scartascini and Tommasi, 2012; Wantchekon, 2004). The other perspective follows Weingast (1997) in emphasizing the populace’s role in preventing elite encroachments on democratic freedoms. For democracy to survive citizens must be willing to act against anti-democratic challengers, increasing the costs associated with coups or autogolpes. Fearon (2011), for instance, finds that elections can play an informational role, enabling the public to mobilize against leaders who fail to comply with electoral rules (see also Hyde and Marinov, 2014; Little, LaGatta and Tucker, 2015).

In this paper, we take a different tack. Here we focus on the public’s satisfaction with the rules of the (democratic) game. For democracy to remain an equilibrium, members of the electorate must prefer to accept election results, rather than turning to undemocratic means of ousting their leaders. Absent this preference, citizens might turn to the streets and directly seek to remove elected leaders through mass protest (Svolik, 2013). More commonly, citizen dissatisfaction and protest might open the door to coups by anti-democratic elites, as events in Egypt and Thailand can attest (Meirowitz and Tucker, 2013). A lack of confidence in the efficacy of electoral institutions implies that citizens will be unwilling to check encroachments by anti-democratic elites, as in Weingast (1997), and indeed may support those who would subvert democracy.

We emphasize the importance of transparency – which we define as the availability of policy-relevant information on aggregate outcomes – to the stabilization of democracy.¹ High levels of transparency ensure that elections are effective in disciplining democratic leaders. Leaders

¹Our definition of transparency used throughout is a narrow one. We provide greater detail, and an explanation of our empirical measure of transparency below.
who have performed poorly are more likely to be removed via the ballot box, and those who
perform well are more likely to be retained, as transparency rises. Because elections and extra-
constitutional actions act as substitute mechanisms by which the populace might discipline their
leaders, when elections perform better, the need to resort to the streets declines. As citizen
satisfaction with democratic institutions rises, the tendency to protest against the sitting leadership
– as well as the frequency of coups taken in the wake or in anticipation of such protests – declines.

Empirically, we examine the survival of democratic spells, using the coding of Przeworski
and Limongi (1997) (see also Boix and Stokes, 2003). The results confirm our theory: More
transparent democracies are less likely to revert to autocracy, even controlling for per capita
income and histories of past transitions. We additionally demonstrate that leaders in transparent
democracies are less likely to be removed through extra-constitutional methods, and more likely
to experience constitutional removal, than their counterparts in opaque democracies. Our findings
thus speak to an ongoing debate among scholars of democratic transition and consolidation (see,
for example, Acemoglu and Robinson, 2006; Acemoglu et al., 2008; Benhabib and Przeworski,
2006; Benhabib, Corvalan and Spiegel, 2011; Boix, 2003; Boix and Stokes, 2003; Epstein et al.,
2006).

Transparency and the Legitimacy of Elections

Democracy requires compliance on the part of the citizenry. Of course, democracy may be over-
thrown by members of the elite, via a coup or autogolpe. However, citizens may also take action
against democratically elected leaders. Citizens may be motivated to turn to the streets due to the
perception that democratic institutions have proved ineffective in disciplining their leaders. Alternatively, citizens who become disaffected with democracy may support anti-democratic factions
or elites who challenge democratic institutions, or may fail to rally in support of democracy when
such challenges emerge. Indeed, citizen mobilization and elite challenges often go hand-in-hand,
as mass protest informs coup-plotters of the likelihood of their success (Casper and Tyson, 2014).
Coup that follow protests are a particulary common cause of democratic breakdown (Linz, 1978).

For these reasons, theorists of democratic consolidation stress the importance of public atti-

2 This result stands in stark contrast to the role of transparency in autocracies, where transparency increases the
likelihood of mass protest (Hollyer, Rosendorff and Vreeland, 2015). We discuss this contrast below.

3 For instance, many Egyptians pointed to the Morsi administration’s incompetence and consolidation of power
as causes for the protests that ultimately led to his ousting. (See “Egypt’s Tragedy;”, The Economist, July 6, 2013.)
Thai protesters similarly claimed that democracy proved an insufficient means of limiting the claimed abuses of the
Shinawatra government. (See “A Symbolic Exercise;” The Economist, February 2, 2014.)
tudes toward democracy.\footnote{We use the ‘narrow’ definition of democratic consolidation in this paper, as laid out by Schedler (1998). We define consolidation as simply reflecting the stability, or predicted stability, of electoral rule. We do not consider more expansive definitions, which might include the extension of civil rights, or the institutionalization of democracy (O'Donnell, 1996). We thus use the terms ‘democratic stability’ and ‘democratic consolidation’ interchangeably.} Diamond (1994, 15) contends that, “Consolidation is the process by which democracy becomes so broadly and profoundly legitimate among its citizens that it is very unlikely to break down.” Linz (1978, 17) argues that, “Democratic legitimacy ... requires adherence to the rules of the game by both a majority of citizens and those in positions of authority...” (emphasis added). When citizens disregard democratic norms, or hold democratic institutions in low esteem, the democratic order is jeopardized. Svolik (2013, 686) terms this danger the ‘trap of pessimistic expectations,’ and argues that “[w]hen it occurs, it undermines the public’s willingness to defend democracy against attempts to subvert it, thus eliminating a key check on politicians or groups with authoritarian ambitions.”

While the literature on democratic consolidation has devoted substantial attention to the role of public attitudes in sustaining democracy, it has paid less attention to the forces that shape these attitudes. In this paper we argue that these attitudes are a function, in part, of the informational environment in which democracy is situated. Where large amounts of information on the government’s performance is made publicly available – and is known to be publicly available – democratic elections will function relatively well. Elections will enable citizens to throw the bums out, should their leaders, in fact, prove to be bums (Przeworski, Stokes and Manin, 1999).\footnote{Alternative models (Barro, 1973; Ferejohn, 1986) emphasize the importance of moral hazard problems in controlling politicians. However, as Fearon (1999) notes, so long as there is any possibility that some elected leaders are ‘better’ than others (from the perspective of the median voter), elections become a problem of adverse selection rather than moral hazard.} Where such information is absent, however, elections may prove a poor means of redressing adverse selection issues in government. In transparent polities, therefore, elections will function well – garnering outcome legitimacy for the constitutional system.

Moreover, since information is publicly available, citizens will recognize that their fellows will also be acting in an informed manner in the voting booth. Transparency makes it more difficult to castigate portions of the electorate as irrational or ill-informed, enhancing the procedural legitimacy of democratic rule.

In what follows, we consider a political environment in which the voters, en masse, prefer to reelect competent leaders and evict the incompetent. Each voter has his or her own sources of information about how well the leader is doing – a private signal – and the public at large has information that is commonly known and shared by all – a public signal.\footnote{An expansive literature notes the importance of information for resolving agency problems between a populace and its elected representatives (Adserà, Boix and Payne, 2003; Besley and Burgess, 2002; Brunetti and Weder, 2002).} At election time, a voter
must decide to reelect or evict the incumbent. More transparency means that the public signal is a more reliable, stronger signal, and can be used as a guide for keeping the good guys and evicting the bums.\footnote{We assume, throughout, that politicians may choose among policies that are known to return relatively good and relatively poor performance. We acknowledge that politicians may be uniformed of globally optimal policies and policy experimentation may not lead to this optimum (Callander, 2011).}

When the polity is opaque, the public signal is not very helpful. Some individuals are getting good (private) signals, and others, bad – and all must rely heavily on these signals in the voting booth. Poor leaders are therefore likely, through good luck, to be retained and good leaders, through bad luck, to be removed. As public information becomes more available – i.e., as the polity becomes more transparent – citizens’ will increasingly rely on the (increasingly informative) public signal rather than their (idiosyncratic) private signals. Voting behavior will therefore align more closely with incumbent performance, such that good leaders are more likely to be retained and poor leaders to be removed.

Even in the most transparent polities, however, incompetent – or corrupt – incumbents may be retained with positive probability. This probability shrinks as transparency rises, but never falls to zero. Individual citizens may be fooled by bad luck – the realization of their public and private signals may indicate that a bum of an incumbent should be retained.

However, citizens gain additional information about incumbent performance by virtue of the election process itself. An individual learns of others’ evaluations of the incumbent – directly through election returns, as well as indirectly through campaign rallies and displays of public enthusiasm for candidates. Citizens therefore learn more about the ‘type’ of incumbent they face by the conclusion of the election process – in our model they learn this type with certainty. Incumbents who perform well in elections, given the information publicly available \textit{ex ante}, can be inferred to be good types; while those who under-perform can be inferred to be bad (Fearon, 2011). Each citizen recognizes that the incumbent’s over (under) performance in the election must be attributed to the positive (negative) private signals received by her fellows. As the size of the electorate grows, the amount of information conveyed through the election process rises, such that any given citizen’s posterior belief (after the election) over the type of government she faces grows more precise. In short, elections act as a means of aggregating the private information of all voters.

This assumes elections and electoral returns are credible indicators of support for the incumbent. Empirically, we apply a stringent definition of democracy, which may help to ensure that this criterion is met. However, we note that models of electoral fraud find that, even where fraud is
present, election returns are at least minimally (and sometimes fully) informative of incumbents’ popular support (Little, 2012; Simpser, 2004).

It is possible, therefore, that at the conclusion of an election, citizens arrive at the realization that they have just re-elected a bad leader. In particular, this will occur when leaders win elections by slim margins – smaller than would be expected by the public signal of their prior performance. When this takes place, elections lose outcome legitimacy and citizens grow disaffected with democracy.

Of course, if, at the close of elections, citizens realize they have retained a good leader (or removed a bad one), no such disaffection arises. The electoral system has served its role in screening politicians well. Since the probability that a bad type is retained falls in transparency, so too then does the risk of citizen disaffection.

In our theoretical model, we then consider the incentives of citizens to arise, in mass, against the government. Disaffected citizens may directly seek to oust their leaders. We focus on this form of threat in our model because it is likely to pose a ‘hard case’ for our theory. This is because, while information may improve the functioning of the electoral system, existing work also demonstrates that public information may ease coordination problems among the populace, facilitating popular protest. For instance, in a closely related model, Hollyer, Rosendorff and Vreeland (2015) find that transparency increases the risk of mass unrest in autocracies. Hence, if transparency unambiguously reduces the threat of mass mobilization, it is likely to also reduce other threats to the democratic order.

Of course, democratic regimes also often collapse as a result of coups or autogolpes (Svolik, 2015). We believe our theory also speaks to these, alternative, threats to the democratic regime. Coups against democratic regimes often take place during or immediately following mass protest – a sequence of events Linz (1978) points to as the most common means of democratic collapse. Events in recent years in Thailand, Egypt and Ukraine would seem to attest to this correlation. Casper and Tyson (2014) provide a theoretical model, based on an informational logic, as to why this is the case: protests help to inform elites of the likely durability of the regime – the value of a coup to these elites rises as protest participation increases. More generally, a disaffected citizenry is unlikely to buttress the democratic regime against anti-democratic challengers, as argued by Svolik (2013) and Weingast (1997) (on a related point, see Meirowitz and Tucker, 2013). So

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8 On the role of public information in coordinating unrest, see also Bueno de Mesquita (2010), Little, LaGatta and Tucker (2015), and Shadmehr and Bernhardt (2011).

9 They further argue that this correlation is stronger in rich informational environments. Insofar as this would render coups and/or protests less common or effectual in opaque states, this result would tend to bias against our claim that transparency stabilizes democracy.
our argument holds that transparency insulates democratic regimes against both popular protest and elite coups.

We stress the relationship between the performance and the legitimacy of electoral institutions. As Diamond notes, “the democratic system must produce sufficiently positive policy outputs to build broad political legitimacy,” (1999, 76). We acknowledge legitimacy may take on a broader definition, encompassing a logic that is not merely instrumental. Our contention here is merely that, ceteris paribus, elections are more likely to prove legitimate when they adequately solve issues of adverse selection.

We illustrate these intuitions in a simple model of political agency, elections and mass unrest. We empirically test the assertion that rising levels of transparency stabilize democracies, and find that this proposition enjoys empirical support even after controlling for per capita income and histories of past reversion, the two strongest predictors of autocratic reversions in the literature (Gassebner, Lamla and Vreeland, 2013; Przeworski et al., 2000). Finally, we present empirical evidence of the mechanism described above: Leaders in transparent autocracies are less likely to be removed through irregular and more likely to be removed through constitutional methods than their counterparts in opaque regimes. We present suggestive evidence that this mechanism operates through differential reactions to leaders’ economic performance: Leaders in opaque regimes suffer an increased risk of irregular (but not constitutional) removal when growth is low. By contrast, the (low) risks leaders in transparent democracies face of irregular removal are largely invariant in growth – their risk of regular removal, however, is sensitive to economic performance.

**Existing Literature: Democratic Consolidation**

This paper relates to a literature on democratic consolidation that is far too vast to fully survey here. We note, however, that our emphasis on the importance of the legitimacy of elections in the eyes of the citizenry is widely shared in this literature. A consensus holds that democracies become consolidated as political actors come to accept the ‘rule of the [democratic] game’ (Diamond, 1994, 1999; Linz, 1978; O’Donnell, 1996; Schedler, 1998; Schmitter, 1992). Differences emerge, however, as to what factors promote such legitimation. Some emphasize the importance of civil society (Diamond, 1994) or associational groups (Schmitter, 1992), others the extent of participation in electoral processes (Wright, 2008). We share an emphasis on the importance of

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10Experimental evidence suggests that elections may confer legitimacy, regardless of their outcomes (Grossman and Baldassarri, 2012; Olken, 2008).
agency problems (government efficacy) under democracy with Linz (1978) and Diamond (1999). Our contribution is to stress the role transparency and elections play in rewarding competent leadership, and thus in stabilizing democracy.

Our approach perhaps bears the closest resemblance to Svolik (2013), who argues that democracies (particularly young democracies) can fall into a ‘trap’ in which citizens’ low esteem for democratic institutions encourages the entry of corrupt or incompetent politicians into political life, reinforcing citizens’ initially low opinions. Analogously, Meirowitz and Tucker (2013) argue that experiences of misrule following democratization may lead citizens to become disenchanted with the quality of the universe of possible elites, and thus unwilling either to protect democratic institutions or to rise up against corrupt leaders. Critical to Svolik’s account is the assumption that monitoring incumbents is costly and citizens are unwilling to bear this cost when they believe all politicians are ‘bad’ types. Unlike Svolik, our theoretical model examines variation in the availability of information, which is treated as costless in our model. However, transparency may be thought of as decreasing the costs of citizens’ monitoring, thus reducing the vulnerability of democracy to such traps.

Other authors emphasize the importance of structural factors to democratic survival (Huber, Rueschemeyer and Stephens, 1993; Lipset, 1959; Moore, 1966; Slater, 2009). Most significantly, economic development is strongly (positively) correlated with democratic survival (Przeworski et al., 2000). Contrastingly, Slater (2009) contends that the autonomy of communal elites explains the success or failure of democratization. We abstract away from such concerns in our theoretical account. We do so not because we think structural factors unimportant, but because they are tangential to the mechanisms that are our focus.

We also draw heavily on a literature that emphasizes the informational problems inherent in mass mobilization, and the role of elections in addressing these problems. Early models of protest noted the coordination issues inherent in mobilization (Kuran, 1991; Lohmann, 1993). A growing literature stresses the role of elections in resolving these problems. Fearon (2011) (building on the insights of Weingast, 1997) points out that elections can enable citizens to discipline rulers who infringe on the democratic rules of the game. Little, LaGatta and Tucker (2015) develop this idea, noting that the conditions under which elections are likely to prove self-enforcing are only

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11 A more recent literature employs a global games (Morris and Shin, 2001) informational structure to model protests. Examples include Bueno de Mesquita (2010), Shadmehr and Bernhardt (2011, 2014) and Little, LaGatta and Tucker (2015). Shadmehr and Bernhardt (2015) similarly consider informational availability – in their example reflecting state censorship – and its relation to mass mobilization. Our model primitives mirror those of Hollyer, Rosendorff and Vreeland (2015), who adopt an informational structure based on the global games literature. However, all uncertainty is resolved in our model following the voting process and, since voting does not involve strategic complementarities, this model bears only a passing resemblance to a global game.
likely to be consistent with majoritarian electoral outcomes when elections are free from fraud – a point empirically tested by Hyde and Marinov (2014). Egorov and Sonin (2012) note that elections can serve to discipline leaders even under ‘contested authoritarian’ rule. Empirical observations from Tucker (2007) and Bunce and Wolchik (2011) – which find that contested election results often give rise to protest – give weight to these theoretical claims.

These works (Bunce and Wolchik, 2011; Little, LaGatta and Tucker, 2015; Hyde and Marinov, 2014; Tucker, 2007) posit that the transparency of the electoral process influences the ability to mobilize. However, realized levels of protest may be non-monotonic in electoral transparency: elections must be sufficiently informative that fraud is observable for citizens to engage in protest. But, if sufficiently informative, the threat of protest will deter incumbents from engaging in electoral manipulation. By contrast, our argument pertains to transparency with regard to economic and policy-relevant information, and our predictions are monotonic in this term.

Within this literature on information and protest, we particularly draw on Hollyer, Rosendorff and Vreeland (2015), who examine the relationship between transparency and regime stability in autocracies. Here we introduce elections to the game form offered in that earlier work, and empirically, we use the same definition of transparency. The effect is to highlight a fundamental contrast in the role political institutions play in moderating the relationship between information and unrest. Transparency stabilizes democracies, even as it destabilizes autocracies.

**Definition of Transparency**

Transparency has many facets, and we stress the importance of using a measure of transparency that reflects the aspect employed by our theory. We use the term transparency to mean the disclosure of information, which is relevant to policy outcomes, to the mass public. Information must be credible if it is to cause citizens to update their beliefs – otherwise, it will simply be disregarded. Information must be pertinent to public policy if it is to enable citizens to update their beliefs regarding government performance, and thus influence their voting behavior. Citizens must be able to access such information. Moreover, it must be common knowledge that such information is disclosed if any individual citizen is to believe that others are similarly able to make informed voting decisions.

We particularly emphasize the importance of the availability of information on aggregate policy outcomes. The bulk of previous theoretical work has demonstrated that information on policy outcomes unambiguously improves government accountability – in contrast to information about the policies that are adopted or on details of the policy-making process, the effects of which are
ambiguous (Prat, 2005; Stasavage, 2004). Information on aggregate outcomes is most likely to be useful when policies are complex and have consequences for the broad populace – rather than highly targeted groups (Hollyer, Rosendorff and Vreeland, 2013). Since our emphasis is on the broad performance of the government – and we will particularly focus on economic performance – the disclosure of information takes on particular significance.

Our empirical measure of transparency is drawn from the HRV Index (Hollyer, Rosendorff and Vreeland, 2014). This measure treats transparency as a latent predictor of the reporting/non-reporting of data to the World Bank’s World Development Indicators (WDI) data series, which is extracted using an item response model. Since the World Bank imposes standards of reporting on these data, they must pass some minimal threshold of credibility. It presents a continuous measure of transparency which summarizes the missingness of 240 variables from the WDI. The HRV Index not only matches our theoretical conception of transparency well, it also provides broad temporal and geographic coverage: 125 countries between 1980 and 2010.

We acknowledge, however, that our definition of transparency is a narrow one. Broader definitions can pertain to any aspect of information transmission within a given policy. These might include the openness of political institutions (Broz, 2002; Dahl, 1971), freedom of the press or circulation of the press (Adserà, Boix and Payne, 2003; Brunetti and Weder, 2003), or the presence of freedom of information laws (Berliner, 2011; Islam, 2006), or the availability of different subsets of information (Copelovitch, Gandrud and Hallerberg, 2015). We prefer a narrow conception of transparency here for reasons of conformity with our theoretical model. We also note that definitions that incorporate political openness may create a tautological relationship between our explanatory (transparency) and outcome (democratic collapse) variables.

Model

In what follows, we present a model of transparency, voting and irregular leader removal. This model is an extension of Hollyer, Rosendorff and Vreeland (2015), who consider the influence of transparency on the stability of autocratic governments – this model is distinct in that we introduce elections to the game form. The presence of free and fair elections dramatically alters the results of Hollyer et al., who find that transparency reduces regime stability in autocracies. This is

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12 An exception is Ashworth and Bueno de Mesquita (2014), who note that greater information may lead ‘bad’ leaders to mimic ‘good’ to guarantee retention. In the second period of a two-period interaction, analogous to that we present in the appendix, these leaders may then adopt policies disliked by the electorate.

13 We do not expect citizens to directly access this information, though the domestic press and researchers may do so. Rather, the HRV index relies on the World Bank to verify the credibility of information. Governments may release false information to the public, but if they do so regularly, citizens will disregard government disclosures.
because of the informational role of elections: The voting process serves to aggregate the private
signals of all citizens, such that all citizens – after elections have concluded – are fully informed
of the government’s type, regardless of the level of transparency. The informational environment
then only influences the electoral process and does not influence the ability to mobilize. Since
transparency improves the functioning of the electoral process, the reliance on irregular leader
removal falls as transparency rises.

Model Primitives

Consider an interaction between a democratic leader $L$ and a mass of citizens. Each citizen is
denoted $i$ where $i$ is indexed over the unit interval $i \in [0, 1]$.

Citizens seek to infer the leader’s type, which may be either ‘good’ or ‘bad.’ Our model is one
of adverse selection in government. A leader’s type may refer to his level of skill, competence,
or honesty. ‘Good’ leaders will return better economic performance than ‘bad’ leaders. Citizens
seek to remove ‘bad’ leaders from office, while retaining ‘good’ types.

So, $L$ may be of one of two types, $\theta \in \{0, 1\}$. Nature chooses $L$’s type $\theta$ where $\theta = 1$ with
probability $p$ and $\theta = 0$ with probability $1 - p$. In each period during which she is in office in office,
$L$ chooses whether or not to provide a public good $G_t \in \{0, 1\}$, where $t \in \{1, 2\}$ denotes the
period of play. $L$’s utility from doing so is a function of her type, such that in each of two periods:

$$
\begin{align*}
 u_{L,t}(G_t; \theta) &= \begin{cases} 1 & \text{if } G_t = \theta \\ 0 & \text{otherwise} \end{cases} \\
 u_L &= \sum_{t=1}^{2} u_{L,t}(G_t; \theta)
\end{align*}
$$

$L$’s choice regarding public goods provision $G_t \in \{0, 1\}$ has implications for economic out-
comes in the following manner: Each citizen $i$ receives an income $y_{i,t} = G_t \gamma + \epsilon_{i,t}$, where
$\epsilon_{i,t} \sim N(0, \sigma_y^2)$ $\forall i, t$, and $\gamma$ is a strictly positive constant. The standard deviation of individual
outcomes, $\sigma_y > 0$, captures all factors exogenous to government policies that may shift a given
citizen’s economic welfare. Each citizen observes $y_{i,t}$ but does not observe the value of $G_t$. In
observing first period income, $y_{i,1}$, the citizen is also receiving a signal about the type of govern-
ment she is facing.

In the first period of play, all citizens also receive a public signal of the state of the economy
$s$. We assume that $s = G_1 \gamma + \rho$, where $\rho \sim N(0, \sigma_s^2)$ and $E[\rho \epsilon_{i,t}] = 0$ $\forall i, t$, where $\sigma_s > 0$.

\footnote{Actors do not discount over time. The results would be unchanged by including a discount factor.}
is the standard deviation of this publicly observed signal. \( s \) is meant to depict the role of publicly disclosed aggregate economic data, which enable citizens to form beliefs about government performance. As more information is made available, citizens are better able to discern the role of government policies in shaping economic outcomes – consequently \( \sigma_s \) shrinks. \( \sigma_s \) is thus a measure of the inverse of transparency (i.e., of opacity). Since \( s \) depicts the public disclosure of aggregate economic data, we further assume that \( \sigma_s < \sigma_y \).

After receiving both her signals (public and private), each citizen may cast a vote for or against the incumbent \( v_i \in \{0, 1\} \), where \( v_i = 1 \) denotes a vote for removal. Let the mass of citizens voting for removal be \( V \equiv \int_0^1 v_i \, di \). If \( V \geq \frac{1}{2} \), \( L \) is removed from office; if \( V < \frac{1}{2} \), \( L \) is retained. Citizens suffer no direct cost, nor enjoy any direct benefit, from their voting decision. After the election \( V \) is revealed to all citizens and to \( L \).

If \( L \) is retained in office, each citizen \( i \) may mobilize in an attempt to bring about her ouster. Let \( a_i \in \{0, 1\} \) denote the decision to mobilize, where \( a_i = 1 \) indicates mobilization. Mobilization may be thought of as either directly ousting the incumbent or as creating opportunities for third parties to remove the incumbent – e.g., via a coup. Since our focus is on citizen behavior, we collapse both threats to the regime into the decision to protest. Denote the total mass of citizens who engage in unrest as \( A \equiv \int_0^1 a_i \, di \). If \( A \) exceeds (weakly) some exogenous threshold \( T \in (0, 1) \), the sitting government will be removed and replaced by a new \( L \), whose type is drawn with the same distribution as the prior leader. We define an indicator function \( R(A) \) to denote removal, such that:

\[
R(A) = \begin{cases} 
1 & \text{if } A \geq T \\
0 & \text{otherwise.}
\end{cases}
\]

Engaging in mobilization entails a cost of \( \kappa > 0 \) for each citizen. However, if the collective protest is successful in removing the sitting leader, each citizen that participates in these protests gains a benefit \( \beta > \kappa \). These benefits may be thought of as the psychological returns from participating in the successful overthrow of the ancien regime, or as the likelihood of favors from

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Transparency, and hence disclosure is an exogenous parameter in the model, rather than a choice variable for the government. Our focus here is on the role transparency plays in fostering democratic stability. We model government’s decisions to disclose – assuming its implications for leader survival – elsewhere (Hollyer, Rosendorff and Vreeland, 2011, 2016).

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While we recognize that such mobilization is ‘unthinkable’ in many advanced democracies, we do not restrict the scope of our analysis to ‘new’ democracies. We believe that democratic consolidation is a condition that should be derived from the equilibrium of the model – not a condition to be assumed by restricting the action space of citizens. We would like to thank John Freeman for clarifying this point.
any new regime that replaces the old (Olson, 1971). Each citizen’s utility function is:

\[ u_i(y_{i,1}, y_{i,2}, a_i; A) = y_{i,1} + y_{i,2} + a_i[R(A)\beta - \kappa]. \]

The order of play is:

1. Nature chooses \( L \)'s type, \( \theta \in \{0, 1\} \). The value of \( \theta \) is revealed to \( L \), but not to any citizen.
2. \( L \) chooses whether or not to provide the public good \( G_1 \in \{0, 1\} \).
3. Nature chooses \( \epsilon_{i,1} \forall i \). Nature also chooses \( \rho \). \( y_{i,1} \) is revealed to each citizen \( i \), but not to any other citizen. \( s \) is revealed to all citizens.
4. Each citizen chooses \( v_i \in \{0, 1\} \). \( V = \int_0^1 v_i di \) is revealed to all citizens. If \( V \geq \frac{1}{2} \), \( L \) is removed and replaced by another government, whose type \( \theta \) is chosen by Nature.
5. If \( V < \frac{1}{2} \), the incumbent, \( L \), is retained in the election. Each citizen may choose whether or not to engage in collective action \( a_i \in \{0, 1\} \). If \( A \geq T \), \( L \) is removed and replaced by another government, whose type \( \theta \) is chosen by Nature. If \( A < T \), \( L \) remains in office.
6. The sitting \( L \) chooses the value of \( G_2 \in \{0, 1\} \).
7. Nature chooses \( \epsilon_{i,2} \forall i \). \( y_{i,2} \) is revealed to each citizen and the game ends.

**Equilibrium**

This game gives rise to a multiplicity of perfect Bayesian equilibria (Fudenberg and Tirole, 1991). With a continuum of citizens, voting decisions may be non-strategic. Moreover, coordination problems in the mobilization stage of the game similarly give rise to multiple equilibria.

We narrow the set of equilibria to our model by restricting player strategies in the following manner: First, we assume that citizens vote sincerely. That is, a citizen \( i \) will vote to remove the incumbent (set \( v_i = 1 \)) if and only if the posterior belief that leader is competent (after both the private and public signal, but before the election) is lower than what the voters might expect if the leader is replaced. That is \( Pr(\theta = 1 | y_{i,1}, s) \leq p \). Second, we assume that a citizen \( i \) will only mobilize to overthrow the sitting leader if she believes that the leader is a bad type.\(^{17} \) That is, we

\[^{17}\text{Note that our game form – specifically the assumption that, following mobilization, a new leader is selected with a randomly assigned type – rules out the possibility that citizens mobilize to reinstall a leader who lost an election and is subsequently revealed to be a ‘good’ type. Our comparative statics would be unaffected by allowing for this possibility.}\]
require that \( a_i = 0 \) if \( Pr(\theta = 1|V, s) = 1 \). This rules out (perverse) equilibria in which all citizens coordinate on removing a leader known – with certainty – to be a good type.

Before we characterize the equilibrium, a definition is necessary.

**Definition 1.** Define \( \tilde{y}(s) \) implicitly by \( Pr(\theta = 1|\tilde{y}(s), s) = p \) and define

\[
V(s; G_t) = \begin{cases} 
\Phi(\tilde{y}(s) - \gamma \sigma_y) & \text{if } G_t = 0 \\
\Phi(\tilde{y}(s)) & \text{if } G_t = 1.
\end{cases}
\]

where \( \Phi \) is the cdf of the standard normal distribution.

Lemma 1 (in the Appendix) establishes that \( \tilde{y}(s) = \frac{\gamma}{2} \left( \frac{\sigma_y^2}{\sigma^2} + 1 \right) - \frac{s \sigma_y^2}{\sigma^2}, \tilde{y}(s) \). This is the value of the private signal such that any individual having received that private signal \( \tilde{y}(s) \), and public signal \( s \) is indifferent between reelecting and evicting the incumbent. Since \( s \) is the common public signal, this threshold is common to all individuals.

A monotone prefect Bayesian equilibrium will consist of the following: (1) An action pair for each voter mapping their signals into actions, \( v_i : \mathbb{R} \times \mathbb{R} \rightarrow \{0, 1\} \) and \( a_i : [0, 1] \rightarrow \{0, 1\} \). (2) A strategy for \( L \) from type- to action-space, \( G_t : \{0, 1\} \rightarrow \{0, 1\} \). (3) Posterior beliefs \( Pr(\theta = 1|y_{i,1}, s) \) and \( Pr(\theta = 1|V, s) \).

Characterizing the equilibrium, we have:

**Proposition 1.** The following strategies and beliefs constitute a perfect Bayesian equilibrium. For the leader of type \( \theta \), \( G_t = \theta \) for \( t = 1, 2 \). For the citizens, their voting and mobilization strategies are

\[
v_i = \begin{cases} 
1 & \text{if } y_{i,1} \leq \tilde{y}(s) \\
0 & \text{otherwise}.
\end{cases}
\]

\[
a_i = \begin{cases} 
1 & \text{if } V > V(s, 1) \\
0 & \text{otherwise}.
\end{cases}
\]

Posterior beliefs (after both the private and public signals but before the vote) are \( Pr(\theta = 1|y_{i,1}, s) = \frac{p \phi(\frac{y_{i,1} - \gamma}{\sigma_y}) \phi(\frac{s - \gamma}{\sigma_s})}{p \phi(\frac{y_{i,1} - \gamma}{\sigma_y}) \phi(\frac{s - \gamma}{\sigma_s}) + (1 - p) \phi(\frac{y_{i,1}}{\sigma_y}) \phi(\frac{s}{\sigma_s})} \), and after the vote, but before political action:

\[
Pr(\theta = 1|V, s) = \begin{cases} 
0 & \text{if } V > V(s, 1) \\
1 & \text{otherwise}.
\end{cases}
\]
All proofs are in the Appendix.

Along the equilibrium path, good types of government provide public goods; bad types do not. Hence, bad types of governments experience a larger number of votes to remove; good types a smaller number: \( V(s; 1) < V(s; 0) \) for all \( s \). After the vote, all voters observe the vote counts. With a continuum of voters, the public signal and type of leader provide a map into a unique vote total \( \mathbb{R} \times \{0, 1\} \rightarrow \mathbb{R} \) – implying that, if a voter knows the vote total for a given leader and the public signal, she can invert this mapping to deduce the leader’s type. Informally, if a leader receives relatively weak (strong) electoral support, given the public signal, then it must be the case that voters’ private signals were predominantly bad (good). Since these private signals are unbiased, and the number of voters is large, it must then be the case that the leader is bad (good).

If for some \( s \), \( V(s; 1) < \frac{1}{2} < V(s; 0) \) then a good type is reelected and a bad type is removed from office via the electoral process. There is no post-election mobilization or political action, the democratic process has worked to solve the adverse selection problem.

However it is possible in equilibrium that even though there are more votes to remove a bad leader (than a good leader), the threshold to actually remove the (bad) leader from office (half of the votes or more) might not be breached. That is, it is possible that \( V(s; 0) < \frac{1}{2} \). This occurs in the case where the combination of private and public signals happened to be good draws. As described above, all citizens are fully informed after the election that a bad leader has been reelected. Voters are dissatisfied with this outcome and take to the streets to ensure – whether directly or indirectly – the incumbent’s ouster. Political action emerges when the democratic process fails to address the adverse selection problem. By contrast, voters do not mobilize against a good leader should she be reelected.

Finally, it is possible that even good types can be removed by the election when \( V(s; 1) > \frac{1}{2} \). This occurs when a good leader is subject to bad shocks. Again, however, there is no political action, since the leader has been removed by the democratic process.

**Comparative Statics**

We would like to explore the effect of transparency on the degree to which the political institutions are able to discriminate between the survival in office of ‘good’ versus ‘bad’ types. Since citizens engage in mobilization if and only if a ‘bad’ incumbent is reelected, the question becomes: Does transparency enhance the likelihood that ‘bad’ types are removed via the electoral process? The answer is yes.
Definition 2. Define \( \tilde{s} \) implicitly by \( \Phi(\tilde{y}(\tilde{s})/\sigma_y) = \frac{1}{2} \) and define \( s \) implicitly by \( \Phi(\tilde{y}(s)/\gamma + \sigma_y) = \frac{1}{2} \).

We show in Lemma 2 in the Appendix that \( \tilde{s} \) and \( s \) are well defined. If \( s \geq \tilde{s} \), governments of all types will be reelected. If \( s \leq \tilde{s} \), governments of all types are voted out of office. If \( s \in (\tilde{s}, \tilde{s}) \), then governments are voted out of office if and only if \( \theta = 0 \). The probability that a government of type \( \theta = 0 \) is voted out of office is \( \Phi(\tilde{s}/\sigma_s) \), and the probability that a government of type \( \theta = 1 \) is voted out of office as \( \Phi(\tilde{s} - \gamma/\sigma_s) \). The extent to which electoral survival is conditioned on policy decisions or, equivalently, a government’s type is what we call the electoral discrimination \( \Phi(\tilde{s}/\sigma_s) - \Phi(\tilde{s} - \gamma/\sigma_s) \).

Proposition 2. Electoral discrimination is strictly rising in transparency (falling in \( \sigma_s \)).

As transparency rises, the probability that a government of type \( \theta = 0 \) is voted out of office rises, while the probability that a government of type \( \theta = 1 \) is voted out falls. The electoral process is better at solving the problem of adverse selection as transparency rises.

Low-type \( \theta = 0 \) governments return unambiguously worse performance – i.e., \( G_1 = 0 \). Empirically, one might regard \( L \)'s choice of \( G_1 \in \{0, 1\} \) as reflected in rate of economic growth. Proposition 2, therefore, indicates that leaders will be voted out of office more frequently when this rate is low than when it is high. However, transparency moderates this tendency – the sensitivity of election outcomes to performance rises in transparency.

In equilibrium, if a low type leader survives in office, the voters mobilize for his ‘irregular’ removal. Since democratic collapse takes place when poor leaders are reelected, this probability is given by \((1 - p)[1 - \Phi(\tilde{s}/\sigma_s)]\), the ex ante probability that \( L \) is a ‘bad’ type \( \theta = 0 \) multiplied by the probability that such a type survives the electoral process. Recall that our empirical proxy for \( G_1 \) (or, equivalently, \( \theta \)) is the growth rate – leaders are only ousted through undemocratic methods when the growth rate is poor.

Increased transparency make elections more effective in ousting bad leaders. Since irregular removal takes place only when a bad leader is retained, the risk of democratic collapse is falling in transparency.

Proposition 3. The probability of democratic collapse is strictly falling in transparency (rising in \( \sigma_s \)).

Put another way, Proposition 3 holds that the relationship between leader performance and regime stability is moderated by transparency. Leaders who achieve strong economic growth never inspire instability; those who return low growth face a high probability of irregular ouster in opaque environments, and a high probability of electoral defeat in transparent. We clarify this claim in the following remark:
Remark 1. The difference in the probability of democratic collapse between when \( G_1 = 1 \) and when \( G_1 = 0 \) is strictly falling in transparency (rising in \( \sigma_s \)).

Model Extension

In our baseline model, the incumbent’s type \( \theta \in \{0, 1\} \) is wholly determinative of her strategy in equilibrium. In the Appendix, we present an extension to the baseline model in which ‘bad’ types of leaders may have an incentive to mimic good types. Leaders attach a value to holding office, implying that they may deviate from their primitive preferences over policy in order to retain power. We show that the comparative static conclusions documented above continue (weakly) to hold in the extended model. We say weakly because for any value leaders attach to holding power, there exists a corresponding threshold in transparency such that for all levels of transparency above that threshold, leaders pool on ‘good’ behavior and no leader faces irregular removal in equilibrium (for a similar result, see Ashworth and Bueno de Mesquita, 2014). Hence, the probability of irregular removal is invariant in transparency above this threshold. One might interpret this result as indicating that, for sufficiently high values of transparency, democracy becomes consolidated.

Empirics

Data Description

The unseating of democratically elected leaders via extra-constitutional means increases the risk of autocratic reversion. At the very least, such actions entail the temporary suspension of democracy and, often, lead to the accession of leaders or movements with anti-democratic aspirations. This claim is given weight by Goemans, Gleditsch and Chiozza (2009), who, using a different definition of reversion than that used here, demonstrate that autocratic reversions are roughly four times more likely in years with irregular leader removals than those without – a difference that a simple test of proportions indicates is highly significant. We therefore first examine the relationship between transparency and the hazard of autocratic reversion.

Our definition of democracy for this purpose is drawn from the Democracy and Development Revisited (DD) dataset compiled by Cheibub, Gandhi and Vreeland (2010). The DD dataset uses the coding scheme pioneered in Alvarez et al. (1996), in which democracy is coded as a binary \( \{0, 1\} \) indicator equal to 1 if both the legislative and executive branches are selected via competitive elections between contesting political parties. For a country to be considered a
democracy, there must be at least one change in the party in power. All years under the same constitutional regime prior to this transfer of power are retroactively coded as democratic.

The DD indicator applies a particularly restrictive definition of democracy, states must pass a high bar to be considered democratic. For this reason, democratic transitions are rare events in our sample, there are no more than 19 such transitions in our dataset. While this restriction limits our statistical power, we prefer the DD definition given the crisp manner with which it identifies regime-type transitions. Moreover, the relatively restrictive criteria for inclusion helps to ensure that only states that hold informative elections – as assumed in our model – enter the sample. We fit our model using a relaxed definition of democracy in the Appendix.

In addition to the democracy indicator, we draw several control variables from the DD data. A contested literature points to differences in the stability of parliamentary and presidential regimes (e.g. Cheibub, 2007; Lijphart, 1992). We therefore control for a binary indicator of whether the government is run via a parliamentary system, and another indicator equal to one if the political regime involves a mixed parliamentary/presidential style system.

We also examine the relationship between transparency and the hazard of leader removal. Here our observation is the democratic leader-year, where democracy is defined according to the DD dataset described above. Our data on leader exits is drawn from the Archigos dataset, which codes exits as regular (leaders voted out of office, subject to term limits, or retired), irregular (leaders ousted via extra-constitutional methods), due to death by natural causes or suicide, or due to foreign interventions. We are particularly interested in regular and irregular leader exit.

Our empirical measure of transparency (the inverse of $\sigma_s$ in our model) is the HRV Index (Hollyer, Rosendorff and Vreeland, 2014), which measures the extent to which governments collect and disseminate aggregate economic data. As discussed above, this measure captures the disclosure of credible aggregate economic information.

An important concern, when working with these data, is to what extent transparency is distinct from state capacity. As Hollyer, Rosendorff and Vreeland (2014) argue, these concepts need not be viewed as contrary to one another – regardless of whether opacity results from a government decision not to disclose or from a government's inability to disclose, citizens remain uninformed. Moreover, they demonstrate that while low-income democracies and autocracies disclose at similarly low rates, high-income democracies disclose much more information than analogous autocracies. The finding that transparency destabilizes autocracies (Hollyer, Rosendorff and Vreeland, 2015) further suggests that the HRV index is picking up information transmission rather than merely state capacity. Presumably, capable autocrats are less prone to mass unrest than incapable ones.
Nonetheless, one must be concerned that our measure of transparency is correlated with state capacity, and capacity – rather than transparency – drives the relationship with regime collapse. This risk is particularly great given existing findings that high-income democracies rarely experience autocratic reversals (Gassebner, Lamla and Vreeland, 2013; Przeworski et al., 2000). To allow for this possibility, we control for GDP *per capita* in all specifications. We also control for a history of past autocratic reversions, which may also correlate with capacity.

We additionally control for a variety of other economic factors. These include measures of economic growth (the percentage change in real GDP *per capita*), which we treat as a measure of government’s economic performance. We also include a measure of economic openness \( \frac{\text{Exports} + \text{Imports}}{\text{GDP}} \). This control is valuable given potential linkages between economic and political liberalization, and given that open economies are more likely to be subject to exogenous shocks to economic performance than closed, and thus economic performance may be less valuable a signal of government competence as trade dependence rises (Duch and Stevenson, 2008).

These measures are all drawn from the Penn World Table (PWT) version 6.3 (Heston, Summers and Aten, 2009). The PWT offers several advantages as a measure of economic performance for this study: First, the PWT data are adjusted and interpolated by external researchers with no affiliation to reporting governments (though, the underlying data are still based on national accounts). The PWT can thus be seen as a proxy for true economic performance \( G_z \) in our model rather than as a realization of the public signal \( s \).\(^{18}\)

Second, country time-series included in the PWT are uninterrupted. This is important when employing a measure of data missingness – such as the HRV index – as an explanatory variable. Were missing data present in the PWT, it is likely that missing values would correlate with transparency levels. Listwise deletion would therefore censor variation in a key explanatory variable, potentially inflating standard errors and understating measures of model fit.

<table>
<thead>
<tr>
<th>Table 1: Summary Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
</tr>
<tr>
<td>Transparency</td>
</tr>
<tr>
<td>Growth</td>
</tr>
<tr>
<td>GDP <em>per capita</em></td>
</tr>
<tr>
<td>Ec. Openness</td>
</tr>
<tr>
<td>Parliamentary</td>
</tr>
<tr>
<td>Mixed System</td>
</tr>
</tbody>
</table>

\(^{18}\)For details, see Summers and Heston (1991).
Democratic Survival

Proposition 3 contends that transparency should be associated with the stabilization of democratic regimes. Transparent democracies should face a lower hazard of collapse than opaque democracies. Instability is driven by the perception that electoral rules fail to unseat rent-seeking or incompetent politicians, thus enhancing the effectiveness of elections serves to decrease the likelihood of unrest.

Our outcome of interest is a democratic-to-autocratic transition. The unit of observation is the democratic spell-year, where a democratic spell is defined as one or more continuous years of democratic rule.

Of course, governments are not randomly assigned a level of transparency, raising the risk of potential bias. We attempt to control for major threats to inference by controlling for alternative factors that have been linked to democratic consolidation and which are likely to correlate with the HRV index – GDP per capita, past histories of collapse, institutional features (parliamentarism), and a general tendency toward economic openness. However, we acknowledge that threats to inference cannot be entirely ruled out and some bias is likely to remain. We attempt to buttress our findings by examining a variety of outcomes – regime transition, irregular and regular leader removal. And we further note that, when using the DD definition of transition, very few terms robustly correlate with autocratic reversion once GDP per capita and histories of democratic collapse have been controlled for (Gassebner, Lamla and Vreeland, 2013). We therefore argue that, while our empirical results cannot be taken as definitive evidence of a causal effect of transparency on democratic stability, they are supportive of our theoretical account which holds that transparency bolsters democratic legitimacy.

To test the relationship between transparency and autocratic reversions, we use Cox proportional hazards regressions, where the baseline hazard rate is estimated using conditional gap time models. Conditional gap time models stratify the baseline hazard rate based on some (potentially multichotomous) indicator variable. In so-doing, they flexibly control for the manner in which this term may shift the hazard rate – both the shape and the level of the baseline hazard may differ across strata (Box-Steffensmeier and Zorn, 2002).

Specifically, we stratify the baseline hazard rate based on the frequency with which a given country has experienced democratic collapses in the past. Substantial evidence exists that past instability predicts future instability – the transition process between political regimes is non-Markovian (Gandhi and Przeworski, 2007; Meirowitz and Tucker, 2013). We thus estimate models where we stratify the baseline hazard rate based on an indicator for whether there has been a prior transition, or, alternatively, an ordered variable based on the number of prior transitions. As
a final robustness test, we simply include a control for a \{0, 1\} indicator for past reversions.  
We estimate models of the following form:

\[
\begin{align*}
  h_d(t, p_d) &= h_0(t, p_d) e^{X_{d,t} \beta} \\
  X_{d,t} \beta &= \beta_0 + \beta_1 \text{Transparency}_{d,t-1} + \beta_2 \text{Growth}_{d,t-1} \\
  &\quad + \beta_3 \text{Transparency}_{d,t-1} \times \text{Growth}_{d,t-1} + Z_{d,t-1} \psi
\end{align*}
\]

where \(d\) denotes democratic-spell, \(t\) denotes years of continuous democratic rule, and \(Z_{d,t-1} \psi\) is a vector of controls and associated coefficients. \(h_0(t, p_d)\) is the baseline hazard rate, where \(p_d\) is an indicator for past reversions. All standard errors are clustered by democratic-spell. Our primary hypothesis, as outlined in Proposition 3 holds that \(\beta_1 < 0\). Our model further posits that collapse should take place only in the event that \(G_1 = 0\). Here, we proxy for \(G_t\) by using economic growth – hence, we hypothesize that \(\beta_2 < 0\). Finally, Remark 1 suggests that the importance of growth to regime stability should be falling in transparency, i.e., \(\beta_3 > 0\). Given potential modeling issues with such interaction terms (Berry, DeMeritt and Esarey, 2010; Hainmueller, Mummolo and Xu, 2016), we also present models without this interaction in the Appendix.

Results from these regressions are presented in Table 2. The first three columns present coefficient estimates from a conditional gap time model in which the baseline hazard rate is stratified by whether or not there was a prior transition, the next three present similar models stratified based on the number of prior transitions, and the final three present estimates . Table 2 presents estimates of coefficient values, not hazard ratios. In all cases, we initially present results with a full set of controls. We then drop controls that are not included based on the theoretical model, to ensure these are not inducing over-fitting or post-treatment bias. Finally, we present the binary relationship between transparency and regime collapse, given the danger that economic growth may respond to transparency, inducing post-treatment bias.

As can be seen from Table 2, the coefficient on transparency is consistently negative and large. 95% confidence intervals are bounded away from zero in all but two specifications – the p-value in one exceptional case is 0.052. The point estimates suggest that a one standard deviation increase in transparency serves to reduce the hazard of democratic collapse by between 45 and 85 percent, when economic growth is at its mean level in the sample.

Figure 1 presents estimates of the smoothed hazard function from the model in the eighth column of Table 2. The figure to the left presents estimates from when transparency is one standard deviation below its sample mean; while, the figure to the right presents the smoothed hazard when transparency is one standard deviation above this mean. Dashed lines depict the
Table 2: Transparency and the Hazard of Democratic Collapse

<table>
<thead>
<tr>
<th></th>
<th>Cond. Prior Transition</th>
<th>Cond. Num. Transitions</th>
<th>Prior Transition Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparency</td>
<td>-0.642**</td>
<td>-0.697***</td>
<td>-0.703***</td>
</tr>
<tr>
<td></td>
<td>[-1.227,-0.057]</td>
<td>[-1.121,-0.273]</td>
<td>[-1.114,-0.291]</td>
</tr>
<tr>
<td>Growth</td>
<td>0.141***</td>
<td>-0.109***</td>
<td>-0.127***</td>
</tr>
<tr>
<td></td>
<td>[-0.208,-0.073]</td>
<td>[-0.165,0.054]</td>
<td>[-0.193,-0.060]</td>
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<tr>
<td>Transparency × Growth</td>
<td>0.031</td>
<td>0.037</td>
<td>0.060***</td>
</tr>
<tr>
<td></td>
<td>[-0.047,0.109]</td>
<td>[-0.059,0.132]</td>
<td>[0.015,0.105]</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.209*</td>
<td>-0.156</td>
<td>-0.207*</td>
</tr>
<tr>
<td></td>
<td>[-0.432,0.015]</td>
<td>[-0.396,0.083]</td>
<td>[-0.422,0.009]</td>
</tr>
<tr>
<td>Ec. Openness</td>
<td>-0.001</td>
<td>-0.004</td>
<td>-0.003</td>
</tr>
<tr>
<td>Parliamentary</td>
<td>2.103***</td>
<td>1.959***</td>
<td>1.158**</td>
</tr>
<tr>
<td></td>
<td>[0.842,3.364]</td>
<td>[0.846,3.072]</td>
<td>[0.042,2.724]</td>
</tr>
<tr>
<td>Mixed System</td>
<td>0.691</td>
<td>0.628</td>
<td>0.447</td>
</tr>
<tr>
<td></td>
<td>[-0.585,1.967]</td>
<td>[-0.697,1.953]</td>
<td>[0.882,1.777]</td>
</tr>
<tr>
<td>Prior Transition</td>
<td>1.531***</td>
<td>1.094**</td>
<td>0.907**</td>
</tr>
<tr>
<td></td>
<td>[0.372,2.691]</td>
<td>[0.135,2.054]</td>
<td>[0.061,1.875]</td>
</tr>
<tr>
<td># of Subjects</td>
<td>88</td>
<td>88</td>
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<tr>
<td># of Failures</td>
<td>19</td>
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<td>19</td>
</tr>
</tbody>
</table>

Cox proportional hazards regressions of the hazard of democratic collapse. The models depicted in the first two columns, the middle two columns, and the last two columns differ in the manner in which they deal with countries that experience prior autocratic spells. Those in the first two columns report a conditional gap time model wherein the baseline hazard is separately estimated for regimes that experience a prior transition and for those that did not. Those in the next two columns estimate separate baseline hazards based on the number of prior transitions. Those in the final two columns examine only autocratic spells that did not experience a prior transition. We present estimates of coefficient values, not hazard ratios, with 95 percent confidence intervals are presented in brackets. All standard errors have been clustered by democratic spell.
estimated hazard when growth is one standard deviation above its mean; solid lines depict the same when growth is one standard deviation below. As can be readily seen, an increase in transparency is associated with a marked decline in the estimated hazard rate.

Smoothed estimates of the hazard rate as derived from the Cox Model in seventh column of Table 2. The figure to the left depicts the change in the hazard rate when growth moves from one standard deviation below to one standard deviation above the sample mean when the transparency score is one standard deviation below its mean. The figure to the right depicts the change in the hazard rate when growth changes from one standard deviation below to one standard deviation above the sample mean when transparency is one standard deviation above its mean. The Prior Transition term is held at 0.

**Figure 1:** Democracy Hazard Rates as a Function of Transparency and Growth

These results thus offer support for Proposition 3 – as levels of transparency rise, the risk of democratic collapse sharply declines. Transparency reinforces democracy.

Consistent with our theory, economic growth is consistently negatively associated with the hazard of autocratic reversion. This result is significant at the 95 percent level in all specifications. Consistent with Remark 1, coefficients on the interaction between transparency and economic growth
growth are consistently positive, indicating that variations in growth rates have a diminished impact on the survival of highly transparent regimes. These coefficients are imprecisely estimated in some specifications, however. We fit robustness checks excluding this interaction term, which produce substantively similar findings regarding the unconditional effect of transparency.

Interestingly, the coefficients on GDP per capita are imprecisely estimated in these regressions, and the coefficients on this term are relatively small. This is perhaps unsurprising, given the correlation between GDP per capita and our transparency measure. However, it does suggest, that transparency is part of the mechanism underlying existing findings that high-income democracies are less susceptible to collapse (Boix, 2003; Boix and Stokes, 2003; Przeworski and Limongi, 1997; Przeworski et al., 2000).

**Democratic Survival Robustness**

We additionally conduct a series of robustness checks of our baseline specifications as reported in Table 2, which we present in the appendix. Our results are robust to relaxing the requirements for democracy imposed in Cheibub, Gandhi and Vreeland (2010). Specifically, we relax the 'Type 2' restriction which only codes countries as democratic if there has been a peaceful alternation in the party in power. Our results are also robust to the exclusion of the interaction term between transparency and economic growth from the specification. They are also substantively unchanged by the inclusion of a quadratic term of transparency, and the coefficient on the quadratic term itself is small and imprecisely estimated.

**Leader Survival**

Proposition 3 contends that democracies are less likely to collapse as transparency rises – an effect brought about through a reduction in the public’s willingness to oust leaders through undemocratic methods when transparency is high. The empirics above demonstrate that transparent democracies are indeed less likely to experience an autocratic reversion. However, one may reasonably object that the removal of democratically elected leaders through extrastitutional means need not imply a reversion to autocracy, even if the reliance on such irregular methods makes reversions more likely. In this section of the paper, we concentrate on the removal of democratic leaders – through regular (constitutional) and irregular (extra-constitutional) methods – rather than the survival of democratic regimes.

To do this, we rely on the Archigos dataset, which codes leaders’ times in office and the manner of their removal (Goemans, 2006). Hence, our unit of observation is the democratic
leader-year, where democracy is coded based on the DD dataset used in the regressions above, and our sample runs from 1980-2004. Archigos codes the manner of leaders’ removal. Our theory indicates that transparency should be negatively correlated with the hazard of irregular removal and – insofar as ‘bad’ leaders are more likely to be voted out of office when transparency is high – positively correlated with the hazard of regular removal.

We assess these claims through Cox competing hazards regressions, using specifications identical to those employed to assess the hazard of democratic collapse above. Competing hazards regressions assess the hazard of one type of leader removal among many such threats. Hence, all democratic leader years in our sample enter both of our regressions. Leaders who are removed, for instance, via irregular methods are coded as having ‘failed’ in the year of their removal. Leaders who are removed via other methods are censored following their ouster. The competing hazards model operates on the assumption that various forms of removal are independent, conditional on covariates, in a manner that is roughly analogous to the independence of irrelevant alternatives assumption in multinomial logit specifications (Gordon, 2002).  

We present results from such competing hazards regressions on irregular and regular democratic leader removal in Tables 3 and 4, respectively. Consistent with our theory, transparency is associated with a fall in the hazard of irregular removal and a rise in the hazard of regular removal. Point estimates indicate that a one standard deviation increase in transparency is associated with a reduction in the hazard democratic leaders face of irregular removal of between 50 and 82 percent, when economic growth is at its mean level in the sample. This result is significant at the 90 percent level or above in every specification. Since leaders in transparent democracies are less likely to be removed via extra-constitutional means, they are at increased hazard of being replaced according to constitutional procedures. This translates into a marginally increased hazard of regular removal in each year of their tenure. This effect is significant at the 90 percent level or above in seven of nine specifications.

Remark 1 further holds that, in opaque democracies, under-performing leaders are likely to be ousted through non-democratic means; while in transparent democracies, these leaders are ousted via the ballot box. Our empirical results in this section offer suggestive support for this contention. The coefficient on economic growth is negative in all specifications examining the hazard of irregular removal. However, interpreting this coefficient requires attention to the interaction effect, which is positively signed. When this interaction is taken into account, the model indicates that in opaque democracies, low growth is associated with an increased hazard of irregular removal. This effect is attenuated as transparency rises. We present monte carlo simulations

---

19For an applied example of the competing hazards approach, see Goemans (2008).
Table 3: Transparency and Irregular Leader Removal

<table>
<thead>
<tr>
<th></th>
<th>Cond. Prior Transition</th>
<th>Cond. Num. Transitions</th>
<th>Prior Transition Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparency</td>
<td>-0.407*</td>
<td>-0.666***</td>
<td>-0.628***</td>
</tr>
<tr>
<td></td>
<td>[-0.815, 0.001]</td>
<td>[-0.997, -0.336]</td>
<td>[-0.846, 0.038]</td>
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<tr>
<td>Growth</td>
<td>-0.069**</td>
<td>-0.064**</td>
<td>-0.058*</td>
</tr>
<tr>
<td></td>
<td>[-0.121, -0.016]</td>
<td>[-0.119, -0.008]</td>
<td>[-0.123, -0.006]</td>
</tr>
<tr>
<td>Transparency ×</td>
<td>0.045</td>
<td>0.051*</td>
<td>0.042</td>
</tr>
<tr>
<td>Growth</td>
<td>[-0.019, 0.109]</td>
<td>[-0.009, 0.112]</td>
<td>[-0.029, 0.113]</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.133*</td>
<td>-0.115*</td>
<td>-0.131*</td>
</tr>
<tr>
<td></td>
<td>[-0.271, 0.006]</td>
<td>[-0.246, 0.015]</td>
<td>[-0.016, 0.006]</td>
</tr>
<tr>
<td>Ec. Openness</td>
<td>-0.003</td>
<td>-0.005</td>
<td>-0.003</td>
</tr>
<tr>
<td>Parliamentary</td>
<td>1.244**</td>
<td>1.174**</td>
<td>1.206**</td>
</tr>
<tr>
<td></td>
<td>[0.252, 2.235]</td>
<td>[0.201, 2.148]</td>
<td>[0.180, 2.237]</td>
</tr>
<tr>
<td>Mixed System</td>
<td>0.610</td>
<td>0.732</td>
<td>0.695</td>
</tr>
<tr>
<td></td>
<td>[-0.455, 1.675]</td>
<td>[-0.417, 1.881]</td>
<td>[-0.428, 1.818]</td>
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<tr>
<td>Prior Transition</td>
<td>1.343**</td>
<td>1.066***</td>
<td>1.032***</td>
</tr>
<tr>
<td></td>
<td>[0.423, 2.262]</td>
<td>[0.320, 1.813]</td>
<td>[0.264, 1.800]</td>
</tr>
<tr>
<td># of Subjects</td>
<td>442</td>
<td>442</td>
<td>442</td>
</tr>
<tr>
<td># of Failures</td>
<td>27</td>
<td>27</td>
<td>27</td>
</tr>
</tbody>
</table>

Cox competing hazards regressions of the hazard of irregular leader removal in democratic regimes. The models depicted in the first two columns, the middle two columns, and the last two columns differ in the manner in which they deal with countries that experience prior autocratic spells. Those in the first two columns report a conditional gap time model where the baseline hazard is separately estimated for regimes that experience a prior transition and for those that did not. Those in the next two columns estimate separate baseline hazards based on the number of prior transitions. Those in the final two columns examine only autocratic spells that did not experience a prior transition. We present estimates of coefficient values, not hazard ratios, with 95 percent confidence intervals are presented in brackets. All standard errors have been clustered by leader.
<table>
<thead>
<tr>
<th></th>
<th>Cond. Prior Transition</th>
<th>Cond. Num. Transitions</th>
<th>Prior Transition Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transparency</strong></td>
<td>0.073*</td>
<td>0.066**</td>
<td>0.047*</td>
</tr>
<tr>
<td></td>
<td>[-0.004,0.151]</td>
<td>[-0.015,0.143]</td>
<td>[-0.006,0.149]</td>
</tr>
<tr>
<td></td>
<td>0.064</td>
<td>0.066**</td>
<td>0.071*</td>
</tr>
<tr>
<td></td>
<td>[-0.009,0.097]</td>
<td>[-0.004,0.127]</td>
<td>[-0.008,0.131]</td>
</tr>
<tr>
<td></td>
<td>0.044</td>
<td>0.047*</td>
<td>[-0.009,0.101]</td>
</tr>
<tr>
<td><strong>Growth</strong></td>
<td>-0.004</td>
<td>-0.007</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td>[-0.031,0.024]</td>
<td>[-0.035,0.021]</td>
<td>[-0.033,0.026]</td>
</tr>
<tr>
<td></td>
<td>-0.009</td>
<td>-0.005</td>
<td>-0.008</td>
</tr>
<tr>
<td></td>
<td>[-0.022,0.005]</td>
<td>[-0.019,0.008]</td>
<td>[-0.021,0.004]</td>
</tr>
<tr>
<td><strong>Transparency</strong> × <strong>Growth</strong></td>
<td>-0.008</td>
<td>-0.005</td>
<td>-0.008</td>
</tr>
<tr>
<td></td>
<td>[-0.031,0.026]</td>
<td>[-0.032,0.025]</td>
<td>[-0.031,0.028]</td>
</tr>
<tr>
<td></td>
<td>-0.009</td>
<td>-0.007</td>
<td>-0.009</td>
</tr>
<tr>
<td></td>
<td>[-0.022,0.004]</td>
<td>[-0.020,0.006]</td>
<td>[-0.022,0.003]</td>
</tr>
<tr>
<td><strong>GDP per capita/</strong></td>
<td>-0.005</td>
<td>-0.003</td>
<td>-0.004</td>
</tr>
<tr>
<td></td>
<td>[-0.021,0.010]</td>
<td>[-0.019,0.012]</td>
<td>[-0.019,0.012]</td>
</tr>
<tr>
<td><strong>Ec. Openness</strong></td>
<td>-0.003**</td>
<td>-0.005**</td>
<td>-0.003**</td>
</tr>
<tr>
<td></td>
<td>[-0.006,-0.000]</td>
<td>[-0.008,-0.001]</td>
<td>[-0.006,-0.000]</td>
</tr>
<tr>
<td><strong>Parliamentary</strong></td>
<td>0.186</td>
<td>0.184</td>
<td>0.182</td>
</tr>
<tr>
<td></td>
<td>[-0.095,0.467]</td>
<td>[-0.099,0.468]</td>
<td>[-0.086,0.450]</td>
</tr>
<tr>
<td><strong>Mixed System</strong></td>
<td>-0.285</td>
<td>-0.278</td>
<td>-0.291</td>
</tr>
<tr>
<td></td>
<td>[-0.691,0.121]</td>
<td>[-0.689,0.133]</td>
<td>[-0.701,0.120]</td>
</tr>
<tr>
<td><strong>Prior Transition</strong></td>
<td>-0.054</td>
<td>-0.024</td>
<td>-0.004</td>
</tr>
<tr>
<td></td>
<td>[-0.322,0.214]</td>
<td>[-0.241,0.193]</td>
<td>[-0.220,0.212]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># of Subjects</th>
<th>442</th>
<th>442</th>
<th>442</th>
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<tbody>
<tr>
<td># of Failures</td>
<td>322</td>
<td>322</td>
<td>322</td>
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</tbody>
</table>

Cox competing hazards regressions of the hazard of regular leader removal in democratic regimes. The models depicted in the first two columns, the middle two columns, and the last two columns differ in the manner in which they deal with countries that experience prior autocratic spells. Those in the first two columns report a conditional gap time model wherein the baseline hazard is separately estimated for regimes that experience a prior transition and for those that did not. Those in the next two columns estimate separate baseline hazards based on the number of prior transitions. Those in the final two columns examine only autocratic spells that did not experience a prior transition. We present estimates of coefficient values, not hazard ratios, with 95 percent confidence intervals are presented in brackets. All standard errors have been clustered by leader.
of the effect of an increase in growth, at various levels of transparency, in Table 5.

The results on regular leader removal are somewhat less well-suited to test this aspect of our theory. We contend that leader performance should be more strongly correlated with electoral returns in transparent than opaque democracies. However, our measure of regular leader removal may encompass instances in which leaders retire or face term limits, in addition to instances when leaders are voted out of office. This imprecision in our measure tends to bias against the discovery of any relationship, since leaders our mechanisms indicate should be retained may experience regular removal due to exogenous forces – e.g., term limits. Nonetheless, the point estimates in Table 4 are consistent with our theory. Again, we present monte carlo simulations of the marginal effect of growth, at varying levels of transparency, in Table 5.

### Table 5: Estimates Marginal Effects of a One Standard Deviation Increase in Growth

<table>
<thead>
<tr>
<th></th>
<th>Transparent</th>
<th>Not Transparent</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irregular Removal</td>
<td>0.09</td>
<td>-0.14</td>
<td>0.23***</td>
</tr>
<tr>
<td></td>
<td>(0.11)</td>
<td>(0.09)</td>
<td>(0.10)</td>
</tr>
<tr>
<td>Regular Removal</td>
<td>-0.22*</td>
<td>-0.02</td>
<td>-0.20</td>
</tr>
<tr>
<td></td>
<td>(0.13)</td>
<td>(0.06)</td>
<td>(0.14)</td>
</tr>
</tbody>
</table>

Estimated marginal effects of a one standard deviation increase in the growth rate, reported as percentage changes in the hazard (divided by 100). Estimates are based on monte carlo simulations from the models in the second columns of Table 3 and 4. Transparency levels are set one standard deviation above and below the sample mean. Growth rates are set at their mean and one standard deviation plus the mean, to assess the marginal effect. Standard errors from simulations are reported in parentheses. * denotes significance at the 90 percent level, ** denotes significance at the 95 percent level, *** denotes significance at the 99 percent level.

### Conclusion

Transparency facilitates the consolidation of democratic rule. It does this through a particular mechanism: Increased transparency enhances the popular legitimacy of elections. As transparency rises, elections become more effective means of resolving adverse selection problems in representative government. Citizens, when confident that elections serve to hold their leaders
to account, have a diminished incentive to resort to extra-constitutional means of disciplining their leaders. Irregular leader removals do indeed fall in transparency, while regular removals rise.

Our emphasis on the *popular* legitimacy of elections shifts the focus of much recent work on democratic stability and consolidation from the behavior of elites to popular legitimation. We introduce a novel mechanism through which democracy achieves mass legitimation, and thus introduce a novel predictor of democratic stability – namely transparency. Moreover, legitimacy in this context arises from the rational equilibrium strategies of citizens as deduced from a formal model – it is not merely a description of behavioral responses or of (possibly irrational) attitudes.

Together with related work on transparency and mass mobilization in autocracies (Hollyer, Rosendorff and Vreeland, 2015), this paper contributes to a growing literature on the coordination of protest. Fearon (2011); Hyde and Marinov (2014); Little, LaGatta and Tucker (2015) focus on the role of election returns, and Bueno de Mesquita (2010); Shadmehr and Bernhardt (2014) on revolutionary entrepreneurs as solutions to the informational difficulties in coordinating mass unrest. We find that the role of free flows of information in coordinating protests is moderated by the institutional environment. Transparency facilitates mass unrest in autocracies, while it inhibits threats to democratic rule.

**References**


Proofs of Theoretical Propositions

Lemma 1. \( \bar{y}(s) = \frac{\gamma}{2} \left( \frac{\sigma_y^2}{\sigma_s^2} + 1 \right) - \frac{\sigma_y^2}{\sigma_s^2} \).

Proof. From Definition 1, \( Pr(\theta = 1 | \bar{y}(s), s) = p \). From Bayes’ rule,

\[
Pr(\theta = 1 | \bar{y}(s), s) = \frac{p\phi(y(s)-\gamma)\phi\left(\frac{s-\gamma}{\sigma_s}\right)}{p\phi(y(s)-\gamma)\phi\left(\frac{s-\gamma}{\sigma_s}\right) + (1-p)\phi(\frac{\bar{y}(s)}{\sigma_y})\phi\left(\frac{s}{\sigma_s}\right)}
\]

Setting this equal to \( p \) and solving for \( \bar{y}(s) \) yields the result.

Proof of Equilibrium Existence

Proof of Proposition 1. The leader has a dominant strategy to match her type: \( L \)’s best response is to set \( G_t = \theta \) in \( t \in \{1, 2\} \). In the voting stage, given the equilibrium strategies of the leader and the other voters, voter \( i \) votes against the incumbent (set \( v_i = 1 \)) if and only if \( Pr(\theta = 1 | y_{i,1}, s) \leq p \). Substituting the equilibrium interim beliefs and simplifying yields the condition that \( v_i = 1 \) iff \( y_{i,1} < \bar{y}(s) \). So the voter is playing a best response which is consistent with beliefs. After the voting is complete, and given these strategies by the voters, the number of votes to remove \( L \) is given by \( V(s; G_1) \), as defined in Definition 1. Notice that, for any value of \( s \), \( V(s; 1) < V(s; 0) \) – the vote share of the incumbent is strictly lower if she fails to provide the public good than if she provides the public good. This then implies that – given the public signal – each citizen \( i \) can
deduce $L$’s type with certainty based on her vote share. More precisely, each citizen $i$’s posterior beliefs will be given by:

$$Pr(\theta = 1|V, s) = \begin{cases} 
0 & \text{if } V > V(s; 1) \\
1 & \text{otherwise.}
\end{cases}$$

Given these posterior beliefs, it is an equilibrium response if all voters mobilize if the actual vote count is larger than the expected vote count in the instance that the leader is good, i.e. if $V > V(s; 1)$. If all other voters are mobilizing it is optimal for the $i$’th voter to mobilize too in order to benefit from participating in a successful uprising; if the other voters are not mobilizing (which happens when $V \leq V(s; 1)$), then there is no benefit to protesting. Hence for voter $i$ a best response is $a_i = 1$ if $V > V(s; 1)$ and 0 otherwise. Finally both interim and posterior beliefs follow Bayes’ rule. 

Democratic Discrimination and Transparency

**Lemma 2.** $\tilde{s}$ and $\tilde{s}$ are well-defined.

**Proof.** $\Phi(\tilde{y}(\tilde{s}) = \frac{1}{2}$ and $\tilde{y}(s) = \frac{\gamma}{2}(\frac{\sigma^2}{\sigma^2_y} + 1) - \frac{s\sigma^2}{\sigma^2_y}$ from Lemma 1. Substituting and solving yields $\frac{\gamma}{2}(1 + \frac{\sigma^2}{\sigma^2_y}) = \tilde{s}$. Similarly, $\Phi(\tilde{y}(\tilde{s}) = \frac{1}{2}$. Substituting and solving yields $\frac{\gamma}{2}(1 - \frac{\sigma^2}{\sigma^2_y}) = \tilde{s}$. 

Discrimination Rises with Transparency

**Proof of Proposition 2.** Electoral discrimination $= \Phi(\tilde{s}) - \Phi(\tilde{s} - \frac{\gamma}{\sigma})$. $\frac{\partial}{\partial \sigma} [\Phi(\tilde{s}) - \Phi(\tilde{s} - \frac{\gamma}{\sigma})] = \phi(\frac{\tilde{s}}{\sigma}) \frac{\partial}{\partial \sigma} \left[ \frac{\tilde{s}}{\sigma} \right] - \phi(\frac{\tilde{s} - \gamma}{\sigma}) \frac{\partial}{\partial \sigma} \left[ \frac{\tilde{s} - \gamma}{\sigma} \right]$. Now the first term $\phi(\frac{\tilde{s}}{\sigma}) \frac{\partial}{\partial \sigma} \left[ \frac{\tilde{s}}{\sigma} \right] = \phi(\frac{\tilde{s}}{\sigma}) \frac{\gamma}{2} (\frac{1}{\sigma_y} - \frac{1}{\sigma}) < 0$ since $\sigma < \sigma_y$ and $\phi(\cdot) > 0$. The second term $\phi(\frac{\tilde{s} - \gamma}{\sigma}) \frac{\partial}{\partial \sigma} \left[ \frac{\tilde{s} - \gamma}{\sigma} \right] = \phi(\frac{\tilde{s} - \gamma}{\sigma}) \frac{\gamma}{2} (\frac{1}{\sigma_y} - \frac{1}{\sigma}) > 0$ again since $\sigma < \sigma_y$. Hence $\frac{\partial}{\partial \sigma} [\Phi(\tilde{s}) - \Phi(\tilde{s} - \frac{\gamma}{\sigma})] < 0$. 

Unrest Falls with Transparency

**Proof of Proposition 3.** Mass unrest takes place in equilibrium if and only if an incumbent of type $\theta = 0$ survives the electoral stage of the game which occurs with the ex ante probability of $1 - \Phi(\tilde{s})$. Then $\frac{\partial}{\partial \sigma} \left[ 1 - \Phi(\tilde{s}) \right] = -\phi(\tilde{s}) \frac{\tilde{s}}{\sigma}$. From the proof of Proposition 2, $\frac{\partial}{\partial \sigma} \frac{\tilde{s}}{\sigma} < 0$. Since $\phi$ is the pdf of the standard normal (and hence positive), $\frac{\partial}{\partial \sigma} \left[ 1 - \Phi(\tilde{s}) \right] > 0$. The probability of unrest under democracy is falling in transparency.
Correlation between Economic Performance and Democratic Collapse Falls with Transparency

*Proof of Remark 1.* The probability of democratic collapse given $G_1 = 1$ is fixed and equal to zero. The probability of democratic collapse given $G_1 = 0$ is given by $1 - \Phi\left(\frac{\bar{s}}{\sigma_s}\right)$, which, as is established in Proposition 3 is falling in transparency. Hence, the difference in the probability of democratic collapse given $G_1 = 1$ and $G_1 = 0$ is falling in transparency. □

Model Extension

Consider a game identical to that above, save only for the utility function of the incumbent $L$. Define $L$‘s utility in each period $t$ as:

$$u_{L,t}(G_t; \theta) = \begin{cases} 1 + B & \text{if } G_t = \theta \text{ and in office} \\ B & \text{if } G_t \neq \theta \text{ and in office} \\ 0 & \text{otherwise.} \end{cases}$$

where $B > 0$ denotes the rents from office. $L$ has a primitive preference for matching her action $G_t$ with her type $\theta$. But, $L$ also prefers to retain office, and thus gain access to the rents $B$. $L$ may, therefore, deviate from her preferred choice of $G_1$ if doing so increases her chance of remaining in office.

The extended model may give rise to both pooling and separating equilibria. We characterize the separating and pooling equilibria; we also offer a lemma and a proposition. Proofs appear at the end of this section.

**Proposition 4.** If $\Phi\left(\frac{\bar{s} - \gamma}{\sigma_s}\right) \geq \frac{B}{1 + B}$, then the following strategies and beliefs constitute a (separating) PBE to the extended model. For the leader of type $\theta$, $G_t = \theta$ for $t = 1, 2$. For the citizens, their voting and mobilization strategies are

$$v_i = \begin{cases} 1 & \text{if } y_{i,1} \leq \bar{y}(s) \\ 0 & \text{otherwise.} \end{cases}$$

$$a_i = \begin{cases} 1 & \text{if } V > V(s; 1) \\ 0 & \text{otherwise.} \end{cases}$$

*Posterior beliefs (after both the private and public signals but before the vote) are $P_r(\theta =$
\[ \Pr(\theta = 1|y_i, s) = \begin{cases} 
0 & \text{if } V > V(s, 1) \\
1 & \text{otherwise.} 
\end{cases} \]

Strategies in this separating equilibrium are analogous to those described in the baseline model. Good incumbents set \( G_t = 1 \) in both periods, as this both satisfies their primitive preference and maximizes their chance of retention. This is a dominant strategy. Bad types also play according to type, setting \( G_t = 0 \). In the second period, this also constitutes a dominant strategy.

In the first period, the bad incumbent considers improving her chances of retention (from zero) by (deviating and) providing the public good. However, her risk of removal even after setting \( G_1 = 1 \), defined as \( \Phi(s - \gamma \sigma_s) \), remains sufficiently high that she prefers to act according to type. Given that \( L \) plays according to type, each citizen is faced with exactly the same voting and mobilization decisions as described above. Each \( i \) thus chooses to vote against the incumbent if \( y_i < \tilde{y}(s) \) and to mobilize against a reelected leader if \( V > V(s, 1) \).

However, this separating equilibrium exists only for a subset of parameter values. More precisely, this separating equilibrium exists only if the level of transparency is sufficiently low (\( \sigma_s \) is sufficiently high) relative to the value of holding office \( B \). For a sufficiently high value of holding office, this separating equilibrium will not exist for any value of transparency. We define the value of \( B \) below which a separating equilibrium exists as \( \tilde{B} \) and the requisite value of \( \sigma_s \) necessary for a separating equilibrium for a given \( B \leq \tilde{B} \) as \( \sigma_s(B) \). We characterize these values as follows:

**Lemma 3.** For any \( B \in [0, \tilde{B}] \), there exists a \( \sigma_s(B) \) such that \( \Phi \left( \frac{s - \gamma}{\sigma_s} \right) \geq \frac{B}{1+B} \) for all \( \sigma_s \geq \sigma_s(B) \), where \( \tilde{B} \) is as defined in Definition 2.

For alternative parameter values, the extended model gives rise to a pooling equilibrium, in which bad types mirror the actions of the good type in time \( t = 1 \). In such an equilibrium, neither the public nor the private signal is informative as to the incumbent’s type. All types of \( L \) adopt the same actions in equilibrium, hence all realizations of the signals \( y_i \) and \( s \) are equally likely for both types of leader. Voters cannot update their beliefs and are therefore indifferent between the incumbent and any challenger. Nonetheless, voters must continue to vote to remove incumbents if their signals (both public and private) are too low. Only by adopting such a strategy can the voters induce bad types of leaders to pool in the first period of play. We characterize such an equilibrium, in which voters’ behavior is unchanged relative to the separating equilibrium (above), in the following proposition:
Proposition 5. If $\Phi\left(\frac{s-\gamma}{\sigma_s}\right) < \frac{B}{1+B}$, then the following strategies and beliefs constitute a (pooling) PBE to the extended model. For the leader $G_1 = 1 \forall \theta$. $G_2 = 1$ if $\theta = 1$ and $G_2 = 0$ if $\theta = 0$. For the citizens, their voting and mobilization strategies are:

$$v_i = \begin{cases} 1 & \text{if } y_{i,1} \leq \bar{y}(s) \\ 0 & \text{otherwise.} \end{cases}$$

$$a_i = \begin{cases} 1 & \text{if } V > V(s;1) \\ 0 & \text{otherwise.} \end{cases}$$

Posterior beliefs (after both the private and public signals but before the vote) are $Pr(\theta = 1|y_{i,1}, s) = p$ and after the vote, but before political action:

$$Pr(\theta = 1|V, s) = \begin{cases} 0 & \text{if } V > V(s,1) \\ p & \text{otherwise.} \end{cases}$$

In this equilibrium, citizens continue to vote against the incumbent when the realization of their public and private signals is sufficiently poor – i.e., when $y_{i,1} < \bar{y}(s)$. Important, however, this is not because such signals are indicative of a bad type of leader. Both good and bad types of incumbent provide the public good in the first period, hence signals are uninformative of type. Voters are thus no longer behaving sincerely. Rather, they behave in this manner because of the economic damage a leader might cause off the equilibrium path. Voters must continue to vote according to their signals, despite the fact that these signals only reflect noise in equilibrium, because this is their only means of ensuring that leaders of all types have an incentive to behave well.

Analogously, citizens maintain their strategy of resorting to protest should the combination of vote totals and the public signal be sufficiently bad. However, since incumbents of all types set $G_1 = 1$, this combination is never realized in equilibrium. $V(s, G_t) = V(s,1)$ for both bad and good incumbents and protest never takes place. The risk of autocratic reversion falls to zero in equilibrium – democracy becomes consolidated.

Proposition 6. The probability of democratic collapse is weakly falling for all values of transparency (weakly rising in $\sigma_s$).

Lemma 3 establishes that for any given $B < \bar{B}$, the separating equilibrium described in Proposition 4 exists for sufficiently low levels of transparency (high values of $\sigma_s$). In this equilibrium, both citizen and incumbent strategies are identical to those in the baseline model, so the conclusions of Proposition 3 continue to hold. For a parameter values where this separating equilibrium exists,
the risk of democratic collapse strictly falls in transparency. For values of transparency greater than the threshold described in Lemma 3 (low values of $\sigma_s$), the pooling equilibrium described in Proposition 5 exists. In this pooling equilibrium, democracy is consolidated. The risk of democratic collapse is constant and equal to zero for all levels of transparency above this value (all values of $\sigma_s < \sigma_s(B)$). The risk of democratic collapse is therefore weakly falling everywhere in transparency.

**Proof of Existence of a Separating Equilibrium**

**Proof of Proposition 4.** When $\theta = 1$, $L$ has a dominant strategy of setting $G_t = 1 \forall t$. For this to be a separating equilibrium, when $\theta = 0$ $L$ must set $G_t = 0 \forall t$. When $L$ sets $G_1 = 0$, she is removed from office with certainty – either via elections or following unrest. When $L$ sets $G_1 = 1$ she is removed with probability $\Phi(\frac{s-\gamma}{\sigma_s})$. Hence, types $\theta = 0$ prefer to set $G_1 = 0$ iff:

$$1 + B \geq B + [1 - \Phi(\frac{s-\gamma}{\sigma_s})](1 + B)$$

$$\Phi(\frac{s-\gamma}{\sigma_s}) \geq \frac{B}{1 + B}.$$ 

Given $\Phi(\frac{s-\gamma}{\sigma_s}) \geq \frac{B}{1 + B}$, $L$’s strategy of $G_t(\theta) = \theta \forall t$, and the equilibrium strategies of all other voters, voter $i$ votes against the incumbent if and only if $Pr(\theta = 1|y_i, G_1) \leq p$. Hence, $v_i = 1$ iff $y_i, l \leq \tilde{y}(s)$, where $\tilde{y}(s)$ is as defined in Definition 1. Given this strategy by each voter $i$, the number of voters voting to remove $L$ is as given by $V(s; G_1)$, again as defined in Definition 1. As in the baseline model, for any realization of $s$, a strictly greater number of citizens vote to remove when $G_1 = 0$ than when $G_1 = 1$. Hence, each citizen $i$'s beliefs at the conclusion of the voting stage will be given by:

$$Pr(\theta = 1|V, s) = \begin{cases} 0 & \text{if } V > V(s; 1) \\ 1 & \text{otherwise.} \end{cases}$$

Given these posterior beliefs, is an equilibrium response for all voters to mobilize iff $V > V(s; 1)$. 

\[\square\]
Proof of Equilibrium Threshold in Transparency and Benefits to Office

Proof of Lemma 3. Recall that $0 < \sigma_s < \sigma_y$, and from Proposition 2, $\Phi\left(\frac{\gamma - \gamma}{\sigma_s}\right)$ is monotonic and increasing in $\sigma_s$. Then $\Phi\left(\frac{\gamma - \gamma}{\sigma_s}\right)$ takes a maximum value as $\sigma_s \rightarrow \sigma_y$. From Definition 2 we have $s = \frac{\gamma}{2}(1 - \frac{\sigma_s^2}{\sigma_y^2}) \Leftrightarrow \frac{\gamma - \gamma}{2\sigma_s} = \frac{\gamma - \gamma}{2\sigma_y}$. Then $\lim_{\sigma_s \rightarrow \sigma_y} \Phi\left(\frac{\gamma - \gamma}{\sigma_s}\right) = \Phi\left(-\frac{\gamma}{\sigma_y}\right) \in (0, 1)$. Hence, for any $\gamma$, $\sigma_y$, we can define a value of $B \in \mathbb{R}_+$ such that $\frac{B}{1+B} = \Phi\left(-\frac{\gamma}{\sigma_y}\right)$. Now for any $B < \bar{B}$, define $\sigma_s(B)$ such that $\Phi\left(-\frac{\gamma}{2\sigma_s(B)} - \frac{\gamma \sigma_s(B)}{2\sigma_y}\right) = \frac{B}{1+B}$. Then by monotonicity of $\Phi(\cdot)$ in $\sigma_s$, $\Phi\left(\frac{\gamma - \gamma}{\sigma_s}\right) \geq \frac{B}{1+B}$ for all $\sigma_s \geq \sigma_s(B)$ and $B < \bar{B}$. \hfill \qed

Proof of Existence of a Pooling Equilibrium

Proof of Proposition 5. When $\theta = 1$, $L$ has a dominant strategy of setting $G_1 = 1 \forall t$. When $\theta = 0$, $L$ has a dominant strategy of setting $G_2 = 0$. In a pooling equilibrium, $L$ must prefer to set $G_1 = 1$ when $\theta = 0$, which is possible if and only if the gains in the probability of survival are sufficiently high.

In a pooling equilibrium, all types of $L$ set $G_1 = 1$, hence all realizations of $y_{i,1}$ and $s$ are equally likely regardless of type. $Pr(\theta = 1|y_{i,1}, s) = p \forall y_{i,1}, s$. Voters are thus indifferent between setting $v_i = 0$ and $v_i = 1$. It thus remains a best response for all $i$ to set $v_i = 1$ iff $y_{i,1} \leq \bar{y}(s)$, where $\bar{y}(s)$ is as defined in Definition 1. Given this voting strategy, vote returns will always be given by $V(s;1)$ as defined in Definition 1, and voter posterior beliefs are given by $Pr(\theta = 1|V, s) = p \forall s$. Posterior beliefs for $V > V(s;1)$ are not defined by Bayes’ Rule, and may be set such that $Pr(\theta = 1|V > V(s;1), s) = 0 \forall s$. Given these beliefs, it is a best response for all $i$ to set $a_i = 1$ iff $V > V(s;1)$ and to set $a_i = 0$ otherwise.

Given these equilibrium strategies by all citizens $i$, $L$ faces certain removal should she deviate and set $G_1 = 0$ and will be retained with probability $\Phi\left(\frac{\gamma - \gamma}{\sigma_s}\right)$ if she sets $G_1 = 1$. Hence, types $\theta = 0$ strictly prefer to set $G_1 = 1$ if and only if $1+B < B[1-\Phi\left(\frac{\gamma - \gamma}{\sigma_s}\right)](1+B) \Leftrightarrow \Phi\left(\frac{\gamma - \gamma}{\sigma_s}\right) < \frac{B}{1+B}$. Thus, if $\Phi\left(\frac{\gamma - \gamma}{\sigma_s}\right) < \frac{B}{1+B}$, the above strategies and beliefs constitute a pooling PBE to the game. \hfill \qed

Comparative Statics to the Extended Model

Proof of Proposition 6. The strategies of all players in the separating equilibrium to the extended model are identical to those of the baseline model. Hence, for any $B \leq \bar{B}$ and $\sigma_s \geq \sigma_s(B)$, the conclusion of Proposition 3 still holds. The probability of collapse is strictly falling in transparency (rising in $\sigma_s$).
For any $B > \bar{B}$ or $\sigma_s < \sigma_s(B)$ (when $B \leq \bar{B}$), the pooling equilibrium holds. Along the equilibrium path, $V = V(s;1)$ regardless of $L$’s type, hence $a_i = 0 \forall i$. The probability of collapse is invariant and equal to zero for all values of transparency.

Taken together, these results indicate that the probability of democratic collapse is weakly falling for all values of transparency (weakly rising for all values of $\sigma_s$).
Empirical Appendix

Alternative Definitions of Democracy

Table 6: Expanded Definition of Democracy

<table>
<thead>
<tr>
<th></th>
<th>Cond. Prior Transition</th>
<th>Cond. Num. Transitions</th>
<th>Prior Transition Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparency</td>
<td>-0.966***</td>
<td>-1.212***</td>
<td>-1.007***</td>
</tr>
<tr>
<td></td>
<td>[-1.493,-0.439]</td>
<td>[-1.613,-0.402]</td>
<td>[-1.417,-0.144]</td>
</tr>
<tr>
<td>Growth</td>
<td>-0.152***</td>
<td>-0.205***</td>
<td>-0.205***</td>
</tr>
<tr>
<td></td>
<td>[-0.233,-0.071]</td>
<td>[-0.307,-0.103]</td>
<td>[-0.307,-0.103]</td>
</tr>
<tr>
<td>Transparency × Growth</td>
<td>-0.053***</td>
<td>-0.079***</td>
<td>-0.079***</td>
</tr>
<tr>
<td></td>
<td>[-0.092,-0.015]</td>
<td>[-0.127,-0.030]</td>
<td>[-0.127,-0.030]</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.303</td>
<td>-0.303**</td>
<td>-0.248</td>
</tr>
<tr>
<td></td>
<td>[-0.678,0.072]</td>
<td>[-0.600,0.007]</td>
<td>[-0.560,0.064]</td>
</tr>
<tr>
<td>Ec. Openness</td>
<td>0.003</td>
<td>-0.007</td>
<td>-0.005</td>
</tr>
<tr>
<td></td>
<td>[-0.017,0.012]</td>
<td>[-0.024,0.009]</td>
<td>[-0.019,0.008]</td>
</tr>
<tr>
<td>Parliamentary</td>
<td>1.347*</td>
<td>1.224*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-0.230,2.924]</td>
<td>[-0.099,2.546]</td>
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</tr>
<tr>
<td>Mixed System</td>
<td>0.211</td>
<td>0.011</td>
<td>0.135</td>
</tr>
<tr>
<td></td>
<td>[-1.058,1.480]</td>
<td>[-1.248,1.269]</td>
<td>[-1.204,1.474]</td>
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<td>1.128**</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>[0.022,2.234]</td>
<td></td>
</tr>
<tr>
<td># of Subjects</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td># of Failures</td>
<td>17</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

Cox proportional hazards regressions of the hazard of democratic collapse. Here we include regimes that fail to pass the ‘type 2’ criterion of the DD coding scheme as democracies. The models depicted in the first two columns, the middle two columns, and the last two columns differ in the manner in which they deal with countries that experience multiple autocratic spells. Those in the first two columns report a conditional gap time model wherein the baseline hazard is separately estimated for regimes that experience a prior transition and for those that did not. Those in the next two columns estimate separate baseline hazards based on the number of prior transitions. Those in the final two columns examine only autocratic spells that did not experience a prior transition. We present estimates of coefficient values, not hazard ratios, with 95 percent confidence intervals are presented in brackets. All standard errors have been clustered by democratic spell.
### Table 7: Omitting Interaction Term

<table>
<thead>
<tr>
<th></th>
<th>Cond. Prior Transition</th>
<th>Cond. Num. Transitions</th>
<th>Prior Transition Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transparency</td>
<td>-0.600**</td>
<td>-0.663***</td>
<td>-0.472*</td>
</tr>
<tr>
<td></td>
<td>[-1.185,-0.016]</td>
<td>[-1.115,-0.211]</td>
<td>[-1.022,0.077]</td>
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<tr>
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<tr>
<td>Growth</td>
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<td>-0.104***</td>
<td>-0.108***</td>
</tr>
<tr>
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<td>[-0.202,-0.066]</td>
<td>[-0.156,-0.052]</td>
<td>[-0.179,-0.036]</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>[-0.176,-0.061]</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.215*</td>
<td>-0.181</td>
<td>-0.208**</td>
</tr>
<tr>
<td></td>
<td>[-0.431,0.001]</td>
<td>[-0.436,0.073]</td>
<td>[-0.414,-0.002]</td>
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<tr>
<td></td>
<td>0.001</td>
<td>0.002</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>[-0.019,0.020]</td>
<td>[-0.016,0.020]</td>
<td>[-0.020,0.018]</td>
</tr>
<tr>
<td></td>
<td>2.122***</td>
<td>1.859***</td>
<td>1.221**</td>
</tr>
<tr>
<td></td>
<td>[0.859,3.384]</td>
<td>[0.728,2.990]</td>
<td>[0.093,2.350]</td>
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<tr>
<td></td>
<td>[0.678]</td>
<td>0.467</td>
<td>0.454</td>
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<tr>
<td></td>
<td>[-0.627,1.984]</td>
<td>[-0.874,1.808]</td>
<td>[-0.861,1.770]</td>
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<td></td>
</tr>
<tr>
<td>Ec. Openness</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[-0.019,0.020]</td>
<td>[0.016,0.020]</td>
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</tr>
<tr>
<td></td>
<td>2.122***</td>
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<tr>
<td></td>
<td>[0.859,3.384]</td>
<td>[0.728,2.990]</td>
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<tr>
<td></td>
<td>[0.001]</td>
<td>[0.467]</td>
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<tr>
<td></td>
<td>[-0.001]</td>
<td>[-0.874,1.808]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parliamentary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior Transition</td>
<td>1.461**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.326,2.597]</td>
<td>[0.100,1.942]</td>
<td></td>
</tr>
</tbody>
</table>

Cox proportional hazards regressions of the hazard of democratic collapse. In these models, we omit the interaction between transparency and economic growth included in our baseline specifications. The models depicted in the first two columns, the middle two columns, and the last two columns differ in the manner in which they deal with countries that experience multiple autocratic spells. Those in the first two columns report a conditional gap time model wherein the baseline hazard is separately estimated for regimes that experience a prior transition and for those that did not. Those in the next two columns estimate separate baseline hazards based on the number of prior transitions. Those in the final two columns examine only autocratic spells that did not experience a prior transition. We present estimates of coefficient values, not hazard ratios, with 95 percent confidence intervals are presented in brackets. All standard errors have been clustered by democratic spell.
Table 8: Including Quadratic Term

<table>
<thead>
<tr>
<th></th>
<th>Cond. Prior Transition</th>
<th>Cond. Num. Transitions</th>
<th>Prior Transition Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparency</td>
<td>-0.818*</td>
<td>-0.884***</td>
<td>-0.812**</td>
</tr>
<tr>
<td></td>
<td>[-1.639,0.004]</td>
<td>[-1.455,-0.313]</td>
<td>[-1.535,-0.089]</td>
</tr>
<tr>
<td>Transparency^2</td>
<td>0.065</td>
<td>0.062</td>
<td>0.078**</td>
</tr>
<tr>
<td></td>
<td>[-0.078,0.209]</td>
<td>[0.000,0.155]</td>
<td>[-0.035,0.156]</td>
</tr>
<tr>
<td>Growth</td>
<td>-0.139***</td>
<td>-0.109***</td>
<td>-0.123***</td>
</tr>
<tr>
<td></td>
<td>[-0.205,-0.073]</td>
<td>[-0.163,-0.056]</td>
<td>[-0.190,-0.056]</td>
</tr>
<tr>
<td>Transparency X Growth</td>
<td>0.027</td>
<td>0.029</td>
<td>0.055**</td>
</tr>
<tr>
<td></td>
<td>[-0.052,0.107]</td>
<td>[0.012,0.098]</td>
<td>[-0.011,0.100]</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.209*</td>
<td>-0.170</td>
<td>-0.207*</td>
</tr>
<tr>
<td></td>
<td>[-0.429,0.010]</td>
<td>[-0.417,0.077]</td>
<td>[-0.420,0.007]</td>
</tr>
<tr>
<td>Ec. Openness</td>
<td>-0.001</td>
<td>-0.005</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td>[-0.021,0.018]</td>
<td>[-0.026,0.016]</td>
<td>[-0.023,0.017]</td>
</tr>
<tr>
<td>Parliamentary</td>
<td>2.037***</td>
<td>2.003***</td>
<td>1.151**</td>
</tr>
<tr>
<td></td>
<td>[0.821,3.253]</td>
<td>[0.879,3.127]</td>
<td>[0.834,2.269]</td>
</tr>
<tr>
<td>Mixed System</td>
<td>0.588</td>
<td>0.525</td>
<td>0.363</td>
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<td>[-0.705,1.882]</td>
<td>[-0.791,1.840]</td>
<td>[-0.191,1.745]</td>
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<td>Prior Transition</td>
<td>1.573***</td>
<td>1.164**</td>
<td>1.573***</td>
</tr>
<tr>
<td></td>
<td>[0.424,2.723]</td>
<td>[0.197,2.131]</td>
<td>[0.424,2.723]</td>
</tr>
</tbody>
</table>

Cox proportional hazards regressions of the hazard of democratic collapse. In these models, we include a quadratic term for transparency in our baseline specifications. The models depicted in the first two columns, the middle two columns, and the last two columns differ in the manner in which they deal with countries that experience multiple autocratic spells. Those in the first two columns report a conditional gap time model wherein the baseline hazard is separately estimated for regimes that experience a prior transition and for those that did not. Those in the next two columns estimate separate baseline hazards based on the number of prior transitions. Those in the final two columns examine only autocratic spells that did not experience a prior transition. We present estimates of coefficient values, not hazard ratios, with 95 percent confidence intervals are presented in brackets. All standard errors have been clustered by democratic spell.