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The Dynamics of Competitive Authoritarian Elections

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The Dynamics of Competitive Authoritarian Elections
by
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To my parents.

ABSTRACT OF THE DISSERTATION

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Doctor of Philosophy in Political Science

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Although most authoritarian regimes nowadays hold competitive elections, the actual level of competitiveness of these elections varies greatly: while some autocrats win (or cheat) by comfortable margins, others must work hard in order to win, and a few step down following an electoral defeat. The three papers that compose this dissertation investigate how economic conditions, subnational elections, player's expectations about the future and their capacity to formulate credible commitments affect the competitiveness of authoritarian elections.

The first paper of the dissertation examines the origins of ruling party defections and opposition coalitions in authoritarian elections. Using a formal model, I show that (a) defections and coalitions depend on the interaction between players' electoral strength and their capacity to make credible commitments; and (b) defections from the ruling party increase the opposition's incentives to behave opportunistically, thus making coalitions less likely. I support this claim with an analysis of executive elections in authoritarian regimes between 1980 and 2014.

The second paper of the dissertation studies how the economy and elections affect authoritarian survival. In regimes that do not hold competitive elections, the government will be vulnerable to coups or protests whenever economic conditions are sufficiently bad. When elections are held regularly, on the other hand, there is a trade-off: Since elections make it easier to coordinate against the government, these regimes should be especially vulnerable to bad economic conditions in election years; at the same time, the *anticipation* of future elections will dissuade

protests and coups in no-election periods, making the regime more resilient to short-term economic conditions. I examine this claim on a panel of 214 authoritarian regimes between 1952 and 2012.

The last paper of the dissertation investigates whether subnational elections can contribute to the development of opposition parties from the bottom up. I argue that opposition parties can use subnational governments as "springboards" from which to increase their electoral support in neighboring districts in future elections, i.e. opposition parties should do better in municipality m at time t if they already captured some of m's neighbors at $t-1$. Using data from municipal elections in Mexico between 1984 and 2000, I find evidence of such diffusion effects for the PAN, though not for the PRD.

Introduction

Competitive elections in authoritarian regimes pose a paradox. On the one hand, they are not very competitive, as the ruling party often monopolizes access to the media, harasses opposition leaders and supporters, inflates its vote total through fraud and may even refuse to recognize unfavorable electoral results. The extreme durability of some authoritarian regimes that hold competitive elections — Mexico's PRI lasted seven decades in power, and Malaysia's UMNO/BN (1960-), Singapore's PAP (1965-) or Botswana's BDP (1966-) may surpass that mark some day — attests to this, as does the fact that authoritarian incumbents won 303 of the 349 (competitive) executive elections they organized between 1946 and 2015 (86.8%). This rate is almost twice as large as that of their democratic counterparts in developing countries, who only won 220 executive elections out of 475 (46.4%).[1] On the other hand, these same numbers can be read as saying that one in eight executive elections in authoritarian regimes resulted in electoral defeat, a failure rate that is 2.5 times larger than the unconditional probability of authoritarian breakdown during the same period (4.9%).[2]

In other words, while authoritarian elections may be rigged, they are not a mere *façade*: electoral defeats are rare *in equilibrium*, but the fact that the opposition is allowed to organize and field candidates means that there exists a possibility, however remote, that the ruling party's hold on power will be threatened. Indeed, while several authors have claimed that competitive

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[1] Strictly speaking, the value for democracies corresponds to countries that had at least one authoritarian spell during the period; this comprises mostly developing democracies but also Spain, Greece and Portugal. In any case, the numbers for Western democracies are unlikely to approach, let alone surpass, those of authoritarian regimes.

[2] These numbers were obtained by combining data from Geddes, Wright and Frantz's (2014) dataset of authoritarian regimes with NELDA's list of competitive executive elections (Hyde and Marinov 2012). In both cases I extended the data until 2015 and introduced a few modifications in the authors' coding.

elections contribute to authoritarian survival, the mechanisms they propose can only operate if these elections pose some actual risk for incumbents. In particular, elections can only generate a valid signal of the incumbent's strength or provide valuable information about the distribution of electoral support for the opposition (Cox 2009; Little 2012; Miller 2013; Rozenas 2015) if there is some positive probability that the electoral outcome may be (highly) unfavorable for the ruling party.

By their very nature, then, authoritarian elections constitute "points of vulnerability" that may lead to regime breakdown. This raises the question of why some of these elections are more competitive than others, both across regimes and over time. But even though the literature on authoritarian elections has mushroomed in recent years (Gandhi and Lust-Okar 2009; Magaloni and Kricheli 2010; Levitsky and Way 2010; Morse 2012; Brancati 2014*a*), this issue has received considerably little attention. Scholars have rather focused on how to conceptualize authoritarian regimes that hold elections,[3] as well as understanding the practices that tend to go together with these elections, such as fraud, boycotts, repression, protests or international electoral monitoring.[4] The idea that elections constitute "points of vulnerability" has gained less traction, in part because many authors argue that authoritarian elections — and other democratic-looking institutions like parties or legislatures — help prolong the life of authoritarian regimes.[5] The potentially disruptive effect of ruling party defections and opposition coalitions has attracted considerable interest,[6] but with the exception of Reuter and Gandhi (2011), Wahman (2011), Arriola (2012, 2013) and Gandhi and Reuter (2013), the reasons why we observe defections and

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[3]Zakaria (1997); Diamond (2002); Levitsky and Way (2002); Schedler (2002, 2006); Brownlee (2009); Gandhi and Lust-Okar (2009); Levitsky and Way (2010) and Magaloni and Kricheli (2010).

[4]Hyde (2007, 2011); Tucker (2007); Beaulieu and Hyde (2009); Kuntz and Thompson (2009); Magaloni (2010); Gandhi and Reuter (2013); Bhasin and Gandhi (2013); Simpser (2012, 2013); Simpser and Donno (2012); Donno (2013); Little (2012); Little, Tucker and LaGatta (2015); Schedler (2013); Hafner-Burton, Hyde and Jablonski (2014); Chernykh and Svolik (2015); Rozenas (2015) and Rundlett and Svolik (2016).

[5]Geddes (2006); Lust-Okar (2006); Magaloni (2006); Gandhi (2008); Wright (2008*b,a*); Cox (2009); Egorov, Guriev and Sonin (2009); Little (2012); Svolik (2012); Boix and Svolik (2013); Miller (2013); Reuter and Robertson (2015); Reuter et al. (2016); see Brancati (2014*a*) for a discussion.

[6]Howard and Roessler (2006); Magaloni (2006); Brownlee (2007*a*); Levitsky and Way (2010); Reuter and Gandhi (2011); Wahman (2011); Arriola (2012, 2013) and Donno (2013).

coalitions in some elections but not in others has not been explored, and the possibility that defections and coalitions may be interdependent has received no consideration.

It is only recently that scholars have begun to address what I call the paradox of authoritarian elections: why these are pretty uncompetitive most of the time, yet able to dislodge apparently invulnerable regimes under the right circumstances. Schuler, Gueorguiev and Cantú (2015) argue that authoritarian elections have a dual effect: they make authoritarian regimes more durable in the long run, for example by signaling the regime's strength or fostering the development of a strong party, but at the expense of increasing their vulnerability at election time. Rundlett and Svolik (2016) note that low-level officials only have incentives to commit fraud on behalf of the incumbent when they expect her to win, giving rise to a pattern of "herd behavior" whereby strong incumbents become even stronger on election day, whereas even moderately weak ones may suffer massive defections. Finally, Fearon (2011), Tucker (2007), Little (2012) and Little, Tucker and LaGatta (2015) consider why unscrupulous rulers sometimes step down following an electoral defeat, noting that the threat of massive protests may induce them to comply.

The three papers that compose this dissertation extend this research by studying how factors like economic conditions, defections from the ruling party, opposition coalitions or subnational elections can make authoritarian regimes more vulnerable, but only under specific circumstances. In the first one — "Making Authoritarian Elections Competitive: The Origins of Ruling Party Defections and Opposition Coalitions in Competitive Authoritarian Regimes" —, I provide a more systematic account of why some authoritarian elections feature defections from the ruling party and/or opposition coalitions, while others do not. Even though both defections and coalitions have been credited with conducing to more competitive elections, their origins are not entirely well understood, and the possibility that defections may affect the probability of coalitions (or vice versa) has received little consideration. To address these issues, I propose a formal model in which a high-ranking member of the ruling party must decide whether to defect to the opposition, while two opposition leaders must opt between forming a coalition and

running separately. The model shows that (a) both defections and coalitions depend on the electoral strength of the relevant players and their capacity to make credible commitments; but (b) the effect of these factors is conditional on each other; and (c) defections raise the opportunity cost of forming a coalition, thus making them less likely. I support these claims with an analysis of 242 competitive executive elections in authoritarian regimes between 1980 and 2014.

The second paper of the dissertation — "Strength in Expectation: Elections, Economic Conditions and Authoritarian Breakdown" —, proposes a novel argument about the effect of competitive elections on authoritarian survival. While existing research has focused on the electoral act itself and its immediate consequences, I argue that elections also matter because of the *expectations* they generate. More specifically, the anticipation of future elections can affect players' willingness to protest or launch a coup in response to an underperforming economy. In regimes that do not hold competitive elections, there is little reason for postponing coups or protests when economic conditions are sufficiently bad. In regimes that hold regular elections, on the other hand, the possibility of voting against the incumbent in the future increases the opportunity cost of protesting or conspiring in non-election periods. Thus, these regimes should be especially vulnerable to bad economic conditions in election years — because elections make it easier to express dissatisfaction with the government — but more resilient to them in non-election periods. Using data from 214 authoritarian regimes between 1952 and 2012, I find that, relative to regimes that hold no competitive elections, autocracies that hold regular elections are immune to short-term economic conditions in non-election periods, but much more vulnerable to them in election years.

Finally, the last paper of the dissertation — "Building Support from Below? Subnational Elections, Diffusion Effects, and the Growth of the Opposition in Mexico, 1984-2000" — examines how subnational elections may contribute to the development of strong opposition parties. I argue that in authoritarian regimes that hold competitive elections at multiple levels of government, opposition parties can use subnational executive offices as "springboards" from which to

increase their electoral strength in future races. This predicts that electoral support for the opposition should follow a diffusion process, i.e. a party's electoral support in municipality m at time t should be stronger if that party already governs some of m's neighbors since $t-1$. I evaluate this claim with panel data from municipal elections in Mexico between 1984 and 2000. The results indicate that diffusion effects did contribute to the expansion of the PAN, but the same was not true for the PRD.

Competitive elections in authoritarian regimes are lopsided and unfair; yet unlike truly single-party elections, which have yet to deliver an electoral defeat to the ruling party (Hyde and Marinov 2012), they are not a mere *façade*: incumbents must work hard in order to win, and from time to time they have no choice but to concede electoral defeat. The fact that these defeats are often followed by democratization rather than "re-authoritarianization" (Brownlee 2009; Schuler, Gueorguiev and Cantú 2015) makes authoritarian elections even more consequential. By examining how subnational elections, economic conditions, players' expectations about the future and their capacity to formulate credible commitments affect the competitiveness of authoritarian elections, this dissertation enhances our understanding of when and why electoral competition may pave the way to democratization — as well as why it is often so hard to get there.

Paper 1

Making Authoritarian Elections Competitive: The Origins of Ruling Party Defections and Opposition Coalitions in Competitive Authoritarian Regimes

Abstract

Ruling party defections and opposition coalitions make authoritarian elections more competitive, but their origin remains understudied. To what extent do factors that make one of them more likely also increase the likelihood of the other? Do defections and coalitions influence each other directly? To answer these questions, I propose a three-player game in which a regime insider must decide whether to defect to the opposition while two opposition leaders must choose between forming a coalition and running separately. The model shows that defections and coalitions depend on players' electoral strength and their capacity to formulate credible commitments, but the effect of these factors should be conditional on each other. Furthermore, the fact that defections create a more fragmented playing field increases the opportunity costs of forming a coalition. I support these claims with data from 242 executive elections in authoritarian regimes between 1980 and 2014.

In 2002, the Kenya African National Union (KANU) conceded the presidency after almost forty years in power. This outcome resulted from a variety of interrelated circumstances. President Daniel arap Moi, in office since 1978, was barred from seeking reelection. The main opposition leaders, who had paid dearly for their lack of unity in the past, agreed to support the candidacy of Mwai Kibaki. And Moi's nomination of the inexperienced Uhuru Kenyatta as his successor caused his ruling coalition to unravel: several high-ranking KANU members — including the vice-president and four ministers — left the government and backed Kibaki's candidacy. As it had done in previous elections, KANU tried to intimidate opposition supporters, skew media coverage in its favor and tamper with the vote count. But this time the strategy proved less effective, as some of the people responsible for these practices had joined the opposition, and those that remained did not want to dirty their hands for a candidate that was likely to lose. On election day, Kibaki thrashed Kenyatta by 62.2% to 31.3% (Anderson 2003; Ndegwa 2003; Throup 2003; Brown 2004; Levitsky and Way 2010, ch. 6; Arriola 2012, ch. 7).

This example illustrates two key issues about the dynamics of executive elections in competitive authoritarian regimes (CARs). These are political regimes that combine formal democratic institutions — an executive and a legislature elected in multiparty elections with universal suffrage — with systematic recourse to formal and informal practices that skew the playing field in the ruling party's favor — such as government control of the media, electoral fraud and the systematic harassment of opposition leaders and supporters. The first is that, for all their reliance on undemocratic practices, ruling parties in CARs sometimes acknowledge electoral defeat and hand over power to the opposition. Indeed, 11% of the executive elections that took place in CARs between 1980 and 2014 resulted in an opposition victory (see Table 1.1): not an astounding number but enough to force the ruling party to work hard in order to win. The second is that defections from the ruling party and opposition coalitions make such elections much more competitive: between 1980 and 2014, ruling parties in CARs received 63% of the vote and won by a margin of 39 percentage points on average, but these number are much less impressive following a defection from the ruling party, an opposition coalition, or both.

TABLE 1.1: The ruling party's electoral performance in executive elections in CARs, 1980-2014.

	N	vote share	victory margin	prob. winning
All elections	241	0.63	0.39	0.89
Neither defection nor coalition	139	0.65	0.44	0.90
Defection but no coalition	50	0.61	0.39	0.92
Coalition but no defection	40	0.59	0.27	0.88
Defection and coalition	12	0.54	0.23	0.75

Nonetheless, the origins of defections and coalitions in CARs remain understudied. Table 1.2 shows that even though both phenomena have received substantial attention from the literature, most authors treat them as explanatory rather than outcome variables. Furthermore, the possibility that coalitions and defections may be systematically related to each other has received almost no consideration. In particular, we still do not know whether factors that make one of these phenomena more likely also increase the likelihood of the other, or whether defections induce the formation of coalitions (or vice versa).

To fill this gap, in this paper I model pre-electoral behavior in CARs as a game in which a regime insider must decide whether to defect to the opposition, while two opposition leaders must opt between forming a coalition or running separately. Players' behavior is driven by two factors: their (expected) electoral strength and their capacity to formulate credible promises about their future behavior in office — a crucial issue given that whomever wins the election can renege on pre-electoral promises with impunity. The model shows that the effect of these factors should be conditional on each other. In the case of defections, the implication is that electoral strength and credibility should substitute for each other. Intuitively, a regime insider will be more tempted to defect when he can expect to win on his own, but credible assurances that he will be compensated in the future may convince him to remain in the ruling party. Conversely, when the ruling party is expected to win by a landslide, insiders will be unwilling to defect even when they do not expect to be compensated.

TABLE 1.2: Coverage of defections and coalitions in large-*N* studies of elections in CARs.

	election type	sample size	regime defections	opposition coalitions
Howard and Roessler (2006)	executive	50	—	explanatory
Levitsky and Way (2010)	both	35*	explanatory	—
Reuter and Gandhi (2011)	executive	187	dependent	—
Wahman (2011)	both	107	—	dependent
Arriola (2012, 2013)	executive	76	—	dependent
Donno (2013)	both	177	—	explanatory
Gandhi and Reuter (2013)	legislative	316	—	dependent
Baturo (2014)	executive	116	—	control

* Levitsky and Way (2010) study 35 countries, but multiple elections in each.

The behavior of the opposition follows an analogous logic, though in this case electoral strength and the capacity to formulate credible commitments should reinforce each other. The intuition is that opposition leaders have little incentive to pay the costs of forming a coalition if they are unlikely to win, but when every opposition leader has a chance of winning on her own, cooperation will only be possible if some candidate can credibly commit to share power in the future. An additional implication is that the opposition's capacity to make credible commitments should be more relevant following a defection: since defections create a more fragmented playing field, they make opposition leaders more likely to win alone, thus raising the opportunity cost of forming a coalition. Paradoxically, this suggests that sometimes defections may end up *bolstering* the ruling party's chances of remaining in office, and indeed Table 1.1 indicates that the probability that the ruling party will win is slightly higher when there is only a defection than if there is neither a defection nor a coalition. In contrast, in the absence of a defection, opposition leaders may be willing to cooperate simply because it is the only way of defeating the incumbent.

I evaluate these claims in a sample of 242 executive elections in CARs between 1980 and 2014. The results provide substantial support for the model's implications. First, regimes with highly institutionalized parties are less vulnerable to defections, but only when the sitting executive is not running for reelection or the ruling party is electorally weak. Second, opposition parties are more likely to form a coalition when they have a good chance of winning the election. This

effect is generally independent from the opposition's capacity to cooperate — proxied by the age of the main opposition party, or opposition leaders' capacity to make pre-electoral payments —; however, following a defection the opposition's electoral strength only makes coalitions more likely when the opposition has some capacity to cooperate.

1.1   Defections and coalitions in CARs

Existing research explains defections and coalitions as a product of two factors: the anticipated electoral strength of the relevant players — i.e., the sitting executive, potential defectors, and the main opposition leaders (Magaloni 2006; van de Walle 2006; Greene 2007; Reuter and Gandhi 2011; Wahman 2011; Simpser 2013; Rundlett and Svolik 2016) —, and their capacity to make credible commitments about their future behavior (Brownlee 2007*a*,*b*; Magaloni 2008; Levitsky and Way 2010; Arriola 2012, 2013; Svolik 2012; Gandhi and Reuter 2013).

A player's strength is the combination of all those factors that may increase her vote share on election day. These include both factors that matter in "normal" democratic elections — candidate quality, the capacity to mobilize voters, or the current state of the economy — and those that are specific to CARs — notably the capacity to bias media coverage in one's favor, to harass opposition leaders, and to engage in (or prevent) electoral fraud. The distribution of players' strengths shapes incentives to take risks and/or engage in costly behavior. In particular, insiders are more likely to defect when the ruling party appears vulnerable at the polls, and therefore ruling parties often engage in fraud (Magaloni 2006; Simpser 2013) or induce electoral business cycles (Magaloni 2006; Pepinsky 2007; Blaydes 2010) in order to win *by a landslide* and discourage would-be defectors. From the opposition's perspective, the transaction costs of forming a coalition become more palatable when there is a real chance of winning (van de Walle 2006; Wahman 2011), though other authors argue that the winner-takes-all nature of executive elections in CARs will induce opposition parties to run alone if the ruling party is widely expected to lose (Bunce and Wolchik 2010, 2011).

On the other hand, the fact that CARs concentrate a disproportionate amount of power in the executive branch means that whomever wins the executive office can renege on pre-electoral promises with impunity, thus discouraging pre-electoral cooperation. Nonetheless, sometimes players are in a position to offer credible assurances to others. For example, an executive running for reelection may send the signal that the ruling coalition will not be reshuffled (Bueno de Mesquita et al. 2003; Brownlee 2007*b*). A highly institutionalized ruling party can have the same effect: if access to rents is determined by one's position in the party hierarchy rather than by personal connections with the sitting executive, regime supporters will have good reasons to believe that their cooperation will be rewarded in the future (Brownlee 2007*a*,*b*; Magaloni 2008; Svolik 2012, ch. 6). On the opposition's side, cooperation might be easier among parties that have been around for longer and thus had the opportunity to develop a reputation (Gandhi and Reuter 2013). Likewise, opposition leaders with access to material resources might be able to cement coalitions by making upfront payments to their allies — either to signal their credibility or to ensure that cooperation pays off even if promises are not respected afterwards (Arriola 2012, 2013).

These considerations are quite intuitive, but they also raise two issues that remain unanswered. The first is the possibility that players' electoral strength and their capacity to make credible commitments may depend on each other. For example, if the sitting executive is so strong that challenging her is futile, cohesion among regime supporters might be induced even in the absence of an institutionalized party. A similar logic applies to the claim that opposition cooperation might be facilitated by upfront payments (Arriola 2012, 2013): a candidate with little chance of winning will have a hard time raising the money to make such payments. The second is the extent to which defections and coalitions are systematically related to each other. Certain circumstances may discourage both defections and coalitions, for example if the sitting executive is such a strong candidate that everybody expects her to win. Alternatively, a weak and divided opposition may encourage regime insiders to defect in the hope of becoming the largest opposition force, but whether this should induce cooperation among opposition leaders is not clear.

1.2 A model of pre-electoral behavior in CARs

To investigate these issues, in this section I model pre-electoral politics in CARs as a game in which a regime insider must decide whether to defect to the opposition, after which two opposition leaders must choose between forming a coalition and running separately. I assume perfect information because the focus is on players' electoral strength and their capacity to formulate credible commitments, not on the role of private information. Indeed, perfect information models are the standard approach for modeling ruling party defections (Magaloni 2006:44-55; Magaloni 2008; Svolik 2012, ch. 6) or intra-party contestation (Gehlbach and Keefer 2012:625). Imperfect information models make more sense when players' actions are inherently difficult to observe, for example in the case of electoral fraud (Simpser 2013, ch. 4), or when the relationship between the ruler and her supporters is plagued by agency problems (Svolik 2009; Boix and Svolik 2013; Rundlett and Svolik 2016).

Players. Consider an executive election in a competitive authoritarian regime. E is the official candidate of the ruling party, though she need not be the sitting executive. There are three players, who must decide whether to run against E. M is a regime insider — e.g., a government minister — who must choose between defecting and running as an opposition candidate ($d = D$) or remaining in the ruling party and support E's candidacy ($d = \bar{D}$). As a high-ranking insider, M enjoys access to patronage, name recognition and personal contacts with other regime insiders, which make him a competitive candidate. L and S are the leaders of two opposition parties. L is the strongest of the two, and thus S must choose between joining a coalition that backs L's candidacy ($a = A$) and running a separate campaign ($a = \bar{A}$).

Probabilities of victory. The result of the election depends on the distribution of players' electoral strengths and the alliances they make. Specifically, let $\tau_i > 0$ denote the underlying electoral strength of player $i \in \{E, M, L, S\}$. For simplicity, I assume that E is the strongest player and S is the weakest, but the relative strength of M and L is indeterminate, i.e. $\tau_E > \tau_L > \tau_S$

and $\tau_E > \tau_M > \tau_S$, but $\tau_M \gtrless \tau_L$. Probabilities of victory are denoted by $\pi_{k,d,a}$, where $k \in \{E, M, E + M, L, S, L + S\}$ indicates who supports a given candidate and d and a indicate M's and S's actions, respectively. That is, if M defects the probability that he will win the election is given by $\pi_{M,a}$, but if he remains in the ruling party, he supports E and thus the probability that the later wins is $\pi_{E+M,a}$.[1] A similar rule applies to L and S: if they run alone their probabilities of victory will be $\pi_{L,d}$ and $\pi_{S,d}$, but in case of forming a coalition L's probability of victory will be given by $\pi_{L+S,d}$.[2]

When two players support the same candidate, their combined probability of winning is larger than the sum of their individual probabilities, i.e. $\pi_{E+M,a} > \pi_{E,a} + \pi_{M,a}$ and $\pi_{L+S,d} > \pi_{L,d} + \pi_{S,d}$. Intuitively, when two players cooperate, there will be some circumstances in which the *sum* of their votes is higher than that of any other player, while their *individual* vote totals are not. This is consistent with what we know about elections in CARs. To begin with, candidates who can show the support of other (powerful) players are more likely to induce voters to turn out and support them: ruling parties do better when everybody believes that they will win (Magaloni 2006; Simpser 2013; Rundlett and Svolik 2016), while opposition leaders must convince apathetic voters of the feasibility of defeating the incumbent (Bunce and Wolchik 2010, 2011; Simpser 2013). Moreover, in most CARs the mobilization of patronage and ethnic networks tends to be more relevant than ideological differences (van de Walle 2003, 2006; Greene 2007; Blaydes 2010; Arriola 2012, 2013), and thus the potential backlash against an ideologically diverse coalition will be outweighed by the benefits of mobilizing a large group of voters.[3]

The fact that electoral results in CARs often depend on how votes are *counted* also means that allies can be very useful. For the ruling party, the support of local officials is crucial for electoral manipulation. If regional barons defect to the opposition, its capacity to count votes

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[1]Thorough the paper, I treat E and L as female, and M and S as male.

[2]Note that $\pi_{E,d=\bar{D},a} = \pi_{E+M,a}$ and $\pi_{L,d,a=A} = \pi_{L+S,d}$, but I prefer the "$E + M$" and "$L + S$" notation because it is more intuitive.

[3]This is not to say that ideological considerations do not matter in CARs (see for example Greene 2007, 2008; Wahman 2011), only that they are much less relevant than in advanced democracies.

(un)fairly will be compromised (Rundlett and Svolik 2016). Conversely, opposition parties need to monitor polling stations and ensure the consistency of aggregated results (Bunce and Wolchik 2011); a coalition can do a better job at ensuring that every precinct is covered than a collection of disparate parties.

The translation of players' strengths and actions into probabilities of victory is given by the function $f_k(\tau_E, \tau_M, \tau_L, \tau_S, d, a)$, which takes the following form:

(a) For $k \in \{E, M, E + M\}$:

$$
f_k(\cdot) \;=\; \pi_{k,d,a} =
\begin{cases}
\dfrac{\tau_k}{\tau_E + \tau_M + \tau_L + \tau_S + I[a=A]\frac{1}{2}(\tau_L + \tau_S)} & \text{when } d = D \\[4mm]
\dfrac{\frac{3}{2}(\tau_E + \tau_M)}{\frac{3}{2}(\tau_E + \tau_M) + \tau_L + \tau_S + I[a=A]\frac{1}{2}(\tau_L + \tau_S)} & \text{when } d = \bar{D}.
\end{cases}
$$

(b) For $k \in \{L, S, L + S\}$:

$$
f_k(\cdot) \;=\; \pi_{k,d,a} =
\begin{cases}
\dfrac{\tau_k}{\tau_E + \tau_M + I[d=\bar{D}]\frac{1}{2}(\tau_E + \tau_M) + \tau_L + \tau_S} & \text{when } a = \bar{A} \\[4mm]
\dfrac{\frac{3}{2}(\tau_L + \tau_S)}{\tau_E + \tau_M + I[d=\bar{D}]\frac{1}{2}(\tau_E + \tau_M) + \frac{3}{2}(\tau_L + \tau_S)} & \text{when } a = A,
\end{cases}
$$

where $I[\cdot]$ is an indicator function specifying whether a player engages in certain action. Note that $f(\cdot)$'s functional form ensures that if two players support the same candidate, their combined electoral strength will receive a "boost" proportional to the sum of their original strength. For example, if M defects his strength is τ_M, but in case of remaining in the ruling party the combined strength of E and M will be $3/2(\tau_E + \tau_M)$. The denominator ensures that probabilities add up to 1.

Payoffs. The winner of the election receives a payment of $B > 0$, which may be interpreted as the rents from holding executive office. This captures the assumption that executives in CARs control a large amount of resources that no other position can rival and ensures that players will

behave as office-seekers. But other than that, B plays no role in the argument or the empirical analysis.[4]

To induce M and S to cooperate, E and L may offer them a share of B in case of winning the election. For instance, they may promise a cabinet position with access to valuable rents (Arriola 2009). Specifically, let $\lambda \in [0, \lambda']$ indicate the proportion of B that E promises to share with M if she does not defect and the ruling party wins the election. To capture the possibility that E's promises need not be credible, $\lambda' \in (0, 1]$ indicates the maximum amount of rents that E can *credibly* commit to share. As discussed in the previous section, λ' will be larger when E is running for reelection or the regime has a highly institutionalized party. Similarly, L offers S a fraction $\delta \in [0, \delta']$ of the rents from office if they form a coalition and win the election, with $\delta' \in (0, 1]$ indicating the credibility of L's promises.[5] In practice, δ' may be larger when L has been around for longer, and thus had enough time to develop a reputation. Furthermore, when $a = A$, both opposition leaders pay a cost $C < B$, which captures the fact that coalitions involve some fixed costs that are independent of the election outcome. For example, C might represent the transaction cost of negotiating a common list of candidates, or the disutility of forming a coalition with a party with which there are important ethnic or ideological differences. Conversely, a common government-opposition cleavage (Wahman 2011) or upfront payments for opposition leaders who withdraw from the race (Arriola 2012, 2013) will reduce the value of C.[6]

Utilities. For simplicity, E is not modeled as a strategic player; she simply offers M a payment of up to $\lambda'B$ if the latter does not to defect to the opposition. For the other players, the utilities

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[4]The size of B probably varies between CARs, but given the difficulty of measuring it — B should reflect the value of controlling the executive office *vis-à-vis* other offices *within the same country* —, I will ignore it in the empirical analysis.

[5]Note that without λ' and δ', M and S would *always* support E and L, respectively (in the second case, provided that C is low enough): since an alliance between two players always has a higher probability of winning than the sum of these players' individual probabilities, in the absence of credibility constraints it is always possible to divide B in a way that makes two players better off than running separately.

[6] Modeling upfront payments is equivalent to letting L increase his value of C in order to reduce S's. I do not consider this possibility, but notice that C is not required to take positive values.

are the following:

$$
U_M = \begin{cases} \pi_{E+M,a} \cdot \lambda \cdot B & \text{if } d = \bar{D} \\ \pi_{M,a} \cdot B & \text{if } d = D \end{cases}
\qquad
U_L = \begin{cases} \pi_{L,d} \cdot B & \text{if } a = \bar{A} \\ \pi_{L+S,d} \cdot (1 - \delta) \cdot B - C & \text{if } a = A \end{cases}
$$

$$
U_S = \begin{cases} \pi_{S,d} \cdot B & \text{if } a = \bar{A} \\ \pi_{L+S,d} \cdot \delta \cdot B - C & \text{if } a = A. \end{cases}
$$

Timing. Figure 1.1 presents the sequence of moves. First, M announces whether he will defect to the opposition ($d = D$) or not ($d = \bar{D}$). Then, L makes S an offer δ if they form a coalition. S can either accept the offer ($a = A$) or run as a separate candidate ($a = \bar{A}$). Finally, the election takes place, Nature announces the winner, and payoffs are collected.

The assumption that M moves first is arguably a strong one, but it makes for a more realistic model than either letting L move first or assuming that both players move simultaneously. To see why, consider the real-life implications of these possibilities. Simultaneous moves imply that players cannot change their moves after observing each others' behavior, which seems unrealistic: an insider can surely update her decision to defect after observing the opposition's move, while opposition leaders often begin negotiations whose final outcome depends on a multiplicity of short-term factors — including M's decision to defect. If moves are sequential rather than simultaneous, letting M or L move first ultimately boils down to which player's decision is more likely to be irreversible. If the opposition's decision can be easily reversed, assuming that L and S move first does not make much sense because they can always update their behavior after observing M's move. Conversely, if opposition leaders cannot change their behavior but M is free to leave the ruling party and rejoin it at any moment, assuming that M moves last is more reasonable. In real life, it makes more sense to assume that defections from the governing coalition are more difficult to reverse than coalitions between opposition parties: if M announces his intention to run against E and then reverses course, he has no guarantee that his previous status
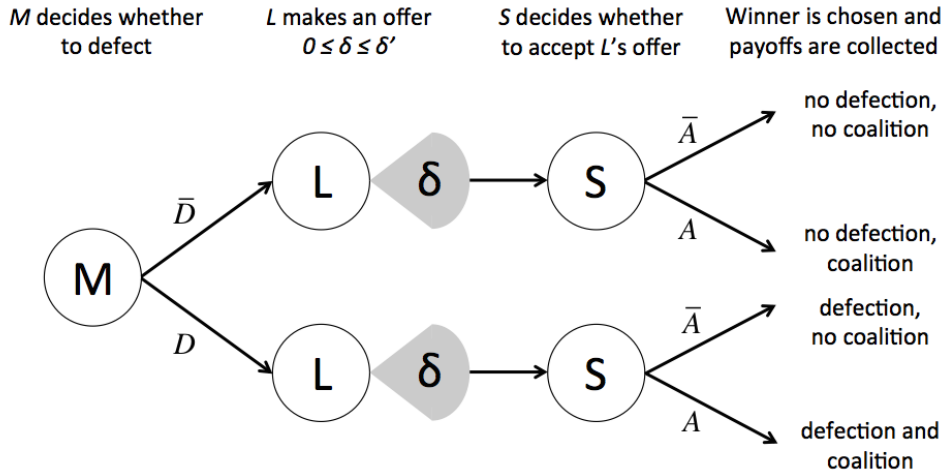
FIGURE 1.1: The game tree.

within the regime will be respected. In contrast, breaking a coalition after it has been announced is far easier. In any case, Appendix A1.1 shows that changing the game tree so that M moves last does not change model's results in an appreciable way.

Equilibria. The equilibrium concept is subgame perfection. I begin by examining S's choices. Let δ_d^* be the value of δ that makes S indifferent between accepting L's offer and running alone, given d. Appendix A1.2 shows that

$$\delta_{\bar{D}}^* = \frac{C/B + \pi_{S,\bar{D}}}{\pi_{L+S,\bar{D}}} \quad \text{and} \quad \delta_D^* = \frac{C/B + \pi_{S,D}}{\pi_{L+S,D}}.$$

That is, S will demand a larger proportion of the rents from office if his chances of wining the election alone ($\pi_{S,d}$) or the fixed costs of forming a coalition (C) are higher; but he will be satisfied with a lower value of δ as the coalition's chances of winning the election ($\pi_{L+S,d}$) or the total amount of rents to distribute (B) increase. However, the fact that δ is bounded by δ' means that no coalition will be possible if $\delta_d^* > \delta'$, i.e., if S demands more than what L can credibly offer. Rearranging the above equations, the maximum value of C that can sustain an opposition

coalition will be:

$$C_{\bar{D}}^* = B[\delta'\pi_{L+S,\bar{D}} - \pi_{S,\bar{D}}] \quad \text{and} \quad C_D^* = B[\delta'\pi_{L+S,D} - \pi_{S,D}].$$

In words, if the fixed cost of forming a coalition is sufficiently low ($C \leq C_d^*$), *L can* make an offer that will convince *S* to form a coalition (because $\delta' \geq \delta_d^*$); but if $C > C_d^*$, the maximum amount that *L* may offer (δ') is lower than the minimum that *S* will accept (δ_d^*), and thus there will be no coalition.[7] Note that the sign of C_d^* is determined by the expression in brackets, which indicates the difference between the probability that a coalition will win the election ($\pi_{L+S,d}$) times the maximum share of *B* that *S* may receive (δ'), minus the probability that *S* will win the election alone ($\pi_{S,d}$). Intuitively, *S* will be more reluctant to enter into a coalition as his chances of winning alone increase. Indeed, if $\pi_{S,d}$ is large enough that $\pi_{S,d} > \delta'\pi_{L+S,d}$, C_d^* will be negative, meaning that *S* will only accept a coalition if he receives some payment in advance (see Arriola 2012, 2013).

To understand the intuition behind these claims, Figure 1.2 shows how the probability of forming a coalition depends on *C* and *d*. There are two cases, depending on the value of δ' (more on this below). Figure 1.2a illustrates the case in which $\delta' \geq \delta^C$. When *C* is very large ($C > C_D^*$), a coalition never occurs because the fixed cost is too high. Conversely, if *C* is very small ($C \leq C_{\bar{D}}^*$), the opposition will always prefer to form a coalition. But when *C* falls somewhere in the middle ($C_{\bar{D}}^* < C < C_D^*$), a coalition will only take place if an insider defects from the ruling party. A similar logic holds when $\delta' < \delta^C$ (see Figure 1.2b): if *C* is either very small or very large, a coalition will always (never) take place; whereas if *C* falls in the middle, a coalition will be more likely when *M* does not defect.

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[7] Strictly speaking, *L* must also be *willing* to offer enough to convince *S*. Let $\delta_d^\dagger$ indicate the maximum offer that *L* is willing to make given *d*. Appendix A1.2 shows that $\delta_d^\dagger = (\pi_{L+S,d} - \pi_{L,d} - C/B)/\pi_{L+S,d}$, and $\delta_d^\dagger \geq \delta_d^*$ as long as $\pi_{L+S,d} - \pi_{L,d} - \pi_{S,d} \geq 2C/B$. In practice, this only matters when $\delta' > \delta_d^* > \delta_d^\dagger$, that is when *L can* offer enough to convince *S* but is not willing to do so. Otherwise, either *L* cannot offer enough to form a coalition ($\delta_d^* > \delta'$), or she can ($\delta' \geq \delta_d^*$) and is willing to ($\delta_d^\dagger \geq \delta_d^*$). For simplicity, in the rest of this paper I will focus on the case in which $\delta_d^\dagger \geq \delta_d^*$.

(a) $\delta' \geq \delta^C$ (b) $\delta' < \delta^C$
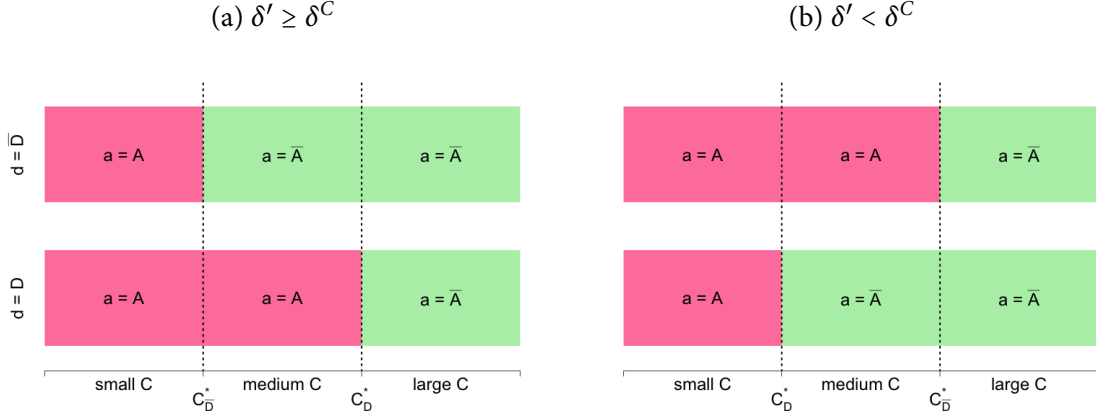
FIGURE 1.2: S's best responses given C, δ', and d. Pink and green tiles indicate equilibria with and without an opposition coalition, respectively. When C is either very large or very small, S will never (always) play A. But if C falls between $C_{\bar{D}}^*$ and C_D^*, S's behavior will depend on d: a defection will trigger a coalition if $\delta' \geq \delta^C$, and the reverse will be true when $\delta' < \delta^C$.

Summing up: when the fixed cost of forming a coalition (C) is too large, a coalition becomes too costly; if C is very small, L and S will always find it advantageous to cooperate; but if C falls somewhere in the middle, a coalition may be more or less likely depending on M's behavior. Specifically, let δ^C be the value of δ such that $C_{\bar{D}}^* = C_D^*$. Appendix A1.2 shows that

$$\delta^C = \frac{\overbrace{\pi_{S,D} - \pi_{S,\bar{D}}}^{>0}}{\underbrace{\pi_{L+S,D} - \pi_{L+S,\bar{D}}}_{>0}}.$$

In words, whenever $\delta' \geq \delta^C$, a defection will make an opposition coalition more likely, but the opposite will be the case if $\delta' < \delta^C$. To understand why, note that δ^C is the ratio between the increase in S's probability of winning alone when M defects ($\pi_{S,D} - \pi_{S,\bar{D}}$), and the corresponding increase for a coalition between L and S ($\pi_{L+S,D} - \pi_{L+S,\bar{D}}$). That is, a defection makes a coalition more likely to win, but it also increases S's chances of winning alone. L and S will only cooperate if the former can offer enough to offset S's increased opportunity cost of forming a coalition, which requires $\delta' \geq \delta^C$.

M's choice follows by backwards induction. As long as λ is large enough to offset the expected benefit of running alone, M will remain in the ruling party; otherwise, he will defect.

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This in turn depends on the opposition's expected behavior. Let λ_j^* denote the minimum value of λ that will make M indifferent between defecting and remaining in the ruling party, where $j \in \{A; \bar{A}; A \text{ iff } D; A \text{ iff } \bar{D}\}$ indicates the opposition's expected behavior given d: (a) always play A; (b) never play A; (c) play A only if there is a defection; or (d) play A only if there is no defection, respectively. Appendix A1.2 shows that $\lambda_{A \text{ iff } \bar{D}}^* > \lambda_{\bar{A}}^* > \lambda_{A \text{ iff } D}^* > \lambda_A^*$, that is preventing a defection is costliest when this would preempt an opposition coalition, and cheapest when a coalition would take place anyway. This is intuitive: if M must choose between (a) remaining in the ruling party and facing an opposition coalition; or (b) defecting and facing a divided opposition, convincing him to remain in the ruling party will be more difficult. Conversely, when a coalition is certain to take place, defecting becomes less attractive because M will have to run against a united opposition.

To understand the logic behind this claim, consider Figure 1.3a, which displays the model's equilibria given C and λ for the special case in which $\delta' \geq \delta^C$. As in Figure 1.2, the horizontal axis shows how the opposition's behavior depends on C: a small value ($C < C_D^*$) implies that the opposition will always form a coalition, a large one ($C > C_D^*$) that it never will, and for values in between the opposition's behavior will be conditional on d. In turn, the vertical axis indicates how M's behavior depends on λ. For very large values of λ (specifically, if $\lambda > \lambda_{\bar{A}}^*$), it is always possible to convince M to remain in the ruling party, regardless of the opposition's behavior. Conversely, when λ is very small — in particular, when $\lambda < \lambda_A^*$ —, M will always be better off by defecting. But for intermediate values of λ, M will condition his behavior on the opposition's expected response. This is best seen by comparing the "medium C" scenario in Figure 1.3a with its equivalent in Figure 1.3b. In the first case, a defection will trigger an opposition coalition, making M less likely to win the election on his own. Thus, convincing him to remain in the ruling party is cheaper. In contrast, Figure 1.3b illustrates the case in which a defection *averts* a coalition that would take place otherwise: since this increases the attractiveness of defecting, convincing M to remain in the ruling party becomes more costly.

(a) Baseline equilibria ($\delta' \geq \delta^C$)

(b) Baseline equilibria ($\delta' < \delta^C$)

(c) Positive shock to E's strength ($\delta' \geq \delta^C$)

(d) Positive shock to E's strength ($\delta' < \delta^C$)

(e) Positive shock to M's strength ($\delta' \geq \delta^C$)

(f) Positive shock to M's strength ($\delta' < \delta^C$)
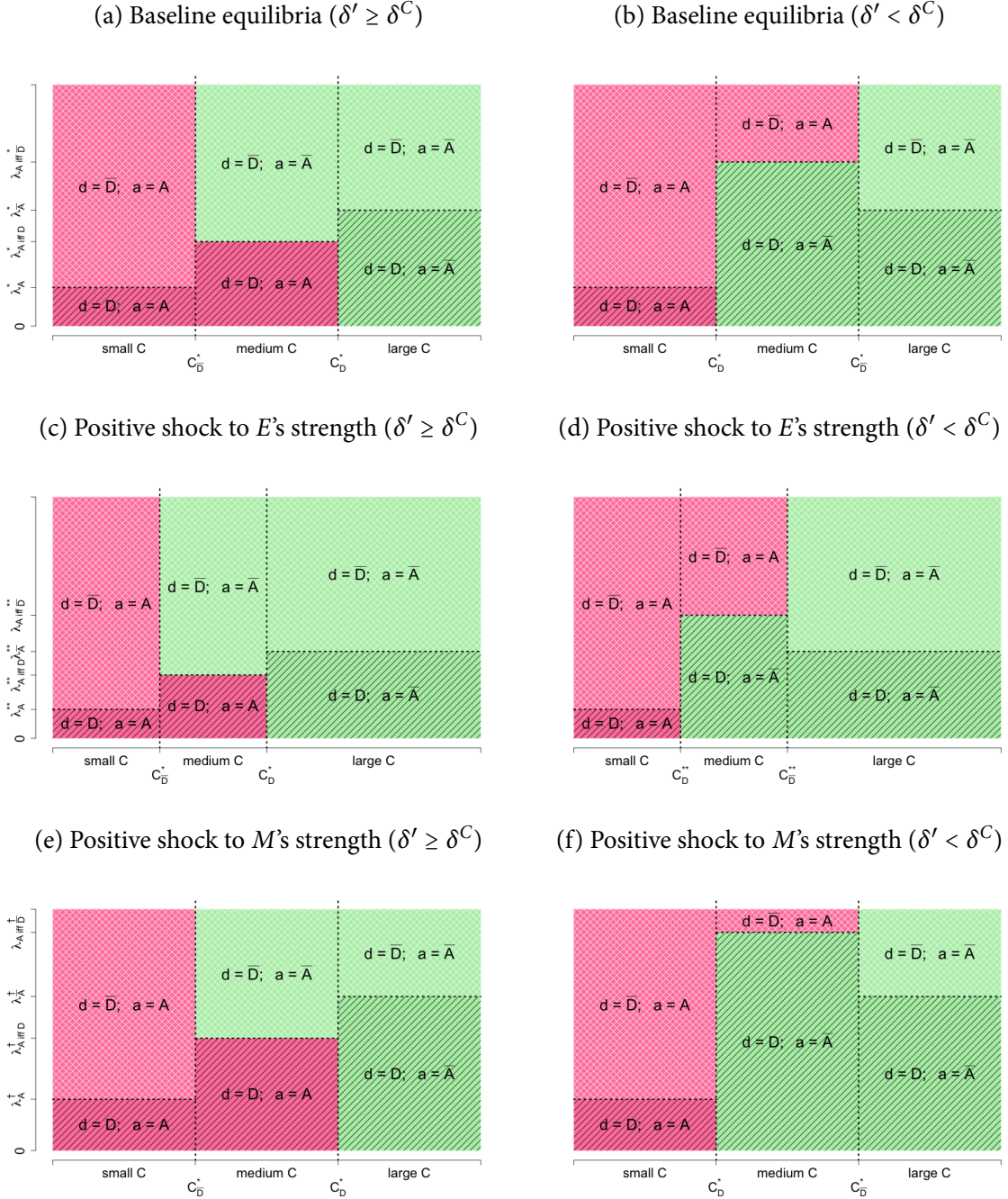
FIGURE 1.3: Equilibria and comparative statics. Pink and green tiles indicate equilibria with and without an opposition coalition, respectively. The top row shows how defections and coalitions depend on λ_j^*, C_d^*, and δ'. The middle row illustrate the equilibria that would result from an exogenous increase in E's strength (in the special case in which $C_d^{**} < C_d^*$). The bottom row indicates the effect of an increase in M's strength that leaves $\tau_E + \tau_M$ unchanged.

Comparative statics and hypotheses. This section discusses the model's implications regarding how players' electoral strength (τ_i), their capacity to formulate credible commitments (λ' and δ'), and the opposition's fixed cost of cooperating (C) affect the likelihood of observing defections and coalitions. In each case I first present the model's implications, illustrate them with some real-world examples, and introduce the hypotheses that I will examine in the remaining of the paper.

The model suggests two main implications about the incidence of defections. One is that the electoral strength of the ruling party's candidate (τ_E) and her capacity to formulate credible commitments (λ') may substitute for each other. That is, if E is expected to do well at the polls, she will be able to prevent defections even when λ' is low, and vice versa. Formally, let $\tau_E' > \tau_E$ while keeping τ_M, τ_L, τ_S constant, and define λ_j^{**} as the new cutoff value of λ. Then, it follows that $\lambda_j^{**} < \lambda_j^{*}$, i.e. M will be willing to remain in the ruling party for a lower payoff (see Appendix A1.2 for a proof). To understand what this means, compare Figure 1.3a, which shows how the equilibria of the model depend on C and λ, with Figure 1.3c, which is identical except that it assumes a higher value of τ_E (comparing Figure 1.3b with Figure 1.3d produces similar results).[8] The set of parameter values for which there is no defection in equilibrium (i.e., the size of the areas for which $d = \bar{D}$) is much larger in the later. Indeed, the vertical axes show that the values of λ that make M indifferent between defecting and remaining in the ruling party (λ_j^{*} and λ_j^{**}, respectively) are always smaller in Figure 1.3c. The intuition is straightforward: if E will win the election easily, M will be better off by remaining in the ruling party even for a low value of λ. Conversely, when M has a good chance of winning on his own, he will defect unless E can credibly make a large offer.

The other implication is that preventing a defection will be costlier as the balance of power within the ruling party shifts away from E (i.e., as τ_E/τ_M decreases). To put it differently, the temptation to defect will be more acute when the candidate of the ruling party is not much

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[8]Strictly speaking, these comparisons only hold in the special case in which $C_d^{**} < C_d^{*}$.

stronger than her minister(s), as usually happens following the death or retirement of a long-standing executive. Formally, assume that $\tau'_M > \tau_M$ but $\tau'_E < \tau_E$ so that $\tau'_E + \tau'_M = \tau_E + \tau_M$, while keeping τ_L and τ_S constant. Define $\lambda^{\dagger}_j$ and $C^{\dagger}_d$ as the new cutoff values of λ and C, respectively. Appendix A1.2 shows that this implies $\lambda^{\dagger}_j > \lambda^{*}_j$, but $C^{\dagger}_d = C^{*}_d$. Indeed, note that the set of parameter values that induce M to defect is larger in Figure 1.3e than in Figure 1.3a, and this is entirely due to the fact that the values of λ that make him indifferent between defecting and remaining in the ruling party are higher (in contrast, the horizontal axes remain unchanged). A comparison of Figure 1.3b and Figure 1.3f tells a similar story. Intuitively, a player that can win an election on his own will be reluctant to support another candidate unless he can expect a handsome reward in return.

The point is that CARs have two ways of avoiding defections. Regimes with highly institutionalized parties (large λ') will be able to prevent defections even if the ruling party is not expected to win by a landslide (low τ_E) or the executive is not running for reelection (small τ_E/τ_M ratio). This is the case of Botswana's BDP, Guyana's PPP and Malaysia's BN, all of which have proven quite successful at avoiding defections despite frequent instances of executive retirement and vote shares that hover around 50% — quite low by CARs standards.[9] The alternative is to let the executive run for reelection repeatedly (large τ_E/τ_M ratio), manipulating the electoral process in order to ensure a landslide victory (large τ_E). This is the approach taken by leaders such as Alexander Lukashenka (Belarus), Ilham Aliyev (Azerbaijan) or Emomalii Rahmonov (Tajikistan): although they lack anything resembling an institutionalized party, the fact that they repeatedly win elections with 80% of the vote discourages insiders from defecting.[10] Summing up, this suggests the following hypothesis:

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[9] The point is not that these regimes are immune to defections, but rather that they have shown considerable success at preventing such behavior despite otherwise strong incentives to defect.

[10] Moreover, letting the executive run for reelection time and again probably increases the value of λ' as well, either because the executive and his supporters know each other or because the president's perpetuation in office relieves fears that the ruling coalition will be reshuffled.

H_1. *Party institutionalization.* Highly institutionalized parties should make defections less likely, but only when (a) the regime is electorally weak, or (b) the sitting executive is not running for reelection.

Opposition leaders face analogous incentives. First, notice that the maximum value of C that allows for an opposition coalition, C_d^*, is increasing on the interaction between δ' and $\pi_{L+S,d}$: if either is too small, a coalition will only be viable with a negative value of C. That is, coalitions will become more likely as the probability of winning the election increases (large $\tau_L + \tau_S$), but the effect will be stronger when opposition leaders have some capacity to formulate credible commitments (large δ') or the costs of forming a coalition (C) are low: opposition leaders that cannot win have little incentive to cooperate in the first place, but leaders that do not trust each other will be unlikely to cooperate even if they can win. This suggests that, conditional on the opposition being electorally strong, coalitions will be more likely when opposition parties have been around for longer and thus had the chance to develop a reputation (Gandhi and Reuter 2013), or when opposition leaders have enough financial resources to make upfront payments (Arriola 2012, 2013).

Second, the opposition's capacity to cooperate should be more relevant following a defection. The reason is that defections have two countervailing effects on the opposition's incentives: on the one hand, they make a coalition more likely to win, thus increasing the attractiveness of forming a coalition; on the other, they also increase S' chances of winning alone, inducing him to demand a higher payment in order to support L. It is precisely for this reason that some authors argue that opposition parties are less likely to form a coalition when the ruling party appears to be extremely weak (Bunce and Wolchik 2010, 2011). Conversely, when a coalition has a reasonable chance of success but no opposition leader can expect to win alone — e.g., if two opposition parties can expect to receive 25% of the vote against the ruling party's 50% — there will be strong incentives to cooperate because the potential reward is large but the opportunity cost is low.

Consider the 2002 Kenyan presidential election discussed at the beginning of this paper. The fact that KANU had won the 1992 and 1997 elections with just 37.6% and 40.4% of the vote meant that an opposition coalition had a good chance of winning. Yet forming a coalition was difficult because opposition leaders distrusted each other, and in any case everybody wanted to become the next president. Indeed, it was the opposition's inability to back a common candidate that allowed KANU to win the 1992 and 1997 elections with such a low vote share. Eventually, Kibaki managed to unite the opposition behind him not because he was the best candidate or the one who could make the most credible promises, but rather because he could exploit his ties to businessmen to buy the endorsement of other opposition candidates (Arriola 2012, ch. 7). In terms of the model, he made a coalition possible by lowering the value of C for other opposition leaders. Contrast this with the Venezuelan and Malaysian oppositions: since the ruling party regularly won by a comfortable but not unassailable majority, opposition leaders had strong incentives to iron out their differences and cooperate. Indeed, in both cases the formation of an opposition coalition made elections more competitive, though the ruling party still prevailed by a small margin.[11] These considerations suggest the following hypotheses:

> H_2. *Opposition cooperation.* Coalitions should be more likely when (a) the opposition is electorally strong, and (b) opposition leaders can make credible promises or reduce the cost of cooperation in some other way.

> H_3. *Defections and coalitions.* The opposition's capacity to cooperate should play a stronger role following a defection from the ruling party.

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[11]The Malayan opposition won a majority of the national vote in the 2013 parliamentary election, but malapportionment ensured that the ruling party retained control of parliament. In Venezuela, a coalition of opposition forces won the 2015 election by a landslide, but it was a legislative contest that did not directly affect the president's survival in office.

1.3   Data and Methods

Sample. I examine these claims with a sample of executive elections in CARs between 1980 and 2014. The unit of observation is the (first round) of an executive election in a CAR. I define a regime as competitive authoritarian if it satisfies two criteria. First, access to executive and legislative positions must be decided in competitive elections in which (almost) all adults have the right to vote. This excludes authoritarian regimes that (a) do not hold minimally competitive elections (such as China or Cuba), as well as those that (b) restrict the suffrage to a small fraction of the population (e.g., South Africa under apartheid) or (c) place effective political power in a non-elected body (like Iran since 1979). Criterion (a) is standard in the literature: many authors make a distinction between "closed" authoritarian regimes — those that do not hold multiparty elections — and "electoral" ones (Howard and Roessler 2006; Schedler 2006, 2013; Brownlee 2009; Gandhi and Lust-Okar 2009; Levitsky and Way 2010; Magaloni and Kricheli 2010; Svolik 2012; Donno 2013; Mainwaring and Pérez-Liñán 2014). Criteria (b) and (c) are less common — though both Levitsky and Way (2010) and Geddes, Wright and Frantz (2014) make a similar distinction —, but follow directly from my theoretical interests: on the one hand, my focus is on regimes that manipulate elections, not those that disenfranchise the majority; on the other, the model assumes that whomever wins the election will decide over the distribution of B, which will not be the case if political power resides in a non-elected body.[12] In any case, these criteria make little difference in practice because an overwhelming majority of authoritarian regimes that hold competitive elections qualify as CARs.

Second, the electoral process must be systematically manipulated in favor of the ruling party, for example due to electoral fraud, government control of the media, the harassment of journalists, activists and politicians not affiliated with the ruling party, or the systematic use of the state

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[12]The same is valid for regimes that only hold legislative elections (like Jordan or Morocco), though these are implicitly filtered out by restricting the sample to executive elections.

apparatus for partisan purposes. This criterion separates CARs from democracies.[13] In contrast to other authors, I do not distinguish between "competitive" authoritarian regimes — those in which elections are meaningful, even if the electoral process is systematically manipulated — and "hegemonic" ones — those in which elections are a mere *façade*. This distinction has no theoretical basis in my argument: elections that are pure window-dressing imply a large value of τ_E, in which case both defections and coalitions should be rare; excluding these observations could bias the results (see Hyde and Marinov 2012 for a similar claim). For similar reasons, I ignore typologies of authoritarian regimes that emphasize non-electoral dimensions, like the extent of military intervention in politics (Svolik 2012), or whether effective power is held by a single individual, a party, or the military (Geddes, Wright and Frantz 2014).

To determine which elections to include in the sample, I proceeded in four steps. I first identify the set of authoritarian regimes in place between 1980 and 2014 using the Autocratic Regimes dataset (Geddes, Wright and Frantz 2014), which codes a regime as authoritarian if either (a) an executive achieves power through nondemocratic means,[14] or (b) a democratically elected executive changed formal and informal rules (e.g., closing the legislature or annulling unfavorable electoral results) so that future elections became much less competitive. The original dataset only covers the 1946-2010 period, so I extended the sample until 2014; I also followed the authors' coding rules to include elections that do not appear in the sample because they are too small (see Appendix A1.3 for further details). Second, I relied on the National Elections Across Democracy and Autocracy dataset (NELDA; see Hyde and Marinov 2012) to identify

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[13]Of course, some kind of electoral manipulation exists in many democratic regimes; the issue is whether these practices are carried in a systematic manner and with the backing of the central government.

[14]This means that either the executive was not elected in formally competitive election, or elections were nondemocratic, because (a) there were widespread reports of intimidation or violence against opposition leaders or supporters; (b) credible reports indicated that fraud was extended enough to change the outcome; or (c) incumbents enjoyed such an advantage in terms of material resources or media access that observes consider the elections not to be fair. Note that Geddes, Wright and Frantz (2014) do not code an authoritarian transition if an elected executive is removed through irregular means (e.g., a military coup) but is succeeded by a constitutionally mandated successor.

(a) Region
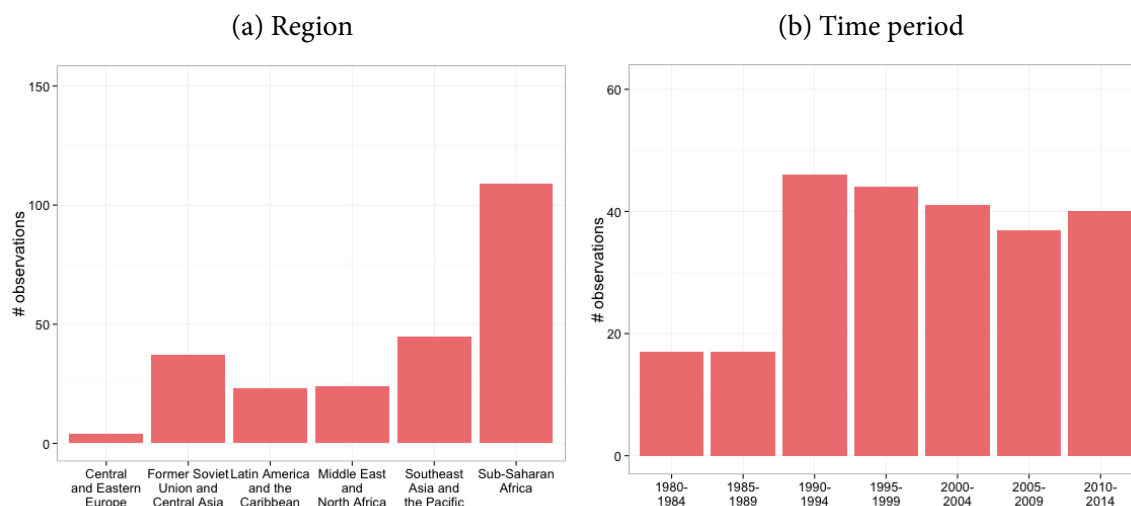
(b) Time period

FIGURE 1.4: Distribution of observations by region and time period.

the set of executive elections that took place around the world since 1980.[15] Third, I excluded "closed" authoritarian regimes by restricting the sample to "minimally competitive" elections, that is those in which (a) there existed at least one non-government group that could participate in the election; (b) opposition parties could be legally registered; and (c) there was a choice of candidates in the ballot (Hyde and Marinov 2012).[16] Finally, I excluded those regimes that restricted the right to vote to a small subset of the population or where elected authorities do not hold effective political power.[17] This results in a sample of 242 competitive authoritarian elections (see Appendix A1.3 for a list).[18] Most of these took place in Sub-Saharan Africa, followed by Southeast Asia and the Pacific and the former Soviet Union and Central Asia (see Figure 1.4a). Figure 1.4b indicates that competitive authoritarian elections became more common after the Cold War.

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[15] If an election featured multiple rounds, I only included the first one in the sample. NELDA only covers the 1946-2010 period, so I extended the data until 2014.

[16] I changed NELDA's coding in a handful of instances, mostly when there was no choice of candidates in the ballot because of an opposition boycott. See Appendix A1.3 for details.

[17] These correspond to "oligarchic" or "indirect military" regimes in Geddes, Wright and Frantz's (2014) classification. For the same reasons, I also excluded Iran after 1979.

[18] The number of potential elections was 247, but lack of data for some control variables reduced the sample to 242.

Variables. There are two outcome variables. *Defection* is a dummy that takes the value of 1 if the election featured a candidate for executive office that had occupied a high-ranking position under the ruling party, such as cabinet minister, speaker of the national legislature, elected subnational executive, or ruling party chairman. Deputy ministers and rank-and-file legislators are not counted because these positions offer comparatively little public visibility and limited access to resources. The departure from the ruling party must have taken place after the last executive election, though the high-ranking position may have been held in the past. Politicians who announced their decision to run but were denied registration or decided to boycott the election *after* launching their candidacy are coded as defectors because their intention to challenge the ruling party was manifest. *Coalition* is a dummy that indicates if the main opposition party and at least one additional party supported the same candidate for executive office in the first round of the election. The main opposition party is defined as the opposition party that received the largest share of the vote in the previous executive or legislative election. See Appendix A1.4 for descriptive statistics and a list of sources.

According to hypothesis 1, defections depend on the expected electoral strength of the ruling party, its degree of institutionalization, and whether the executive is running for reelection. I measure the first with *Vote regime*, the ruling party's vote share in the first round of the previous executive election.[19] This variable indicates the strength of the signal sent in the previous election, i.e. the sum of the ruling party's genuine electoral support plus its capacity to manipulate the electoral process. As mentioned above, from an insider's perspective the issue is not whether the regime's support is genuine or fabricated, but whether the regime can announce a high level of support and get away with it. It is precisely for this reason that authoritarian rulers often manipulate elections that they are certain of winning: their goal is not simply to win, but to win by a landslide in order to discourage defections (Magaloni 2006; Simpser 2013).

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[19] This variable is set to 1 for founding elections.

The institutionalization of the ruling party has two dimensions: (a) whether the party as an organization reaches every corner of the country, and (b) whether the party can act independently from the sitting executive. It is this second dimension that is of interest here: the regime's capacity to formulate credible commitments will be higher if regime insiders expect the party to be around when the current executive is no longer in office. This is not directly observable, so I treat *Party institutionalization* as a latent variable and measure it as the factor score of several indicators of the party's independence *vis-à-vis* the sitting executive.[20] Higher scores indicate a more institutionalized party. Finally, *Reelection* is a dummy that indicates whether the executive elected in the previous race was running for reelection.[21] I focus on the executive elected in the previous race, rather than the sitting executive at the time of the election, because some elections take place shortly after the death or retirement of a longstanding executive.

Coalitions depend on the opposition's electoral strength and its capacity to formulate credible commitments. I capture the first with *Vote opposition*, the vote share of the main opposition party in the first round of the previous executive election.[22] For the second, I employ the two indicators discussed in the previous section. *# elections contested* is the number of prior executive elections contested by the main opposition party. Parties that have been around for longer should be perceived as more stable and thus more likely to respect their promises (Gandhi and Reuter 2013). Alternatively, *Credit/GDP* measures a country's private credit provision as a share of GDP. This variable is taken from Arriola (2012, 2013), who argues that access to credit allows opposition leaders to buy off the support of their peers with pre-electoral payments.

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[20] These are: (a) whether Geddes, Wright and Frantz (2014) code the regime as party-based (as opposed to military or personalist); (b) the extent to which the party had successfully managed alternation in the past; (c) whether the executive is one of the party's founders; (d) whether Levitsky and Way (2013) code the regime as "revolutionary;" (e) the party's age; and (f) how long the executive has been in power relative to the ruling party . Many of these indicators are discrete, so I modeled them with the Bayesian mixed factor model proposed by Quinn (2004); see Appendix A1.5 for further details.

[21] In the case of founding elections, I look at the sitting executive one year before the election.

[22] This variable is set to 0 for founding elections.

All specifications include a *Founding election* dummy, which indicates whether the executive is being elected in competitive elections for the first time. Founding elections involve a considerable amount of uncertainty, and furthermore this variable accounts for the fact that *Vote regime* and *Vote opposition* are automatically set to 1 and 0 in founding elections, respectively. I also control for ethnic *Fractionalization*, to account for the possibility that defections will be more attractive (and coalitions more costly) in more heterogeneous countries.

Specification. To estimate the probability of defections, I fit random effects probit models of the form

$$\Pr(\textit{Defection} = 1)_i = \Phi(\alpha_j + \beta_1 \textit{Party inst.}_i + \beta_2 \textit{Vote regime}_i + \beta_3 \textit{Party ints.}_i \times \textit{Vote regime}_i$$
$$+ \beta_4 \textit{Reelection}_i + \beta_5 \textit{Party inst.}_i \times \textit{Reelection}_i + \lambda \textit{Controls}_i)$$
$$\alpha_j \sim \mathcal{N}(\eta_\alpha, \sigma_\alpha^2),$$

where Φ is the standard normal CDF and α_j is a country-specific intercept. Hypothesis 1 predicts that $\beta_1 < 0$, but $\beta_3 > 0$ and $\beta_5 > 0$. That is, when *Vote regime* and *Reelection* equal 0, an increase in *Party institutionalization* should make a defection less likely; but this effect should be tempered if the ruling party is electorally strong or the executive is running for reelection. The argument makes no prediction about β_2 and β_4, which indicate the effect of *Vote regime* and *Reelection* when *Party institutionalization* is at its mean value of 0.

On the other hand, hypothesis 2 suggests an specification of the form

$$\Pr(\textit{Coalition} = 1)_i = \Phi(\mu_j + \theta_1 \textit{Vote opposition}_i + \theta_2 \log(\textit{\# elections contested})_i$$
$$+ \theta_3 \textit{Vote opposition}_i \times \log(\textit{\# elections contested})_i + \gamma \textit{Controls}_i)$$
$$\mu_j \sim \mathcal{N}(\eta_\mu, \sigma_\mu^2).$$

To the extent that older parties can make more credible promises, the second hypothesis predicts that $\theta_1 > 0$ and $\theta_3 > 0$: increasing the electoral strength of the opposition should make

cooperation more likely, and this effect should be stronger for parties that have been around for longer. θ_2 indicates the effect of *# elections contested* when *Vote opposition* equals zero; since this means that the opposition has no chance of winning anyway, there is no reason why the coefficient should be different from zero. The same implications hold if *# elections contested* is replaced with *Credit/GDP*. Finally, hypothesis 3 says that the opposition's capacity to cooperate should be more relevant following a defection. I will examine this claim with a triple interaction term between *Vote opposition*, *# elections contested* and *Defection*.

1.4   Results

Defections. Table 1.3 presents the results for the first hypothesis. Model 1 shows that when entered separately, neither of the main explanatory variables — *Party institutionalization*, *Vote regime* or *Reelection* — make a difference on the outcome. However, model 2 indicates that the interaction between *Party institutionalization* and *Vote regime* goes in the expected direction: the effect is negative for the first variable, but positive for the interaction term. Interacting *Party institutionalization* with *Reelection* produces similar results, and the last column of the table indicates that the same holds if *both* interactions are included simultaneously, though the relatively small sample size means that the point estimate for the second interaction is not entirely reliable. These findings support the claim that institutionalized parties make defections less likely, but only when the ruling party is electorally weak or the executive is not running for reelection. More specifically, a back-of-the-envelope calculation based on model 4 suggests that if the executive is running for reelection, the net effect of *Party institutionalization* becomes 0 when *Vote regime* ≈ 0.75 — not an astounding feat for a CAR.[23] The control variables indicate that founding elections do not make a difference, but defections are more common in ethnically diverse countries. Appendix A1.6 shows that these results are robust to a variety of specification changes,

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[23]In model 4, the net effect of *Party institutionalization* is $\beta_1 + \beta_3 \cdot$ *Vote regime* $+ \beta_5 \cdot$ *Reelection*. Setting the last two variables to 0.75 and 1, respectively, and plugging in the values from Table 1.3 gives 0.01.

TABLE 1.3: Ruling party defections in CARs, 1980-2014.

	linear	*Party inst.* × *Vote reg.*	*Party inst.* × *Reelection*	double interaction
	(1)	(2)	(3)	(4)
Intercept	−1.18	−1.36	−1.20	−1.37
	(0.52)	(0.53)	(0.52)	(0.53)
Party institutionalization (β_1)	−0.09	−1.03	−0.40	−1.17
	(0.10)	(0.36)	(0.19)	(0.37)
Vote regime (β_2)	0.21	0.35	0.26	0.38
	(0.64)	(0.64)	(0.64)	(0.64)
Party institutionalization		1.27		1.15
× Vote regime (β_3)		(0.46)		(0.47)
Reelection (β_4)	−0.15	−0.21	−0.19	−0.23
	(0.22)	(0.23)	(0.23)	(0.23)
Party institutionalization			0.42	0.32
× Reelection (β_5)			(0.22)	(0.23)
Founding election	−0.22	−0.19	−0.26	−0.23
	(0.30)	(0.29)	(0.30)	(0.30)
Fractionalization	0.94	1.17	1.02	1.21
	(0.42)	(0.43)	(0.42)	(0.43)
AIC	281.85	276.09	280.15	276.13
BIC	306.27	304.00	308.06	307.53
Log Likelihood	-133.92	-130.05	-132.08	-129.06
num. observations	242	242	242	242
num. countries	76	76	76	76
σ_α	0.05	0.03	0.04	0.03

Specifications are probit models with random effects by country. The outcome is *Defection*. Standard errors in parentheses.

such as including additional control variables, using different measures of authoritarian regimes, fitting pooled models with clustered standard errors, or using a strategic probit specification to model defections and coalitions simultaneously (Signorino 2003; Signorino and Yilmaz 2003).

To get an idea about the substantive size of these effects, Figure 1.5 shows how an increase in *Party institutionalization* across its interquartile range (from −0.45 to 0.64) affects the probability of observing a defection, conditional on *Vote regime* or *Reelection*. Positive values indicate that an increase in *Party institutionalization* makes defections more likely, and the opposite holds for positive values; a value of zero indicates no effect. The first plot shows how the effect of

FIGURE 1.5: Visualizing the results (1): Defections. Point estimates and 95% confidence intervals of the effect of increasing *Party institutionalization* across its interquartile range (from −0.45 to 0.64), conditional on *Vote regime* and *Reelection*. All values are based on model 4 of Table 1.3, setting other variables at their mean or modal values.

Party institutionalization depends on *Vote regime*, assuming the executive is not running for reelection.[24] In line with expectations, when the ruling party is electorally weak, increasing *Party institutionalization* across its interquartile range decreases the probability of defection by 15 to 25 percentage points. To put these numbers in perspective, the unconditional probability of defection in the entire sample is 0.26. *Party institutionalization* only ceases to have an effect when the ruling party is very strong electorally — more specifically, when *Vote regime* ≈ 0.70. The plot in the middle shows that the effect is much weaker when the executive is running for reelection, but the estimates are still negative and large in magnitude when *Vote regime* is lower than ≈ 0.40. Finally, the last panel shows that an interquartile increase in *Party institutionalization* only has a negative effect on the probability of defection — a decrease of around 15 percentage points — when the executive is not running for reelection; otherwise, the effect is very small in magnitude and the 95% confidence interval spans zero.

Coalitions. Table 1.4 presents the results for the variables modeling the opposition's decision to form a coalition. Panel (a) reports the results for the models with the log of *# elections contested* as the measure of the opposition's capacity to cooperate, while in panel (b) reports the results for the log of *Credit/GDP*. Each panel is divided into three columns; in the first *Vote opposition*

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[24]*Founding election* and *Fractionalization* are kept constant at their modal and mean values, respectively.

TABLE 1.4: Opposition coalitions in CARs, 1980-2014.

	(a) *# contested elections*			(b) *Credit/GDP*		
	no int.	simple int.	triple int.	no int.	simple int.	triple int.
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	−1.59	−1.72	−1.61	−1.04	−1.47	−1.33
	(0.31)	(0.34)	(0.35)	(0.35)	(0.43)	(0.48)
Vote opposition (θ_1)	3.84	4.00	4.01	2.21	5.23	4.66
	(0.88)	(0.90)	(1.00)	(0.80)	(1.94)	(2.04)
# contested elections (log) (θ_2)	−0.27	−0.37	−0.28			
	(0.08)	(0.13)	(0.14)			
Vote opposition × # cont. elections (log) (θ_3)		0.55	0.05			
		(0.54)	(0.61)			
Defection (θ_4)			−0.68			−0.75
			(0.73)			(1.19)
Vote opposition × Defection (θ_5)			0.30			4.97
			(2.75)			(6.66)
# cont. elections (log) × Defection (θ_6)			−0.44			
			(0.33)			
Vote opposition × # cont. elections (log) × Defection (θ_7)			2.92			
			(1.53)			
Credit/GDP (log) (θ_2)				0.11	−0.13	−0.04
				(0.11)	(0.17)	(0.22)
Vote opposition × Credit/GDP (log) (θ_3)					1.53	1.06
					(0.88)	(0.98)
Credit/GDP (log) × Defection (θ_6)						−0.36
						(0.45)
Vote opposition × Credit/GDP (log) × Defection (θ_7)						2.84
						(2.93)
Founding election	−1.04	−1.18	−1.20	−0.64	−0.67	−0.64
	(0.34)	(0.37)	(0.37)	(0.34)	(0.35)	(0.36)
Fractionalization	0.47	0.53	0.54	0.52	0.41	0.38
	(0.46)	(0.46)	(0.49)	(0.48)	(0.49)	(0.50)
AIC	214.33	215.30	217.71	206.20	205.02	211.50
BIC	235.26	239.72	256.09	226.05	228.17	247.89
Log Likelihood	-101.16	-100.65	-97.86	-97.10	-95.51	-94.75
num. observations	242	242	242	202	202	202
num. countries	76	76	76	68	68	68
α_μ	0.00	0.00	0.00	0.00	0.00	0.00

Specifications are probit models with random effects by country. The outcome is *Coalition*. Standard errors in parentheses.

and the corresponding measure of the opposition's capacity to cooperate are entered linearly; the second includes an interaction term between the two; and the last one includes a triple interaction term. The results for hypothesis 2 are somewhat mixed. On the one hand, the estimates for *Vote opposition* are always positive, large in magnitude, and reliable, implying that coalitions are more likely when opposition parties have a shot at winning the election. On the other, evidence of an interactive effect between the opposition's electoral strength and its capacity to cooperate is restricted to the case in which the later is measured with *Credit/GDP*. This is confirmed by the first column of Figure 1.6, which shows how an increase in the opposition's capacity to cooperate affects the probability of observing a coalition, conditional on the value of *Vote opposition*. An increase in *# elections contested* along its interquartile range (from 0 to 2) has a negative effect on the probability that the opposition will form a coalition when *Vote opposition* takes very low values, and then increases slightly — but never becomes positive — as the opposition's electoral strength increases. Increasing *Credit/GDP* along its interquartile range (from 0.07 to 0.26) has a positive effect on the probability of observing a coalition, though given the small sample size, the lower part of the confidence interval falls just below zero. In any case, note that at 10–25 percentage points, the magnitude of this effect is substantial.

These somewhat mixed results are driven by the fact that the opposition's capacity to cooperate only makes a difference following a defection from the ruling party. This can be seen in the last two columns of Figure 1.6, which shows how the probability of observing a coalition depends on the value of *Defection*. When there has been no defection from the ruling party, increasing the opposition's capacity to cooperate does not affect the probability of observing a coalition, regardless of which measure is used. But when *Defection* equals 1, the effect of an increase in *# elections contested* or *Credit/GDP* increases sharply with *Vote opposition*, as the argument predicts.[25] However, the small sample sizes means that the estimates are quite uncertain. The control variables indicate that opposition coalitions are less likely in founding elections, but *Fractionalization* makes no difference on the outcome. Summing up, these results indicate that if there

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[25]This is not a small sample effect; on the contrary, no defections are much more common than defections.

(a) # contested elections
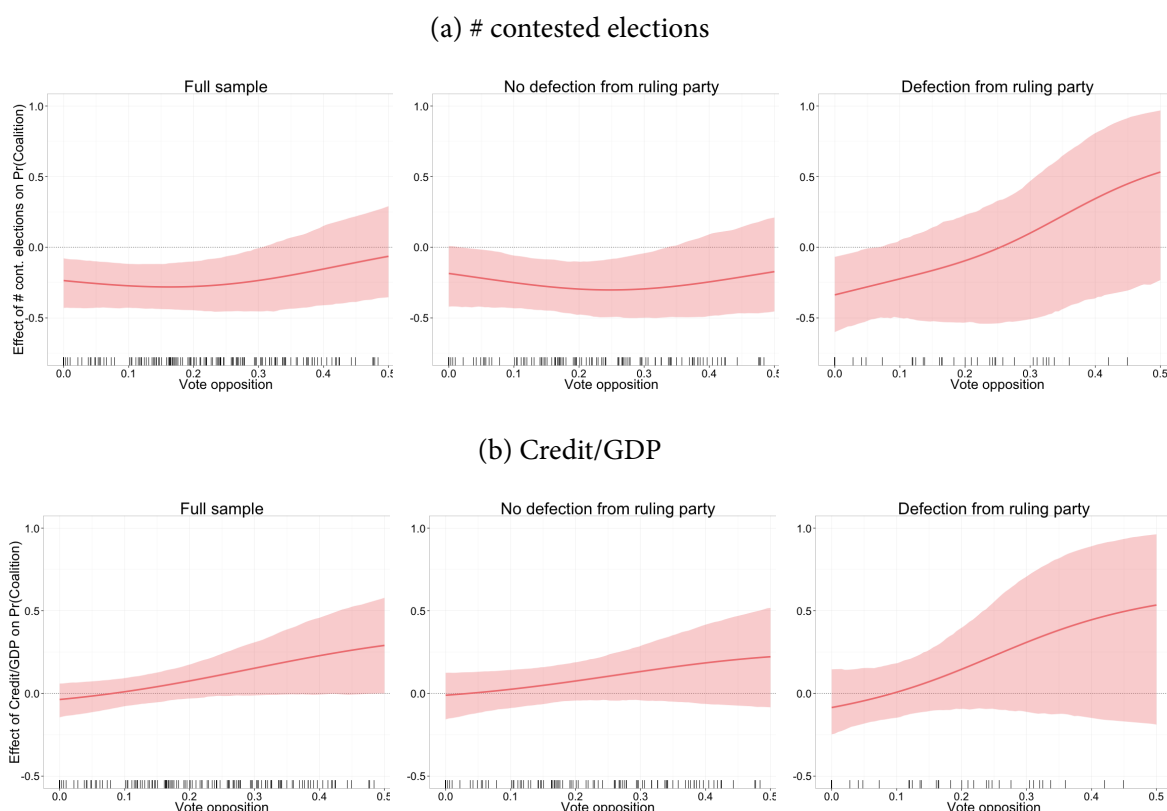
(b) Credit/GDP

FIGURE 1.6: Visualizing the results (2): Coalitions. Point estimates and 95% confidence intervals of the effect of increasing *# contested elections* (top) or *Credit/GDP* (bottom) across their interquartile range, conditional on *Vote opposition*. Values are based on models 2-3 and 5-6 of Table 1.4, setting other variables at their mean or modal values.

is no defection but the opposition is electorally strong, a coalition is likely to take place even if the opposition's ability to cooperate is limited. But following a defection, opposition leaders will only cooperate if they have a both a reasonable chance of winning *and* the means to cooperate. While running against the implications of hypothesis 2, these findings are in line with hypothesis 3's claim that the opposition's capacity to cooperate is especially relevant following a defection from the ruling party. As before, Appendix A1.6 shows that these results are robust to a variety of specification changes.

Overall, the results provide substantial support for hypotheses 1 and 3, and partial support for hypothesis 2. First, highly institutionalized parties make defections less likely, but only when the ruling party is electorally weak and the executive is not running for reelection. This is consistent

with the claim that the ruling party's electoral strength and its capacity to formulate credible commitments may substitute for each other. Second, there is some evidence of an interactive effect in the case of the opposition as well, but only following a defection from the ruling party — and even in this case, the small sample size means that the estimated effect is not statistically significant at conventional levels. More specifically, when there is no defection, the probability that the opposition will form a coalition only depends on its electoral strength, but following a defection from the ruling party the effect is conditional on the opposition's capacity to cooperate. Taken together, these results indicate that (a) the effect of players' electoral strength and their capacity to make credible commitments are conditional on each other; and (b) defections and coalitions are interdependent and thus should be studied jointly.

1.5 Discussion and conclusion

Although both defections and coalitions have received substantial attention from the literature on CARs (Howard and Roessler 2006; Magaloni 2006; van de Walle 2006; Baturo 2014; Brownlee 2007*a*; Levitsky and Way 2010; Reuter and Gandhi 2011; Gandhi and Reuter 2013; Wahman 2011; Arriola 2012, 2013; Donno 2013), the origins of these phenomena remain understudied. The formal model presented in this paper indicates that both players' electoral strength and their capacity to formulate credible commitments play a key role in determining the occurrence of defections and coalitions, but their effect is conditional on each other. It also shows that defections and coalitions are interdependent — in particular, defections increase the opportunity cost of forming a coalition, making them less likely —, and thus should be studied jointly. In line with these claims, the results indicate that institutionalized parties only make defections less likely when the ruling party is electorally weak or the sitting executive is not running for reelection, while the opposition's capacity to make credible commitments is more relevant following a defection.

The model can also help improve our understanding of other features of CARs besides defections and coalitions. To begin with, it provides a straightforward explanation for why, despite the potential benefits, relatively few authoritarian rulers invest in an institutionalized party: from the perspective of an executive who expects to run for reelection time and again, the benefits of such a party are simply not there. Indeed, evidence from case studies suggests that authoritarian rulers only invest in the creation of institutionalized parties when forced by the circumstances (Smith 2005; Levitsky and Way 2013).

Second, the argument suggests a new reason why authoritarian regimes with institutionalized parties survive longer (Smith 2006; Svolik 2012, ch. 6): their capacity to prevent defections makes them more likely to recruit highly skilled politicians. From the perspective of the ruling party, recruiting skilled politicians involves a trade-off: it makes the party better at winning elections, but it also creates a pool of potential defectors. In terms of the model, having many skilled politicians implies a low τ_E/τ_M ratio, which increases the incentives to defect. To the extent that institutionalized parties can avoid defections even when τ_E/τ_M is low, they will be more inclined to recruit and promote capable supporters, which in turn will increase the party's strength at election time.

Third, the model can be easily extended to introduce uncertainty about the value of some of the parameters. For example, the actual size of *B* may depend on an exogenous shock that is only observed by *E* and *M*, thus making a defection informative about *B*'s size. Alternatively, only *E* may observe the shock, creating a conflict of interest with *M*. Another possibility is to allow λ' to vary according to *E*'s type, i.e. the trustworthiness of *E*'s promises would be private information but *M* could learn it through repeated play. The relationship between *L* and *S* can be modeled similarly.

Fourth, the fact that many CARs are vulnerable to the problem of succession raises the question of how rulers in such regimes choose their successors. Research on (advanced) democratic countries suggests that parties nominate competent but independent-minded candidates in competitive districts and loyal but less capable ones in safe seats (Galasso and Nannicini 2011).

A similar loyalty-competence trade-off exists in CARs (see Levitsky and Way 2010, ch. 1), but the reasons why outgoing executives tip the balance in either direction remain unclear. Authoritarian regimes lacking an institutionalized party often rely on hereditary succession (Brownlee 2007*b*), but this practice is uncommon in CARs.[26]

Finally, there is the issue of whether defeating the ruling party at the polls leads to better outcomes: Does government performance improve? Are the new rulers more likely to respect civil liberties and hold clean elections, or do they engage in the same practices as their predecessors? Alternation in office sometimes brings better outcomes, both in terms of respect for political rights and civil liberties (Brownlee 2009; Levitsky and Way 2010; Kennedy 2014) and government responsiveness (Díaz-Cayeros, Estévez and Magaloni 2016), though not all CARs democratize following an electoral defeat (Brownlee 2009; Levitsky and Way 2010; Kennedy 2014). What explains this variation? Slater (2012) and Kennedy (2014) emphasize the role of state capacity and economic development, but the nature of the previous regime may also make a difference. For example, alternation may lead to better outcomes when it brings to power an opposition party with innovative ideas and a distinctive base of support, but not when it results on a mere reshuffle of the ruling coalition following a defection. Given the optimism that often accompanies episodes of alternation, understanding when and why they make a difference remains an important issue for future research.

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[26]The candidate of the ruling party was a relative of the outgoing executive in only 5 of 53 elections in which the executive did not run for reelection.

A1.1 Changing the sequence of moves

This section examines whether the results of the model would change if L and S moved before M (see Figure A1.1 for the game tree). Since now M moves last, we begin by considering his choice given S's behavior. Section A1.2 shows that the values of λ that will make M indifferent given a, $\lambda_{\bar{A}}^{\$}$ and $\lambda_{A}^{\$}$, will be

$$\lambda_{\bar{A}}^{\$} = \frac{\pi_{M,a=\bar{A}}}{\pi_{E+M,a=\bar{A}}} = \lambda_{\bar{A}}^{*} \quad \text{and} \quad \lambda_{A}^{\$} = \frac{\pi_{M,a=A}}{\pi_{E+M,a=A}} = \lambda_{A}^{*}.$$

Since $\lambda_{\bar{A}}^{*} > \lambda_{A}^{*}$, this means that M will always support E's candidacy when $\lambda' \geq \lambda_{\bar{A}}^{*}$ and will always defect when $\lambda' < \lambda_{A}^{*}$, while for intermediate values of λ' his actions will depend on whether S supports a coalition. Whether this will be the case follows by backwards induction. Let $C_{A}^{\$}$, $C_{B}^{\$}$ and $C_{C}^{\$}$ be the values of C that make S indifferent between forming a coalition and not (a) when M will always defect, (b) when M will never defect, and (c) when M's behavior will depend on the opposition's move, respectively. Section A1.2 shows that $C_{A}^{\$} = C_{D}^{*}$, $C_{B}^{\$} = C_{\bar{D}}^{*}$ and

$$C_{C}^{\$} = B\big[\delta' \pi_{L+S,D} - \pi_{S,\bar{D}}\big],$$

with $C_{C}^{\$} < C_{A}^{\$}$ and $C_{C}^{\$} < C_{B}^{\$}$. And the values of δ that make S indifferent between accepting L's offer and rejecting it are $\delta_{A}^{\$} = \delta_{D}^{*}$, $\delta_{B}^{\$} = \delta_{\bar{D}}^{*}$ and

$$\delta_{C}^{\$} = \frac{\pi_{S,\bar{D}} + C/B}{\pi_{L+S,D}},$$

with $\delta_{C}^{\$} < \delta_{A}^{\$}$ and $\delta_{C}^{\$} < \delta_{B}^{\$}$. That is, sustaining an opposition coalition is costliest when such a coalition will convince M not to defect. To put it differently, when S must choose between going alone under the most favorable circumstances — that is, when M defects — and forming
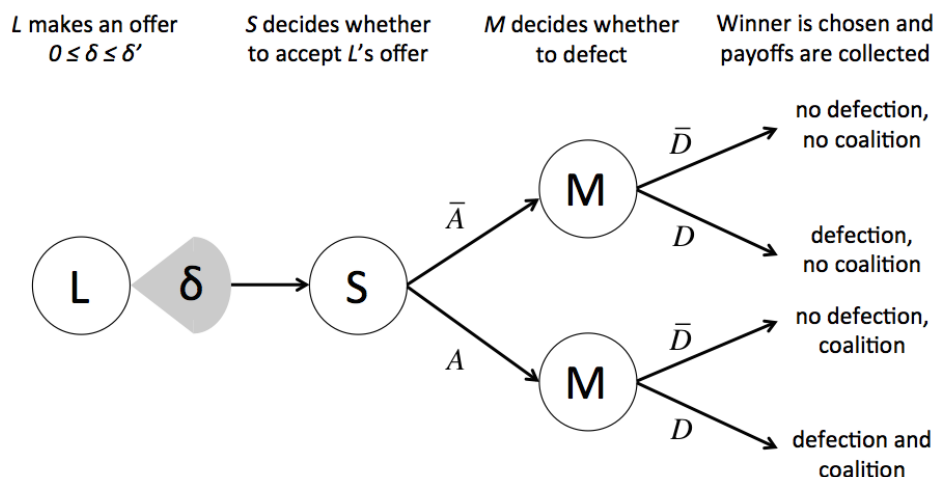
FIGURE A1.1: The game tree with an alternative sequence of moves.

a coalition under the most *un*favorable conditions — when M remains in the ruling party — convincing him to join a coalition will be harder.

To understand how these results compare to that of the previous section, Figure A1.2 plots the corresponding equilibria. Two things stand out. The first is that whenever λ', δ' or C are large (or small) enough, the players will have dominant strategies, and thus the sequence of moves does not matter for the results. In particular, M will always defect when $\lambda' < \lambda_A^*$, and will always support E's candidacy when $\lambda' \geq \lambda_A^*$. Similarly, for a sufficiently large (small) C, the opposition leaders will never (always) form a coalition. Furthermore, since these cutoff values are identical to the ones in the main text, the same comparative statics still apply: a large τ_E prevent defections even when λ' is small, while a shift in the balance of power between E and M increases the probability of defections, especially if the opposition is weak.

Altering the sequence of moves only changes the distribution of equilibria in those cases in which a player's behavior is conditional on another's. Figure A1.2 shows that given the same parameter values, letting the opposition move first makes defections more common and coalitions less frequent. This happens because of the change in the choices that players face. When M moves first, he must choose between (a) defecting and inducing an opposition coalition, or
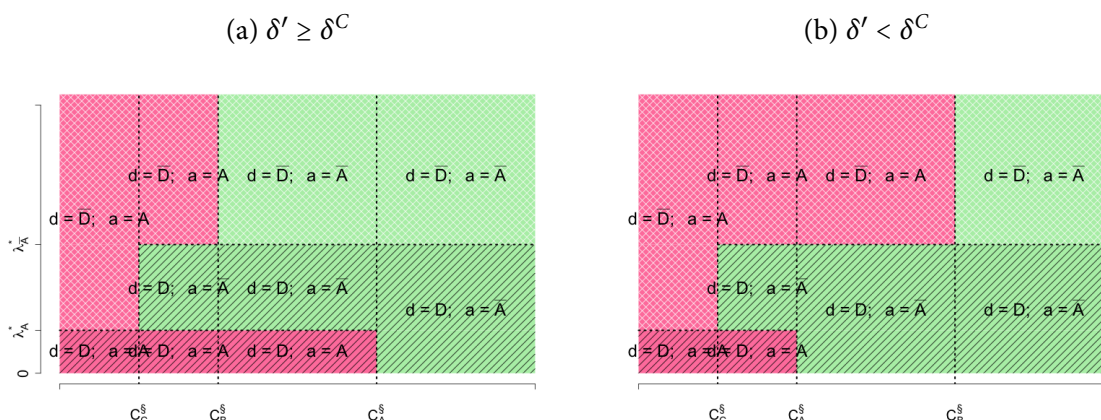
FIGURE A1.2: Equilibria for an alternative version of the game in which *M* moves after *L* and *S*. Pink and green tiles indicate equilibria with and without an opposition coalition, respectively. The plots show how defections from the ruling party (*d*) and opposition coalitions (*a*) depend on λ_a^*, $C_j^\$$, and δ'.

(b) supporting *E* and facing a divided opposition — that is, defecting under the most unfavorable circumstances or remaining in the ruling party under the most favorable ones.[27] But if *S* moves first, he faces a choice between (a) forming a coalition that will convince *M* to remain in the ruling party and (b) running alone but inducing *M* to defect — in other words, *S* must opt between forming a coalition under the most unfavorable circumstances, and going alone in the most advantageous scenario.

In sum, although changing the sequence of moves does change the results somewhat, the distribution of equilibria is very similar, and the main comparative statics of the paper — the conditional relationship between players' electoral strengths and their capacity to formulate credible commitments — remain unchanged.

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[27]This is only the case as long as $\delta' \geq \delta^C$. When $\delta' < \delta^C$, the opposite is true, and indeed Figure 1.3a shows that in such a case defections should be more common.

A1.2 Proofs

Main results.

Finding δ_d^*. When $d = \bar{D}$,

$$
\begin{aligned}
U_S\big(a = \bar{A} \,|\, d = \bar{D}\big) &\gtreqless U_S\big(a = A \,|\, d = \bar{D}\big) \\
\pi_{S,\bar{D}} \cdot B &\gtreqless \pi_{L+S,\bar{D}} \cdot \delta B - C \\
\frac{C/B + \pi_{S,\bar{D}}}{\pi_{L+S,\bar{D}}} &= \delta_{\bar{D}}^*,
\end{aligned}
$$

whereas if $d = D$:

$$
\begin{aligned}
U_S\big(a = \bar{A} \,|\, d = D\big) &\gtreqless U_S\big(a = A \,|\, d = D\big) \\
\pi_{S,D} \cdot B &\gtreqless \pi_{L+S,D} \cdot \delta B - C \\
\frac{C/B + \pi_{S,D}}{\pi_{L+S,D}} &= \delta_D^*.
\end{aligned}
$$

Finding $\delta_d^\dagger$:

$$
\begin{aligned}
U_L\big(a = \bar{A}\big) &\gtreqless U_L\big(a = A\big) \\
\pi_{L,d} \cdot B &\gtreqless \pi_{L+S,d} \cdot (1 - \delta)B - C \\
\frac{\pi_{L+S,d} - \pi_{L,d} - C/B}{\pi_{L+S,d}} &= \delta_d^\dagger,
\end{aligned}
$$

which will be equal or larger than δ_d^* when

$$
\begin{aligned}
\delta_d^\dagger &\geq \delta_d^* \\
\frac{\pi_{L+S,d} - \pi_{L,d} - C/B}{\pi_{L+S,d}} &\geq \frac{C/B + \pi_{S,d}}{\pi_{L+S,d}} \\
\underbrace{\pi_{L+S,d} - \pi_{L,d} - \pi_{S,d}}_{>0} &\geq 2C/B.
\end{aligned}
$$

Finding C_d^*. When $d = \bar{D}$,

$$U_S(a = \bar{A}|d = \bar{D}) \quad \gtreqless \quad U_S(a = A|d = \bar{D})$$

$$\pi_{S,\bar{D}} \cdot B \quad \gtreqless \quad \pi_{L+S,\bar{D}} \cdot \delta' B - C$$

$$C_{\bar{D}}^* \quad = \quad B[\delta' \pi_{L+S,\bar{D}} - \pi_{S,\bar{D}}]$$

while if $d = D$,

$$U_S(a = \bar{A}|d = D) \quad \gtreqless \quad U_S(a = A|d = D)$$

$$\pi_{S,D} \cdot B \quad \gtreqless \quad \pi_{L+S,D} \cdot \delta' B - C$$

$$C_D^* \quad = \quad B[\delta' \pi_{L+S,D} - \pi_{S,D}].$$

Finding δ^C:

$$C_{\bar{D}}^* \quad \gtreqless \quad C_D^*$$

$$B[\delta' \pi_{L+S,\bar{D}} - \pi_{S,\bar{D}}] \quad \gtreqless \quad B[\delta' \pi_{L+S,D} - \pi_{S,D}]$$

$$\delta^C \quad = \quad \underbrace{\frac{\overbrace{\pi_{S,D} - \pi_{S,\bar{D}}}^{>0}}{\pi_{L+S,D} - \pi_{L+S,\bar{D}}}}_{>0} \quad \gtreqless \quad \delta'.$$

Finding λ_j^*:

(a) When S will play $a = \bar{A}$ regardless of M's behavior (*i.e.*, $C > \text{argmax}(C_{\bar{D}}^*, C_D^*)$):

$$U_M(d = \bar{D}|C > C_{\bar{D}}^*, C > C_D^*) \quad \gtreqless \quad U_M(d = D|C > C_{\bar{D}}^*, C > C_D^*)$$

$$\pi_{E+M,\bar{A}} \cdot \lambda B \quad \gtreqless \quad \pi_{M,\bar{A}} \cdot B$$

$$\lambda_{\bar{A}}^* \quad = \quad \frac{\pi_{M,\bar{A}}}{\pi_{E+M,\bar{A}}}.$$

(b) When S will play $a = A$ regardless of M's behavior ($C < \text{argmin}(C_{\bar{D}}^*, C_D^*)$):

$$U_M(d = \bar{D}|C < C_{\bar{D}}^*, C < C_D^*) \quad \gtreqless \quad U_M(d = D|C < C_{\bar{D}}^*, C < C_D^*)$$

$$\pi_{E+M,A} \cdot \lambda B \quad \gtreqless \quad \pi_{M,A} \cdot B$$

$$\lambda_A^* \quad = \quad \frac{\pi_{M,A}}{\pi_{E+M,A}}.$$

(c) When M's decision to defect will trigger an opposition coalition, *i.e.* $C_{\bar{D}}^* < C < C_D^*$:

$$U_M(d = \bar{D}|C_{\bar{D}}^* < C < C_D^*) \quad \gtreqqless \quad U_M(d = D|C_{\bar{D}}^* < C < C_D^*)$$

$$\pi_{E+M,\bar{A}} \cdot \lambda B \quad \gtreqqless \quad \pi_{M,A} \cdot B$$

$$\lambda_{A \text{ iff } D}^* \quad = \quad \frac{\pi_{M,A}}{\pi_{E+M,\bar{A}}}.$$

(d) When a defection will prevent a coalition that would otherwise occur ($C_D^* < C < C_{\bar{D}}^*$):

$$U_M(d = \bar{D}|C_D^* < C < C_{\bar{D}}^*) \quad \gtreqqless \quad U_M(d = D|C_D^* < C < C_{\bar{D}}^*)$$

$$\pi_{E+M,A} \cdot \lambda B \quad \gtreqqless \quad \pi_{M,\bar{A}} \cdot B$$

$$\lambda_{A \text{ iff } \bar{D}}^* \quad = \quad \frac{\pi_{M,\bar{A}}}{\pi_{E+M,A}}.$$

Showing that $\lambda_{A \text{ iff } \bar{D}}^* > \lambda_{\bar{A}}^* > \lambda_{A \text{ iff } D}^* > \lambda_A^*$:

$$\lambda_{\bar{A}}^* \quad \gtreqqless \quad \lambda_{A \text{ iff } \bar{D}}$$

$$\frac{2\tau_M(3/2\tau_E + 3/2\tau_M + \tau_L + \tau_S)}{3(\tau_E + \tau_M)(\tau_E + \tau_M + \tau_L + \tau_S)} \quad \gtreqqless \quad \frac{\tau_M}{\tau_E + \tau_M}$$

$$3(\tau_E + \tau_M) + 2(\tau_L + \tau_S) \quad \gtreqqless \quad 3(\tau_E + \tau_M) + 3(\tau_L + \tau_S)$$

$$\lambda_{\bar{A}}^* \quad < \quad \lambda_{A \text{ iff } \bar{D}}$$

$$\lambda_{\bar{A}}^* \quad \gtreqqless \quad \lambda_{A \text{ iff } D}$$

$$\frac{2\tau_M(3/2\tau_E + 3/2\tau_M + \tau_L + \tau_S)}{3(\tau_E + \tau_M)(\tau_E + \tau_M + \tau_L + \tau_S)} \quad \gtreqqless \quad \frac{2\tau_M(3/2\tau_E + 3/2\tau_M + \tau_L + \tau_S)}{3(\tau_E + \tau_M)(\tau_E + \tau_M + 3/2\tau_L + 3/2\tau_S)}$$

$$\tau_E + \tau_M + 3/2(\tau_L + \tau_S) \quad \gtreqqless \quad \tau_E + \tau_M + \tau_L + \tau_S$$

$$\lambda_{\bar{A}}^* \quad > \quad \lambda_{A \text{ iff } D}$$

$$\lambda_A^* \quad \gtreqqless \quad \lambda_{A \text{ iff } D}$$

$$\frac{2\tau_M(\tau_E + \tau_M + \tau_L + \tau_S)}{3(\tau_E + \tau_M)(\tau_E + \tau_M + 3/2\tau_L + 3/2\tau_S)} \quad \gtreqqless \quad \frac{2\tau_M(3/2\tau_E + 3/2\tau_M + \tau_L + \tau_S)}{3(\tau_E + \tau_M)(\tau_E + \tau_M + 3/2\tau_L + 3/2\tau_S)}$$

$$\tau_E + \tau_M + \tau_L + \tau_S \quad \gtreqqless \quad 3/2(\tau_E + \tau_M) + \tau_L + \tau_S$$

$$\lambda_A^* \quad < \quad \lambda_{A \text{ iff } D}.$$

Proof that $\tau'_E > \tau_E \Rightarrow \lambda^{**}_j < \lambda^*_j$. We have to show that $\frac{\partial}{\partial \tau_E} \lambda^*_j < 0$:

$$
\begin{aligned}
\frac{\partial}{\partial \tau_E} \lambda^*_{\bar{A}} &= \frac{\partial}{\partial \tau_E} \frac{\pi_{M,\bar{A}}}{\pi_{E+M,\bar{A}}} \\[2mm]
&= \frac{\partial}{\partial \tau_E} \left[\frac{\tau_M}{\tau_E + \tau_M + \underbrace{\tau_L + \tau_S}_{\tau_O}} : \frac{3/2(\tau_E + \tau_M)}{3/2(\tau_E + \tau_M) + \underbrace{\tau_L + \tau_S}_{\tau_O}} \right] \\[2mm]
&= \frac{\partial}{\partial \tau_E} \frac{3\tau_E \tau_M + 3\tau_M^2 + 2\tau_M \tau_O}{3(\tau_E^2 + 2\tau_E \tau_M + \tau_M^2 + \tau_E \tau_O + \tau_M \tau_O)} \\[2mm]
&= \frac{3\tau_M(\tau_E^2 + 2\tau_E \tau_M + \tau_M^2 + \tau_E \tau_O + \tau_M \tau_O) - 3(2\tau_E + 2\tau_M + \tau_O)(3\tau_E \tau_M + 3\tau_M^2 + 2\tau_M \tau_O)}{3^2(3/2\tau_M(\tau_E + \tau_M) + \tau_M \tau_O)^2} \\[2mm]
&= \frac{-(5\tau_E^2 \tau_M + 10\tau_E \tau_M^2 + 5\tau_M^3 + 6\tau_E \tau_M \tau_O + 6\tau_M^2 \tau_O + 2\tau_M \tau_O^2)}{3(3/2\tau_M(\tau_E + \tau_M) + \tau_M \tau_O)^2} \quad < 0.
\end{aligned}
$$

$$
\frac{\partial}{\partial \tau_E} \lambda_A^* \;=\; \frac{\partial}{\partial \tau_E} \frac{\pi_{M,A}}{\pi_{E+M,A}}
$$

$$
= \frac{\partial}{\partial \tau_E}\left[\frac{\tau_M}{\tau_E + \tau_M + 3/2(\underbrace{\tau_L + \tau_S}_{\tau_O})} \;:\; \frac{3/2(\tau_E + \tau_M)}{3/2(\tau_E + \tau_M) + 3/2(\underbrace{\tau_L + \tau_S}_{\tau_O})} \right]
$$

$$
= \frac{\partial}{\partial \tau_E}\left[\frac{\tau_M \tau_E + \tau_M^2 + \tau_M \tau_O}{\tau_E^2 + 2\tau_E \tau_M + \tau_M^2 + 3/2\tau_E \tau_O + 3/2\tau_M \tau_O} \right]
$$

$$
= \frac{\tau_M(\tau_E^2 + 2\tau_E\tau_M + \tau_M^2 + 3/2\tau_E\tau_O + 3/2\tau_M\tau_O) - \tau_M(2\tau_E + 2\tau_M + 3/2\tau_O)(\tau_E + \tau_M + \tau_O)}{\left[(\tau_E + \tau_M)^2 + 3/2\tau_O(\tau_E + \tau_M)\right]^2}
$$

$$
= \frac{-(\tau_E^2 + \tau_M^3 + 2\tau_E\tau_M\tau_O + 2\tau_E\tau_M^2 + 2\tau_M^2\tau_O + 3/2\tau_M\tau_O^2)}{\left[(\tau_E + \tau_M)^2 + 3/2\tau_O(\tau_E + \tau_M)\right]^2} \;<\; 0.
$$

$$
\frac{\partial}{\partial \tau_E} \lambda_{A \text{ iff } D}^* \;=\; \frac{\partial}{\partial \tau_E} \frac{\pi_{M,A}}{\pi_{E+M,\bar{A}}}
$$

$$
= \frac{\partial}{\partial \tau_E}\left[\frac{\tau_M}{\tau_E + \tau_M + 3/2(\underbrace{\tau_L + \tau_S}_{\tau_O})} \;:\; \frac{3/2(\tau_E + \tau_M)}{3/2(\tau_E + \tau_M) + \underbrace{\tau_L + \tau_S}_{\tau_O}} \right]
$$

$$
= \frac{\partial}{\partial \tau_E} \frac{3\tau_E \tau_M + 3\tau_M^2 + 2\tau_M\tau_O}{3(\tau_E^2 + 2\tau_E\tau_M + \tau_M^2 + 3/2\tau_E\tau_O + 3/2\tau_M\tau_O)}
$$

$$
= \frac{3^2\tau_M(\tau_E^2 + 2\tau_E\tau_M + 3/2\tau_E\tau_O + \tau_M^2 + 3/2\tau_M\tau_O) - 3(2\tau_E + 2\tau_M + 3/2\tau_O)(3\tau_E\tau_M + 3\tau_M^2 + 2\tau_M\tau_O)}{3^2[(\tau_E + \tau_M)(\tau_E + \tau_M + 3/2\tau_O)]^2}
$$

$$
= \frac{-(3\tau_E^2\tau_M + 3\tau_M^3 + 4\tau_E\tau_M\tau_O + 6\tau_E\tau_M^2 + 4\tau_M^2\tau_O + 3\tau_M\tau_O^2)}{3[(\tau_E + \tau_M)(\tau_E + \tau_M + 3/2\tau_O)]^2} \;<\; 0.
$$

$$
\frac{\partial}{\partial \tau_E} \lambda_{A \text{ iff } \bar{D}}^* \;=\; \frac{\partial}{\partial \tau_E} \frac{\pi_{M,\bar{A}}}{\pi_{E+M,A}}
$$

$$
= \frac{\partial}{\partial \tau_E}\left[\frac{\tau_M}{\tau_E + \tau_M + \underbrace{\tau_L + \tau_S}_{\tau_O}} \;:\; \frac{\tau_E + \tau_M}{\tau_E + \tau_M + \underbrace{\tau_L + \tau_S}_{\tau_O}} \right]
$$

$$
= \frac{\partial}{\partial \tau_E} \frac{\tau_M}{\tau_E + \tau_M}
$$

$$
= \frac{0(\tau_E + \tau_M) - \tau_M}{(\tau_E + \tau_M)^2} \;<\; 0.
$$

Proof that $\tau'_M > \tau_M$ **and** $\tau'_E < \tau_E$ **s.t.** $\tau'_E + \tau'_M = \tau_E + \tau_M \Rightarrow \lambda^\dagger_j > \lambda^*_j, C^\dagger_{\bar{D}} = C^*_{\bar{D}}, C^\dagger_D = C^*_D.$ We first show that $\frac{\partial}{\partial \tau_M} \lambda^*_j > 0$:

$$
\begin{aligned}
\frac{\partial}{\partial \tau_M} \lambda^*_{\bar{A}} &= \frac{\partial}{\partial \tau_M} \frac{\pi_{M,\bar{A}}}{\pi_{E+M,\bar{A}}} \\
&= \frac{\partial}{\partial \tau_M} \left[\frac{\tau_M}{\tau_E + \tau_M + \underbrace{\tau_L + \tau_S}_{\tau_O}} : \frac{3/2(\tau_E + \tau_M)}{3/2(\tau_E + \tau_M) + \underbrace{\tau_L + \tau_S}_{\tau_O}} \right] \\
&= \frac{\partial}{\partial \tau_M} \frac{3\tau_E\tau_M + 3\tau_M^2 + 2\tau_M\tau_O}{3(\tau_E^2 + 2\tau_E\tau_M + \tau_M^2 + \tau_E\tau_O + \tau_M\tau_O)} \\
&= \frac{3(3\tau_E + 6\tau_M + 2\tau_O)(\tau_E^2 + 2\tau_E\tau_M + \tau_M^2 + \tau_E\tau_O + \tau_M\tau_O) - 3(2\tau_E + 2\tau_M + \tau_O)(3\tau_E\tau_M + 3\tau_M^2 + 2\tau_M\tau_O)}{3^2(3/2\tau_M(\tau_E + \tau_M) + \tau_M\tau_O)^2} \\
&= \frac{3\tau_E^3 + 6\tau_E^2\tau_M + 3\tau_E\tau_M^2 + 5\tau_E^2\tau_O + 6\tau_E\tau_M\tau_O + \tau_M^2\tau_O + 2\tau_E\tau_O^2}{3(3/2\tau_M(\tau_E + \tau_M) + \tau_M\tau_O)^2} > 0.
\end{aligned}
$$

$$
\begin{aligned}
\frac{\partial}{\partial \tau_M} \lambda^*_A &= \frac{\partial}{\partial \tau_M} \frac{\pi_{M,A}}{\pi_{E+M,A}} \\
&= \frac{\partial}{\partial \tau_M} \left[\frac{\tau_M}{\tau_E + \tau_M + 3/2\underbrace{(\tau_L + \tau_S)}_{\tau_O}} : \frac{3/2(\tau_E + \tau_M)}{3/2(\tau_E + \tau_M) + 3/2\underbrace{(\tau_L + \tau_S)}_{\tau_O}} \right] \\
&= \frac{\partial}{\partial \tau_M} \left[\frac{\tau_M\tau_E + \tau_M^2 + \tau_M\tau_O}{\tau_E^2 + 2\tau_E\tau_M + \tau_M^2 + 3/2\tau_E\tau_O + 3/2\tau_M\tau_O} \right] \\
&= \frac{(\tau_E + 2\tau_M + \tau_O)([\tau_E + \tau_M]^2 + 3/2\tau_E\tau_O + 3/2\tau_M\tau_O) - \tau_M(2\tau_E + 2\tau_M + 3/2\tau_O)(\tau_E + \tau_M + \tau_O)}{\left[(\tau_E + \tau_M)^2 + 3/2\tau_O(\tau_E + \tau_M)\right]^2} \\
&= \frac{\tau_E^3 + 2\tau_E^2\tau_M + \tau_E\tau_M^2 + 3/2\tau_E\tau_O^2 + 3\tau_E\tau_M\tau_O + 1/2\tau_M^2\tau_O + 3/2(\tau_E\tau_O^2)}{\left[(\tau_E + \tau_M)^2 + 3/2\tau_O(\tau_E + \tau_M)\right]^2} > 0.
\end{aligned}
$$

$$
\begin{aligned}
\frac{\partial}{\partial \tau_M} \lambda^*_{A \text{ iff } D} &= \frac{\partial}{\partial \tau_M} \frac{\pi_{M,A}}{\pi_{E+M,\bar{A}}} \\
&= \frac{\partial}{\partial \tau_M} \left[\frac{\tau_M}{\tau_E + \tau_M + 3/2\underbrace{(\tau_L + \tau_S)}_{\tau_O}} : \frac{3/2(\tau_E + \tau_M)}{3/2(\tau_E + \tau_M) + \underbrace{\tau_L + \tau_S}_{\tau_O}} \right] \\
&= \frac{\partial}{\partial \tau_M} \frac{3\tau_E\tau_M + 3\tau_M^2 + 2\tau_M\tau_O}{3(\tau_E^2 + 2\tau_E\tau_M + \tau_M^2 + 3/2\tau_E\tau_O + 3/2\tau_M\tau_O)} \\
&= \frac{(3\tau_E + 6\tau_M + 2\tau_O)(\tau_E^2 + 2\tau_E\tau_M + \tau_M^2 + 3/2\tau_O[\tau_E + \tau_M]) - \tau_M(3\tau_E + 3\tau_M + 2\tau_O)(2\tau_E + 2\tau_M + 3/2\tau_O)}{3[(\tau_E + \tau_M)(\tau_E + \tau_M + 3/2\tau_O)]^2} \\
&= \frac{3\tau_E^3 + 6\tau_E^2\tau_M + 3\tau_E\tau_M^2 + 9\tau_E\tau_M\tau_O + 13/2\tau_E^2\tau_O + 5/2\tau_M^2\tau_O + 3\tau_E\tau_O^2}{3[(\tau_E + \tau_M)(\tau_E + \tau_M + 3/2\tau_O)]^2} > 0.
\end{aligned}
$$

$$
\begin{aligned}
\frac{\partial}{\partial \tau_M} \lambda^*_{A \text{ iff } \bar{D}} \quad &= \quad \frac{\partial}{\partial \tau_M} \frac{\pi_{M,\bar{A}}}{\pi_{E+M,A}} \\[2mm]
&= \quad \frac{\partial}{\partial \tau_M} \left[\frac{\tau_M}{\tau_E + \tau_M + \underbrace{\tau_L + \tau_S}_{\tau_O}} : \frac{\tau_E + \tau_M}{\tau_E + \tau_M + \underbrace{\tau_L + \tau_S}_{\tau_O}} \right] \\[2mm]
&= \quad \frac{\partial}{\partial \tau_E} \frac{\tau_M}{\tau_E + \tau_M} \\[2mm]
&= \quad \frac{\tau_E + \tau_M - \tau_M}{(\tau_E + \tau_M)^2} \quad = \quad \frac{\tau_E}{(\tau_E + \tau_M)^2} \quad > 0.
\end{aligned}
$$

The second part of the proof is straightforward. Since $\tau'_E + \tau'_M = \tau_E + \tau_M$ by assumption, $\pi_{k,d}$ remains unchanged, and thus $C^\dagger_d = B[\delta' \pi_{L+S,d} - \pi_{S,d}] = C^*_d$.

Extension: changing the sequence of moves.

Finding $\lambda^\S_a$. When S plays $a = \bar{A}$,

$$
\begin{aligned}
U_M(d = \bar{D}|a = \bar{A}) \quad &\gtreqless \quad U_M(d = D|a = \bar{A}) \\[2mm]
\pi_{E+M,\bar{A}} \cdot \lambda B \quad &\gtreqless \quad \pi_{M,\bar{A}} \cdot B \\[2mm]
\lambda^\S_{\bar{A}} \quad &= \quad \frac{\pi_{M,\bar{A}}}{\pi_{E+M,\bar{A}}} \quad = \lambda^*_{\bar{A}},
\end{aligned}
$$

whereas if S plays $a = A$,

$$
\begin{aligned}
U_M(d = \bar{D}|a = A) \quad &\gtreqless \quad U_M(d = D|a = A) \\[2mm]
\pi_{E+M,A} \cdot \lambda B \quad &\gtreqless \quad \pi_{M,A} \cdot B \\[2mm]
\lambda^\S_A \quad &= \quad \frac{\pi_{M,A}}{\pi_{E+M,A}} \quad = \lambda^*_A.
\end{aligned}
$$

Finding $C^\S_j$. If M will play $d = D$ regardless of the opposition's behavior (*i.e.*, $\lambda' < \lambda^*_A < \lambda^*_{\bar{A}}$):

$$
\begin{aligned}
U_S(a = \bar{A}|d = D) \quad &\gtreqless \quad U_S(a = A|d = D) \\[2mm]
\pi_{S,D} \cdot B \quad &\gtreqless \quad \pi_{L+S,D} \cdot \delta' B - C \\[2mm]
C^\S_A \quad &= \quad B[\delta' \pi_{L+S,D} - \pi_{S,D}] \quad = C^*_D.
\end{aligned}
$$

When M never defects ($\lambda_A^* < \lambda_{\bar{A}}^* < \lambda'$):

$$U_S(a = \bar{A}|d = \bar{D}) \quad \gtreqless \quad U_S(a = A|d = \bar{D})$$

$$\pi_{S,\bar{D}} \cdot B \quad \gtreqless \quad \pi_{L+S,\bar{D}} \cdot \delta' B - C$$

$$C_B^\$ \quad = \quad B[\delta' \pi_{L+S,\bar{D}} - \pi_{S,\bar{D}}] \ = C_{\bar{D}}^*.$$

Finally, when M's choice depends on the opposition's move ($\lambda_A^* < \lambda' < \lambda_{\bar{A}}^*$):

$$U_S(a = \bar{A}|d = D) \quad \gtreqless \quad U_S(a = A|d = \bar{D})$$

$$\pi_{S,D} \cdot B \quad \gtreqless \quad \pi_{L+S,\bar{D}} \cdot \delta' B - C$$

$$C_C^\$ \quad = \quad B[\delta' \pi_{L+S,\bar{D}} - \pi_{S,D}].$$

Finding $\delta_j^\$$. If M will play $d = D$ regardless of the opposition's behavior (*i.e.*, $\lambda' < \lambda_A^* < \lambda_{\bar{A}}^*$):

$$U_S(a = \bar{A}|d = D) \quad \gtreqless \quad U_S(a = A|d = D)$$

$$\pi_{S,D} \cdot B \quad \gtreqless \quad \pi_{L+S,D} \cdot \delta B - C$$

$$\frac{C/B + \pi_{S,D}}{\pi_{L+S,D}} \quad = \quad \delta_A^\$ \ = \delta_D^*.$$

When M never defects ($\lambda_A^* < \lambda_{\bar{A}}^* < \lambda'$):

$$U_S(a = \bar{A}|d = \bar{D}) \quad \gtreqless \quad U_S(a = A|d = \bar{D})$$

$$\pi_{S,\bar{D}} \cdot B \quad \gtreqless \quad \pi_{L+S,\bar{D}} \cdot \delta B - C$$

$$\frac{C/B + \pi_{S,\bar{D}}}{\pi_{L+S,\bar{D}}} \quad = \quad \delta_B^\$ \ = \delta_{\bar{D}}^*.$$

Finally, when M's choice depends on the opposition's move ($\lambda_A^* < \lambda' < \lambda_{\bar{A}}^*$):

$$U_S(a = \bar{A}|d = D) \quad \gtreqless \quad U_S(a = A|d = \bar{D})$$

$$\pi_{S,D} \cdot B \quad \gtreqless \quad \pi_{L+S,\bar{D}} \cdot \delta B - C$$

$$\frac{C/B + \pi_{S,D}}{\pi_{L+S,\bar{D}}} \quad = \quad \delta_C^\$.$$

A1.3 Identifying competitive authoritarian elections

This section describes the construction of the sample. After a brief discussion of the problems involved in operationalizing CARs, I present an overview of my coding rules and the sources I used to build the sample, as well as how I extended them where necessary. I finally provide some descriptive statistics.

Coding CARs. A political regime is competitive authoritarian if (a) access to executive and legislative positions is determined by competitive elections in which (almost) all adults have the right to participate, but (b) elections cannot be considered free and fair because the electoral process is systematically skewed in favor of the ruling party. These criteria leave out (a) democratic regimes; (b) authoritarian regimes that do not hold formally democratic elections; and authoritarian regimes that hold competitive elections but (c) restrict the right to vote to a small group of citizens, or (d) place effective political power in a non-elected body.

Regimes belonging to categories (a), (c) or (d) are easy to discard. Authoritarian regimes that do not hold formally democratic elections are implicitly filtered out when selecting competitive executive elections through NELDA. Regimes that hold competitive elections but restrict the right to vote to a small subset of the population or place a non-elected authority over elected ones are rare nowadays. I identify them through Geddes, Wright and Frantz (2014), who provide a category for "oligarchic" and "indirect military" regimes, respectively. For (b), I relied on the Autocratic Regimes dataset (Geddes, Wright and Frantz 2014; henceforth GWF), which codes a regime as authoritarian if either (a) an executive achieves power through nondemocratic means — including uncompetitive elections —,[28] or (b) a democratically elected executive changes formal and informal rules (e.g., closing the legislature or annulling unfavorable electoral results) so

---

[28]GWF do not code an authoritarian transition if an elected executive is removed through irregular means (e.g., a military coup) but is succeeded by a constitutionally mandated successor.

that future elections become much less competitive. Elections are coded as non-democratic if (a) there are widespread reports of intimidation or violence against opposition leaders or supporters; (b) credible reports indicate that fraud was extended enough to change the outcome; or (c) incumbents enjoy such an advantage in terms of material resources or media access that observes consider the elections not to be fair. GWF provide start and end dates for every authoritarian regime in the sample, so determining whether an election took place under an authoritarian regime is straightforward. Since the original dataset only covers the 1946-2010 period, I extended the sample until 2014. In most cases, the regime in power at the end of 2010 is still in office today, so I only had to extend GWF's original coding.[29] Furthermore, GWF explicitly refrain from coding 41 countries whose population is considered too small.[30] Whenever one of these countries appeared in NELDA, I classified the corresponding regime as democratic or authoritarian according to GWF's own rules.[31]

Identifying competitive elections. The unit of observation is the (a) *executive election* in a (b) *competitive authoritarian regime*. I identified executive elections using version 3 of the National Elections Across Democracy and Autocracy (NELDA) dataset (Hyde and Marinov 2012), which lists all national executive and legislative elections that took place around the world between 1945 and 2010.[32] I identified executive elections as those in which "the office of the incumbent

---

[29] The only countries for which I coded a regime transition are Guinea-Bissau, Mali, Niger, Burkina Faso, the Central African Republic, Tunisia and Kyrgyzstan (which had a transitional government, sometimes followed by a democratic one, during 2012-14, 2012-13, 2010-11, 2014-, 2013-, 2011-14 and 2010-11, respectively); Ivory Coast, Zambia and Afghanistan, which experienced a democratic transition after the 2010-11, 2011 and 2014 elections; and Sri Lanka, which experienced a democratic breakdown in 2010.

[30] The corresponding population threshold is unclear; several of these are micro-states, but others (such as Papua New Guinea) are also coded as "small."

[31] Specifically, I coded the elections in Comoros (1990 and 2002), Djibouti (1993-2011), Equatorial Guinea (1996-2009), Fiji (1992-2014) and Guyana (1980-2011) as authoritarian.

[32] The sample excludes micro-states, defined as countries with a population of less than $500,000$ at the time of the election. For every election, NELDA specifies the date in which it took place, the type of office contested (executive, legislature or constituent assembly), whether the incumbent's office was at stake, and whether the election was minimally competitive, among other things. NELDA only includes information for 1945-2012, so I extended the sample until 2014.

leader was contested" (`nelda20`). This includes both elections in which the executive was directly elected and cases in which the executive was indirectly elected by the legislature or an electoral college.[33] When double-ballot rules were employed, I only considered the first round.

NELDA includes both competitive and noncompetitive elections. Following Hyde and Marinov (2012), I code an election as "competitive" if (a) there exists at least one non-government group that may take place in the election; (b) opposition parties can be legally registered; and (c) there is a choice of candidates in the ballot (`nelda3`, `nelda4` and `nelda5`, respectively). These criteria means that the opposition was legally allowed to win, though whether this was a feasible possibility is another matter (Hyde and Marinov 2012). For this reason, in a handful of cases I deviated from NELDA's original coding:

1. NELDA codes the presidential elections of Burkina Faso (1991), Burundi (2010) Comoros (2002) and Djibouti (2005) as non-competitive because an opposition boycott meant that there was no choice of candidates in the ballot. Since my argument focuses on pre-election behavior and the opposition *had* the chance to participate if it wanted to, I decided to include these elections in the sample. I adopted the same criteria for the 1985 parliamentary election in Lesotho, which did not take place because the opposition boycotted it (Matlosa 1997; Southall 1994).[34]

2. The elections in Sudan (1996) and Uganda (1996 and 2001) are coded as non-competitive because only independent candidates were allowed to run. Since some candidates ran against the sitting executive, and they were theoretically allowed to win, I coded these elections as minimally competitive. The same applies to Rwanda (2010), which NELDA codes as not minimally competitive because all candidates were officially affiliated with the regime.

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[33] I deviated from this coding where legislative elections obviously decided the composition of government, even if formal rules said otherwise (e.g., Botswana). Conversely, the Taiwanese election of 1991 is coded as non-executive.

[34] Arguably, these cases represent instances of "coalitions not to run;" however, I do not code them as coalitions because the theoretical argument focuses on coalitions *to share power*, which may be different in nature and reflect different concerns. The only exception is the case of Djibouti (2005), where the opposition had agreed to form a coalition before announcing the boycott.

3. The election in Togo (2010) is also included because NELDA's coding reflects an obvious mistake rather than a discrepancy in coding rules.

4. I excluded the 1989 Polish election from the sample because 65% of the seats were reserved for the ruling party, i.e. there was not enough contestation.

Furthermore, although in theory NELDA only includes independent countries, Serbia is included in the sample well before achieving formal independence in 2006. This makes sense, because between 1991 and 2006 the Federal Republic of Yugoslavia consisted of two sub-national units, the Republic of Serbia and the Republic of Montenegro, which behaved as independent countries in practice.
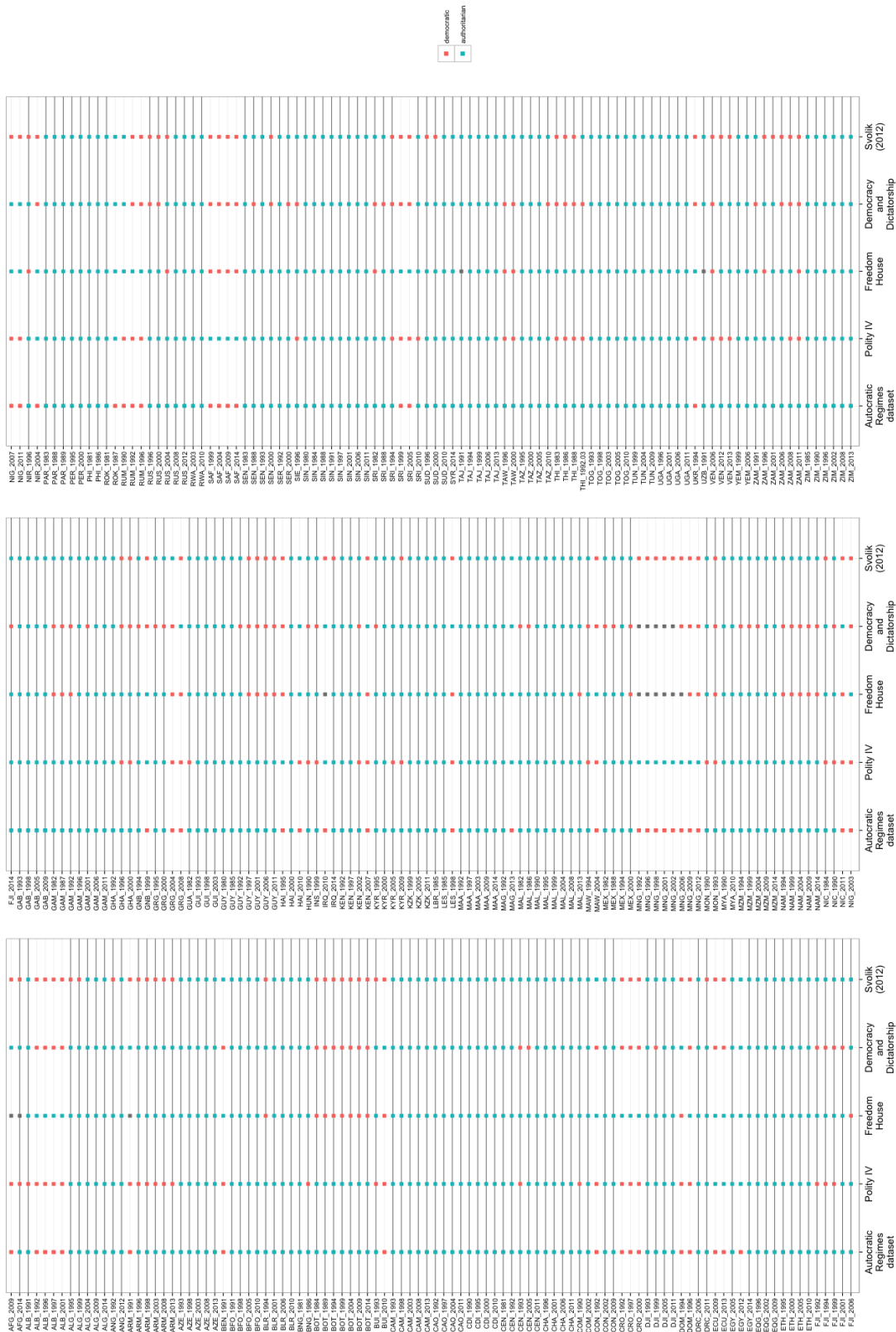
FIGURE A1.3: List of authoritarian elections according to different measures of regime type. Solid black lines indicate observations included in the main sample.
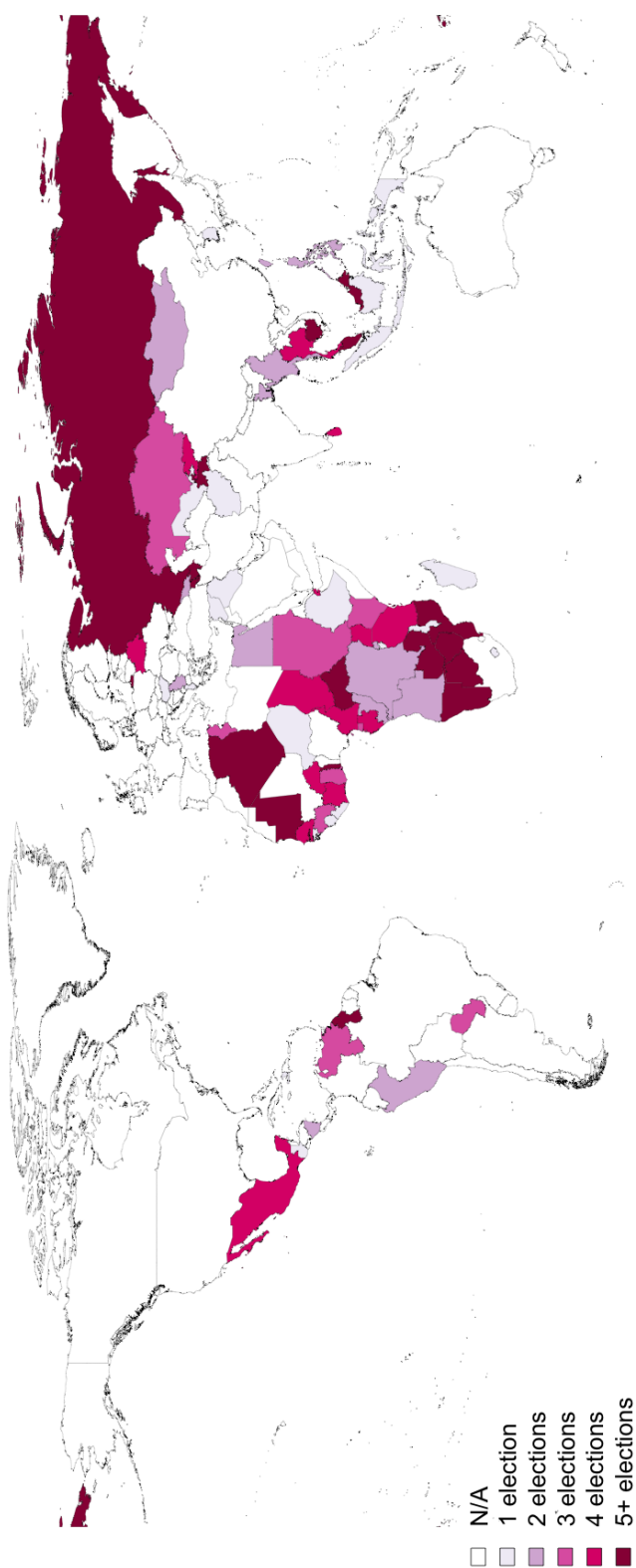
FIGURE A1.4: Number of competitive authoritarian elections per country (main sample).

A1.4 Variables

Dependent variables. *Defection*: 1 if the election featured a candidate for executive office that had occupied a high-ranking position under the ruling party, and 0 otherwise. "Candidate for executive office" includes presidential and vice-presidential candidates in presidential systems, and party leaders and/or candidates for (deputy) prime minister in parliamentary regimes. Individuals who announced their intention to run but (a) were denied registration or (b) decided to boycott the election *after* launching their candidacy are coded as defectors: they intended to challenge the ruling party at the polls, could not do it due to an event that took place after the defection.

High-ranking positions include: (a) national chief executive (president or vice-president in presidential systems; prime minister or deputy prime minister in parliamentary systems); (b) cabinet minister; (c) speaker of the legislature; (d) elected subnational executive; or (e) chairman of the ruling party. A defection is also coded if the chief executive leaves his party and runs under a new label (e.g., Mongolia in 1993). Deputy ministers and ordinary legislators are not considered high-ranking positions. Individuals who held a high-ranking position (such as government minister) in a government explicitly described as of "national unity" by the sources are not coded as defectors. Only voluntary departures from the ruling party are coded as defections (Reuter and Gandhi 2011). Finally, the defection must have taken place after the last executive election, though the high-ranking position may have been held in the past.[35]

The same individual can only be coded as a defector only once during a regime's lifetime. That is, an individual who defects, runs against the ruling party, loses the election, joins the government and defects again is only coded as a defector the first time. However, in countries where a competitive authoritarian regime is replaced by another (such a Zambia, where alternation in

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[35]In the case of founding elections, the defection must have taken place after the introduction of competitive elections had been announced.

office in 1991 introduced a new CAR under a different ruling party), a politician may be coded as a defector twice if he defects from both ruling parties.

Sources: Author based on LexisNexis; Wikipedia; the *Political Handbook of the World*, various volumes (Banks et al. 2009, 2010; Muller et al. 2011; Lansdorf 2012); and case studies published in Levitsky and Way (2010), *Electoral Studies*, the *Journal of Democracy*, *Asian Survey* and other country sources. An individual was only considered a defector if at least two sources coded him as such.

Coalition: 1 if the main opposition party and at least another opposition party supported the same candidate for executive office in the first round of the election. This definition follows Donno (2013), who codes an opposition coalition when "*most (including the largest) opposition parties cooperate in at least one of the following ways: by creating a new party or formal coalition that appears on the ballot; or by creating a coalition or movement that campaigns together, though individual parties still appear separately on the ballot; or by uniting behind a single opposition presidential candidate.*" (Suppl. material, p. 4). The main opposition party is defined as the opposition party that received the largest share of the vote in the last election held in the country, whether executive or legislative. If the last election was a legislative one and information on vote shares is not available, the party that received the largest number of seats is coded as the main opposition party. If the main opposition party disappears after an election but the most voted opposition candidate for executive office is running again, his party is coded as the main opposition party.

Sources: Donno's (2013) dataset. Since this only covers the 1990-2007 period, I employed the same sources mentioned above to extend the data to the 1980-2014 period and correct a few discrepancies in Donno's coding.

Main explanatory variables. *Party institutionalization*: Factor scores of six indicators of the independence of the ruling party *vis-à-vis* the sitting executive: (a) whether the regime is coded as party-based (as opposed to military or personalist) by Geddes, Wright and Frantz (2014); (b)

TABLE A1.1: Descriptive statistics.

	mean	std. dev.	min.	max.
Dependent variables				
Defection	0.26	0.44	0	1
Coalition	0.21	0.41	0	1
Main explanatory variables (defections)				
Party institutionalization	0.02	0.93	-2.37	1.89
Reelection	0.78	0.41	0	1
Vote regime	0.76	0.21	0.26	1
Main explanatory variables (coalitions)				
Vote opposition	0.13	0.14	0	0.48
# contested elections	1.52	2.45	0	12.00
Private credit/GDP	0.23	0.24	0.01	1.26
Control variables				
Founding election	0.30	0.46	0	1
Ethnic fractionalization	0.55	0.24	0	0.93

whether the party had successfully managed alternation in the past; (c) whether the executive is one of the party's founders; (d) whether Levitsky and Way (2013) code the regime as "revolutionary"; (e) the party's age (Reuter and Gandhi 2011; Gandhi and Reuter 2013); and (f) how long the executive has been in power, relative to the ruling party. Since many of these variables are discrete, I calculated the factor scores according to the Bayesian approach proposed by Quinn (2004). See section A1.5 for details.

Vote regime: Vote share obtained by the ruling party in the first round of the previous executive election. Ranges between 0 and 1. Founding elections are coded as 1. Sources: The Nohlen handbooks (Nohlen, Krennerich and Thibaut 1999; Nohlen, Grotz and Hartmann 2001*a,b*; Nohlen 2005*a,b*; Nohlen and Stover 2010); the African Elections Database;[36] the Electoral Institute for Sustainable Democracy in Africa (EISA);[37] Psephos;[38] Wikipedia; and other country sources.

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[36]http://africanelections.tripod.com/.

[37]http://www.content.eisa.org.za/.

[38]http://psephos.adam-carr.net/.

Reelection: 1 if the chief executive elected in the previous race was running for reelection, and 0 otherwise. In the case of founding elections, *Reelection* is coded as 1 if the executive in office one year before the election was running. Sources: Author based on data from Archigos (Goemans, Gleditsch and Chiozza 2009); Rulers;[39] Wikipedia; the Nohlen handbooks (Nohlen, Krennerich and Thibaut 1999; Nohlen, Grotz and Hartmann 2001*a,b*; Nohlen 2005*a,b*; Nohlen and Stover 2010); the African Elections Database; the Electoral Institute for Sustainable Democracy in Africa (EISA); Psephos; and other country sources.

Vote opposition: Vote share of the main opposition party in the first round of the previous executive election. Ranges between 0 and 1. Founding elections are coded as 0. Sources: The Nohlen handbooks (Nohlen, Krennerich and Thibaut 1999; Nohlen, Grotz and Hartmann 2001*a,b*; Nohlen 2005*a,b*; Nohlen and Stover 2010); the African Elections Database; the Electoral Institute for Sustainable Democracy in Africa (EISA); Psephos; Wikipedia; and other country sources.

 # elections contested: number of prior competitive executive elections contested by the main opposition party. Since the goal is to capture the organizational permanence of the main opposition party, all prior *consecutive* elections are considered, even if some of them were democratic or took place before independence (i.e., the counter begins with the last time a chief executive was elected in competitive elections). The counter is not reset if an opposition party boycotts an election, but the boycotted election is not coded as an instance of participation. Sources: Author based on data from the *Political Handbook of the World*, various volumes (Banks et al. 2009, 2010; Muller et al. 2011; Lansdorf 2012); the Nohlen handbooks (Nohlen, Krennerich and Thibaut 1999; Nohlen, Grotz and Hartmann 2001*a,b*; Nohlen 2005*a,b*; Nohlen and Stover 2010); Wikipedia; the African Elections Database; the Electoral Institute for Sustainable Democracy in Africa (EISA); and other country sources.

Credit/GDP: Private credit provision as a share of GDP. Source: Čihák et al. (2012).

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[39] `rulers.org`.

Control variables. *Founding election*: 1 if the sitting executive had not been elected in formally democratic elections, and 0 otherwise. Coded as 0 if the sitting executive had not been elected in competitive elections but replaced one who was according to constitutional rules. Coded as 1 if the sitting executive was elected in competitive elections but his mandate expired more than a year before election day. For example, the first presidential election in Angola took place in 1992, but president José Eduardo Dos Santos, in office since 1979, would not call another election until 2008. Thus, both the 1992 and 2008 elections are coded as founding. Sources: Archigos (Goemans, Gleditsch and Chiozza 2009); Rulers; the Nohlen handbooks (Nohlen, Krennerich and Thibaut 1999; Nohlen, Grotz and Hartmann 2001*a,b*; Nohlen 2005*a,b*; Nohlen and Stover 2010); the African Elections Database; the Electoral Institute for Sustainable Democracy in Africa (EISA); Psephos; Wikipedia; and other country sources.

Fractionalization: A country's level of ethnic fractionalization. Defined as fractionalization$_j$ = $1 - \sum_{i=1}^{N} s_{ij}^2$, where s_{ij} indicates group *i*'s share of country *j*'s population. Ranges between 0 and 1, with larger values indicating higher levels of fractionalization. Source: Alesina et al. (2003).

A1.5   Measuring *Party institutionalization*

Most authoritarian regimes have an official party, but the degree to which such parties can facilitate inter-temporal cooperation over time varies greatly. In principle, this capacity should be greater when the ruling party can be considered an autonomous organization rather than a creature of the sitting executive. This is not directly observable, so I treat *Party institutionalization* as a latent variable and measure it as the factor score of six indicators of the ruling party's independence *vis-á-vis* the sitting executive:

(1) *Regime type*. Geddes, Wright and Frantz (2014) classify authoritarian regimes into one of ten categories: monarchy, personal, military, party, party-personal, party-military, military-personal, party-personal-military, oligarchy or indirect military. Party-based regimes are those in which the official ruling party can be considered an independent organization with some capacity to constrain the executive's behavior, while party-personal and party-military regimes are those in which a strong party governs in tandem with a strong ruler and/or the military (see Geddes 2003 for further details). Practical applications of this typology include Smith (2005); Brownlee (2009) and Wright (2009).

Based on this classification, I created an ordinal measure with three levels: (a) *Partisan* regimes — those which Geddes, Wright and Frantz (2014) code as "party"; (b) *Semi-partisan* regimes, which comprises those coded as "party-personal", "party-military" or "party-personal-military"; and (c) *Non-partisan*, which conflates the other categories. Table A1.2 presents the descriptive statistics. Sources: Author based on Geddes (2003); Geddes, Wright and Frantz (2014).[40]

(2) *Past alternation* is an ordinal variable with three categories indicating how many times the ruling party managed a successful transfer of power from one executive to another: (a)

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[40]Geddes, Wright and Frantz (2014) only code authoritarian regimes, so I extended their classification to cover those regimes that they classify as democratic, but other authors code as authoritarian.

Never; (b) *Once*; or (c) *Twice or more*. I opted for an ordinal rather than a continuous variable because (a) successful transfers of power are rare (see Table A1.2); and (b) the difference between 0 and 1 transfers of power is probably more relevant than that between 1 and 2, and so on. All transfers of powers that took place during the regime's current spell in office are taken into account, even if they happened before the adoption of competitive elections. However, only *effective* transfers of power are counted; the nomination of successor who must win an election before assuming office is not coded as a power transfer. Sources: Author based on data from Geddes, Wright and Frantz (2014), Archigos (Goemans, Gleditsch and Chiozza 2009); Rulers;[41] and Wikipedia.

(3) *Party founder* is an indicator of whether the executive at the moment of the election was one of the ruling party's founders. Some executives had no party affiliation; since this means that they were not constrained by an official party, they are coded as founders. Sources: Author based on data from the *Political Handbook of the World*, various volumes (Banks et al. 2009, 2010; Muller et al. 2011; Lansdorf 2012); Wikipedia; and country sources.

(4) *Revolutionary regime* indicates whether Levitsky and Way (2013) classify the regime as (post) revolutionary. A revolutionary regime is one that "*emerges out of sustained, ideological, and violent struggle from below, and whose establishment is accompanied by mass mobilization and significant efforts to transform state structures and the existing social order*;" postrevolutionary regimes are those in which the revolutionary generation has died out (Levitsky and Way 2013:5).[42] The rationale behind this variable is that the imperatives of revolutionary conflict often lead to the formation of organized, disciplined, tightly knit parties. Source: Levitsky and Way (2013).

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[41]rulers.org.

[42]"Violent struggle" is operationalized as at least one year of armed conflict immediately before or after the seizure of power. Such struggle is coded as "ideological" if its avowed purpose is to achieve a radical transformation of the existing social order (Levitsky and Way 2013, fn. 1).

(5) *Party age.* Age of the ruling party, in years.[43] Older parties should have more time to establish organizational structures and generate interactions between fellow party members. Examples of the application of this variable include Reuter and Gandhi (2011) and Gandhi and Reuter (2013). Sources: Author based on data from the *Political Handbook of the World*, various volumes (Banks et al. 2009, 2010; Muller et al. 2011; Lansdorf 2012); Wikipedia; and country sources.

(6) *Executive/Party ratio* is the ratio of the number of years the executive has been (uninterruptedly) in office over *Party age.* Some parties last a long time in office only because they are associated with a long-lasting executive; this variable attempts to determine whether this is the case. Gehlbach and Keefer (2012) follow a similar logic, though their operationalization is slightly different. Sources: Author based on data from the *Political Handbook of the World*, various volumes (Banks et al. 2009, 2010; Muller et al. 2011; Lansdorf 2012); Wikipedia; and country sources.

Table A1.2 presents the descriptive statistics. Values are measured for every election, though some variables (*Regime type* and *Revolutionary regime*) remain constant over a regime's lifetime. Since some of these variables are continuous while others are ordinal, I calculated the factor scores using the mixed Bayesian model proposed by Quinn (2004), which combines a factor analysis model to estimate the loadings of continuous variables, with an item response model with probit link to identify the difficulty and discrimination parameters for the ordinal variables.

I estimated the model parameters using the `MCMCpack` package in `R` (Martin, Quinn and Park 2011), using default starting values.[44] For identifiability, the discrimination parameter for *Regime type* was constrained to be positive. I ran one chain of 1 million iterations after a burn-in period of $100,000$, keeping every 500th scan. The model mixed well; neither the Geweke diagnostic

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[43]If the executive has no formal party affiliation, the ruling "party" is coded as having been established the same year the election took place.

[44]Prior means for the elements of Λ were set to 0 (except for *Regime type*, which was set to 1), while prior precisions were set to 0.25.

TABLE A1.2: Descriptive statistics for six indicators of *Party institutionalization*.

Variable	Type	Expected sign	Descriptive statistics
Regime type	Ordinal (3 categories)	+	*Non-partisan*: 0.45 *Semi-partisan*: 0.12 *Partisan*: 0.44
Past alternation	Ordinal (3 categories)	+	*Never*: 0.61 *Once*: 0.24 *Twice or more*: 0.15
Party founder	Ordinal (2 categories)	–	*Non-founder*: 0.32 *Founder*: 0.68
Revolutionary regime	Ordinal (2 categories)	+	*Non-revolutionary*: 0.89 *Revolutionary*: 0.11
Party age	Continuous (years)	+	Mean: 22.40 std. dev.: 22.51 Min: 0.00 Max: 102.00
Executive/Party ratio	Continuous (ratio)	–	Mean: 1.70 std. dev.: 2.69 Min: 0.00 Max: 17.80

nor visual inspection of the posterior estimates show any evidence of nonconvergence.[45] To be able to perform the robustness checks, I estimated the model on the sample of 298 elections that are coded as authoritarian by at least one of the following sources: Geddes, Wright and Frantz (2014), Polity IV, Freedom House, Cheibub, Gandhi and Vreeland (2010) and Svolik (2012).

Table A1.3 presents the posterior means and 95% credible intervals for the quantities of interest. The first four variables are ordinal, so the coefficients can be interpreted in the same way as IRT estimates, with λ_1 indicating the difficulty parameter while λ_2 is the discrimination parameter; the Ψ_{jj} parameters are constrained to 1 for identification. The coefficients of interest are the λ_2's; in line with expectations, the posterior means for *Regime type* (which was constrained to be positive), *Past alternation* and *Revolutionary regime* are positive, while that of *Party founder*

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[45]Results available upon request from the author.

TABLE A1.3: Posterior means and 95% credible intervals for the factor loadings of the *Party institutionalization* measure.

	λ_1 (difficulty)	λ_2 (discrimination)	Ψ_{jj} (variance)
Regime type	0.14	1.09	1
	[-0.04:0.32]	[0.82:1.39]	–
Past alternation	-0.65	1.71	1
	[-0.94:-0.39]	[1.24:2.30]	–
Party founder	1.2	-2.16	1
	[0.80:1.75]	[-3.24:-1.46]	–
Revolutionary regime	-1.56	0.87	1
	[-1.91:-1.26]	[0.51:1.28]	–
Party age (log)	0	0.74	0.46
	–	[0.63:0.85]	[0.36:0.57]
Executive/Party ratio (log)	0	-0.75	0.45
	–	[-0.86:-0.65]	[0.36:0.56]

Sample size: 298.

is negative. The last two variables are continuous. Standardization means that λ_1 is constrained to 0, but the λ_2's can be interpreted as factor scores and the Ψ_{jj}'s as variance estimates. Also in line with expectations, the loading for *Party age* is positive, while that for *Executive/Party ratio* has a negative sign.

Overall, the model provides a reasonable approximation to the intended measure of *Party institutionalization*. To illustrate this point graphically, Figure A1.5 plots the posterior estimates of the factor scores against each of the model's variables. Figure A1.6 plots the posterior estimates and 95% credible intervals of *Party institutionalization* for each of the observations included in the sample. The results pass the sanity check: the most institutionalized authoritarian parties can be found in Mexico, Mozambique, Taiwan, Singapore and Botswana, while Benin, Afghanistan and several former Soviet Republics (notably Belarus, Kyrgyzstan and Kazakhstan) have the least institutionalized ones.
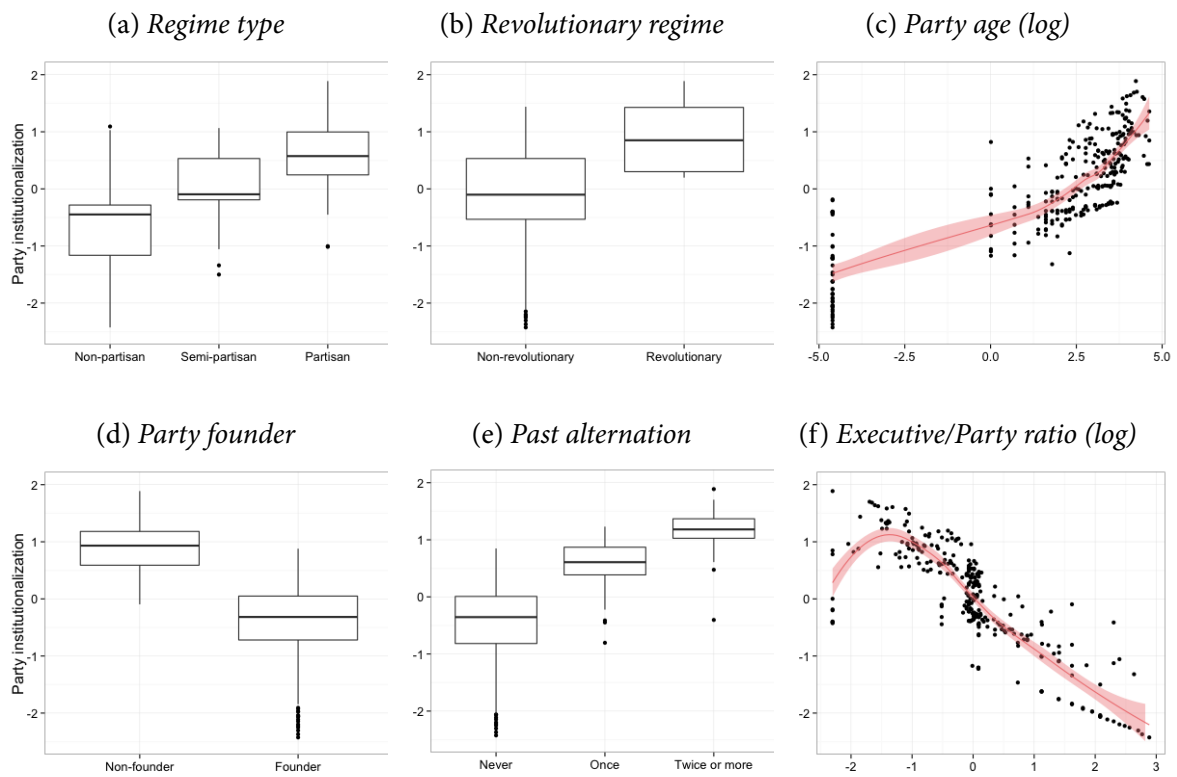
FIGURE A1.5: Visualizing the results of the measurement model. Each panel plots the posterior estimates of the factor scores against one of the model's variables. Panels (c) and (f) add a lowess smoother with 95% confidence intervals.
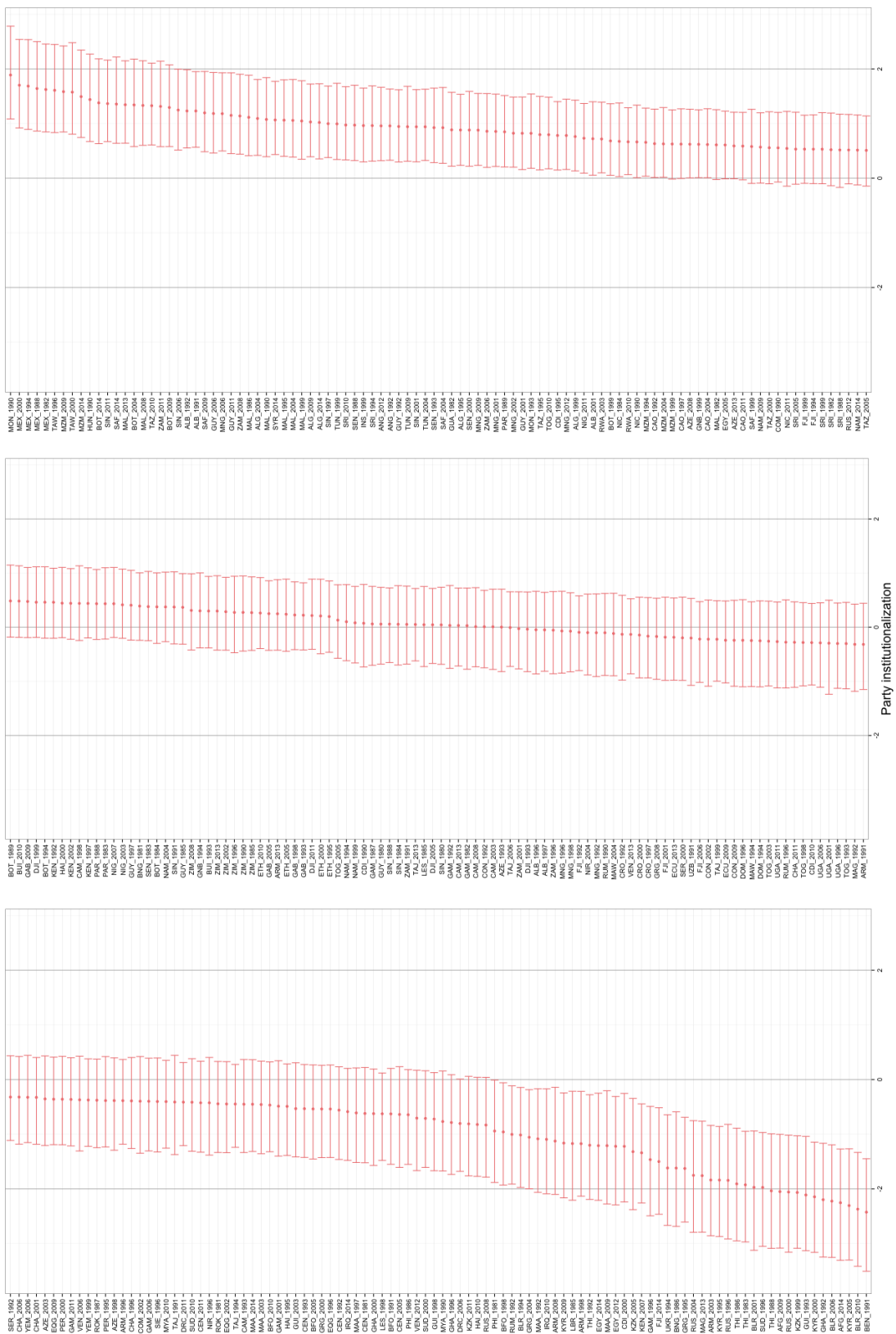
FIGURE A1.6: Posterior estimates and 95% credible intervals of the *Party institutionalization* variable.

A1.6 Robustness checks

This section presents the results of several robustness checks:

(1) *Additional variables and alternative samples.* Tables A1.4 to A1.6 replicate the main specifications in Tables 1.3 and 1.4 but (a) without control variables; (b) with additional controls (a dummy for Sub-Saharan Africa and the log of *GDP/Head*), or (c) employing alternative classifications of authoritarian regimes: (i) Polity IV (countries with a *polity2* score of 5 or less are coded as authoritarian), (ii) Freedom House, (iii) Democracy and Dictatorship (Cheibub, Gandhi and Vreeland 2010) or (iv) Svolik (2012).

(2) *Model specification.* Tables A1.7 to A1.9 replicate the main specifications in Tables 1.3 and 1.4 but (a) fitting pooled models with standard errors clustered by country (including the bootstrapped version proposed by Esarey and Menger 2016); or (b) employing strategic probit models. These are specifications that model the occurrence of defections and coalitions simultaneously, assuming a game tree in which a regime insider first decides to defect, after which the opposition decides whether to form a coalition. Thus, the opposition's behavior is conditional on the insider's choice, while the insider anticipates the opposition's expected response to his moves. The point estimates can be interpreted similarly to conventional probit coefficients (see Signorino 2003; Signorino and Yilmaz 2003 for further details).

TABLE A1.4: Ruling party defections in CARs, 1980-2014: Additional results.

	Main results	No controls	Add. controls	Polity IV sample	Freedom House sample	DD sample	Svolik (2012) sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	−1.37	−0.47	−1.34	−0.83	−1.23	−1.66	−1.15
	(0.53)	(0.37)	(0.95)	(0.50)	(0.02)	(0.61)	(0.66)
Party institutionalization (β_1)	−1.17	−0.96	−1.13	−1.44	−1.50	−1.59	−2.06
	(0.37)	(0.37)	(0.38)	(0.44)	(0.02)	(0.56)	(0.64)
Vote regime (β_2)	0.38	−0.05	0.37	0.02	0.41	0.28	0.02
	(0.64)	(0.45)	(0.64)	(0.63)	(0.02)	(0.70)	(0.75)
Party institutionalization × Vote regime (β_3)	1.15	0.91	1.06	1.32	1.60	1.43	1.84
	(0.47)	(0.47)	(0.49)	(0.51)	(0.02)	(0.63)	(0.70)
Reelection (β_4)	−0.23	−0.17	−0.26	−0.53	−0.29	−0.35	−0.55
	(0.23)	(0.23)	(0.23)	(0.22)	(0.02)	(0.28)	(0.27)
Party institutionalization × Reelection (β_5)	0.32	0.25	0.31	0.32	0.09	0.49	0.63
	(0.23)	(0.23)	(0.23)	(0.24)	(0.02)	(0.32)	(0.30)
Founding election	−0.23		−0.23	−0.19	−0.43	−0.35	−0.15
	(0.30)		(0.30)	(0.30)	(0.02)	(0.34)	(0.32)
Fractionalization	1.21		1.11	1.24	1.25	1.98	1.65
	(0.43)		(0.51)	(0.41)	(0.02)	(0.53)	(0.48)
Sub-Saharan Africa			0.09				
			(0.24)				
GDP/Head (log)			0.00				
			(0.10)				
AIC	276.13	284.37	274.07	270.96	220.76	229.01	212.27
BIC	307.53	308.85	312.08	302.06	249.84	259.26	242.00
Log Likelihood	-129.06	-135.18	-126.04	-126.48	-101.38	-105.51	-97.13
num. observations	242	244	234	234	187	213	201
num. countries	76	77	72	78	70	64	71
σ_α	0.03	0.06	0.02	0.01	0.04	0.03	0.00

Specifications are probit models with random effects by country. The outcome is *Defection*. Standard errors in parentheses.

TABLE A1.5: Opposition coalitions in CARs, 1980-2014: Additional results (1).

	Main results	No controls	Add. controls	Polity IV sample	Freedom House sample	DD sample	Svolik (2012) sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	−1.61	−1.54	−3.52	−1.54	−1.65	−1.63	−1.74
	(0.35)	(0.25)	(1.00)	(0.34)	(0.44)	(0.37)	(0.39)
Vote opposition (θ_1)	4.01	4.85	4.50	3.74	4.14	4.04	4.67
	(1.00)	(0.97)	(1.05)	(1.03)	(1.33)	(1.11)	(1.20)
# contested elections (log) (θ_2)	−0.28	−0.06	−0.37	−0.33	−0.39	−0.27	−0.37
	(0.14)	(0.12)	(0.15)	(0.14)	(0.18)	(0.15)	(0.16)
Vote opposition	0.05	−0.76	0.25	0.52	0.61	0.18	0.66
× # cont. elections (log) (θ_3)	(0.61)	(0.57)	(0.62)	(0.67)	(0.87)	(0.66)	(0.77)
Defection (θ_4)	−0.68	−0.47	−0.77	−0.30	−0.44	−0.38	−0.24
	(0.73)	(0.70)	(0.78)	(0.66)	(0.88)	(0.78)	(0.81)
Vote opposition	0.30	−0.17	0.51	−2.05	−2.25	−1.10	−2.16
× Defection (θ_5)	(2.75)	(2.66)	(2.93)	(2.55)	(3.49)	(3.06)	(3.27)
# cont. elections (log)	−0.44	−0.47	−0.48	−0.29	−0.29	−0.36	−0.22
× Defection (θ_6)	(0.33)	(0.32)	(0.36)	(0.31)	(0.41)	(0.36)	(0.38)
Vote opposition × # cont.	2.92	2.94	3.49	3.16	3.85	2.27	2.03
elections (log) × Defection (θ_7)	(1.53)	(1.48)	(1.70)	(1.49)	(2.60)	(1.90)	(2.82)
Founding election	−1.20		−1.13	−1.19	−1.47	−1.31	−1.29
	(0.37)		(0.38)	(0.35)	(0.43)	(0.44)	(0.40)
Fractionalization	0.54		0.75	0.45	0.43	0.47	0.61
	(0.49)		(0.60)	(0.46)	(0.57)	(0.55)	(0.56)
Sub-Saharan Africa			0.12				
			(0.26)				
GDP/Head (log)			0.22				
			(0.11)				
AIC	217.71	228.83	213.63	218.48	166.54	191.75	175.36
BIC	256.09	260.30	258.55	256.49	202.08	228.72	211.70
Log Likelihood	-97.86	-105.41	-93.81	-98.24	-72.27	-84.87	-76.68
num. observations	242	244	234	234	187	213	201
num. countries	76	77	72	78	70	64	71
α_μ	0.00	0.00	0.00	0.00	0.11	0.00	0.00

Specifications are logit models with random effects by country. The outcome is *Coalition*. Standard errors in parentheses.

TABLE A1.6: Opposition coalitions in CARs, 1980-2014: Additional results (2).

	Main results	No controls	Add. controls	Polity IV sample	Freedom House sample	DD sample	Svolik (2012) sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	−1.33	−1.30	−1.01	−1.36	−1.41	−1.10	−1.36
	(0.48)	(0.43)	(1.18)	(0.51)	(0.59)	(0.52)	(0.56)
Vote opposition (θ_1)	4.66	5.28	4.66	5.82	7.39	3.29	6.53
	(2.04)	(1.96)	(2.06)	(2.63)	(3.22)	(2.18)	(2.93)
Credit/GDP (log) (θ_2)	−0.04	0.01	−0.02	−0.08	−0.11	0.12	−0.05
	(0.22)	(0.21)	(0.23)	(0.23)	(0.27)	(0.25)	(0.26)
Vote opposition	1.06	0.92	1.08	1.43	2.54	0.41	1.61
× Credit/GDP (log) (θ_3)	(0.98)	(0.95)	(0.99)	(1.18)	(1.49)	(1.10)	(1.37)
Defection (θ_4)	−0.75	−0.86	−0.73	−1.25	0.39	−1.23	−1.15
	(1.19)	(1.11)	(1.18)	(1.15)	(1.32)	(1.29)	(1.50)
Vote opposition	4.97	5.89	4.72	7.50	−2.22	7.95	5.37
× Defection (θ_5)	(6.66)	(6.38)	(6.70)	(6.28)	(8.03)	(7.95)	(9.20)
Credit/GDP (log)	−0.36	−0.49	−0.35	−0.57	0.05	−0.64	−0.64
× Defection (θ_6)	(0.45)	(0.43)	(0.45)	(0.43)	(0.51)	(0.50)	(0.58)
Vote opposition × Credit/GDP (log)	2.84	3.50	2.72	4.13	0.59	4.78	4.22
× Defection (θ_7)	(2.93)	(2.83)	(2.94)	(2.73)	(3.58)	(3.46)	(4.20)
Founding election	−0.64		−0.64	−0.63	−0.90	−0.86	−0.95
	(0.36)		(0.37)	(0.36)	(0.42)	(0.42)	(0.44)
Fractionalization	0.38		0.32	0.18	0.39	0.42	0.25
	(0.50)		(0.61)	(0.48)	(0.58)	(0.55)	(0.60)
Sub-Saharan Africa			−0.00				
			(0.28)				
GDP/Head (log)			−0.03				
			(0.12)				
AIC	211.50	214.47	215.15	198.53	160.53	183.83	157.58
BIC	247.89	244.33	257.97	234.59	194.08	219.14	191.61
Log Likelihood	-94.75	-98.23	-94.58	-88.27	-69.27	-80.92	-67.79
num. observations	202	204	199	196	156	183	163
num. countries	68	69	65	69	61	60	59
α_μ	0.00	0.00	0.00	0.00	0.09	0.00	0.00

Specifications are logit models with random effects by country. The outcome is *Coalition*. Standard errors in parentheses.

TABLE A1.7: Ruling party defections in CARs, 1980-2014: Alternative specifications.

	Main	Pooled	Strategic probit $(D, \bar{A})$	
	results	(clustered SEs)	(# cont. elec.)	(Credit/GDP)
	(1)	(2)	(3)	(4)
Intercept	-1.37	-1.35	-17.80	-14.30
	[-2.41:-0.33]	[-2.32:-0.37]	[-78.06:42.45]	[-52.24:23.65]
		[-2.35:-0.35]		
Party institutionalization	-1.17	-1.16	-2.89	-1.75
	[-1.90:-0.43]	[-2.01:-0.32]	[-4.68:-1.10]	[-3.39:-0.10]
		[-2.13:-0.20]		
Vote regime	0.38	0.39	-1.88	-1.47
	[-0.88:1.64]	[-0.78:1.55]	[-5.16:1.39]	[-4.56:1.61]
		[-0.87:1.64]		
Party institutionalization	1.15	1.14	2.79	1.48
× Vote regime	[0.22:2.08]	[0.20:2.09]	[0.81:4.77]	[-0.45:3.41]
		[0.15:2.13]		
Reelection	-0.23	-0.23	-0.77	-0.57
	[-0.68:0.21]	[-0.65:0.19]	[-1.69:0.15]	[-1.49:0.35]
		[-0.68:0.22]		
Party institutionalization	0.32	0.31	1.02	0.74
× Reelection	[-0.13:0.76]	[-0.16:0.78]	[0.06:1.98]	[-0.17:1.65]
		[-0.22:0.85]		
Founding election	-0.23	-0.23	-1.13	-0.48
	[-0.81:0.35]	[-0.81:0.36]	[-2.30:0.05]	[-1.61:0.64]
		[-0.86:0.40]		
Fractionalization	1.21	1.19	3.01	2.33
	[0.37:2.06]	[0.30:2.08]	[1.42:4.59]	[0.64:4.01]
		[0.19:2.19]		
AIC	276.1	274.2	483.8	438.5
BIC	307.5	302.1	543.1	494.8
log-Likelihood	-129.1	-129.1	-224.9	-202.3
num. observations	242	242	242	202

Model 1 reproduces the results from model 4 in Table 1.3, but displaying 95% confidence intervals instead of standard errors. Model 2 reports the results of pooled specifications, with the first and second row reporting the 95% C.I.s calculated with clustered or bootstrapped standard errors (by country), respectively. The last two columns report the results of strategic probit specifications with an agent error structure. Only results for the {Defection, No Coalition} node are reported; the {Defection, Coalition} node only includes an intercept. The outcome is *Defection*.

TABLE A1.8: Opposition coalitions in CARs, 1980-2014: Alternative specifications (1).

	Main results	Pooled (clustered SEs)	Strategic probit ($D, \bar{A}$)	
			(no defection)	(defection)
	(1)	(2)	(3)	(4)
Intercept	-1.61 [-2.29:-0.93]	-1.61 [-2.32:-0.89] [-2.34:-0.87]	-2.32 [-2.98:-1.66]	-2.07 [-2.96:-1.18]
Vote opposition	4.01 [2.06:5.96]	4.01 [2.09:5.94] [2.02:6.01]	6.99 [4.52:9.47]	5.67 [3.02:8.33]
# contested elections (log)	-0.28 [-0.56:0.00]	-0.28 [-0.58:0.02] [-0.59:0.04]	-0.14 [-0.52:0.24]	-0.31 [-0.85:0.23]
Defection	-0.68 [-2.11:0.75]	-0.68 [-2.03:0.68] [-9.21:7.86]		
Vote opposition × # contested elections (log)	0.05 [-1.15:1.24]	0.05 [-1.06:1.15] [-1.10:1.20]	-0.68 [-2.16:0.80]	0.08 [-2.06:2.23]
Vote opposition × Defection	0.30 [-5.09:5.69]	0.30 [-4.59:5.19] [-16.88:17.48]		
# contested elections (log) × Defection	-0.44 [-1.10:0.21]	-0.44 [-1.07:0.18] [-4.14:3.25]		
Vote opposition × # cont. elections (log) × Defection	2.92 [-0.07:5.91]	2.92 [0.08:5.76] [-15.46:21.30]		
Founding election	-1.20 [-1.93:-0.48]	-1.20 [-2.01:-0.40] [-2.46:0.05]		
Fractionalization	0.54 [-0.42:1.49]	0.54 [-0.40:1.47] [-0.44:1.51]		
AIC	217.7	215.7	483.8	
BIC	256.1	250.6	543.1	
log-Likelihood	-97.9	-97.9	-224.9	
num. observations	242	242	242	

Model 1 reproduces the results from model 3 in Table 1.4, but displaying 95% confidence intervals instead of standard errors. Model 2 reports the results of pooled specifications, with the first and second row reporting the 95% C.I.s calculated with clustered or bootstrapped standard errors (by country), respectively. The last two columns report the results of strategic probit specifications with an agent error structure, which models the outcome as a function of whether there has been a *Defection* in the previous move. The outcome is *Coalition*.

TABLE A1.9: Opposition coalitions in CARs, 1980-2014: Alternative specifications (2).

	Main results	Pooled (clustered SEs)	Strategic probit ($D, \bar{A}$)	
			(no defection)	(defection)
	(1)	(2)	(3)	(4)
Intercept	-1.33 [-2.27:-0.39]	-1.33 [-2.13:-0.53] [-2.12:-0.54]	-1.82 [-2.90:-0.73]	-1.85 [-2.93:-0.77]
Vote opposition	4.66 [0.66:8.66]	4.66 [0.39:8.92] [-0.83:10.14]	6.72 [2.02:11.41]	6.33 [1.94:10.71]
Credit/GDP (log)	-0.04 [-0.47:0.39]	-0.04 [-0.36:0.28] [-0.37:0.29]	0.00 [-0.53:0.54]	-0.18 [-0.60:0.24]
Defection	-0.75 [-3.07:1.57]	-0.75 [-3.02:1.52] [-3.35:1.85]		
Vote opposition × Credit/GDP (log)	1.06 [-0.86:2.98]	1.06 [-0.66:2.78] [-1.01:3.14]	0.97 [-1.40:3.34]	1.55 [-0.43:3.54]
Vote opposition × Defection	4.97 [-8.10:18.03]	4.97 [-7.69:17.62] [-10.69:20.63]		
Credit/GDP (log) × Defection	-0.36 [-1.25:0.53]	-0.36 [-1.24:0.52] [-1.43:0.71]		
Vote opposition × Credit/GDP (log) × Defection	2.84 [-2.90:8.58]	2.84 [-2.40:8.07] [-3.66:9.33]		
Founding election	-0.64 [-1.34:0.06]	-0.64 [-1.38:0.09] [-1.47:0.19]		
Fractionalization	0.38 [-0.60:1.35]	0.38 [-0.60:1.36] [-0.68:1.43]		
AIC	211.5	209.5	438.5	
BIC	247.9	242.6	494.8	
log-Likelihood	-94.8	-94.8	-202.3	
num. observations	202	202	202	

Model 1 reproduces the results from model 6 in Table 1.4, but displaying 95% confidence intervals instead of standard errors. Model 2 reports the results of pooled specifications, with the first and second row reporting the 95% C.I.s calculated with clustered or bootstrapped standard errors (by country), respectively. The last two columns report the results of strategic probit specifications with an agent error structure, which models the outcome as a function of whether there has been a *Defection* in the previous move. The outcome is *Coalition*.

Paper 2

Strength in Expectation: Elections, Economic Conditions and Authoritarian Breakdown

Abstract

How do elections affect authoritarian survival? Existing research focuses on the electoral act and its immediate consequences, ignoring the role of elections in shaping players' expectations about the future. In this paper I argue that while competitive elections should make authoritarian regimes more vulnerable to bad economic conditions in election years, the anticipation of future elections can facilitate authoritarian survival by discouraging elites and citizens from protesting or conspiring. Data from 214 authoritarian regimes between 1952 and 2012 confirms these expectations: compared to regimes that do not hold competitive elections, regimes that hold regular elections are more vulnerable to bad economic conditions in election years but relatively immune to them in non-election periods. These findings are driven by competitive executive elections; including non-competitive or legislative elections in the analysis considerably weakens the results.

How do elections affect authoritarian survival? The growing number of autocracies that adopted competitive elections[1] since the end of the Cold War has sparked a lively debate on the issue. According to some authors, elections contribute to authoritarian stability, for example by providing information about the strength of the opposition, generating a credible signal of the regime's support, or coopting subnational elites (Miller 2013; Magaloni 2006; Little 2012; Rozenas 2015; Blaydes 2010; Reuter and Robertson 2015; Reuter et al. 2016). Others retort that elections are risky, as the ruling party can be defeated at the polls and obvious attempts to tinker with the electoral results may trigger coups or massive protests (Tucker 2007; Kuntz and Thompson 2009; Wig and Rød forthcoming; Little, Tucker and LaGatta 2015; Schuler, Gueorguiev and Cantú 2015). Yet despite their differences, these authors share an important point in common: they focus on the role of the electoral act itself — the process of campaigning, casting ballots and counting them — and their immediate consequences.[2] While this is perfectly understandable, it neglects the possibility that elections may also matter because of the *expectations* they generate.

The point is that the decision not to hold a scheduled election can be more informative than the electoral result; as Fearon notes, "it is *the commonly understood convention of holding elections at particular times according to known rules*, not the electoral outcome itself, that provides a public signal for coordinating rebellion in the event that elections are suspended or blatantly rigged." (2011:1676; original emphasis) More generally, in this paper I argue that the fact that elections are usually held at regular and predictable intervals[3] can have a strong effect on how players behave in non-election years, with important implications for authoritarian durability. To see this point, consider the case of Venezuela after 2013. Following his (democratic) ascension

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[1]Unless otherwise specified, thorough this paper I will use the term "elections" to refer to *competitive* elections.

[2]Indeed, the literature on authoritarian elections has devoted a lot of attention to practices that occur on election day or immediately afterwards, such as boycotts (Beaulieu and Hyde 2009), election monitoring and fraud (Hyde 2007, 2011; Herron 2010; Magaloni 2010; Simpser 2012, 2013; Simpser and Donno 2012; Little 2012; Chernykh and Svolik 2015), election-related violence (Bhasin and Gandhi 2013; Hafner-Burton, Hyde and Jablonski 2014), ruling party defections (Reuter and Gandhi 2011; Rundlett and Svolik 2016), opposition coalitions (Howard and Roessler 2006; Wahman 2011; Donno 2013; Gandhi and Reuter 2013) and post-election protests (Tucker 2007; Kuntz and Thompson 2009; Little 2012; Little, Tucker and LaGatta 2015).

[3]Even single-party elections are held at regular intervals. Snap elections are common in parliamentary regimes, but even in this case there is a maximum length of time after which an election must be held.

to the presidency in 1998, Hugo Chávez slowly transformed his country into an authoritarian regime: elections were held regularly and the opposition was allowed to participate, but the government monopolized access to the media, there were serious accusations of vote fraud, citizens who voted against the government risked their jobs, the courts were packed with government supporters, and judges who ruled against the government risked dismissal and even jail (Corrales 2006; Corrales and Penfold-Becerra 2007, 2011; Brewer-Carías 2010; Hsieh et al. 2011). In this context, Chávez's death from cancer in 2013 and the confirmation of his far less charismatic successor Nicolás Maduro in a contested presidential election shortly afterwards confronted the opposition with a dilemma. Radical opposition leaders and activists called for massive demonstrations and a campaign of civil disobedience in order to oust Maduro from power as quickly as possible. In contrast, more moderate opposition leaders argued in favor of waiting until the 2015 legislative elections, when the dismal state of the economy would play against the government. Large protests erupted in several Venezuelan cities in February 2014, to which the government responded by sending the most radical opposition leaders to jail. Yet as moderate opposition leaders had predicted, Maduro's inability to improve an ailing economy ended in electoral disaster: the government lost the 2015 legislative elections by 15 percentage points, and the opposition captured a two-thirds majority of seats in the National Assembly.[4]

In sum, holding competitive elections made the Venezuelan government vulnerable to electoral defeat; at the same time, in the absence of regular elections the more radical members of the opposition might have wielded even more influence, resulting in larger (and probably more violent) protests — though of course we cannot know whether this would have sufficed to remove Maduro from office. Following this logic, in this paper I argue that competitive elections have a dual effect on authoritarian survival: on the one hand, they make authoritarian regimes more vulnerable, especially in a context of widespread social dissatisfaction with the government; on the other, the *anticipation* of future elections can divide the opposition and make people less

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[4]"A tale of two prisoners," *The Economist*, 22 February 2014; "Towards the brink," *The Economist*, 1 March 2014; "Tyranny looms," *The Economist*, 28 February 2015; "A democratic counter-revolution," *The Economist*, 12 December 2015.

willing to take to the streets, thus increasing the regime's odds of survival in the short term. To see this point, consider how negative economic conditions affect the incentives faced by citizens, opposition leaders and government insiders in authoritarian regimes. In autocracies that do not hold competitive elections, the only way to remove the government from office is through mass protests, a coup, or an armed uprising. Most of the time, the high cost of these activities will deter risk-averse players from engaging in them. When economic conditions are sufficiently bad to trigger such behavior, however, there is little incentive to back down because nobody knows when (if) there will be another opportunity to overthrow the government. In regimes that celebrate regular elections, on the other hand, dissatisfaction with the government can also be expressed at the ballot box. This makes such regimes much more vulnerable in election years, because citizens who are wary of protesting may nonetheless be willing to cast a vote for the opposition. At the same time, during non-election periods the anticipation of future elections will dissuade some people from conspiring or protesting, thus making the regime more likely to remain in power. The implication is that, compared to regimes that do not hold competitive elections, autocracies that hold regular elections (a) should be more sensitive to economic conditions in election years, but (b) more resilient to them in non-election periods.

To evaluate this claim, I examine how economic growth and the electoral cycle affected the probability of regime breakdown in a sample of 214 autocracies between 1952 and 2012. In line with expectations, the results indicate that authoritarian regimes that do not hold competitive elections are always vulnerable to bad economic conditions, but the effect is rather modest; in contrast, regimes that hold regular elections are very sensitive to the state of the economy in election years, but almost immune to it in non-election periods. Further analyses indicate that these findings are driven by *competitive* elections that determine the composition of the national *executive*; consistent with the logic of the argument, neither legislative nor single-party elections exert much of an impact on authoritarian breakdown. The observational nature of the data means that these findings cannot be interpreted causally; nonetheless, the credibility of the findings is enhanced by three factors. First, the use of regime fixed effects wipes out a good deal of

the cross-sectional variation in the data, including the regime's type (military, personalist, etc) and the identity of its founder, as well as fixed country characteristics. Second, to the extent that authoritarian rulers manipulate the economy for strategic reasons, economic conditions will be better in election years and worse in non-election periods, thus providing a tougher test for the argument. Finally, the results are stronger when looking at *scheduled* rather than actual elections. This matters because while actual election dates are often manipulated strategically, scheduled election dates can generally be taken as fixed in the sense that after an election the date of the next one is generally known.[5]

2.1   Theoretical framework

This paper studies how competitive elections can channel players' dissatisfaction with authoritarian rulers in ways that facilitate or hinder regime breakdown. This merits two clarifications. First, following Hollyer, Rosendorff and Vreeland (2015), Schuler, Gueorguiev and Cantú (2015) and Wright, Frantz and Geddes (2015), I focus on regime breakdown — understood as a change in the formal and informal rules for choosing leaders and policies (Geddes, Wright and Frantz 2014) — rather than mass protests (Tucker 2007; Kuntz and Thompson 2009; Aidt and Leon forthcoming; Brancati 2014*b*), leader removal (Cox 2009) or political liberalization (Burke and Leigh 2010; Brückner and Ciccone 2011; Brückner, Ciccone and Tesei 2011; Ramsay 2011). Breakdown captures the inability of a small group of people to remain in power at the expense of other players, and thus it stands at the heart of what authoritarian rule is all about. In contrast, mass protests do not always threaten an autocracy's hold on power, a focus on leader survival underestimates the durability of authoritarian regimes with institutionalized succession mechanisms (China, Mexico), and changes in Polity IV scores and other democracy measures may either capture institutional reforms that fail to dislodge a regime from power (as in many African countries

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[5]Incumbents sometimes extend their term, but these extensions generally take place after the following election.

in the early 1990s), or miss instances of breakdown that do not result in democratization (e.g., Cuba in 1959 or Iran in 1979).

Second, I seek to understand how elections affect the incentives of individuals — whether regime insiders or common citizens — that are dissatisfied with the regime. Such dissatisfaction cannot be taken for granted, as autocracies can be genuinely popular, and members of the ruling coalition often benefit handsomely from the regime's policies (Bueno de Mesquita et al. 2003; Matovski 2016*b,a*). Moreover, although dissatisfaction with the government can have many sources — including personal grievances, dislike for the regime's policies and moral condemnation — , for reasons of data availability in this paper I will focus on the role of short-term economic growth. Economic performance is closely related to voter support for the government, both in democracies (Duch and Stevenson 2006) and autocracies (Treisman 2011). Additionally, while a booming economy allows the government to buy off potential opponents (Kennedy 2010; Treisman 2015), economic downturns may force the adoption of political or institutional reforms that alienate regime insiders (Bueno de Mesquita et al. 2003; Bueno de Mesquita and Smith 2010). In line with these claims, the empirical evidence shows that bad economic conditions make protests and riots more likely (Brancati 2014*b,b*; Aidt and Leon forthcoming), induce the adoption of significant institutional reforms (Egorov, Guriev and Sonin 2009; Burke and Leigh 2010; Brückner and Ciccone 2011; Ramsay 2011; Wright, Frantz and Geddes 2015; Rozenas 2015) and increase the frequency of coup attempts (Londregan and Poole 1990; Galetovic and Sanhueza 2000; Kim 2016; though see Powell 2012 for a different perspective). Nonetheless, the reader should keep in mind that the logic of the argument does extend to other sources of dissatisfaction with the government.

All authoritarian rulers face two fundamental threats: (a) ambitious (or disgruntled) members of their own ruling coalitions; and (b) a dissatisfied populace (Svolik 2012). Absent competitive elections, the former may conspire and organize a coup, while the latter may take to the streets or launch an armed rebellion. These strategies are sometimes successful, but they also involve substantial risks: conspirators or rebels who fail may expect the harshest of treatments, and

authoritarian governments often repress protests brutally. Furthermore, the informational opacity that characterizes authoritarian regimes means that organizing successful coups or protests may be impossible, even when dissatisfaction with the government is widespread (Kuran 1991).

Introducing competitive elections changes this picture considerably. While elections do not prevent people from conspiring or taking to the streets, the fact that they provide an *institutionalized channel* for getting rid of an authoritarian government increases the opportunity cost of engaging in these activities. To begin with, elections allow opposition candidates to campaign and thus voice grievances that may remain silenced otherwise. Even when opposition leaders have little access to the media, the size of government- and opposition-sponsored rallies can give citizens and idea of how much support the government commands (Cox 2009). The cost of participating in elections is relatively low, and thus disgruntled citizens who are unwilling to participate in an anti-regime protest may nonetheless cast a vote for the opposition.[6] Elections can also serve as triggers for protests or coups. The fact that electoral results are often announced in a highly visible way means that obvious attempts to manipulate the outcome can provide a focal point for protestors, as dissatisfied citizens realize that many other people also dislike the regime and may be willing to take to the streets (Tucker 2007; Kuntz and Thompson 2009; Fearon 2011; Little, Tucker and LaGatta 2015). Unfavorable electoral outcomes also send a signal of regime weakness, which can induce insiders to withdraw support from the ruling party, or prompt hardliners to launch a coup in order to prevent the opposition from taking office (Kuntz and Thompson 2009; Wig and Rød forthcoming; Gehlbach and Simpser 2015; Rundlett and Svolik 2016).

Of course, some regime insiders will stop at nothing to get to the top, and diehard opponents may be willing to take any risk in order to get rid of a hated regime. For these players, elections may not make much of a difference. But in a setting in which disgruntled insiders have the possibility of defecting to the opposition and dissatisfied voters may cast a ballot anonymously, the

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[6] Interestingly, this has led sophisticated authoritarian regimes to devise ways of discouraging known opposition supporters from turning out to vote; see Castañeda Dower and Pfutze (2015).

relative cost of conspiring and protesting will go up. Moreover, participating in elections may be a more effective strategy than launching a coup or taking to the streets. Of the 349 competitive executive elections that took place in authoritarian regimes between 1946 and 2015, 46 (12.2%) ended in breakdown; in contrast, the unconditional probability of breakdown in authoritarian country-years with no competitive elections was just 4.3%. Using monthly data, Schuler, Gueorguiev and Cantú (2015) also show that authoritarian regimes are especially vulnerable in the aftermath of an election.

Moreover, the fact elections are often held at regular intervals suggests that the vulnerability of authoritarian regimes should vary with the electoral cycle. Most authoritarian regimes can be classified into one of two mutually exclusive categories.[7] *Closed regimes* are those in which either the executive or the legislature are not elected in competitive elections.[8] This includes both regimes that hold no national elections at all (e.g., most military regimes, China, Saudi Arabia), those that hold only single-party elections (Communist countries) and those that hold competitive elections for the legislature only (e.g., Jordan). In contrast, *competitive authoritarian regimes* (CARs) combine formally democratic elections with a playing field that is heavily skewed in favor of the ruling party — due to electoral fraud, government control of the media, or the systematic harassment of opposition leaders or supporters. Archetypal examples include Mexico under the PRI, Taiwan in the last years of the KMT, Zimbabwe under Mugabe or Russia after the fall of the Soviet Union. To the extent that elections provide an explicit opportunity to oppose the regime and facilitate collective action by elites and voters, CARs should be especially vulnerable to bad economic conditions in election periods — much more vulnerable, in fact, than closed

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[7] The specific definitions vary, but the distinction between closed and competitive authoritarian regimes is common in the literature; see Howard and Roessler (2006); Schedler (2006, 2013); Brownlee (2009); Gandhi and Lust-Okar (2009); Levitsky and Way (2010); Magaloni and Kricheli (2010); Svolik (2012); Mainwaring and Pérez-Liñán (2014). Note, however, that these categories are not exhaustive, as two other regime types are possible. In *indirect authoritarian regimes*, formal democratic institutions coexist with an unelected body that hold effective political power, typically the military (e.g., Guatemala 1970-1985) or a religious council (Iran after 1979). *Competitive oligarchies* hold multiparty elections but restrict the suffrage to a very small subset of the population, as in South Africa before 1994 (Levitsky and Way 2010, ch. 3). Given the rarity of these regime types, in this paper I opt to ignore them.

[8] In practice, this means that the executive has not been elected in multiparty elections. Competitive executive elections are almost always preceded or followed by competitive legislative elections, but the opposite does not always hold.

regimes in non-election periods. In non-election periods, on the other hand, the expectation is reversed. When elections are held at regular intervals there is a common understanding that there will be a venue for opposition leaders to challenge the regime, for citizens to vote against it, and for disgruntled insiders to defect and join the opposition. Thus, individuals who are wary of protesting or conspiring will be more reluctant to engage in such activities, preferring to wait until the next election.[9] In turn, this will induce players who do not mind conspiring or protesting to invest in attracting moderate support in the next election rather than resorting to extra-institutional strategies. On the other hand, closed regimes offer fewer institutional avenues for coordinating against the government, but for the same reason whenever elites or citizens are dissatisfied enough to conspire or protest against it, they have few incentives to back down: they simply cannot know when (if) they will have another possibility to coordinate in the future. The implication is that *the effect of bad economic conditions on authoritarian breakdown should be maximum in election years in CARs, intermediate in non-election years in closed regimes, and lowest in non-election years in CARs.* Formally, let e and $\bar{e}$ indicate election and non-election periods in CARs, while $\bar{n}$ indicates non-election periods in closed regimes. Then,

$$\underbrace{\Pr(\text{breakdown}|\Delta \text{GDP} < 0, \bar{e})}_{\text{CAR}} < \underbrace{\Pr(\text{breakdown}|\Delta \text{GDP} < 0, \bar{n})}_{\text{closed}} < \underbrace{\Pr(\text{breakdown}|\Delta \text{GDP} < 0, e)}_{\text{CAR}}.$$

This argument has three additional implications. First, since single-party elections provide no opportunity to vote against the government and generate no uncertainty about the outcome, the logic of the argument should be limited to competitive elections. Second, while legislative elections can lead to regime breakdown — as in Georgia in 2003 or in Kyrgyzstan in 2005 —, the logic of the argument is stronger when the executive office is contested. To begin with, authoritarian regimes concentrate a lot of discretionary power in the executive, and thus clarity

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[9] Of course, economic conditions may improve by the time of the election, increasing support for the government. This is a concern for opposition leaders and activists who want to oust the current incumbent as a matter of fact, but presumably not for "pocketbook" voters who simply want to choose a government that is good enough at managing the economy: if economic conditions are bad in a non-election year but improve shortly afterwards, this may reflect a transitory shock that should not be attributed to the government's ineptitude.

of responsibility for economic performance will be higher in executive contests (Powell 2000; Duch and Stevenson 2006). Moreover, legislative election results are also noisier than presidential ones: many CARs employ majoritarian electoral systems that introduce large distortions in the translation of votes into seats, and nationally aggregated data on vote shares is simply unavailable for many countries. These considerations suggest using noncompetitive and legislative elections as a placebo test for the argument. Finally, an easy way through which CARs should maximize their chances of survival is by extending the term lengths of executive officials and thus reducing the frequency of elections. To the extent that this is the case, executives in CARs should serve longer terms than their democratic counterparts.

2.2   Data and methods

Authoritarian breakdown. I examine these claims on a sample of 214 authoritarian regimes between 1952 and 2012. The unit of observation is the (authoritarian) country-year. The outcome of interest is $breakdown_{i,t}$, a dummy that takes the value of 1 if the authoritarian regime in place in country i at the beginning of year t broke down before December 31, and 0 otherwise. As mentioned above, I define a regime breakdown as a change in the "set of formal and/or informal rules for choosing leaders and policies" (Geddes, Wright and Frantz 2014:codebook).[10] This includes instances of democratization, but also cases in which an authoritarian regime was replaced by another, for example if rebels captured the capital or there was a change in the rules determining who could have access to top political positions (e.g., by systematically purging officials from some region or ethnicity).[11] Many existing measures of democracy — notably Polity IV (Marshall, Gurr and Jaggers 2014), Freedom House and the Democracy and Dictatorship dataset (Cheibub, Gandhi and Vreeland 2010) — cannot be used to code such instances of breakdown

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[10]These authors only provide data for 1946-2010, so I extended their data until 2015; I also made a few changes in the authors' coding.

[11]Removal from power through foreign occupation, loss of control over most of the country's territory or a country's breakup also count as instances of breakdown.

because they either (a) ignore transitions from one authoritarian regime to another; or (b) identify instances of regime change even when there was no turnover at the top. For example, the replacement of the Iranian Shah by Ayatollah Khomeini in 1979 does not show up in Cheibub, Gandhi and Vreeland's (2010) data because both regimes were authoritarian, while the introduction of multi-party elections in several African countries in the 1990s improved their Polity IV scores despite the fact that most incumbents managed to remain in office — in some cases until today. Thus, I rely on the Autocratic Regimes dataset (Geddes, Wright and Frantz 2014), which offers a minimalist definition of democracy that is similar to that of Cheibub, Gandhi and Vreeland (2010) but also divides each country's political history into a series of succeeding regimes, recording the specific date in which each of them was established or broke down.[12] An additional advantage of this dataset is that it accounts for the possibility that a regime may be neither democratic nor authoritarian, for example when no political group controls most of the country's territory, or there is a provisional government in charge of organizing elections and handing over power to the winner. Excluding these regimes from the sample is important because the logic of the argument only applies when an authoritarian regime that exerts effective control over the country's territory and has some aspiration to endure. Furthermore, since provisional governments rarely last more than two years and step down following an election, classifying them as authoritarian would overstate the role of elections on breakdown.[13]

Explanatory variables. According to the argument, authoritarian breakdown is a function of three factors. I measure short-term economic conditions with *growth$_{t-1}$*, the country's lagged change in per capita income. I include the lagged rather than the contemporaneous growth

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[12]See Table A2.1 in the Appendix for a list of all authoritarian regimes included in the analysis. Note that regimes that appeared after January 1 of a given year and broke down before December 31 are excluded from the data. This is not a problem because these regimes are few in number and regime fixed effects would exclude them anyway.

[13]Of course, some rulers claim that they are leading a "provisional" government, only to postpone elections indefinitely. To avoid misclassifying these cases, Geddes, Wright and Frantz (2014) only code a regime as provisional if (a) the majority of its top leaders were not members of the previous regime; (b) the government is tasked with organizing democratic elections from the very beginning; and (c) the election actually takes place and the winner(s) is allowed to assume office. Governments that declare themselves provisional but fail to hold elections, or win rigged elections, or refuse to hand over power to whomever won the election, are coded as authoritarian.

rate because an ailing economy may be the consequence of regime breakdown rather than its cause. As mentioned above, high growth rates should help authoritarian regimes survive, as they increase satisfaction with government performance and provide resources to buy off potential opponents; in contrast, an ailing economy should breed social discontent. Thus, *growth* should have a negative effect on the probability of breakdown. Data on growth rates comes from the Penn World Tables v. 8.1, which cover the 1950-2012 period.[14]

The second explanatory variable of interest are (competitive) elections. I identify these with the help of the National Elections Across Democracy and Autocracy dataset (Hyde and Marinov 2012; henceforth NELDA), which provides a list of national-level elections around the world between 1946 and 2012, including information on the date in which the election took place, whether it was competitive or not, and whether the incumbent's office was contested. Using this information, I constructed a set of dummies indicating whether in a given country-year there was at least one election for the presidency, the lower house of the legislature, or the country's chief executive. I also distinguish between competitive and noncompetitive elections; following Hyde and Marinov (2012), I classify an election as (minimally) competitive if (a) there existed at least one non-government group that might have participated in the election; (b) opposition parties were legally allowed; and (c) there was a choice of candidates in the ballot.[15] Elections that take place in years in which there is an instance of breakdown are potentially problematic because some authoritarian regimes are replaced by a new government that quickly organize elections, and others first decide to step down and then hold a transitional election to select the country's new authorities.[16] In either case, the old regime's demise cannot be attributed to the

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[14]http://www.rug.nl/research/ggdc/data/pwt/. Note that the sample is restricted to 1952-2012 because the first two years are used to construct the lagged growth rates for 1952.

[15]I only changed these authors' coding in a handful of instances, mostly when there was no choice of candidates in the ballot because of an opposition boycott.

[16]This practice is particularly common among military regimes that decided to return to the barracks.

election. Thus, whenever an election was transitional in nature[17] or took place after a breakdown, I coded the corresponding country-year as having no election.

A potential problem with looking at actual election dates is that they may be endogenous; in particular, elections in parliamentary regimes are often held ahead of schedule, and irregular leadership successions sometimes trigger snap elections. Thus, in some specifications I look at *scheduled* rather than actual elections, coding an observation as 1 if an election was scheduled to take place on year *t* at the beginning of the year, regardless of whether the election effectively took place.[18] Furthermore, when no election was scheduled to take place at the beginning of the year, I distinguish between cases in which an election was scheduled sometime in the future, and those in which no election was scheduled at all. Since NELDA only contains information on elections that were actually held, I constructed these variables with data taken from the Nohlen handbooks (Nohlen, Krennerich and Thibaut 1999; Nohlen, Grotz and Hartmann 2001*a*,*b*; Nohlen 2005*a*,*b*; Nohlen and Stover 2010) and other country sources.

Finally, the argument also requires distinguishing between CARs and closed regimes.[19] Following the discussion in the previous section, I code the regime in office at the beginning of the year as a *CAR* if both the executive and the legislature had been elected in formally competitive elections, and as *closed* otherwise. This means that closed regimes that hold competitive elections for the first time are only coded as competitive authoritarian since the *following* year.[20]

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[17] Transitional elections are those in which (a) no member of the outgoing government ran for office; and (b) the outgoing government did not back any candidate.

[18] Early elections are often announced in the same year in which they take place, and thus they are often coded as unscheduled.

[19] I exclude oligarchic and indirect regimes (see fn. 7) because the logic of the argument does not apply to them: in the former most citizens are disenfranchised and thus cannot expect to participate in the next election, while in the later elections do not determine the effective allocation of political power. In any case, just 3.7% of authoritarian country-years qualify as oligarchic or indirect, and Table A2.3 shows that including them in the sample does not change the results.

[20] Conversely, if an elected executive subsequently cancels elections, the regime is coded as *closed* since the beginning of the next year. If an election takes place late in the year and the winner only assumes office the following year, I code the regime as *CAR* in the year after the election took place.

Specification. I estimate linear probability models[21] of the form

$$breakdown_{i,t} = f\left(growth_{i,t-1},\ election_{i,t},\ CAR_{i,t}\right) + \alpha_r + \delta_t + \varepsilon_{r,t},$$

where $f(\cdot)$ is some function of the main explanatory variables of interest (for example, an interaction between the three; see the next section for further details) and α_r and δ_t are regime and year fixed effects. I include regime fixed effects to control for all factors that remain constant over a regime's lifetime — including the regime's founding episode (Albertus and Menaldo 2012), whether the regime is military or personalist, etc — as well as country-specific characteristics. This ensures that the results will be driven by variation in elections and growth rates *within* regimes rather than between them.[22] For example, growth rates may be endogenous to regime type, but the fixed effects means that only variation over the regime's baseline will be taken into account. Similarly, year dummies account for world trends that are common to all regimes (e.g., the end of the Cold War). All specifications report robust standard errors (HC3) clustered by regime.

2.3   Results

Overview. Table 2.1 presents the descriptive statistics. Panel (a) indicates that approximately 5% of country years in the sample experienced a regime breakdown. Panel (b) shows that economic growth is positive on average (2% per year), though there is substantial variability between observations. Closed regimes dominate the data; just one third of observations correspond to CARs. Elections are much less common. Panel (d) presents the statistics for *actual* elections, i.e. country years where an election effectively took place. Just 8% of observations featured a competitive

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[21] I fit linear probability models instead of survival models to be able to include regime fixed effects. Note that frailty models are not an option because they require (some) observations to experience multiple events (Box-Steffensmeier, Boef and Joyce 2007), but political regimes can break down only once.

[22] The same applies to the interaction term between these variables, but not necessarily to the interaction term with the *CAR* dummy, which varies mostly between regimes than within them.

TABLE 2.1: Descriptive statistics.

	mean	std. dev.	min.	max.
(a) Dependent variable				
breakdown	0.05	0.22	0	1
(b) Economic growth				
growth	0.02	0.07	-0.67	0.93
(c) Regime type				
CAR	0.33	0.47	0	1
(d) Actual elections				
executive (competitive)	0.08	0.27	0	1
executive (all)	0.12	0.32	0	1
legislative (competitive)	0.10	0.31	0	1
(e) Scheduled elections				
executive (competitive) (this year)	0.07	0.26	0	1
executive (competitive) (other year)	0.27	0.44	0	1
executive (all) (this year)	0.10	0.30	0	1
executive (all) (other year)	0.26	0.44	0	1
legislative (competitive) (this year)	0.11	0.32	0	1
legislative (competitive) (other year)	0.46	0.50	0	1

The unit of observation is the country-year. The sample covers the 1952-2012 period. Observations: 3, 229; regimes: 214; countries: 101.

executive election, though the number is somewhat higher if we also include noncompetitive or legislative elections. Finally, panel (e) shows that approximately 7% of observations had an scheduled executive election at the beginning of the year, while in 27% of cases an election was expected sometime in the future. As before, these number are higher when adding noncompetitive or legislative elections.

To illustrate the plausibility of the argument and show that the results are not an artifact of the model, Figure 2.1 displays the probability of regime breakdown for different levels of economic growth, conditional on regime type and the presence of (competitive) elections. Darker tiles indicate a higher probability of breakdown. Specifically, the y-axis classifies observations
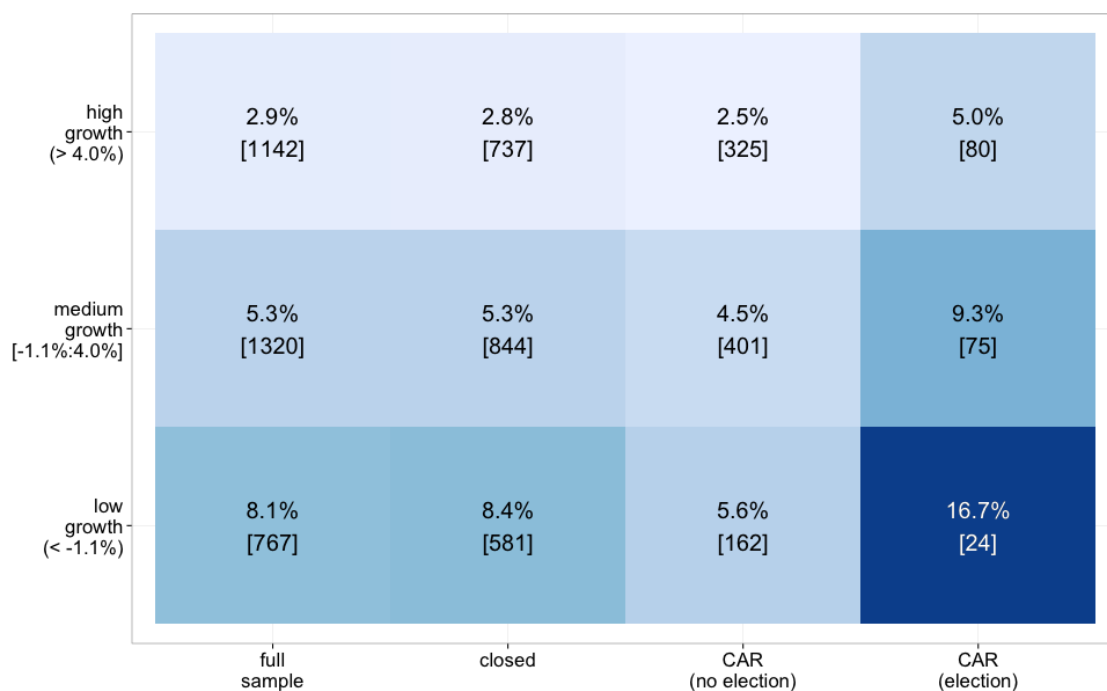
FIGURE 2.1: Frequency of *breakdown*, conditional on economic growth, regime type and election year. The strength of the shades indicate the probability of regime breakdown within each cell; for ease of comparison, the corresponding value is also reported numerically. Values in square brackets indicate the number of observations in the cell.

into having high-, medium- or low-growth rates,[23] while the *x*-axis partitions the data into different samples: all observations, closed regimes, and election- and non-election years in CARs. Two things are worth noting. First, regardless of the value of the *x*-axis, as one moves vertically from bottom to top the shading of the tiles becomes lighter, indicating that higher growth rates do indeed reduce the probability of breakdown. Second, moving from left to right shows that the distribution of breakdowns in closed regimes and CARs is consistent with theoretical expectations. The first two columns show that the distribution of breakdowns for closed regimes is almost identical to the sample average. The third column indicates that, for a given level of economic growth, CARs are substantially more resilient than closed regimes in non-election years; however, this relationship is reversed in election years, exactly as the argument predicts.

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[23]The threshold for low and high growth rates is set at ±1/2 SD change around the average annual growth rate in the sample. The (within-regime) average annual growth rate is ≈ 1.4 percentage points, with a standard deviation of approximately 5 percentage points; thus, "medium" values are those that fall in the $[1.4 - 2.5 : 1.4 + 2.5]$ interval; values below and above these cutoffs indicate low and high growth, respectively.

Main results. Of course, this association may simply indicate that regimes that hold competitive elections have lower growth rates on average, and thus are less likely to survive anyway. The point of employing fixed effects is to see whether the relationship also holds within individual regimes. Table 2.2 presents the results. Model 1 shows that economic growth indeed makes breakdowns less likely, though the magnitude of the effect is small: boosting a country's yearly growth rate by 5 percentage points[24] reduces the probability of breakdown in the next year by just 0.8 percentage points. In contrast, and in line with the findings of Schuler, Gueorguiev and Cantú (2015), model 2 shows that actually holding a competitive executive election increases the probability of breakdown by 8 percentage points. In line with the claim that elections should make authoritarian regimes especially vulnerable when the economy is doing badly, the interaction term between $growth_{t-1}$ and $election_t$ in the next column is negative and extremely large in magnitude. To facilitate the interpretation of the results, the bottom panel of the table indicates the marginal effect of $growth_{t-1}$ on the probability of breakdown conditional on the presence of an election. While higher growth rates always make authoritarian regimes less likely to break down, the effect is an order of magnitude higher in the presence of competitive election; specifically, increasing economic growth by 5 percentage points reduces the probability of breakdown in election years by 5.4 percentage points, a huge effect.

Model 4 includes a triple interaction term to investigate whether this relationship differs between CARs and closed authoritarian regimes. As mentioned above, closed regimes sometimes do introduce competitive elections, breaking down if they lose and becoming CARs if they win. These elections are potentially problematic because (a) they may constitute a concession to protestors demanding institutional and/or economic change; and (b) lack of prior electoral experience means that there is more uncertainty about the relative strength of the relevant players. The point is that while in CARs competitive elections are expected as a matter of course, closed regimes may be more likely to introduce competitive elections when they are

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[24]This corresponds to the average within-regime standard deviation in the sample, net of regime and years fixed effects.

TABLE 2.2: Elections, economic conditions and authoritarian breakdown, 1952-2012.

	growth only	Actual elections			Scheduled elections	
		election only	growth × election	gr. × el. × CAR	election only	growth × election
	(1)	(2)	(3)	(4)	(5)	(6)
growth_{t-1}	-0.15		-0.11	-0.11		-0.12
	(0.05)		(0.05)	(0.05)		(0.05)
election_t		0.08	0.11	0.14	0.14	0.16
		(0.02)	(0.03)	(0.05)	(0.03)	(0.03)
$\text{growth}_{t-1} \times \text{election}_t$			-0.96	-0.94		-1.09
			(0.41)	(0.97)		(0.45)
$\text{growth}_{t-1} \times \text{CAR}_t$				-0.03		
				(0.14)		
$\text{growth}_{t-1} \times \text{election}_t$ $\times \text{CAR}_t$				0.10		
				(09)		
CAR_t				0.04		
				(0.02)		
$\text{election}_t \times \text{CAR}_t$				-0.05		
				(0.06)		
$\text{election (other year)}_t$					0.03	0.03
					(0.02)	(0.02)
growth_{t-1} $\times \text{election (other year)}_t$						0.08
						(0.12)

Marginal effect of growth_{t-1} *on* $\Pr(\text{breakdown}_t = 1)$

no election (closed)			-0.11	-0.11		-0.12
			(0.05)	(0.05)		(0.05)
no election (CAR)			-0.11	-0.14		-0.04
			(0.05)	(0.14)		(0.11)
election (closed)			-1.08	-1.05		
			(0.41)	(0.97)		
election (CAR)			-1.08	-0.99		-1.21
			(0.41)	(0.49)		(0.45)
observations	3229	3229	3229	3229	3229	3229
regimes	214	214	214	214	214	214
countries	101	101	101	101	101	101

OLS regression estimates. The dependent variable is *breakdown$_t$*. In models 5 and 6, the point estimates for *election$_t$* refer to elections scheduled to take place on year t at the beginning of the year. In all cases, "election(s)" means *competitive* elections for an *executive* office. Robust standard errors (HC3) clustered by regime in parentheses. All specifications include regime and year fixed effects.

weak, and thus more likely to lose in the first place.[25] This does not seem to be the case, however: the marginal effects reported at the bottom of Table 2.2 show that CARs are still very vulnerable to economic downturns in election years, and the effect is very similar (though much more

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[25]Rozenas (2015) makes a similar claim, though his argument is based on the informational value of elections.

uncertain, given the small number of observations) for closed regimes. In non-election years, the impact of economic growth remains negative and reliably estimated in closed regimes; contrary to expectations, it is somewhat stronger for CARs, though the estimate is unreliable and we cannot rule out the possibility that the actual effect may be zero or even positive.

The last two columns of Table 2.2 look at scheduled rather than actual elections. This time I no longer distinguish between CARs and closed regimes, but rather on whether (a) an election was scheduled to take place in year t at the beginning of the year; (b) an election was scheduled to take place in another year; or (c) no election was scheduled at all. The first two cases correspond to CARs, while the third corresponds to closed regimes. In model 5, the point estimates for *election$_t$* (which correspond to an scheduled election at t) is positive and almost twice an large as that for model 2, suggesting that some authoritarian rulers sometimes do anticipate (or postpone) elections depending on their electoral prospects. Model 6 examines how scheduled elections mediate the effect of economic growth. As before, the bottom panel of the table indicates that when no election is scheduled in the future, the effect of *growth$_{t-1}$* is negative and reliable, though relatively small in magnitude. When an election is scheduled for a year other than t, however, the estimate is essentially zero and no longer statistically significant, indicating that regimes that hold regular elections are almost immune to adverse economic conditions in non-election years. However, in years with an scheduled election the effect of economic growth is again an order of magnitude higher than if no election is scheduled at all; more specifically, a 5 percentage point increase in economic growth reduced the probability of breakdown by roughly 6 percentage points. Additional results, presented in Appendix A2.2, show that these results are robust to a variety of specification changes, such as replacing the regime fixed effects with country fixed effects, adding indirect and oligarchic regimes to the sample (see fn. 7), employing a recession dummy rather than a continuous measure of economic growth, or splitting the sample depending on whether Geddes, Wright and Frantz (2014) classify the regime as party-based.

Additional results. Table 2.3 examines these results in further detail. The first two columns replicate models 4 and 6 in Table 2.2 but employing a binomial model with cloglog link, which is equivalent to a Cox survival model with discrete time (Beck, Katz and Tucker 1998; Box-Steffensmeier and Jones 2004; Carter and Signorino 2010); following the suggestion of Carter and Signorino (2010), I model the hazard with a duration polynomial of order five. A survival model cannot accommodate country or regime fixed effects, which raises the concerns that the results may be driven by unobserved differences *between* regimes rather than variation *within* them. To (roughly) account for this, I include the log of a country's lagged *GDP per capita* in the specification, as well as dummies for regime types (*party-based*, *military* or *personal*, with *monarchy* as the excluded category) as defined by Geddes, Wright and Frantz (2014). The results change little; although the interaction terms are not always statistically significant, the bottom of the table shows that the estimates for the marginal effects of $growth_{t-1}$ *on the linear predictor* are negative, large in magnitude and highly reliable. The estimates for the regime dummies are not reported to save space, but they indicate that, relative to monarchies, military regimes are more prone to breakdown while party-based regimes are much more durable; personal regimes make no difference. Authoritarian regimes are also more likely to survive in rich countries, though the corresponding estimates are not very precise.

The next two columns replicate models 4 and 6 in Table 2.2 but splitting the $growth_{t-1}$ variable depending on whether the growth rate is positive or negative. The marginal effects shown at the bottom of the table suggest that the results may be driven by *negative* growth rates, i.e. a −1% growth rate harms a regime more than a 1% increase benefits it, especially in election years and years with scheduled elections. However, this conclusion should be take with a grain of salt because the estimates are rather imprecise. Finally, the last four columns of Table 2.3 examine the extent to which the results are being driven by *competitive* elections for an *executive* office. Models 5 and 6 include all executive elections in the sample, regardless of whether they were competitive or not. The marginal effect of $growth_{t-1}$ in non-election years changes little, but the

TABLE 2.3: Elections, economic conditions and authoritarian breakdown: Additional results.

	Survival models		Pos./neg. growth		Noncompetitive elections		Legislative elections	
	actual	sched.	actual	sched.	actual	sched.	actual	sched.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
growth$_{t-1}$	-3.40 (0.96)	-3.73 (0.94)	-0.11 (0.10)	-0.14 (0.10)	-0.11 (0.05)	-0.13 (0.05)	-0.11 (0.05)	-0.11 (0.05)
growth (positive)$_{t-1}$			-0.10 (0.08)	-0.11 (0.07)				
election$_t$	1.52 (0.28)	1.56 (0.22)	0.11 (0.07)	0.14 (0.04)	0.04 (0.02)	0.20 (0.03)	0.10 (0.03)	0.12 (0.03)
growth$_{t-1}$ × election$_t$	-0.92 (4.15)	-3.34 (2.62)	-1.32 (1.43)	-1.80 (0.99)	-0.51 (0.38)	-0.75 (0.34)	-0.30 (0.40)	-0.48 (0.34)
growth (positive)$_{t-1}$ × election$_t$			-0.13 (2.58)	-0.54 (0.44)				
growth$_{t-1}$ × CAR$_t$	-3.00 (2.38)		-0.14 (0.42)		-0.04 (0.14)		-0.11 (0.15)	
growth (positive)$_{t-1}$ × CAR$_t$			0.02 (0.17)					
growth$_{t-1}$ × election$_t$ × CAR$_t$	-8.58 (7.52)		-1.84 (2.54)		-0.14 (0.60)		0.49 (0.51)	
growth (positive)$_{t-1}$ × election$_t$ × CAR$_t$			0.04 (2.63)					
CAR$_t$	0.23 (0.22)		0.03 (0.02)		0.02 (0.02)		0.04 (0.02)	
election$_t$ × CAR$_t$	-0.43 (0.42)		-0.07 (0.07)		0.04 (0.04)		-0.08 (0.04)	
election (other year)$_t$		0.01 (0.23)		0.03 (0.02)		0.08 (0.02)		0.04 (0.02)
growth$_{t-1}$ × election (other year)$_t$		-1.82 (2.48)		0.18 (0.24)		0.04 (0.10)		0.01 (0.12)
growth (positive)$_{t-1}$ × election (other year)$_t$				0.03 (0.15)				

Marginal effect of (negative) growth$_{t-1}$ *on* Pr(breakdown$_t$ = 1)

	actual	sched.	actual	sched.	actual	sched.	actual	sched.
no election (closed)	-3.40 (0.69)	-3.73 (0.94)	-0.11 (0.10)	-0.14 (0.10)	-0.11 (0.05)	-0.13 (0.05)	-0.11 (0.05)	-0.11 (0.05)
no election (CAR)	-6.40 (2.19)	-5.55 (2.30)	-0.25 (0.42)	0.04 (0.23)	-0.14 (0.14)	-0.09 (0.08)	-0.23 (0.14)	-0.10 (0.11)
election (closed)	-4.32 (4.10)		-1.43 (1.43)		-0.61 (0.39)		-0.41 (0.39)	
election (CAR)	-15.90 (6.41)	-7.06 (2.48)	-3.41 (2.06)	-1.93 (0.99)	-0.79 (0.45)	-0.88 (0.34)	-0.04 (0.29)	-0.59 (0.33)
observations	3229	3229	3229	3229	3229	3229	3229	3229
regimes	214	214	214	214	214	214	214	214
countries	101	101	101	101	101	101	101	101

Models 1 and 2 report GLS regression estimates with a cloglog link. Estimates for the intercept, *GDP per capita$_{t-1}$* (logged), dummies for regime type and a duration polynomial of order five not reported. All other columns report OLS regression estimates. The dependent variable is *breakdown$_t$*. In models 2, 4, 6 and 8, the point estimates for *election$_t$* refer to elections scheduled to take place on year t at the beginning of the year. Robust standard errors (HC3) clustered by regime in parentheses. Models 3 through 8 include regime and year fixed effects.
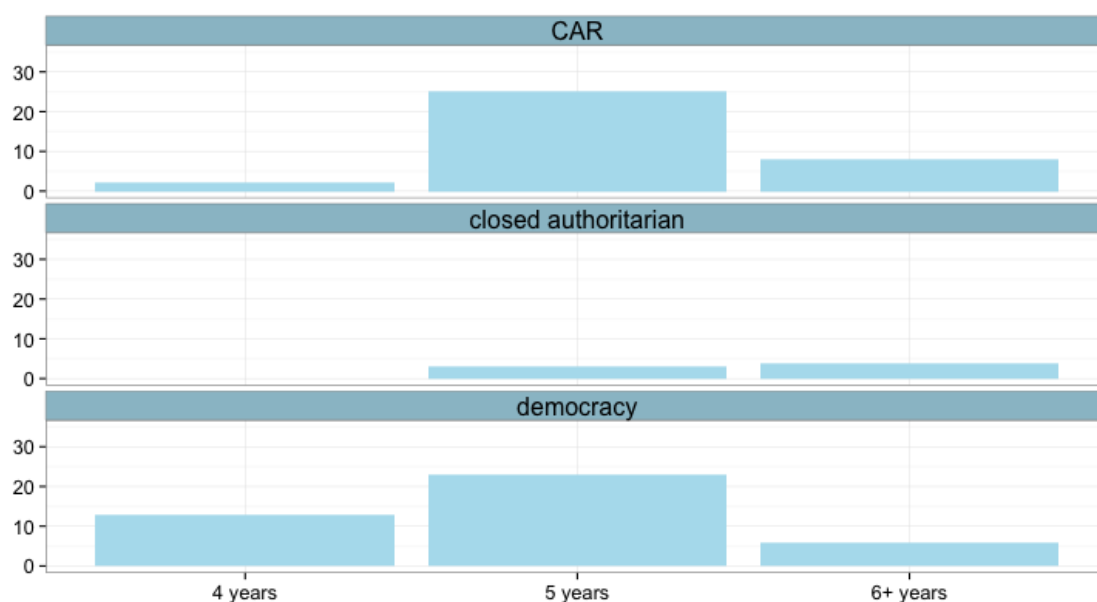
FIGURE 2.2: Distribution of presidential term lengths by regime type in 2010.

effect of election years becomes substantially weaker and more imprecisely estimated than before. The same applies if only (competitive) legislative elections are included in the analysis (see models 7 and 8), giving strong credence to the claim that, Georgia and Kyrgyzstan notwithstanding, authoritarian regimes are most vulnerable when the executive office is contested.

Term lengths. A final implication of the argument is that CARs should benefit by spacing out the time between elections, i.e. by extending executive term lengths. Accordingly, Figure 2.2 shows that in 2010 the modal presidential term length[26] in both CARs and democracies was five years, but while four-year terms were quite common in democracies, only two presidents in CARs served such as short term. Moreover, one of them (Russia's Dmitry Medvedev) had already signed a constitutional amendment extending the presidential term to six years. Conversely, only six democratic presidents served a term of six years or more, and in two of these cases (Mexico and the Philippines) this constituted a legacy of the competitive authoritarian past. In contrast, six CARs had a seven-year presidential term.

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[26]The data comes from Baturo (2014), who only collected data on presidents (elected or not).

Term extensions are much more common in CARs as well. Only three democratic presidents extended the length of their mandate between 1960 and 2010, and one of these (Venezuela's Hugo Chávez) would eventually transform his country into a CAR. In contrast, during the same period there were no less than 11 term extensions in CARs, as well as 10 in closed regimes (not counting individuals who became presidents for life). Of course, this evidence is purely illustrative, as ruling parties in CARs are probably more likely to control enough seats to change the constitution. Nonetheless, if frequent elections contributed to authoritarian survival, we would expect to see a trend toward shorter rather than longer presidential terms. The fact that this is not the case is consistent with the claim that while the institution of regular elections may be valuable (or otherwise unavoidable), elections themselves are risky and thus it is better to space them out.

2.4   Discussion and Conclussion

The contribution of elections to authoritarian survival remains hotly contested. By examining how the effect of competitive elections is mediated by economic conditions (and vice versa), this paper makes two novel contributions to the existing literature. Theoretically, it raises the possibility that elections may matter for reasons that go beyond the electoral act and its immediate consequences. Specifically, the *anticipation* of future elections should discourage citizens and elites from resorting to extra-institutional strategies (such as protests and coups) in non-election years. Empirically, it shows that the effect of economic conditions on authoritarian survival is mediated by the electoral cycle. Higher growth rates make closed authoritarian regimes more likely to survive; but this effect, while reliably estimated, is quite small in magnitude. This contrasts with the effect of economic growth in election years in CARs, which is an order of magnitude higher, indicating that such regimes are especially vulnerable at election time when the economy is doing badly. The other side of the coin is that CARs tend to be more resilient to short-term economic conditions in non-election years: in this case, the marginal effect of $growth_{t-1}$ is very close to zero and unreliably estimated, implying that the effect may actually be

zero. Further analyses suggest that negative growth rates are more relevant than positive ones, but the uncertainty of these estimates means that this conclusion should be regarded as suggestive. Consistent with the claim that it is competitive executive elections that matter, the inclusion of noncompetitive or legislative elections weakens the findings considerably. Finally, a comparison of term lengths across different regime types suggests that incumbents in CARs do prefer longer over shorter presidential terms, thus making (risky) elections less frequent.

While these results cannot be interpreted causally, their credibility is enhanced by three factors. Regime fixed effects account for a wide variety of (time-invariant) unobservable regime characteristics that may simultaneously affect a country's growth rate, the decision to adopt elections and the probability of breakdown. Moreover, the findings are stronger when looking at the date of the next *scheduled* election, which can be taken as fixed, rather than the actual election date, which may be manipulated strategically. Lastly, the fact that authoritarian governments sometimes manipulate the economy for electoral reasons (Magaloni 2006; Pepinsky 2007; Blaydes 2010) implies that growth rates will be on average higher in election years and lower in non-election periods, thus stacking the deck against finding any results. The fact that growth rates are measured in the year prior to the election may also mitigate the effect of these cycles, especially for elections held late in the year.

Beyond survival and breakdown, this paper can illuminate two additional aspects of authoritarian politics. First, a puzzling fact about authoritarian regimes is that while some seem extremely susceptible to economic failure, others — such as North Korea or Mobutu's Zaire — appear immune to it. Indeed, while the results presented in the first column of Table 2.2 show that bad economic conditions do contribute to authoritarian breakdown *on average*, the magnitude of this effect is quite modest (see Garrido de Sierra 2013*a* for a similar observation). A possible interpretation is that the effect of economic growth on authoritarian breakdown is heterogeneous: negligible most of the time but strong when citizens, opposition leaders or disgruntled insiders manage to solve their coordination problems. Leadership turnover may be helpful in

that regard (Miller 2012; Treisman 2015); this paper suggests that competitive elections can have a similar effect.

Second, while this paper does not purport to explain why authoritarian regimes introduce competitive elections in the first place, the argument may help explain why some high-performing regimes — China or Vietnam come to mind — are especially reluctant to introduce such institutions. Regimes that expect to deliver consistently high rates of economic growth have little reason to fear a coup or a popular uprising (Kennedy 2010; Miller 2012; Treisman 2015), but competitive elections could make them especially vulnerable to even moderate slowdowns. In contrast, elections should be especially valuable for regimes that anticipate a high *variance* in growth rates, because they will make them more resilient in non-election years. This is an interesting issue for further research, though of course variation in growth rates and competitive elections may be associated for other reasons (e.g., the unrest generated by bad economic conditions may lead to the establishment of competitive elections; see Bratton and van de Walle 1994, 1997; Burke and Leigh 2010; Brückner and Ciccone 2011; Aidt and Leon forthcoming).

Finally, note that the logic of the argument can be extended to democratic regimes as well. Despite substantial evidence that democratic governments do worse at the polls in bad economic times (Duch and Stevenson 2006, 2008; Burke 2012; Kayser and Peress 2012), research on the economic vote rarely investigates the effect of economic conditions on government survival *in non-election years*. Yet democratic governments may also fail before elections, both extra-institutionally — i.e., due to a military coup — and institutionally — for example following a vote of no confidence or a resignation precipitated by a political crisis. Understanding whether the anticipation of future elections can bolster the short-term survival of democratic governments — and especially *weak* democratic governments — constitutes a fascinating and unexplored issue for further research.

A2.1 List of authoritarian regimes included in the sample

Table A2.1 presents a list of the 214 authoritarian regimes included in the analysis. Note that regimes for which there is no data on economic growth are not included in the analysis and thus do not appear in the table. For each regime, the table indicates:

(1) Regime name/ID.

(2) The year the regime was originally established.

(3) The year the regime broke down, if applicable. Since data on economic growth is only available until 2012, regimes that broke down after that date are coded as having survived.

(4) Whether the regime was coded as closed authoritarian and/or CAR during at least a fraction of its lifetime (during the country-years included in the sample).

(5) A brief description of how the regime ended, if applicable. Note that for regimes that ended in a popular uprising or due to a military coup, the coup or the uprising may have been a direct consequence of an election.

TABLE A2.1: List of authoritarian regimes included in the analysis.

regime ID	begin year	end year	closed auth.	CAR	how ended
Albania 44-91	1944	1991	1	0	popular uprising
Angola 75-NA	1975		1	1	N/A
Argentina 51-55	1951	1955	0	1	military coup
Argentina 55-58	1955	1958	1	0	military coup
Argentina 66-73	1966	1973	1	0	rule change (election)
Argentina 76-83	1976	1983	1	0	rule change (election)
Armenia 94-98	1994	1998	0	1	popular uprising
Armenia 98-NA	1998		0	1	N/A
Azerbaijan 93-NA	1993		0	1	N/A
Bangladesh 71-75	1971	1975	0	1	military coup
Bangladesh 75-82	1975	1982	1	0	military coup
Bangladesh 82-90	1982	1990	1	1	popular uprising
Bangladesh 07-08	2007	2008	1	0	rule change (election)
Belarus 91-94	1991	1994	1	0	electoral defeat
Belarus 94-NA	1994		1	1	N/A
Benin 60-63	1960	1963	0	1	popular uprising
Benin 63-65	1963	1965	1	0	military coup
Benin 65-67	1965	1967	1	0	military coup
Benin 67-69	1967	1969	1	0	military coup
Benin 69-70	1969	1970	1	0	rule change (election)
Benin 72-90	1972	1990	1	0	popular uprising
Bolivia 09-NA	1929		0	1	insurgency/revolution
Bolivia 51-52	1951	1952	1	0	military coup
Bolivia 52-64	1952	1964	0	1	military coup
Bolivia 64-69	1964	1969	1	1	military coup
Bolivia 69-71	1969	1971	1	0	military coup
Bolivia 71-79	1971	1979	1	0	rule change (election)
Bolivia 80-82	1980	1982	1	0	popular uprising
Botswana 66-NA	1966		0	1	N/A
Brazil 64-85	1964	1985	1	1	electoral defeat
Bulgaria 44-90	1944	1990	1	0	rule change (no election)
Burkina Faso 60-66	1960	1966	1	0	popular uprising
Burkina Faso 66-80	1966	1980	1	1	military coup
Burkina Faso 80-82	1980	1982	1	0	military coup
Burkina Faso 82-87	1982	1987	1	0	military coup
Burkina Faso 87-14	1987		1	1	popular uprising
Burundi 62-66	1962	1966	1	0	military coup
Burundi 66-87	1966	1987	1	0	military coup
Burundi 87-93	1987	1993	1	0	electoral defeat
Cambodia 75-79	1975	1979	1	0	foreign invasion
Cambodia 79-NA	1979		1	1	N/A
Cameroon 60-83	1960	1983	1	1	rule change (continuity)
Cameroon 83-NA	1983		1	1	N/A
Cen. Af. Rep. 60-65	1960	1965	1	0	military coup
Cen. Af. Rep. 65-79	1966	1979	1	0	foreign invasion
Cen. Af. Rep. 79-81	1979	1981	1	0	military coup
Cen. Af. Rep. 81-93	1981	1993	1	0	electoral defeat
Cen. Af. Rep. 03-13	2003	2013	1	1	insurgency/revolution
Chad 60-75	1960	1975	1	0	military coup
Chad 75-79	1975	1979	1	0	insurgency/revolution
Chad 82-90	1982	1990	1	0	insurgency/revolution
Chad 90-NA	1990		1	1	N/A
Chile 73-89	1973	1989	1	0	rule change (election)
China 49-NA	1949		1	1	N/A
Colombia 49-53	1949	1953	0	1	military coup
Colombia 53-58	1953	1958	1	0	rule change (election)
Congo 60-63	1960	1963	1	0	popular uprising
Congo 63-68	1963	1968	1	0	military coup
Congo 68-91	1968	1991	1	0	popular uprising
Congo 97-NA	1997		1	1	N/A
DR Congo 60-97	1960	1997	1	0	insurgency/revolution
DR Congo 97-NA	1997		1	1	N/A
Dom. Republic 30-62	1930	1962	1	0	military coup
Dom. Republic 63-65	1963	1965	1	0	insurgency/revolution
Dom. Republic 66-78	1966	1978	0	1	electoral defeat
Ecuador 63-66	1963	1966	1	0	popular uprising
Ecuador 70-72	1970	1972	1	0	military coup
Ecuador 72-79	1972	1979	1	0	rule change (election)
Ecuador 07-NA	2007		0	1	N/A
Egypt 22-52	1922	1952	1	0	military coup
Egypt 52-11	1952	2011	1	1	popular uprising
El Salvador 48-82	1948	1982	1	0	foreign invasion
Ethiopia 1889-1974	1889	1974	1	1	popular uprising
Ethiopia 74-91	1974	1991	1	0	insurgency/revolution
Ethiopia 91-NA	1991		1	1	N/A
Gabon 60-NA	1960		1	1	N/A
Gambia 65-94	1965	1994	0	1	military coup
Gambia 94-NA	1994		1	1	N/A

regime ID	begin year	end year	closed auth.	CAR	how ended
Burundi 96-03	1996	2003	1	0	rule change (election)
Cambodia 70-75	1970	1975	1	1	insurgency/revolution
Ghana 66-69	1966	1969	1	0	rule change (election)
Ghana 72-79	1972	1979	1	0	rule change (election)
Ghana 81-00	1981	2000	1	1	electoral defeat
Greece 67-74	1967	1974	1	0	rule change (election)
Guatemala 54-58	1954	1958	1	0	electoral defeat
Guatemala 63-66	1963	1966	1	0	electoral defeat
Guatemala 70-85	1970	1985	1	0	rule change (election)
Guinea 58-84	1958	1984	1	0	military coup
Guinea 84-08	1984	2008	1	1	military coup
Guinea 08-10	2008	2010	0	0	rule change (election)
Guinea-Bissau 74-80	1974	1980	1	0	military coup
Guinea-Bissau 80-99	1980	1999	1	1	insurgency/revolution
Guinea-Bissau 02-03	2002	2003	0	1	military coup
Honduras 33-56	1933	1956	1	1	military coup
Honduras 63-71	1963	1971	1	1	rule change (election)
Honduras 72-81	1972	1981	1	0	rule change (election)
Hungary 47-90	1947	1990	1	0	electoral defeat
Indonesia 49-66	1949	1966	1	0	military coup
Indonesia 66-99	1966	1999	1	0	electoral defeat
Iran 25-79	1925	1979	1	0	popular uprising
Iraq 68-79	1968	1979	1	0	rule change (continuity)
Iraq 79-03	1979	2003	1	0	foreign invasion
Iraq 10-NA	2009		0	1	N/A
Ivory Coast 60-99	1960	1999	1	1	military coup
Ivory Coast 99-00	1999	2000	1	0	popular uprising
Ivory Coast 00-11	2000	2010	0	1	insurgency/revolution
Jordan 46-NA	1946		1	0	N/A
Kazakhstan 91-NA	1991		1	1	N/A
Kenya 63-02	1963	2002	1	1	electoral defeat
Kuwait 61-NA	1961		1	0	N/A
Kyrgyzstan 91-05	1991	2005	1	1	popular uprising
Kyrgyzstan 05-10	2005	2010	0	1	popular uprising
Laos 75-NA	1975		1	0	N/A
Lesotho 70-86	1970	1986	1	1	military coup
Lesotho 86-93	1986	1993	1	0	rule change (election)
Liberia 44-80	1944	1980	1	0	military coup
Liberia 80-90	1980	1990	1	1	insurgency/revolution
Liberia 97-03	1997	2003	0	1	insurgency/revolution
Madagascar 60-72	1960	1972	1	1	popular uprising
Madagascar 72-75	1972	1975	1	0	rule change (continuity)
Madagascar 75-91	1975	1993	1	0	electoral defeat
Georgia 92-03	1992	2003	0	1	popular uprising
Ghana 60-66	1960	1966	1	1	military coup
Mali 68-91	1968	1991	1	0	popular uprising
Mauritania 60-78	1960	1978	1	0	military coup
Mauritania 78-05	1978	2005	1	0	military coup
Mauritania 05-07	2005	2007	1	0	rule change (election)
Mauritania 08-NA	2008		1	1	N/A
Mexico 15-00	1915	2000	0	1	electoral defeat
Mongolia 21-93	1921	1993	1	1	electoral defeat
Morocco 56-NA	1956		1	0	N/A
Mozambique 75-NA	1975		1	1	N/A
Namibia 90-NA	1990		0	1	N/A
Nepal 51-91	1951	1991	1	0	electoral defeat
Nepal 02-06	2002	2006	1	0	popular uprising
Niger 60-74	1960	1974	1	0	military coup
Niger 74-91	1974	1991	1	0	military coup
Niger 96-99	1996	1999	0	1	popular uprising
Niger 09-10	2009	2010	1	0	rule change (election)
Nigeria 66-79	1966	1979	1	1	rule change (election)
Nigeria 83-93	1983	1993	1	0	rule change (continuity)
Nigeria 93-99	1993	1999	1	0	rule change (election)
Oman 71-NA	1971		1	0	N/A
Pakistan 58-71	1958	1971	1	0	popular uprising
Pakistan 75-77	1975	1977	0	1	military coup
Pakistan 77-88	1977	1988	1	0	rule change (election)
Pakistan 99-08	1999	2008	1	0	rule change (no election)
Panama 53-55	1953	1955	0	1	rule change (no election)
Panama 68-82	1968	1982	1	0	military coup
Panama 82-89	1982	1989	1	0	foreign invasion
Paraguay 48-54	1948	1954	1	0	military coup
Paraguay 54-93	1954	1993	1	1	rule change (no election)
Peru 48-56	1948	1956	1	0	electoral defeat
Peru 62-63	1962	1963	1	0	rule change (election)
Peru 68-80	1968	1980	1	0	rule change (election)
Peru 92-00	1992	2000	0	0	rule change (no election)
Philippines 72-86	1972	1986	1	1	popular uprising
Poland 44-89	1944	1989	1	0	electoral defeat
Portugal 26-74	1926	1974	1	0	military coup
Romania 45-89	1945	1989	1	0	popular uprising
Russia 93-NA	1993		0	1	N/A
Rwanda 62-73	1962	1973	1	1	military coup
Rwanda 73-94	1973	1994	1	0	insurgency/revolution
Rwanda 94-NA	1994		1	1	N/A

regime ID	begin year	end year	closed auth.	CAR	how ended
Madagascar 09-13	2009		1	0	rule change (election)
Malawi 64-94	1964	1994	1	0	electoral defeat
Malaysia 57-NA	1957		0	1	N/A
Mali 60-68	1960	1968	1	0	military coup
Sierra Leone 68-92	1968	1992	1	1	military coup
Sierra Leone 92-96	1992	1996	1	0	rule change (election)
Sierra Leone 97-98	1997	1998	1	0	foreign invasion
Singapore 65-NA	1965		0	1	N/A
Korea, South 48-60	1948	1960	0	1	popular uprising
Korea, South 61-87	1961	1987	1	1	popular uprising
Spain 39-76	1939	1976	1	0	rule change (no election)
Sri Lanka 10-15	2010	2015	0	1	electoral defeat
Sri Lanka 78-94	1978	1994	0	1	electoral defeat
Sudan 69-85	1969	1985	1	0	popular uprising
Sudan 85-86	1985	1986	1	0	rule change (election)
Sudan 89-NA	1989		1	1	N/A
Swaziland 68-NA	1968		1	0	N/A
Syria 63-NA	1963		1	0	N/A
Taiwan 49-00	1949	2000	1	1	electoral defeat
Tajikistan 91-NA	1991		1	1	N/A
Tanzania 64-NA	1964		1	1	N/A
Thailand 47-57	1947	1957	1	0	military coup
Thailand 57-73	1957	1973	1	1	popular uprising
Thailand 76-88	1976	1988	1	1	electoral defeat
Thailand 91-92	1991	1992	1	0	popular uprising
Saudi Arabia 27-NA	1927		1	0	N/A
Senegal 60-00	1960	2000	1	1	electoral defeat
Serbia 91-00	1991	2000	0	1	popular uprising
Sierra Leone 67-68	1967	1968	1	0	military coup
Thailand 06-07	2006	2007	1	0	electoral defeat
Togo 60-63	1960	1963	1	0	military coup
Togo 63-NA	1963		1	1	N/A
Tunisia 56-11	1956	2011	1	1	popular uprising
Turkey 57-60	1957	1960	0	1	military coup
Turkey 60-61	1960	1961	1	0	rule change (election)
Turkey 80-83	1980	1983	1	0	electoral defeat
Turkmenistan 91-NA	1991		1	0	N/A
Uganda 66-71	1966	1971	1	1	military coup
Uganda 71-79	1971	1979	1	0	foreign invasion
Uganda 80-85	1980	1985	0	1	military coup
Uganda 86-NA	1986		1	1	N/A
Uruguay 73-84	1973	1984	1	0	rule change (election)
Uzbekistan 91-NA	1991		1	0	N/A
Venezuela 48-58	1948	1958	1	0	popular uprising
Venezuela 05-NA	2005		0	1	N/A
Vietnam 54-NA	1954		1	0	N/A
Yemen 78-15	1978		1	1	insurgency/revolution
Zambia 67-91	1967	1991	1	1	electoral defeat
Zambia 96-11	1996	2011	0	1	electoral defeat
Zimbabwe 80-NA	1980		0	1	N/A

A2.2 Robustness checks

This section presents four sets of robustness checks:

(1) *Country fixed effects.* Table A2.2 replicates the results of Table 2.2 but employing country instead of regime fixed effects.

(2) *Indirect regimes and competitive oligarchies.* Table A2.3 replicates the results of Table 2.2 but adding indirect authoritarian regimes (which are coded as CARs) and competitive oligarchies (which are coded as closed authoritarian). See fn. 7 for a definition of these regime types.

(3) *Recession dummies.* Table A2.4 replicates the results of Table 2.2 but replacing $growth_{t-1}$ with a $recession_{t-1}$ dummy that takes the value of 1 if $growth_{t-1} < -0.05$, and 0 otherwise. Note that $recession_{t-1}$ should have a *positive* effect on the outcome.

(4) *Party-based regimes.* Tables A2.5 and A2.6 replicate the results of Table 2.2 but restricting the sample to regimes that Geddes, Wright and Frantz (2014) code as party-based (including party-personal, party-military and party-military-personal regimes) or not, respectively.

TABLE A2.2: Robustness checks (1): Country FEs.

	growth only	Actual elections			Scheduled elections	
		election only	growth × election	gr. × el. × CAR	election only	growth × election
	(1)	(2)	(3)	(4)	(5)	(6)
growth$_{t-1}$	-0.24		-0.19	-0.17		-0.19
	(0.07)		(0.06)	(0.06)		(0.06)
election$_t$		0.08	0.11	0.14	0.10	0.13
		(0.02)	(0.03)	(0.05)	(0.03)	(0.03)
growth$_{t-1}$ × election$_t$			-1.05	-0.81		-1.10
			(0.43)	(0.98)		(0.43)
growth$_{t-1}$ × CAR$_t$				-0.08		
				(0.13)		
growth$_{t-1}$ × election$_t$ × CAR$_t$				-0.08		
				(1.12)		
CAR$_t$				-0.01		
				(0.02)		
election$_t$ × CAR$_t$				-0.05		
				(0.06)		
election (other year)$_t$					-0.01	-0.02
					(0.02)	(0.02)
growth$_{t-1}$ × election (other year)$_t$						0.03
						(0.10)

Marginal effect of growth$_{t-1}$ *on* $\Pr(\text{breakdown}_t = 1)$

no election (closed)			-0.19	-0.17		-0.19
			(0.06)	(0.06)		(0.06)
no election (CAR)				-0.25		-0.16
				(0.13)		(0.09)
election (closed)			-1.24	-0.98		
			(0.44)	(0.99)		
election (CAR)			-1.24	-1.14		-1.29
			(0.44)	(0.51)		(0.45)
observations	3229	3229	3229	3229	3229	3229
countries	101	101	101	101	101	101

OLS regression estimates. Specifications replicate those of Table 2.2, but employing country instead of regime fixed effects. In models 5 and 6, the point estimates for *election$_t$* refer to elections scheduled to take place on year t at the beginning of the year. In all cases, "election(s)" means *competitive* elections for an *executive* office. The dependent variable is *breakdown$_t$*. Robust standard errors (HC3) clustered by regime in parentheses. All specifications include country and year fixed effects.

TABLE A2.3: Robustness checks (2): Including indirect regimes and oligarchies.

		Actual elections			Scheduled elections	
	growth only	election only	growth × election	gr. × el. × CAR	election only	growth × election
	(1)	(2)	(3)	(4)	(5)	(6)
growth_{t-1}	-0.16		-0.12	-0.12		-0.13
	(0.06)		(0.05)	(0.05)		(0.05)
election_t		0.08	0.10	0.11	0.14	0.16
		(0.02)	(0.03)	(0.04)	(0.03)	(0.03)
$\text{growth}_{t-1} \times \text{election}_t$			-1.02	-1.25		-1.07
			(0.41)	(0.96)		(0.43)
$\text{growth}_{t-1} \times \text{CAR}_t$				-0.01		
				(0.15)		
$\text{growth}_{t-1} \times \text{election}_t$ $\times \text{CAR}_t$				0.41		
				(1.08)		
CAR_t				0.03		
				(0.02)		
$\text{election}_t \times \text{CAR}_t$				-0.03		
				(0.05)		
election (other year)$_t$					0.02	0.01
					(0.02)	(0.02)
growth_{t-1} $\times$ election (other year)$_t$						0.12
						(0.12)
Marginal effect of growth_{t-1} *on* $\Pr(\text{breakdown}_t = 1)$						
no election (closed)			-0.12	-0.12		-0.13
			(0.05)	(0.05)		(0.05)
no election (CAR)				-0.13		-0.01
				(0.14)		(0.11)
election (closed)			-1.13	-1.37		
			(0.41)	(0.96)		
election (CAR)			-1.13	-0.97		-1.20
			(0.41)	(0.49)		(0.43)
observations	3381	3381	3381	3381	3381	3381
regimes	223	223	223	223	223	223
countries	101	101	101	101	101	101

OLS regression estimates. Specifications replicate those of Table 2.2, but adding indirect regimes and oligarchies to the sample (see fn. 7). The dependent variable is *breakdown*$_t$. In models 5 and 6, the point estimates for *election*$_t$ refer to elections scheduled to take place on year t at the beginning of the year. In all cases, "election(s)" means *competitive* elections for an *executive* office. Robust standard errors (HC3) clustered by regime in parentheses. All specifications include regime and year fixed effects.

Table A2.4: Robustness checks (3): Recession dummy.

	growth only	Actual elections			Scheduled elections	
		election only	growth × election	gr. × el. × CAR	election only	growth × election
	(1)	(2)	(3)	(4)	(5)	(6)
recession$_{t-1}$	0.03		0.01	0.01		0.02
	(0.02)		(0.01)	(0.02)		(0.02)
election$_t$		0.08	0.07	0.12	0.03	0.12
		(0.02)	(0.02)	(0.05)	(0.02)	(0.03)
recession$_{t-1}$ × election$_t$			0.23	0.12		0.21
			(0.11)	(0.14)		(0.13)
recession$_{t-1}$ × CAR$_t$				0.01		
				(0.03)		
recession$_{t-1}$ × election$_t$ × CAR$_t$				0.27		
				(0.27)		
CAR$_t$				0.03		
				(0.02)		
election$_t$ × CAR$_t$				-0.08		
				(0.05)		
election (other year)$_t$					0.03	0.03
					(0.02)	(0.02)
recession$_{t-1}$ × election (other year)$_t$						-0.01
						(0.03)

Marginal effect of recession$_{t-1}$ *on* Pr(breakdown$_t$ = 1)

	growth only	election only	growth × election	gr. × el. × CAR	election only	growth × election
no election (closed)			0.01	0.01		0.02
			(0.01)	(0.02)		(0.02)
no election (CAR)				0.02		0.01
				(0.03)		(0.03)
election (closed)			0.24	0.13		
			(0.11)	(0.14)		
election (CAR)			0.24	0.41		0.23
			(0.11)	(0.23)		(0.13)
observations	3229	3229	3229	3229	3229	3229
regimes	214	214	214	214	214	214
countries	101	101	101	101	101	101

OLS regression estimates. Specifications replicate those of Table 2.2, but replacing *growth$_{t-1}$* with a *recession$_{t-1}$* dummy. The dependent variable is *breakdown$_t$*. In models 5 and 6, the point estimates for *election$_t$* refer to elections scheduled to take place on year *t* at the beginning of the year. In all cases, "election(s)" means *competitive* elections for an *executive* office. Robust standard errors (HC3) clustered by regime in parentheses. All specifications include regime and year fixed effects.

TABLE A2.5: Robustness checks (4): Party-based regimes.

	growth only	Actual elections			Scheduled elections	
		election only	growth × election	gr. × el. × CAR	election only	growth × election
	(1)	(2)	(3)	(4)	(5)	(6)
growth_{t-1}	-0.14		-0.04	-0.09		-0.12
	(0.10)		(0.08)	(0.10)		(0.10)
election_t		0.09	0.13	0.17	0.13	0.15
		(0.03)	(0.04)	(0.07)	(0.04)	(0.05)
$\text{growth}_{t-1} \times \text{election}_t$			-1.65	-4.01		-1.17
			(0.67)	(1.14)		(0.69)
$\text{growth}_{t-1} \times \text{CAR}_t$				0.23		
				(0.16)		
$\text{growth}_{t-1} \times \text{election}_t$ $\times \text{CAR}_t$				3.10		
				(1.30)		
CAR_t				0.01		
				(0.02)		
$\text{election}_t \times \text{CAR}_t$				-0.08		
				(0.08)		
$\text{election (other year)}_t$					0.01	-0.00
					(0.02)	(0.02)
growth_{t-1} $\times \text{election (other year)}_t$						0.16
						(0.17)

Marginal effect of growth_{t-1} *on* $\Pr(\text{breakdown}_t = 1)$

no election (closed)			-0.04	-0.09		-0.12
			(0.08)	(0.10)		(0.10)
no election (CAR)				0.13		0.04
				(0.13)		(0.13)
election (closed)			-1.69	-4.11		
			(0.67)	(1.15)		
election (CAR)			-1.69	-0.78		-1.30
			(0.67)	(0.69)		(0.68)
observations	1553	1553	1553	1553	1553	1553
regimes	66	66	66	66	66	66
countries	58	58	58	58	58	58

OLS regression estimates. Specifications replicate those of Table 2.2, restricting the sample to regimes that Geddes, Wright and Frantz (2014) classify as party-based (including party-personal, party-military and party-military-personal). The dependent variable is *breakdown*$_t$. In models 5 and 6, the point estimates for *election*$_t$ refer to elections scheduled to take place on year t at the beginning of the year. In all cases, "election(s)" means *competitive* elections for an *executive* office. Robust standard errors (HC3) clustered by regime in parentheses. All specifications include regime and year fixed effects.

TABLE A2.6: Robustness checks (5): Regimes that are not party-based.

| | growth only | Actual elections | | | Scheduled elections | |
		election only	growth × election	gr. × el. × CAR	election only	growth × election
	(1)	(2)	(3)	(4)	(5)	(6)
growth_{t-1}	-0.15		-0.14	-0.10		-0.11
	(0.07)		(0.06)	(0.05)		(0.05)
election_t		0.08	0.09	0.14	0.16	0.18
		(0.03)	(0.04)	(0.06)	(0.04)	(0.05)
$\text{growth}_{t-1} \times \text{election}_t$			-0.53	0.29		-1.10
			(0.50)	(0.99)		(0.63)
$\text{growth}_{t-1} \times \text{CAR}_t$				-0.19		
				(0.19)		
$\text{growth}_{t-1} \times \text{election}_t$ $\times \text{CAR}_t$				-1.31		
				(1.28)		
CAR_t				0.07		
				(0.03)		
$\text{election}_t \times \text{CAR}_t$				-0.04		
				(0.09)		
$\text{election (other year)}_t$					0.07	0.06
					(0.03)	(0.03)
growth_{t-1} $\times \text{election (other year)}_t$						0.03
						(0.15)

Marginal effect of growth_{t-1} *on* $\Pr(\text{breakdown}_t = 1)$

no election (closed)			-0.14	-0.10		-0.11
			(0.06)	(0.05)		(0.05)
no election (CAR)				-0.28		-0.08
				(0.18)		(0.15)
election (closed)			-0.67	0.19		
			(0.51)	(1.00)		
election (CAR)			-0.67	-1.30		-1.20
			(0.51)	(0.77)		(0.63)
observations	1676	1676	1676	1676	1676	1676
regimes	148	148	148	148	148	148
countries	70	70	70	70	70	70

OLS regression estimates. Specifications replicate those of Table 2.2, restricting the sample to regimes that Geddes, Wright and Frantz (2014) classify as not party-based. The dependent variable is *breakdown$_t$*. In models 5 and 6, the point estimates for *election$_t$* refer to elections scheduled to take place on year t at the beginning of the year. In all cases, "election(s)" means *competitive* elections for an *executive* office. Robust standard errors (HC3) clustered by regime in parentheses. All specifications include regime and year fixed effects.

Paper 3

Building Support from Below? Subnational Elections, Diffusion Effects, and the Growth of the Opposition in Mexico, 1984-2000

Abstract

Can subnational elections contribute to the democratization of authoritarian regimes? In autocracies that hold competitive elections at multiple levels of government, subnational executive offices provide opposition parties with access to resources, increase their visibility among voters and let them gain experience in government. This allows opposition parties to use subnational executives as "springboards" from which to increase their electoral support in future races, and suggests that electoral support for the opposition should follow a diffusion process: a party's electoral performance in municipality m at time t should be better if that party already governs some of m's neighbors since $t-1$. I evaluate this claim from data from municipal-levels elections in Mexico between 1984 and 2000. In line with the claim that the PAN followed an explicit strategy of party building from the bottom up while the PRD did not, the results show that diffusion effects contributed to the growth of the former but not the latter.

"[...] *when, and if, political democracy arrives in Mexico, it may well be that it does not come about as the result of a macropolitical transformation, but rather through incremental transformations.*"

(Meyer 1994:7,13, quoted in Espinoza Valle 1999:75)

Can subnational elections contribute to the democratization of authoritarian regimes? If so, under what circumstances? The fact that many authoritarian regimes nowadays hold competitive elections at the subnational level[1] raises the question of whether opposition parties in such regimes can take advantage of them. Anecdotal evidence from Serbia, Mexico and Venezuela suggests that this is sometimes the case, with opposition governors and mayors playing a key role in organizing protests and demonstrations against electoral fraud, implementing innovative policies, improving public service delivery and shaping the allocation of national redistributive programs (Krnjevic-Miskovic 2001; Shirk 2005; Bunce and Wolchik 2011; Dobson 2012; Albertus 2015). Subnational executive offices also provide access to valuable resources (Rakner and van de Walle 2009; Dobson 2012), and the fact that opposition executives often use these offices as "springboards" to run for higher-level positions means that they have incentives to engage in party-building and campaigning in neighboring districts, enhancing their parties' electoral prospects in the process (Camp 2010; Levitsky and Way 2010; Dobson 2012).

Yet with the exception of Hiskey and Canache (2005), the literature on authoritarian elections has expressed considerable skepticism about the possibility that subnational elections may contribute to democratization. The dominant view on subnational elections in autocracies sees them as mechanisms for coopting local elites rather than as meaningful arenas for electoral competition (Díaz-Cayeros 2006; Blaydes 2010; Reuter et al. 2016). Opposition parties in authoritarian regimes have few resources with which to sustain a permanent party organization and run credible campaigns, and their leaders' lack of visibility and relevant government experience further

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[1]This is especially true of large federal countries such as Russia, Venezuela or Malaysia (Reuter et al. 2016), as well as Mexico before 2000.

reduces their electoral appeal. Even when opposition parties are allowed to take office at the subnational level, the ruling party[2] has both the means and incentives to asphyxiate the new administration. High-ranking insiders and foreign governments are the only players that can muster enough resources, visibility and organizational capital to challenge the regime at the polls; thus, ruling parties are electorally vulnerable only in the presence of a large-scale defection (Langston 2006; Magaloni 2006; van de Walle 2006; Brownlee 2007*a*; Levitsky and Way 2010; Gibson 2013), or if an outside player comes to the opposition's support (Gibson 2005, 2013; Levitsky and Way 2010). The implication is that a scenario in which the opposition slowly builds electoral support from the bottom up is unlikely in practice: either the opposition is so strong that it does not need it, or so weak that the strategy cannot work.

In contrast with this view, in this paper I defend the possibility that opposition victories at the subnational level may act as "chinks in the armor" that slowly erode the edifice of authoritarian rule. More specifically, I posit that in authoritarian regimes that hold elections at multiple levels of government, opposition parties can exploit their victories in subnational executive races as "springboards" from which to increase their electoral support in future races. The logic behind this argument is twofold. On the one hand, gaining control of subnational executive offices allow opposition parties to overcome some of the limitations identified by the literature: they provide access to resources that can be used for hiring party activists, campaigning and monitoring elections; they send the signal that the ruling party can be defeated at the polls; and they change voters' beliefs about the experience and quality of opposition leaders. On the other, the effect of these factors should be stronger at the local level, and in any case opposition executives who want to "jump" to higher-level offices have strong incentives to employ these resources to court voters in neighboring districts, thus raising their party's electoral prospects in the process. The implication is that electoral support for opposition parties should follow a *diffusion process*, i.e.

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[2]Thorough this paper, I use the expressions "the ruling party" or "the incumbent (party)" to indicate the party that wields power at the upper level of the competitive authoritarian regime in question. Whenever I refer to opposition parties holding office at the subnational level, I speak of "opposition executives."

an opposition party should do better in a municipality *m* at time *t* if it already captured some of *m*'s neighbors at *t* − 1.

The possibility that opposition victories in subnational elections may generate a diffusion process has also been raised by Hiskey and Canache (2005), who study how municipal elections contributed to Mexico's democratization. Nonetheless, my argument differs from theirs in two crucial respects. First, while Hiskey and Canache focus on subnational democratization — understood as the first ruling party defeat in a municipal election —, my interest lies in understanding how individual parties can use subnational offices to increase their electoral support over time. Second, and related, I argue that this diffusion process should be understood as a *strategy* that opposition parties may (not) follow rather than as a general pattern that is equally valid for all opposition parties.[3] The point is that opposition parties can adopt multiple strategies for challenging the ruling party, and one of slowly building support from the bottom up is not necessarily the most convenient or effective. In particular, regime defectors who already enjoy wide name recognition, or opposition politicians whose electoral support is overwhelmingly concentrated in a large city, may do better by focusing on national elections and ignoring subnational ones.

Empirically, I examine this claim with data on municipal-level elections in Mexico between 1984 and 2000, when the ruling *Partido Revolucionario Institucional* (Institutional Revolutionary Party, or PRI) finally conceded the presidency after seven decades in power. In order to determine whether diffusion effects operated vertically from governors to mayors and congressional candidates, horizontally between mayors, or horizontally between mayors and congressional candidates, I examine both mayoral and congressional elections — in both cases measured at the municipal level. Mexico constitutes a particularly attractive setting for studying this issue for two reasons. First, the country had two main opposition parties, but while the *Partido Acción Nacional* (National Action Party, or PAN) followed an explicit strategy of building electoral support from the bottom up (Lujambio 2001), the *Partido de la Revolución Democrática* (Party

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[3]I thank an anonymous reviewer for making this distinction.

of the Democratic Revolution, or PRD) attempted to oust the PRI as quickly as possible and re-lied extensively on opportunistic PRI defectors (Bruhn 1999, 2012; Meyenberg and Carrillo 1999; Reveles Vázquez 2004; Hiskey and Canache 2005; Hilgers 2008; Wuhs 2008). Thus, comparing the PAN with the PRD can shed light on whether diffusion effects can work for all parties (or none), or only those that adopt an explicit strategy of party-building at the subnational level. And second, while by 2000 both the PAN and the PRD had made substantial inroads across the country, until the mid-1980s the PRI controlled practically all subnational governments (see Table 3.1 and Figure 3.1). In other words, all the cross-sectional variation that we see in the data in 2000 was driven by variation *within* municipalities since the mid-1980s; this suggests employing a fixed-effects approach in which each municipality is compared with itself at different moments in time, alleviating concerns that the results may be driven by the fact that neighboring municipalities tend to be similar to each other. Again, this departs from the work of Hiskey and Canache (2005) in four important respects. First, I include data from all of Mexico's states rather than four of them. Second, my focus is on the performance of individual opposition parties rather than the first PRI defeat at the municipal level. Third, my main explanatory variable measures the proportion of neighboring municipalities controlled by an opposition party at the time of the election, not those municipalities where the PRI had ever been defeated in the past. Lastly, the use of fixed effects means that the results are driven by variation within municipalities over time.

To anticipate the results, I find that diffusion effects contributed to the PAN's growth, but not to the PRD's. Specifically, the PAN was more likely to win at the municipal level when it already controlled the state government or a neighboring municipality. In substantive terms, the PAN's chances of carrying a municipality increased by 7-15 percentage points in the presence of a copartisan governor, and by ≈ 1.5 percentage points when the number of PAN-governed neighboring municipalities increased by a standard deviation — both substantial effects considering that the PAN won only 7.4-9.0% of elections in the sample. The results are similar for mayoral and congressional elections, indicating that diffusion effects increased the party's strength in both local

and federal elections. However, the number of copartisan mayors in neighboring municipalities did not increase the PAN's vote share, possibly because party officials focused on those races in which they could tip the balance in the party's favor. In the case of the PRD, having a copartisan governor improved the party's performance in federal elections, but there is no evidence of horizontal diffusion effects; on the contrary, the coefficient of interest is generally negative, though small in magnitude and quite unreliable. This is consistent with several facts about the party, such as its low levels of institutionalization (Meyenberg and Carrillo 1999; Reveles Vázquez 2004; Martínez González 2005; Hilgers 2008; Bruhn 2012), its emphasis on defeating the PRI at the national level as quickly as possible (Hilgers 2008), the fact that its main base of support came mostly from Mexico City and a few other states such as Michoacán (Reveles Vázquez 2004), its reliance on PRI defectors to expand to other states (Bruhn 1999, 2012; Meyenberg and Carrillo 1999; Reveles Vázquez 2004; Hiskey and Canache 2005; Hilgers 2008; Wuhs 2008), and the systematic "punishment campaign" that the PRI launched against PRD mayors and activists (Bruhn 1997, 2012; Reveles Vázquez 2004; Magaloni 2006).

3.1   Theory

Overview. I study how subnational elections in competitive authoritarian regimes (CARs) may contribute to the development of opposition parties. CARs are political regimes that combine formal democratic institutions — an executive and a legislature elected in multiparty elections with universal suffrage — with systematic recourse to informal (when not illegal) practices that skew the playing field in the ruling party's favor, such as government control of the media, electoral fraud, the systematic harassment of opposition leaders and supporters, or the massive use of state resources for partisan gain.[4] Nonetheless, elections in CARs are not a mere *façade*: the

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[4]Besides Mexico under the PRI (1929-2000), other examples of CARs include Peru under Fujimori (1992-2000), Venezuela under *chavismo* (after 2006), Russia (1991), Tanzania (1995-) or Zimbabwe (1980-).

ruling party must work hard in order to win, and electoral defeats do occur from time to time.[5]

The existing literature has studied how defections from the ruling party (Langston 2006; Magaloni 2006; van de Walle 2006; Brownlee 2007*a*; Greene 2007; Levitsky and Way 2010; Reuter and Gandhi 2011; Garrido de Sierra 2013*b*; Gibson 2013; Rundlett and Svolik 2016), opposition coalitions (Howard and Roessler 2006; Bunce and Wolchik 2010, 2011; Arriola 2012, 2013; Donno 2013), and the intervention of outside players (Gibson 2005, 2013; Levitsky and Way 2010; Bunce and Wolchik 2010, 2011; Donno 2013) contribute to make these elections more competitive. However, and despite the fact that opposition parties in CARs vary substantially both in terms of their electoral strength and their degree of institutionalization, we still know little about why some opposition parties are more institutionalized and/or enjoy more electoral support than others (Morse 2012).

In this paper I extend this literature by arguing that opposition parties may employ subnational executive offices as "springboards for [the] accumulation of victories in [future] races." (Shirk 2005:109) The central claim is that the resources and visibility provided by these victories allow opposition parties to increase their electoral strength in neighboring areas in future races, and thus the distribution of political electoral support for opposition parties should follow a diffusion pattern: the opposition should do better in municipality m at t if it already controls some of m's neighbors since $t-1$.[6] This extends the work of Fernández-Durán, Poiré and Rojas-Nandayapa (2004) and Hiskey and Canache (2005), who have suggested the possibility of

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[5] The ruling party was defeated in 36 of 349 executive elections that took place in CARs between 1946 and 2015 (13.2%), a relatively high rate considering that the unconditional probability that an authoritarian regime would fail in a given year was just 4.9%. Sources: Geddes, Wright and Frantz (2014) for authoritarian regimes and Hyde and Marinov (2012) for electoral data; note that I extended both datasets until 2015 and introduced some minor modifications in these authors' codings.

[6] There is a large literature on the diffusion of democracy (Starr 1991; O'Loughlin et al. 1998; Kopstein and Reilly 2000; Cederman and Gleditsch 2004; Brinks and Coppedge 2006; Gleditsch and Ward 2006; Leeson and Dean 2009; Elkink 2011; Mainwaring and Pérez-Liñán 2014). However, this literature focuses on the formal rules of the game, while I look at how formally democratic elections may become more competitive. Moreover, the mechanisms that account for the diffusion of democracy between countries are probably different from those that explain the diffusion of electoral competition at the subnational level; in particular, opposition politicians who intend to run for higher-level offices (e.g., mayors running for the governorship) have strong incentives to seek votes beyond their strongholds, but the same is not true in the international arena. Lankina and Getachew (2006) examine the diffusion of democracy in Russia's regions, but they examine on the role of EU aid rather than opposition behavior.

a diffusion process in federal and municipal elections in Mexico. However, the former focus on contemporaneous effects, while the latter emphasize subnational democratization (understood as the first electoral defeat of the ruling party) rather than the growth of individual opposition parties. In contrast, most of the literature on authoritarian regimes has expressed considerable skepticism about the possibility that opposition parties in CARs may take advantage of subnational elections, noting that such parties are too weak and ineffectual to pose a serious challenge to the ruling party.[7] CARs are vulnerable to foreign interventions or the defection of some high-ranking insider; yet in either case the opposition will be strong enough to challenge the party at the national level, and thus it does not need to engage in a slow process of party-building from the bottom up (Gibson 2005, 2013; Brownlee 2007*a*; Levitsky and Way 2010).

Before introducing the argument in more detail, I need to make two clarifications about its scope. First, I do not offer a full-blown account of why CARs democratize; rather, my point is that opposition parties may take advantage of subnational elections to increase their electoral support over time, thus becoming more serious contenders at the national level. For this reason, I take for granted that the ruling party is willing to recognize opposition victories in subnational elections; when this is not the case, the mechanisms posited in this paper cannot work. This is why in Mexico the PAN's "municipalization" strategy, though advocated since the party's founding, produced little results until the late 1980s (Lujambio 2001). Nonetheless, ruling parties in CARs are not always in a position to ignore subnational opposition victories, especially if these are too obvious to conceal from outside observers. For example, although Slobodan Milosevic initially refused to recognize opposition victories in the 1996 Serbian municipal elections, he had to back down in the face of strong pressure from street protesters, the Orthodox Church and the international community (Krnjevic-Miskovic 2001:98-99). Moreover, the ruling party's willingness to recognize opposition victories does not imply that the opposition will take advantage of the opportunity; more than a decade after Mexico democratized, the (former) opposition has

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[7] The diffusion of organizations other than parties has received some consideration: see Crowley and Skocpol (2001) for civic associations, Holmes (2006) for unions, and Holmes (2011) for Wal-Mart.

yet to win the governorship of 9 of the country's 32 states[8] as well as a tenth of its municipalities (Selee 2012).

This leads to the second clarification: the diffusion process described in this paper should be interpreted as a *strategy* that opposition parties may choose (not) to follow rather than as a general pattern that occurs more or less automatically. Opposition parties in CARs have multiple ways of challenging the ruling party, and a strategy of party-building from the bottom up may not be the more attractive of them. In particular, regime defectors or opposition leaders whose base of support is overwhelmingly concentrated in the capital city may find that winning national elections as quickly as possible is more appealing than a slow process of party building from below. Nonetheless, some of the mechanisms described below (such as voters' learning from opposition victories) may operate even without the active involvement of opposition leaders. One of the advantages of studying the Mexican case is that while the PAN followed an explicit strategy of building support from the bottom up, the PRD did not, and thus the empirical results can provide some leverage on which of these two interpretations is more reasonable.

Argument. The argument is based on two claims. The first is that opposition parties in CARs can use subnational executive offices to obtain access to resources, gain experience in government, and send the signal that the ruling party can be defeated at the polls. Local governments provide access to resources that can be used for campaigning and hiring party activists (Rakner and van de Walle 2009). Given the low cost of subnational campaigns in developing countries (Langston and Morgenstern 2009), even modest resources can make a difference. For example, one of the main advantages of running on Botswana's BDP ticket is access to a 4 × 4 vehicle for campaigning (Levitsky and Way 2010, ch. 6). As governor of the Venezuelan state of Miranda, Henrique Capriles has access to a helicopter with which to campaign in remote areas (Dobson 2012). Of course, ruling parties often attempt to withdraw resources from opposition governments; nonetheless, subnational governments often receive some transfers from the center, and

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[8]Campeche, Colima, Coahuila, Durango, Hidalgo, México, Quintana Roo, Tamaulipas and Zacatecas.

the fact that subnational executives control *some* tax base allows opposition leaders to raise their own revenue. This was certainly the case in Mexico, where PAN governors and mayors collected a larger proportion of own revenues than their PRI counterparts (Díaz-Cayeros 2004; Shirk 2005; Grindle 2006; Cleary 2007).

Holding an executive office also allows opposition leaders to *do* something for their constituents, helping dispel fears that they are unsuited to govern (Magaloni 2006), especially among risk-averse voters (Morgenstern and Zechmeister 2001).[9] Opposition executives in Venezuela stand out for their capacity to provide better health and education than their *chavista* counterparts (Dobson 2012, ch. 4), and opposition governors played a key role in the implementation of a national land reform program in their states (Albertus 2015). Similarly, opposition mayors in Mexico pioneered policy innovations that later became widely adopted thorough the country, like the "Citizen Wednesday" program (Shirk 2005:181).

The realization that the ruling party can be defeated at the polls can also encourage voters' willingness to turn out to the polls and may dissuade ruling party activists to engage in fraud, especially if they fear retaliation afterwards (Hiskey and Canache 2005; Magaloni 2006; Bunce and Wolchik 2010, 2011; Simpser 2013; Rundlett and Svolik 2016). Local opposition victories can also allow anti-regime voters to coordinate. Even if voters agree on the desirability of getting rid of the ruling party, they may not know which opposition party is better positioned to win (Magaloni 2006; van de Walle 2006; Greene 2007). The effect is especially pronounced at the local level, where lack of polling data means that uncertainty about the electoral strength of different candidates is very high, even for the ruling party (Langston and Morgenstern 2009). In this context, an opposition victory in local elections can send a reliable signal about the identity of the strongest opposition party in the area.

The second claim is that, to the extent that opposition leaders are interested in building a party organization from below, they have strong incentives to focus on neighboring districts

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[9] Indeed, a large literature on *yardstick competition* studies how voters evaluate the quality of their representatives by comparing their performance with that of representatives from neighboring areas (see for example Besley and Case 1995; Bosch and Solé-Ollé 2007; Kayser and Peress 2012).

rather than in far-fetched places. A handful of opposition victories at the subnational level are unlikely to jeopardize the ruling party's hold on power, but their capacity to bring about further opposition victories in local elections should not be underestimated. Practices like clientelism and fraud are very sensitive to local information (Medina and Stokes 2002, 2007; Hiskey and Canache 2005; Magaloni, Díaz-Cayeros and Estévez 2006; Larreguy, Marshall and Querubín 2016), and depend heavily on the opportunities and incentives faced by local officials and activists (Casas, Díaz and Trinidade 2014; Rundlett and Svolik 2016). Voters' perceptions about the fairness of national elections depend on the amount of competition they have witnessed at the local level (Hiskey and Bowler 2005). Even in regimes with strong parties, the effectiveness of campaigns for subnational offices depends heavily on local conditions (Langston and Morgenstern 2009). Ambitious politicians who want to "jump" to a higher-level position — e.g., mayors who intend to run for the governorship — have strong incentives to develop a local reputation and promote party-building in neighboring districts in order to obtain votes outside their local strongholds (Camp 2010, ch. 2). Using local offices to "jump" to higher level ones is a practice among opposition politicians in CARs (Rakner and van de Walle 2009; Levitsky and Way 2010, ch. 10). For example, Mikheil Saakashvili's election as mayor of Tbilisi in 2002 transformed him into the main opposition contender for the presidency of Georgia (Bunce and Wolchik 2011:157). Many prominent Mexican politicians served as mayors before running for state- or national-level offices (Camp 2010), notably Ernesto Ruffo — who was mayor of Ensenada before becoming the country's first opposition governor — and Vicente Fox —governor of Guanajuato before running for the presidency. Venezuelan governors Manuel Rosales and Henrique Capriles also used their office to promote their presidential ambitions, though with less success so far.

Implications. Taken together, these considerations suggest that the electoral support of opposition parties should follow a diffusion pattern whereby electoral victories in subnational executive elections are followed by further victories in neighboring constituencies in the future. This process can be either vertical or horizontal. A *vertical* diffusion process unfolds when the capture

of an executive office increases the opposition's electoral strength in elections for other offices that are decided by the same electorate or a subset of it, for example if controlling the state governorship improves the opposition's electoral chances in mayoral elections *within the same state.* This process may be driven by targeted spending, coattail effects, or the active endorsement of an opposition candidate running for another office. Regardless of the mechanism, this effect should be especially strong because the opposition executive (a) is well-known by the electorate it is attempting to influence, and (b) enjoys direct political authority over it. This leads to the following implication (note that in practice, vertical diffusion can only come from state governors, as mayors face no lower-level executives and few municipalities contain an entire legislative district):

> H_1. *Vertical diffusion.* An opposition party will do better in constituency m at time t if it already governs the state where m is located since $t-1$.

On the other hand, *horizontal* diffusion occurs when capturing a subnational office allows the opposition to increase its electoral support in neighboring elections that are decided by a *different* electorate. The obvious example are mayors influencing mayoral elections in neighboring municipalities, but governors influencing mayoral elections in states they do not govern or mayors influencing legislative elections in other municipalities also qualify.

Since the opposition executive has no political authority over the voters she is attempting to influence, horizontal diffusion cannot be driven by government spending or coattails. Rather, this process may result from two other mechanisms: learning or migration.[10] *Learning* occurs when players' beliefs about what is possible, likely and/or effective is altered as a result of other players' experiences, for example when discovering the consequences of new policies (Boehmke and Witmer 2004; Volden 2006; Shipan and Volden 2008; Weyland 2007, 2009; Meseguer 2006; Meseguer and Escribà-Folch 2011; Gilardi 2010; Buera, Monge-Naranjo and Primiceri 2011). As

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[10]There are five possible diffusion mechanisms: coercion, competition, socialization, learning and migration (Franzese and Hays 2008; see also Graham, Shipan and Volden 2013; Braun and Gilardi 2006; Simmons, Dobbin and Garrett 2006; Shipan and Volden 2008), but only the last two are relevant in the context of this paper.

mentioned above, voters may change their behavior after realizing that the ruling party can be defeated at the polls, or they may update their beliefs about the quality of opposition candidates after observing how they perform in office. *Migration* takes place when players originating in some unit get directly involved in the life of another (Franzese and Hays 2008).[11] Examples include establishing party committees in neighboring constituencies (Hiskey and Canache 2005; Camp 2010:48) or campaigning and mobilizing electoral monitors to neighboring districts (Bunce and Wolchik 2010, 2011).

Of course, migration and learning are hard to disentangle in practice, and in any case they need not be mutually exclusive; in particular, opposition leaders may campaign in neighboring municipalities by touting their achievements in the ones they already govern. In any case, distinguishing between them requires fine-grained data about campaign visits or the establishment of party committees that are hard to come by.[12] For this reason, in this paper I will not try to adjudicate between these mechanisms; rather, I will focus on whether the electoral support of opposition parties followed a pattern of horizontal diffusion:

> H_2. *Horizontal diffusion.* An opposition party will do better in constituency *m* at time *t* if it already governs some of *m*'s neighbors since $t - 1$.

3.2   Case selection: Mexico 1984-2000

I examine these claims with data on municipal elections in Mexico between 1984 and 2000. During this period, Mexico had a federal system in which competitive elections were held at the federal, state and municipal levels. Yet the country was not democratic, as the PRI dominated Mexican politics through a mixture of consent, manipulation and coercion. Indeed, until the

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[11]Migration should be understood as the movement of one player (individual or collective) from one unit to another rather than in the narrower sense of a population flow between countries. Arguably, the term "migration" is not the most felicitous term in this context; nonetheless, since Franzese and Hays (2008) already use it and their conception is very similar to mine, I preferred to follow their lead rather than creating a new term.

[12]Langston and Benton (2009) use data on campaign visits, but they only examine the 2006 presidential election.

early 1980s the ruling party controlled almost all elected offices in the country; opposition parties only governed a handful of municipalities, and their legislative representation was limited to a few seats that the PRI had expressly reserved for them. This began to change in 1988, when the defection of Cuauhtémoc Cárdenas — son of a beloved PRI president, and former senator and governor under the ruling party — produced a surprisingly close election. Indeed, initial results showed Cárdenas leading, but shortly afterwards the electoral authorities announced a computer crash and when the counting resumed the PRI candidate was already ahead.[13] Nonetheless, the PRI lost its supermajority in the Chamber of Deputies and thus had to negotiate with the PAN in order to pass constitutional reforms. This initiated a collaboration process in which the PAN supported PRI initiatives in Congress in exchange for more transparent elections and the recognition of opposition victories at the subnational level (Eisenstadt 2004, 2006). The ruling party conceded its first defeat in a gubernatorial election in 1989, and the number of municipalities governed by the opposition began to increase slowly but steadily over time (see Figure 3.1). The PRI eventually admitted defeat in the 2000 presidential election; by then, the opposition had already governed 12 of the country's 32 states (see Table 3.1).

Several features of Mexico's political system make it an ideal case for evaluating the argument advanced in this paper. The constitution bans consecutive reelection for all elected offices, forcing elected officials to run for another office at the end of their mandate and increasing the importance or party organization for career advancement. The length of elected mandates is uniform across the country: federal legislators, state legislators and mayors last three years in office, while governors, most senators and the president are elected for six-year terms. This introduces a cycle of concurrent and midterm elections at both the federal and state levels, though national and subnational elections are not necessarily concurrent and thus results cannot be treated as an artifact of the "pull" of national-level factors. During the 1980s municipal governments controlled relatively few funds, and the PRI took advantage of this fact to withdraw discretionary

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[13] Officially, Cárdenas obtained 31.3% of the vote against Carlos Salinas' 50.7%. There is little doubt that fraud increased Salinas' vote total (Castañeda [1998] 2015; Magaloni 2006; Bruhn 2012), but it is unclear whether fraud was necessary to win or just to help Salinas pass the 50 percent threshold.
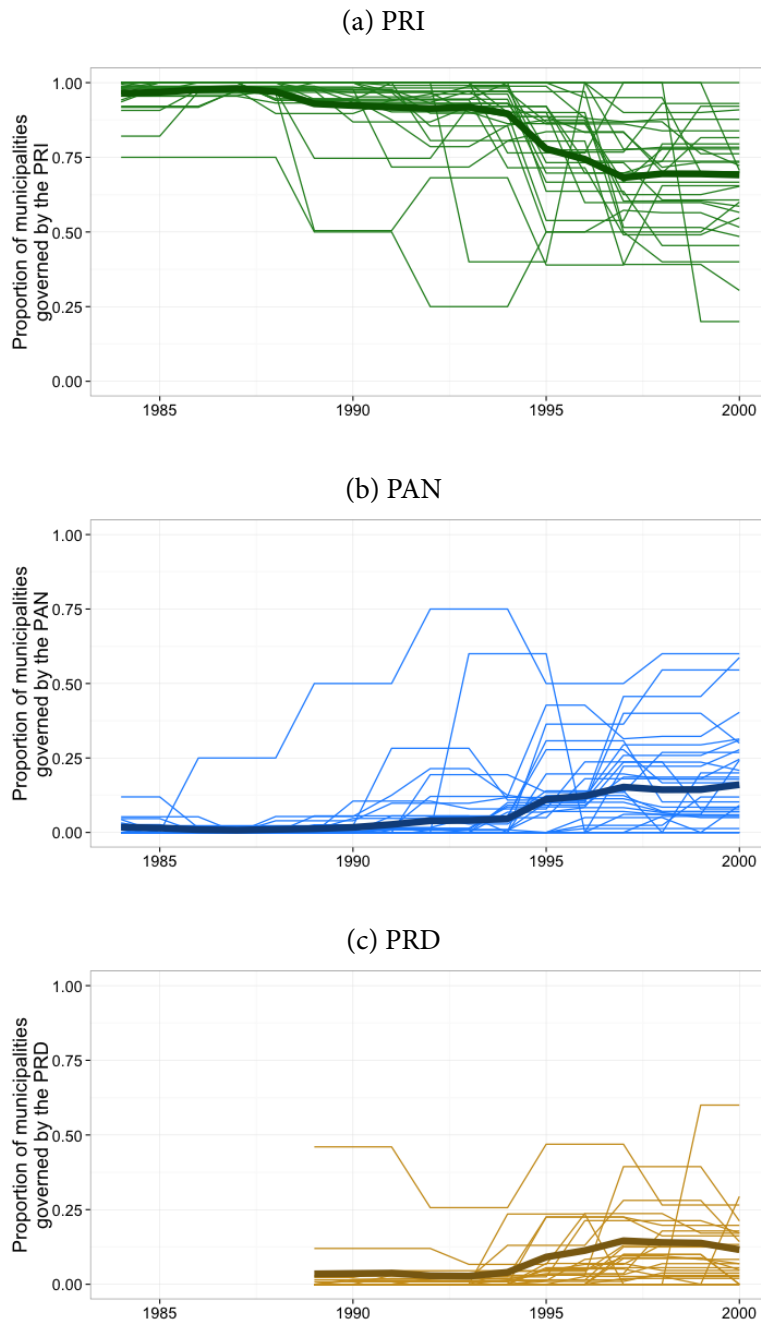
(a) PRI

(b) PAN

(c) PRD

FIGURE 3.1: The erosion of the PRI and the ascent of the opposition in Mexico, 1984-2000. Thin lines indicate (unweighted) state averages, while thick lines indicate the national average. Oaxacan municipalities that employ the "Usos y Costumbres" rules (Benton 2012) are excluded from the sample.

resources from opposition governments (Bruhn 1997, 1999; Mizrahi 1998; Aziz Nassif 2001; Valencia García 2001; Magaloni 2006; Selee 2012). Nonetheless, PAN mayors compensated for this by collecting more revenues on their own (Díaz-Cayeros 2004; Grindle 2006; Cleary 2007), and institutional reforms in the early 1990s increased both the fiscal authority of local governments and the amount of resources they received from the center (Rodríguez 1997; Burki, Perry and Dillinger 1999; Courchene and Díaz-Cayeros 2000; Garman, Haggard and Willis 2001; Falleti 2005; Díaz-Cayeros 2006; Selee 2012).

Thorough this period, the PRI's main opposition parties were the PAN on the right and the PRD on the left. For reasons that combine history, geography and short-term circumstances, these parties adopted very different strategies to challenge the PRI. These can shed light on whether the diffusion process described in this paper is best understood as a deliberate strategy or as a general pattern that applies to all opposition parties. That is, finding that diffusion effects work for both parties would indicate that the process is more or less automatic, while if evidence of diffusion were restricted to the PAN would indicate that a strategy of building support from the bottom up can succeed, but only for parties that pursue it actively. Of course, finding no evidence of diffusion at all, or detecting diffusion effects only for the PRD, would count as evidence against the argument.

Since its founding in 1939, the PAN advocated a "municipalization" strategy aimed at capturing subnational government and using them as "springboards" for further electoral victories. Yet during most of its history the party won few mayoral races (Lujambio 2001). This began to change during the 1980s, when the ruling party became more willing to tolerate opposition victories and the PAN received an influx of Northern businessmen who emphasized the importance of building ties with voters by solving concrete problems at the local level (Mizrahi 1994, 1998; Shirk 1999, 2001, 2005; Valencia García 2001; Wuhs 2001, 2008). These new recruits developed local reputations that proved useful when running for higher-level offices in future elections. Indeed, a large proportion of *panista* politicians who achieved national prominence during the 1990s had former experience as mayors or state legislators (Camp 2010). Many of them also developed an

TABLE 3.1: Mexican states that experienced alternation before the 2000 presidential election.

	state	year	winning party
1	Aguascalientes	1998	PAN
2	Baja California	1989	PAN
3	Baja California Sur	1999	PRD
4	Chihuahua	1992	PAN
5	Distrito Federal (*)	1997	PRD
6	Guanajuato (**)	1991	PAN
7	Jalisco	1995	PAN
8	Nayarit	1999	PAN-PRD
9	Nuevo León	1997	PAN
10	Querétaro	1997	PAN
11	Tlaxcala	1998	PRD
12	Zacatecas	1998	PRD

(*) Did not hold municipal elections before 2000. (**) Appointed governor (elected opposition governor in 1995). Source: CIDAC (http://www.cidac.org/).

interest in party building: state party chairs, who presumably had an interest in improving the party's electoral fortunes across the state, often had electoral experience at the local level, and party members sometimes moved to other states to help develop the party organization there (Camp 2010:30-48). The PAN also became willing to collaborate with the PRI, offering legislative support in the national Congress in exchange for more transparent electoral institutions and the recognition of electoral victories in mayoral and electoral contests (Eisenstadt 2004, 2006; Bruhn 2012). This suggests that horizontal diffusion effects should be especially strong for the PAN; on the other hand, the fact that this party advocated a "municipalization" strategy since its founding but only began to win elections in earnest in the mid-1980s may indicate that it was the PRI's decision to recognize opposition victories at the subnational level, rather than the municipalization strategy, that mattered. In any case, the fact that electoral support for the PAN was geographically concentrated does not necessarily mean that a diffusion process was at work.

The PRD was founded in 1989 as the heir of the *Frente Democrático Nacional* (Democratic National Front, FDN) that supported Cárdenas's presidential candidacy in 1988 (Bruhn 1997).

From the beginning, the party was a heterogeneous amalgam of former *priístas*, social movements and left-wing politicians and intellectuals. In this context, Cárdenas unquestioned authority allowed the PRD to held together, yet it also hindered the party's institutionalization (Meyenberg and Carrillo 1999; Reveles Vázquez 2004; Martínez González 2005; Hilgers 2008). The fact that personalism and reliance on a charismatic leader was common among local PRD administrations did not help institutionalize the party either (Bruhn 2012). Moreover, Cárdenas's insistence on defeating the PRI at the national level and the fact that his base of support was concentrated in relatively few states (notably Mexico City and Michoacán) discouraged a strategy of party-building from the bottom up (Reveles Vázquez 2004; Hilgers 2008). At the local level, lax affiliation rules (Shirk 2005; Wuhs 2008; Bruhn 2012) facilitated the entrance of recent PRI defectors with little stake in the party's long-term development (Bruhn 1997, 1999). Indeed, during the second half of the 1990s the party began nominating PRI defectors as candidates (Bruhn 1999, 2012; Meyenberg and Carrillo 1999; Reveles Vázquez 2004; Hilgers 2008). This brought important electoral successes; for example, four of the five PRD candidates who won a gubernatorial election before 2000 had recently defected from the PRI.[14] Yet the fact that these defectors had left the PRI only after failing to receive the nomination meant that their loyalty to the PRD was rather thin.[15] Furthermore, the PRI perceived the PRD as a more threatening enemy than the PAN (Bruhn 1997, 1999, 2012; Wuhs 2008), and thus it was more hostile to it: hundreds of PRD activists were assassinated (Bruhn 1997, 2012; Reveles Vázquez 2004; Quintero León, López Perdomo and Leyva Roa 2004), PRD municipalities received fewer funds for social programs (Magaloni 2006), and PRI-controlled unions often tried to obstruct the work of PRD mayors, for example by refusing to collect trash (Bruhn 1997). In sum, not only did the PRD not adopt anything akin to the PAN's "municipalization" strategy, but other factors — its

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[14] Alfonso Sánchez Anaya (Tlaxcala, 1998); Ricardo Monreal Ávila (Zacatecas, 1998); Leonel Cota Montaño (Baja California Sur, 1999); and Antonio Echevarría Domínguez (Nayarit, 1999). The only exception was Cárdenas himself, elected head of government of the Federal District in 1997.

[15] For example, Bruhn tells the story of a local politician in Almoloya del Río (Estado de México) who quit the PRI after losing the primary, won the mayoral election and joined the PRD afterwards because independents were barred from assuming office. As he put it bluntly, "*my group and I are still* priístas. *We only changed shirts, not ideologies.*" (Bruhn 1997:202)

lack of institutionalization, its reliance on defectors and the PRI's hostility toward it — suggest that a diffusion process should be less likely in its case.

Last but not least, another reason for focusing on Mexico is the quantity and quality of the data that is available. Data on municipal elections in Mexico covers $\approx 2,400$ municipalities over up to 6 elections, far more than in other CARs that hold subnational elections. Moreover, by focusing on Mexico I can compare municipalities that faced identical conditions at the beginning — they were all governed by the PRI, in a state and a country that were also governed by the PRI — but diverged slowly over time (see Figure 3.1). This means that all the cross-sectional variation that there is in the data in 2000 was driven by variation within municipalities over time.[16] And since the PAN and the PRD had very different regional strongholds (see Figure 3.2), they usually competed against the PRI rather than against each other.

Before moving to the next section, note that this paper does not pretend to offer a full-blown account of the PRI's demise, which was also driven by worsening economic conditions (Bruhn 1997; Magaloni 2006), the impact of economic reforms on the party's patronage machine (Greene 2007), growing international pressure to respect electoral outcomes (Cornelius 1986; Levitsky and Way 2010), and increasing incentives to defect (Langston 2006), specially after the 1996 electoral reform (Garrido de Sierra 2013*b*). Moreover, the diffusion process discussed in this paper could only "kick off" because the PRI was willing to tolerate continued opposition victories at the local level, which had not been the case before the 1980s (Cornelius 1986; Aziz Nassif 1994; Lujambio 2001; Shirk 2001). Rather, my claim is that electoral competition at the subnational level also played a role in strengthening the opposition. During most of its history, the PAN was not an organization for placing candidates in office, and in 1989 the PRD was just the new party of a recent PRI defector (Shirk 2001; Bruhn 1997). Thus, during the 1980s and early 1990s neither party was able to capitalize on voters' discontent with economic conditions, as they lacked the resources, pragmatism and experience needed to convince voters of their ability to manage the economy better than the PRI (Magaloni 2006; Greene 2007). However, by 2000 both parties

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[16]See Gilardi (2015) for a similar approach applied to the study women's representation in Switzerland.

had a relatively large presence thorough the country and could mount a serious presidential campaign. This allowed the PAN to exploit the PRI's weaknesses in the 2000 election in a way that had not been possible in the past (Shirk 2005; Greene 2007). The goal of this paper is to examine whether, by helping strengthen the opposition, subnational elections also contributed to this process.

3.3 Data and Methods

The unit of observation is the municipal-level election, indexed by municipality m and year t. I examine electoral returns for both mayoral and federal congressional elections, in both cases measured at the municipal level.[17] I employ municipal rather than state-level data both to increase sample size and to have more homogeneous units of analysis. This is especially relevant when studying diffusion effects, because explanatory variables are constructed as neighbor averages: if there are few units, many observations will have similar neighbors and thus the underlying variability of the data will be lower. The sample covers the 1984-2000 period: data for previous elections is not available, and the PRI defeat in the 2000 presidential election meant that subsequent elections no longer took place under authoritarian rule.[18] In the case of the PRD, I begin the analysis in 1989, when the party was first established.[19] Data on congressional elections is only available for 1994, 1997 and 2000.[20] I exclude Mexico City from the sample because it did

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[17] Municipal-level results for state elections (governors and mayors) is only available for selected state-years. In the case of congressional elections, I focus on the electoral returns from the SMD tier. During the period under study, Mexico had a segmented mixed-member system in which 300 deputies were elected by plurality rule in single-member districts, while the remaining 200 were selected by closed-list PR in five multi-member constituencies. Voters had a single ballot, which determined the distribution of seats in both tiers (Díaz-Cayeros and Magaloni 2001).

[18] Arguably, some PRI strongholds remained competitive authoritarian well after 2000 (Lawson 2000; Gibson 2005, 2013; Giraudy 2009). Nonetheless, the extensive partisan powers of the Mexican president and his capacity to discipline local PRI bosses means that the Mexican political system became qualitatively different after the 2000 election.

[19] In 1989, I code the municipalities that the FDN won in 1988 as controlled by the PRD.

[20] Data for the 1991 election was used to construct the lagged value of the outcome variables.

not hold municipal elections until 2000; municipalities in the state of Oaxaca that employed traditional voting methods ("*Usos y Costumbres*") are also excluded because they held nonpartisan elections (Benton 2012).[21]

The main methodological challenge of the paper is to distinguish diffusion effects — i.e., genuine interdependence between neighbors — from pure spatial autocorrelation — the tendency of similar units to be located next to each other. To deal with this issue, I exploit the panel structure of the data to look at variation *within* municipalities over time, rather than cross-sectional differences *between* them. I do this by fitting models with municipality and year fixed effects. The former ensures that the results will be driven by variation *within* municipalities over time, ignoring all factors that are time-invariant at the municipal level — including geographic location, a history of opposition support before 1984, or the number and nature of its neighbors. Year fixed effects capture time-specific shocks (like national elections) that affect all municipalities at the same time, and accounts for the fact that electoral support for the opposition trended upwards over time. Although this design cannot rule out the possibility of spatial autocorrelation, it limits the seriousness of the problem.[22]

Specifically, I estimate OLS models of the form

$$y_{m,t} = \beta\, x_{m,t} + \gamma\, \mathbf{C}_{m,t} + \mu_m + \delta_t + \varepsilon_{m,t},$$

where $y_{m,t}$ measures the electoral performance of a given opposition party in municipality m in year t, $x_{m,t}$ is the main explanatory variable, $\mathbf{C}_{m,t}$ is a vector of time-varying controls, and μ_m and δ_t are municipality and year fixed effects. I report separate results for the PAN and the PRD.[23] I employ OLS because of the fixed effects; these do not work well with logit or probit models,

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[21] When constructing the neighbor variables, all parties are coded as receiving zero votes in these municipalities.

[22] Employing a regression discontinuity (RD) design looks like a better idea in principle, but preliminary analyses show that the PRI was more likely to win close elections when it was the incumbent party. While not surprising — electoral fraud was extensive during most of the period under study —, this invalidates the RD assumption that observations should not be able to sort at the discontinuity.

[23] In the robustness checks I examine whether the results hold when taking into account the few instances in which these parties nominated a common candidate.

and in any case the fact that most municipalities experienced no PRI defeat during the period means that most fixed effects would be perfectly collinear with the outcome. Robust standard errors (HC3) are clustered by municipality.

I employ four measures of the opposition's electoral performance, $y_{m,t}$. $Winner_{m,t}$ is a dummy that takes the value of 1 if the party of interest won the mayoral election in municipality m in year t. In almost all instances, this means that the party in question received the plurality of the vote.[24] *Vote share*$_{m,t}$ indicates the vote share of the party of interest in the corresponding mayoral election. *Winner (federal)*$_{m,t}$ and *Vote share (federal)*$_{m,t}$ are similarly defined for federal congressional elections. Note that these last two variables are measured at the *municipal* level, which may not coincide with the level at which seats were actually distributed.

For the vertical diffusion hypothesis, the main explanatory variable is *Copartisan governor*$_{m,t}$, a dummy that takes the value of 1 if the party of interest controlled the state governorship at the time of the election. When examining the horizontal diffusion hypothesis, *Copartisan neighbors*$_{m,t}$ is defined as the proportion of m's neighboring municipalities that were governed by the party of interest at time t.[25] I code two municipalities as neighbors if their borders have at least one point in common. This implies symmetry, i.e. A is a neighbor of B if and only if B is also a neighbor of A, but it does not guarantee that all municipalities will have the same number of neighbors.[26] *Copartisan neighbors* ranges between 0 (if no neighboring municipality was governed by the party of interest) and 1 (if all of them were). Both *Copartisan governor* and *Copartisan neighbors* should have a positive effect on the outcome.

Depending on the specification, I control for *Incumbency*$_{m,t}$ and *Previous vote*$_{m,t}$, which indicate the incumbency status and previous vote share of the party of interest in municipality m

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[24] The only exception are the 1997 and 2000 elections in the state of San Luis Potosí, where a runoff system was employed.

[25] In other words, *Copartisan neighbors* is the (averaged) lagged value of *Winner* among m's neighbors.

[26] Technically, I employ a queen contiguity neighbor definition. In the robustness checks, I report the results for a nearest-k approach, in which m's neighbors are the $k = 12$ municipalities that are closer to it in terms of distance between municipality council heads (*cabeceras*). This ensures that all municipalities have the same number of neighbors, though it does not guarantee symmetry.

TABLE 3.2: Descriptive statistics.

	(a) PAN				(b) PRD			
(a) Dependent variables	mean	s.d.	min.	max.	mean	s.d.	min.	max.
Winner	0.07	0.26	0	1	0.08	0.28	0	1
Vote share	0.13	0.18	0	1	0.15	0.18	0	1
Winner (federal)	0.09	0.28	0	1	0.07	0.26	0	1
Vote share (federal)	0.18	0.16	0	0.73	0.16	0.15	0	0.81
(b) Explanatory variables								
Copartisan governor	0.05	0.22	0	1	0	0	0	0
Copartisan neighbors	0.05	0.13	0	1	0.05	0.14	0	1
(c) Control variables								
Incumbency	0.05	0.22	0	1	0.06	0.23	0	1
Previous vote	0.10	0.17	0	1	0.11	0.16	0	1
Previous winner (federal)	0.04	0.19	0	1	0.05	0.21	0	1
Previous vote (federal)	0.12	0.13	0	0.69	0.12	0.14	0	0.76
Vote neighbors	0.11	0.12	0	0.63	0.11	0.12	0	0.67
Alternation	0.07	0.26	0	1	0.07	0.26	0	1
Gubernatorial concurrent	0.42	0.49	0	1	0.42	0.49	0	1
Split municipality	0.01	0.10	0	1	0.01	0.10	0	1
Poverty	0.36	0.98	-1.88	3.8	0.36	0.98	-1.88	3.8
Rural municipality	0.64	0.48	0	1	0.64	0.48	0	1

in election t. *Previous winner (federal)$_{m,t}$* and *Previous vote (federal)$_{m,t}$* are similarly defined for federal elections. *Vote neighbors$_{m,t-1}$* is the average vote share received by the party in question in neighboring municipalities in the previous election. *Alternation$_{m,t}$* is a dummy indicating whether municipality m was located in a state where the PRI had already conceded the governorship (see Table 3.1). All specifications include a dummy reporting whether the municipality had been split to create a new one (which may change the identity of its neighbors),[27] a dummy indicating whether municipal and gubernatorial elections were concurrent,[28] and dummies for state electoral cycles. Appendix A3.1 presents further details on the construction of the sample and variables.

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[27] 67 municipalities were split between 1984 and 2000.

[28] I do not include dummies for federal elections because they would be perfectly collinear with the year fixed effects.

(a) PAN (1984-2000)
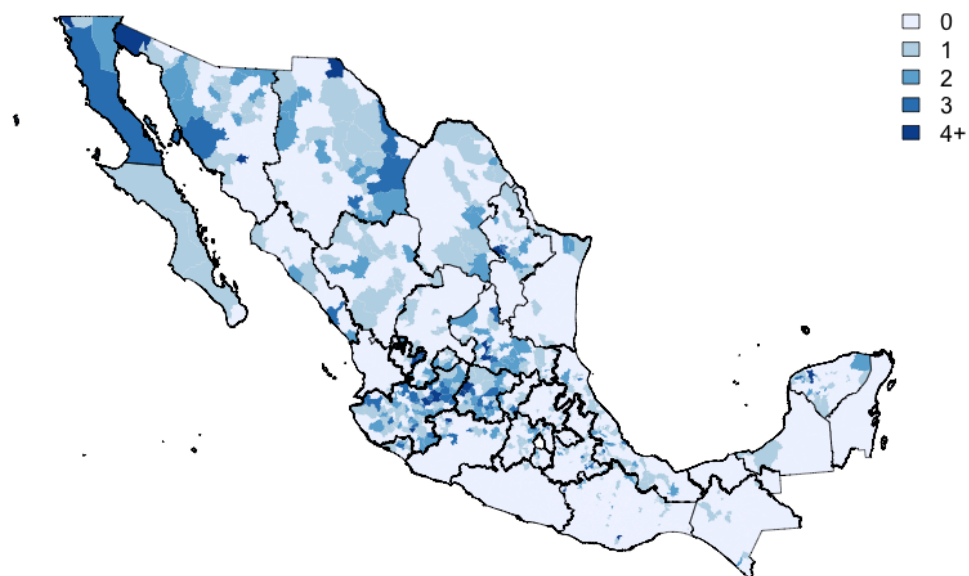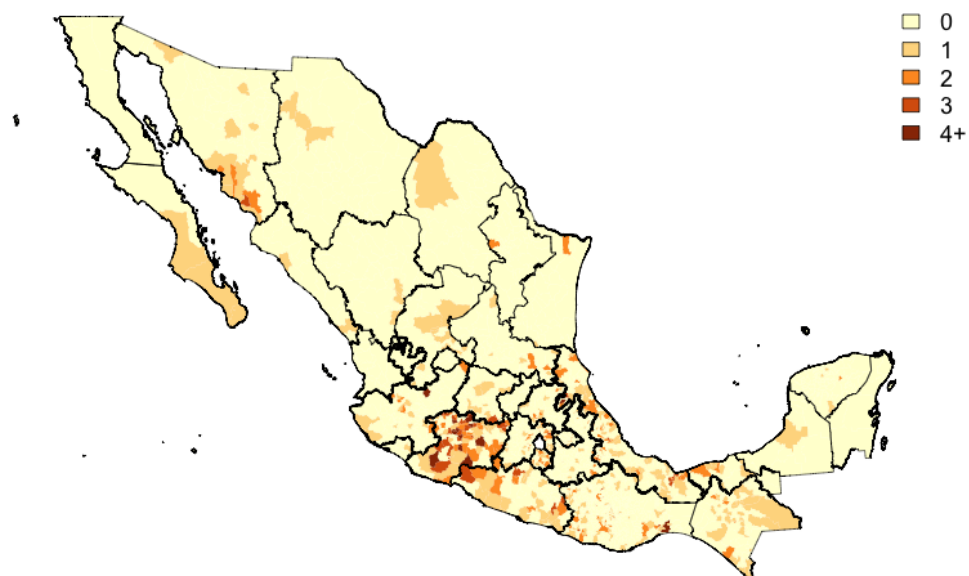

(b) PRD (1989-2000)

FIGURE 3.2: Number of PAN and PRD mayoral victories, 1984-2000.

3.4   Results

Overview. I begin by presenting an overview of the data. Figure 3.1 already showed that the proportion of municipalities controlled by the PAN and the PRD increased slowly but steadily over time, from less than 2% in the mid-1980s to 9-11% in 1995 and 12-16% by 2000. Table 3.2 quantifies these patterns: opposition parties won just 7-8% of mayoral elections during the period, with an average vote share of 13-15%. The values for federal elections are a few percentage points higher because we only have data for 1994-2000, when the opposition was doing better at the polls. The proportion of municipalities with copartisan governors or neighbors is also low: only 5% of elections took place in a state governed by the PAN, and on average no more than 5% of neighboring municipalities were governed by either the PAN or the PRD. In the case of the PRD, the *Copartisan governor* variable always takes the value of zero because this party won its first gubernatorial elections outside Mexico City in 1998, and thus the first mayoral election with a PRD governor took place in 2001.

These numbers obscure large regional differences. Figure 3.2 shows that the PAN received the bulk of its support in the North and some states in the Center-West, while the PRD was especially strong in the South and the South-West. As mentioned above, to the extent that these differences capture time-invariant factors (such as a long history of opposition support), they do not pose a problem for the analysis because the fixed effects will account for them. Moreover, the geographic distribution of opposition support did not remain constant over time. Figure 3.3 illustrates this point by plotting the evolution of the Moran's *I* values for *Winner* and *Winner (federal)* between 1984 and 2000. Moran's *I* is a widely used measure of spatial autocorrelation that indicates the extent to which observations with similar values of a given variable are located next to each other. It ranges between −1 and 1, with 1 indicating perfect autocorrelation — i.e.,
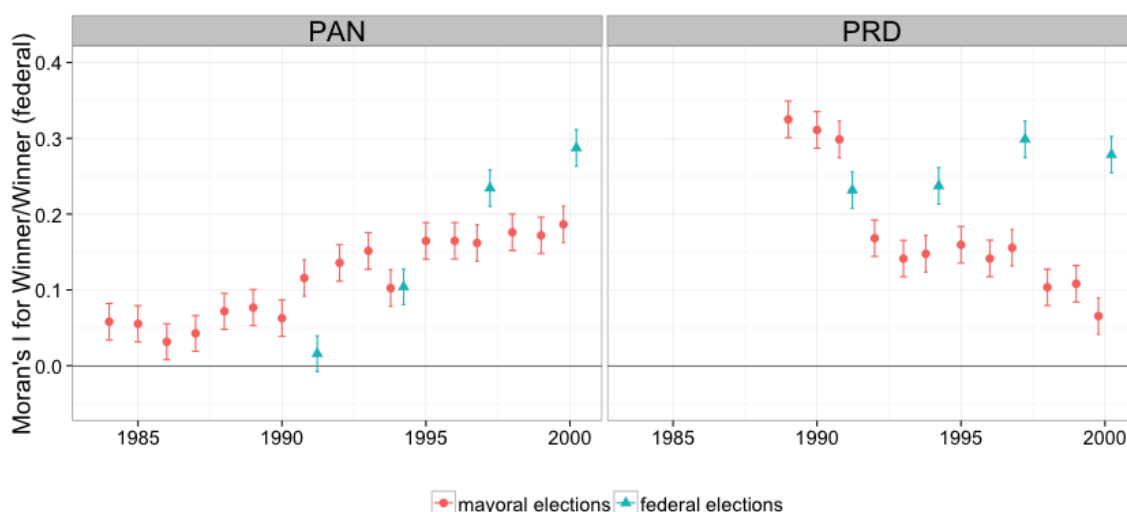
FIGURE 3.3: Spatial autocorrelation of opposition victories at the municipal level, 1984-2000. Plots show the point estimates and 95% confidence intervals of the Moran's *I* values for *Winner* and *Winner (federal)* between 1984 and 2000. Moran's *I* values are estimated using a queen contiguity matrix with equal weights. Due to the large sample sizes, the horizontal lines indicating the expected values under the assumption of no autocorrelation are visually indistinguishable from 0.

units with similar values are located contiguously — and –1 means that units with high values of the variable of interest are surrounded by units with low values, as in a chessboard.[29]

The logic of the argument suggests that these Moran's *I* values should be close to zero at first — because the PRI controlled almost all municipal governments —, but increase over time as opposition parties consolidated around their strongholds.[30] The left panel of Figure 3.3 shows that this was indeed the case for the PAN, whose Moran's *I* value for *Winner* increased from a low of 0.03 in 1986 to a high of 0.19 in 2000. The increase was even larger in federal elections, where the Moran's *I* value reached 0.29 in the 2000 election. The point is not that electoral support for the PAN was spatially autocorrelated, but rather that autocorrelation increased steadily over time. The right panel shows that no similar pattern is discernible for the PRD. In the case of mayoral elections, the large values for 1989-92 reflect the fact that the party did very well in a few

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[29]Formally, Moran's $I = \frac{N}{\sum_i \sum_j w_{ij}} \times \frac{\sum_i \sum_j w_{ij}(X_i - \bar{X})}{\sum_i (X_i - \bar{X})^2}$, where N is the total number of observations, w_{ij} measures the association of observation i w.r.t. to observation j, and X is the variable of interest, with mean $\bar{X}$.

[30]Under no autocorrelation, Moran's *I* will take a value of $\frac{-1}{N-1}$, effectively zero in a sample of this size ($N \approx 2,000$).

states in 1988, but failed to consolidate its support in future elections (Bruhn 1997). Afterwards there is a slightly negative trend. In the case of federal elections, the Moran's *I* values remain relatively constant over time between 0.23 and 0.30.

Mayoral elections. Moving to the main specifications, Table 3.3a presents the results for the models with *Winner* as the outcome. All models control for *Previous vote* and include dummies for concurrent gubernatorial elections, split municipalities, the state's electoral cycle and municipality and year effects.[31] In line with the vertical diffusion hypothesis, model 1 shows that capturing a governorship increases the probability that the PAN will win a municipal election by 7 percentage points, almost doubling the party's unconditional probability of victory. The next two models examine the horizontal diffusion hypothesis. Model 2 includes an interaction term between *Copartisan neighbors* and *Alternation* to identify those states where the PRI had already handed over power to the opposition, while model 3 restricts the analysis to states where there had been no alternation in office. In both cases, the estimates for *Copartisan neighbors* are positive and reliable. Substantively, a standard deviation increase in *Copartisan neighbors* increases the probability that the PAN will capture a municipality by 1.5 percentage points. Since the unconditional probability that the PAN won a municipal election was just 7.4%, this represents a 21% increase over this baseline. Furthermore, these estimates indicate the effect of *Copartisan neighbors after* accounting for other factors that increase the PAN's electoral performance across the board, such as nationwide partisan tides. Finally, in model 2 the interaction term between *Copartisan neighbors* and *Alternation* is negative and almost identical in magnitude to the estimate for *Copartisan neighbors*, implying that in states that had experienced alternation in office (which in practice means that they were governed by the PAN),[32] the effect of *Copartisan neighbors* was essentially zero. This suggests that opposition parties are more likely to rely on municipal governments when they are small and weak; as they become stronger and can rely

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[31] The lagged dependent variable (*Incumbency*) is not included because it would be correlated with the error term (Angrist and Pischke 2009, ch. 5).

[32] As mentioned above, the first mayoral election in a PRD-governed state took place after 2000. The PAN lost the governorship of Chihuahua in 1998, but the first mayoral election under the new PRI governor took place in 2001.

on the support of higher-level officials (such as governors), horizontal diffusion effects should become less consequential.

Models 4 and 5 present the results for the PRD. As explained above, the lack of gubernatorial elections in PRD-governed states means that the analysis is restricted to horizontal diffusion effects. In contrast to the PAN, but consistent with Figure 3.3, the results indicate that diffusion effects did not contribute to the party's growth. Indeed, the point estimates for *Copartisan neighbors* are negative, though far from statistically significant at conventional levels. In terms of magnitude, a standard deviation increase in *Copartisan neighbors* reduces the probability that the PRD will capture a municipality by 1 percentage point (a 12% decrease over the unconditional probability of winning, which is 8.4%). As discussed above, this is consistent with the fact that the PRD's electoral strategy emphasized the importance of challenging the PRI at the national level rather than growing slowly around regional strongholds. The same applies to the PRD's tendency to rely on PRI defectors. These defectors were often popular politicians who controlled large patronage machines but failed to win the PRI nomination (Reveles Vázquez 2004; Garrido de Sierra 2013*b*). One would expect that the ruling party would be less likely to nominate such individuals when it was sure of winning, i.e. when the opposition was weak. But to the extent that this is the case, defections should be concentrated in areas with little opposition support rather than around the PRD's main strongholds.

TABLE 3.3: Diffusion effects in mayoral elections in Mexico, 1984-2000.

	(a) Outcome: *Winner*					(b) Outcome: *Vote share*				
	PAN			PRD		PAN			PRD	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Copartisan governor	0.07					0.03				
	(0.02)					(0.01)				
Copartisan neighbors		0.12	0.12	-0.08	-0.08		-0.03	-0.03	-0.03	-0.02
		(0.04)	(0.04)	(0.05)	(0.05)		(0.02)	(0.02)	(0.02)	(0.02)
Vote neighbors		0.05	0.14	-0.07	-0.06		0.30	0.29	-0.01	-0.01
		(0.06)	(0.06)	(0.08)	(0.08)		(0.03)	(0.03)	(0.03)	(0.03)
Alternation		0.07		-0.05			0.10		-0.01	
		(0.07)		(0.02)			(0.03)		(0.01)	
Cop. neighbors × Alternation		-0.13		0.12			-0.01		0.15	
		(0.12)		(0.13)			(0.04)		(0.06)	
Vote neighbors × Alternation		0.02		0.05			-0.26		0.03	
		(0.28)		(0.19)			(0.09)		(0.09)	
Previous vote	0.12	0.10	0.10	-0.03	-0.03					
	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)					
Incumbency						0.00	-0.01	0.01	-0.05	-0.05
						(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
R^2	0.11	0.12	0.10	0.05	0.05	0.32	0.33	0.31	0.18	0.19
adj. R^2	0.09	0.09	0.08	0.04	0.03	0.25	0.26	0.24	0.13	0.13
# municipalities	2419	2419	2418	2415	2414	2419	2419	2418	2415	2414
# elections	6	6	6	4	4	6	6	6	4	4
# observations	11908	11908	11305	8368	7765	11908	11908	11305	8368	7765

OLS regression estimates. All specifications control for *Gubernatorial concurrent*, *Split municipality* and state election cycles, as well as municipality and year fixed effects. Robust standard errors clustered by municipality in parentheses.

Table 3.3b presents the results for *Vote share* as the outcome. The specification is the same as before, except that *Previous vote* is replaced with *Incumbency*. In line with the previous results, model 6 indicates that having a copartisan governor increases the PAN's expected vote share in mayoral elections by 3 percentage points, a reliable but substantively small effect. However, the next two models show that the *Copartisan neighbors* coefficient is negative, though the estimate is not always reliable, and the magnitude of the effect is extremely small: increasing *Copartisan neighbors* by one standard deviation reduced the PAN's expected *Vote share* by less than half of a percentage point. Furthermore, these estimates represent the effect of *Copartisan neighbors* above and beyond that of *Vote neighbors*, which is positive and substantial in magnitude; if this variable is excluded from the specification, the estimate for *Copartisan neighbors* becomes positive, large in magnitude and extremely reliable.[33] Nonetheless, the fact that *Copartisan neighbors* has a different effect on *Winner* and *Vote share* is surprising. A possible though admittedly speculative interpretation is that PAN mayors campaigned strategically in those municipalities where the party had a better chance of winning; thus, they did not increase the party's *average* vote share in neighboring municipalities, but tipped the balance on the party's favor in those places where a little extra effort was enough to defeat the PRI.

The results for the PRD are quite similar. The point estimates for *Copartisan neighbors* are negative, though unreliable and very small in magnitude: a standard deviation increase in *Copartisan neighbors* reduces the PRD's expected vote share by less than half of a percentage point. Moreover, in model 9 the interaction term between *Copartisan neighbors* and *Alternation* is positive and much larger in magnitude than that for *Copartisan neighbors*. This suggests that the PRD benefitted somewhat from horizontal diffusion effects, though only in PAN-governed states, and in any case the effect is small (an increase in vote share of just 1.7 percentage points for every standard deviation increase in *Copartisan neighbors*). This may be interpreted as supporting the claim that the PRI was specially hostile to PRD mayors (Magaloni 2006; Bruhn 2012): to the extent that this hostility was enforced by state governors, the effect should be limited to states

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[33] Results available upon request.

governed by the PRI. Nonetheless, the small number of PRD mayors in PAN-governed states means that this interpretation should remain speculative.

Federal elections. Table 3.4 investigates whether diffusion effects also extend to congressional elections. The specifications are identical to the previous ones, but due to data limitations the analysis only covers the 1994, 1997 and 2000 elections. The results are very similar to the previous ones, especially in the case of the PAN, so I will not comment much on them. In line with the vertical and horizontal diffusion hypotheses, models 1-3 indicate that the PAN was more likely to carry a municipality when it controlled the governorship or some neighboring municipality. The effect for *Copartisan governor* more than doubles in magnitude — it increases from 7 to 15 percentage points —, but the effect of *Copartisan neighbors* remains almost unchanged; depending on the specification, a standard deviation increase on this variable increases the probability that the party will win a municipality by 1.4 to 1.6 percentage points. In the case of the PRD, the effect of *Copartisan governor* can now be estimated because congressional elections took place in all states in 2000. Consistent with the vertical diffusion hypothesis, the effect is large and positive: having a copartisan governor increases the probability of carrying a municipality by 14 percentage points. More surprisingly, models 5 and 6 indicate that the estimates for *Copartisan neighbors* are now positive, though neither of them is reliable, and their magnitude is modest. In any case, the effect becomes much stronger in states that had experienced alternation.

The results in Table 3.4b show no surprises. The PAN benefits from having a copartisan governor, but the estimates for *Copartisan neighbors* are negative, though not always reliable and very small in magnitude: as before, a standard deviation increase in the explanatory variable at most reduces the PAN's vote share by less than half of a percentage point. The case of the PRD is similar: having a copartisan governor increases the party's vote share by 12 percentage points, while the estimate for *Copartisan neighbors* is negative but small in magnitude. In any case, this effect is restricted to states that did not experience alternation; in those that did, he effect of

Copartisan neighbors becomes positive and reliable, though the substantive effect is modest — 1.4 percentage points for a standard deviation increase in *Copartisan neighbors*.

Robustness. Appendix A3.2 shows that these results are robust to a variety of specification changes: (a) controlling for a municipality's *Poverty* level and its *Rural* status; (b) using alternative neighbor definitions — defining the 12 closest municipalities as neighbors or classifying two municipalities as neighbors if they are part of the same single-member district in federal elections —; (c) employing a neighbor dummy that takes the value of 1 when *Copartisan neighbors* > 0; (d) replacing the fixed effects with the lagged dependent variable; (e) including observations where the PAN and PRD formed an alliance; or (f) excluding the state of Oaxaca from the sample (see fn. 21).

3.5   Discussion and conclusion

The existing literature on parties and party institutionalization in autocracies is mostly a literature about *ruling* parties (Smith 2005; Geddes 2006; Magaloni 2008; Reuter and Remington 2009; Svolik 2012; Levitsky and Way 2013; Morse 2014). Even in authoritarian regimes that allow opposition parties, these are perceived as too weak and ineffectual to merit serious attention. In contrast, this paper argues that in autocracies that permit electoral competition at multiple levels of government, opposition parties can use subnational executive offices as "springboards" from which to increase their electoral support in future races. This predicts that electoral support for the opposition should diffuse both vertically and horizontally over time. However, not all opposition parties will find this strategy attractive; in particular, those that can expect to win a national election, or the ones whose base of support is concentrated in the capital city, may prefer to challenge the regime directly at the center.

TABLE 3.4: Diffusion effects in federal elections in Mexico, 1994-2000.

	(a) Outcome: *Winner (federal)*						(b) Outcome: *Vote share (federal)*					
	PAN			PRD			PAN			PRD		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Copartisan governor	0.15 (0.03)			0.14 (0.04)			0.07 (0.01)			0.12 (0.01)		
Copartisan neighbors		0.11 (0.05)	0.09 (0.05)		0.07 (0.04)	0.06 (0.04)		-0.02 (0.01)	-0.03 (0.01)		-0.03 (0.01)	-0.03 (0.01)
Vote neighbors		-0.14 (0.08)	0.05 (0.08)		0.02 (0.06)	-0.01 (0.07)		0.28 (0.03)	0.31 (0.03)		0.24 (0.03)	0.22 (0.03)
Alternation		-0.08 (0.04)			-0.05 (0.02)			0.02 (0.01)			0.02 (0.01)	
Cop. neighbors × Alternation		-0.03 (0.10)			0.26 (0.14)			-0.03 (0.03)			0.12 (0.04)	
Vote neighbors × Alternation		0.65 (0.19)			0.26 (0.14)			0.07 (0.05)			0.04 (0.05)	
Previous vote	0.26 (0.08)	0.23 (0.08)	0.39 (0.10)	-0.16 (0.06)	-0.20 (0.06)	-0.18 (0.07)						
Incumbency							0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.01 (0.01)
R^2	0.15	0.15	0.11	0.07	0.08	0.08	0.58	0.59	0.56	0.49	0.50	0.51
adj. R^2	0.09	0.09	0.06	0.05	0.05	0.04	0.35	0.36	0.32	0.30	0.31	0.29
# municipalities	2395	2395	2259	2395	2395	2259	2395	2395	2259	2395	2395	2259
# elections	3	3	3	3	3	3	3	3	3	3	3	3
# observations	6146	6146	5326	6146	6146	5326	6146	6146	5326	6146	6146	5326

OLS regression estimates. All specifications control for *Gubernatorial concurrent, Split municipality* and state election cycles, as well as municipality and year fixed effects. Robust standard errors clustered by municipality in parentheses.

I evaluated this argument with municipal-level data from Mexico, a longstanding CAR with two main opposition parties that adopted very different electoral strategies *vis-à-vis* the ruling party. Three findings stand out. First, both the PAN and the PRD benefitted from vertical diffusion effects. This is consistent with the claim that higher-level offices such as governorships are highly visible among voters and provide substantial resources. Furthermore, even if the PRD did not follow a strategy of party-building from the bottom up, PRD governors still had strong incentives to boost their party's electoral fortunes in federal elections in order to increase their standing at the national level (Langston 2010; Rosas and Langston 2011).

Second, the PAN was more likely to carry a municipality when it already controlled a neighboring mayoralty, suggesting that the "municipalization" strategy (Lujambio 2001) did indeed pay up during the late 1980s and 1990s. The effect holds for both mayoral and federal elections but disappears after the party captured the state governorship, supporting the idea that a strategy of growing from the local level is most attractive when there are no alternatives. However, horizontal diffusion does not increase the party's vote share in municipal election. A possible interpretation of this finding is that PAN mayors focused on helping copartisans facing "winnable" races, without necessarily campaigning on behalf of their party in all neighboring municipalities; further research is needed to determine whether such a strategy was effectively at work.

Finally, there is no evidence that the PRD benefitted from a horizontal diffusion process: the estimates for the *Copartisan neighbors* variable are generally negative, though small in magnitude and generally unreliable. This is consistent with the idea that building electoral support from the bottom up is a *strategy* that parties may choose (not) to follow; in particular, it is worth repeating that several aspects of the PRD's history and structure made it an unlikely candidate to adopt such a strategy or benefit from it. Formed by a disparate assemblage of social movement leaders, former *priístas* and left-wing politicians and intellectuals, the PRD has always been a highly factionalized organization. While recognizing Cárdenas as the ultimate arbiter of all internal disputes probably prevented the party from splitting, it also hindered its institutionalization. Moreover, the goal of getting rid of the PRI as quickly as possible, coupled with the fact that

many of the party's founders were based on Mexico City, led the PRD to stress national over local elections. This was eventually compensated by recruiting former PRI defectors, but while this strategy was electorally successful, the new recruits had little incentives to develop the party's organization (Bruhn 1997, 1999, 2012; Meyenberg and Carrillo 1999; Reveles Vázquez 2004; Hilgers 2008; Wuhs 2008). At the same time, the fact that interaction term between *Copartisan neighbors* and *Alternation* is always positive and large in magnitude suggests that the PRD could build electoral support from the bottom up when facing a PAN rather than a PRI governor.[34] This speaks to the claim that the PRI was especially hostile against the PRD (Bruhn 1997, 2012; Reveles Vázquez 2004; Magaloni 2006), and suggests that the ruling party's "punishment campaign" was successful at preventing voters from switching. Thus, the lack of horizontal diffusion effects for the PRD has two alternative explanations: either the party did not try to follow a strategy of building support from the bottom up; or the PRI prevented such strategy from working. In any case, adjudicating between these interpretations is beyond the scope of this paper.

Moving beyond Mexico, this paper underscores two questions that deserve further attention. Both of them can be studied in either CARs or democracies. The first is why some opposition parties follow an explicit strategy of growing from the bottom up. Hilgers' (2008) comparison of the PRD with the Brazilian Workers' Party (PT), which also had a charismatic leader and was highly heterogeneous at the time of its founding, is illustrative in this regard: the PT's founders created an institutionalized party because they believed that even in case of capturing the presidency, they could not achieve their goal of major social transformation without a cohesive and disciplined organization (Hilgers 2008). In other words, institutionalized opposition parties may require far-sighted founders willing to resist the allure of minor short-term gains for the sake of potentially larger — but highly uncertain — long-term benefits. Yet this simply introduces the question of where these founders come from. Levitsky and Way (2013) argue that institutionalized parties often arise in the context of social revolutions, where the imperatives of military

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[34]Remember that in practice *Alternation* indicates whether a state was governed by the PAN, especially for mayoral elections.

victory drive the creation of solid and disciplined organizations. The argument is best suited to ruling parties, but it may also apply to once-illegal insurgencies that were eventually accepted into the political system, as was the case of the ANC in South Africa or the FMLN in El Salvador (Wood 2001).

Second, in this paper I suggested that one of the main driving forces of horizontal diffusion effects are ambitious politicians who want to "jump" to a higher-level office in the future. To the extent that these politicians need to court new voters outside their strongholds, they may end up strengthening their party's reputation (and organization) in neighboring areas. Many of the PAN's gubernatorial candidates had been mayors in the past (Camp 2010), and a similar pattern has been found in other CARs (see Levitsky and Way 2010 for Taiwan, and Rakner and Van de Walle's 2009 discussion of various African cases). Of course, this process need not be restricted to CARs, though incentives to adopt such a strategy are probably stronger among parties that have a well-defined regional stronghold but lack a major presence throughout the country.[35] Yet many of the mechanisms that drive this process remain unclear: Do all ambitious politicians engage in such kind of behavior? Do institutions such as term limits make it more likely? How do politicians decide which new voters to court? And when do local politicians seek to strengthen their party's organization in neighboring districts rather than simply hiring pre-existing brokers?

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[35]This seems to be the case of radical right parties in Europe. See for example "UKIP gets serious," *The Economist*, January 18, 2014; and "A little local difficulty," *The Economist*, March 29, 2014.

A3.1 Data and variables

Sources. The data comes from the following sources:

- SEIs: Mexico's state electoral institutes. See `http://www.eleccionesenmexico.org.mx/organismos-electorales.php` for a list.

- CIDAC, a think tank that collects data on municipal electoral results (`http://www.cidac.org`). I originally downloaded data for 1985-2011. Tobias Pfütze kindly shared his data on municipal electoral results (also downloaded from CIDAC, but on a different date) for 1980-1985.

- INE (Instituto Nacional Electoral): Mexico's national electoral institute: `http://www.ine.mx`.

- INEGI (Instituto Nacional de Estadística y Geografía): Mexico's statistical institute: `http://www.inegi.org.mx`.

- CONAPO (Consejo Nacional de Población, national population council): `http://www.conapo.gob.mx`.

Sample. The unit of observation is the municipal-level election, indexed by municipality m and year t. I estimate separate models for the PAN and PRD. The sample for the PAN covers the 1984-2000 period. The PRD sample is restricted to 1989-2000; the party was formed in 1989, though I code the FDN mayors elected in 1988 as belonging to the PRD. For both parties, data on federal elections is only available for 1994, 1997 and 2000, as the results for the 1991 elections are used to construct lagged values of some variables.

The PAN and the PRD often presented a common candidate with minor parties like the PT, PVEM, *Convergencia* or *Nueva Alianza*. In those cases, it is impossible to determine (a) whether

the candidate was affiliated to the PAN, the PRD or the minor party; and (b) how votes were allocated between the major party and it allies. Thus, I assumed that all votes corresponded to the major party in question.[36] In order to avoid double-counting, whenever the PAN and PRD fielded a common candidate, I coded both parties as receiving zero votes. Nonetheless, Table A3.1 I show that using an alternative coding rule does not change the results.

In addition, the following elections are excluded from the sample:

- Municipalities belonging to the Federal District, where the first mayoral elections did not take place until 2000.

- Municipalities in the state of Oaxaca that employed the "*Usos y Costumbres*" system. These elect their representatives using local community practices, including (a) nonpartisan elections, (b) public voting, and (c) the disfranchisement of women. Around three-fourths of Oaxaca's municipalities have employed *Usos y Costumbres* since 1995 (Benton 2012); these municipalities are excluded from the analysis, though they are taken into account when coding the neighbor variables.

- Whenever there was an extraordinary election, I count the results of the definitive election only; data about the election that was tied and/or nullified is disregarded.

Outcome variables. *Winner$_{m,t}$* is a dummy that takes the value of 1 if the opposition party of interest won the mayoral election for municipality *m* in year *t*. Between 1997 and 2003, the state of San Luis Potosí employed a runoff system; whenever a second round was needed, the coding is based on the winner of the runoff. Sometimes, an extraordinary election was called, for example if (a) there was a tie for the first place; or (b) the state or the national electoral institute nullified the results. Whenever the necessary information is available, I took into account the results of the extraordinary election only, but I impute them to the year in which the original election took place.

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[36]Disaggregated results by party are not always available. In the cases where they are, the major party (PAN, PRI or PRD) generally received the bulk of the vote.

Vote share$_{m,t}$ is the vote share obtained by the party of interest in election m, t. *Winner (federal)$_{m,t}$* and *Vote share (federal)$_{m,t}$* are similarly defined for federal elections. In this case, the vote share is measured at the *municipal* level, and *Winner (federal* takes the value of 1 if the party of interest was the most voted party in the municipality.

Sources: SEIs, CIDAC, IFE.

Main explanatory variables. *Copartisan governor$_{m,t}$*: 1 if municipality m was located in a state governed by the party of interest at the moment of election t, and 0 otherwise.

Copartisan neighbors$_{m,t}$: Proportion of m's neighbors that were governed by the party of interest at the moment of election t. That is, these municipalities must have been captured by the opposition party of interest at $t - 1$.[37] Neighboring municipalities are defined in different ways:

(a) Queen contiguity: two municipalities are neighbors if their border share at least one point in common. Source: INEGI.

(b) Nearest-k: m's neighbors are defined as the k municipalities that are closest to it. I set $k = 12$, with closeness defined on the basis of distance between municipality council heads (*cabeceras*). Sources: INEGI, INE.

(c) SMD: two municipalities are neighbors if they were part of the same single-member district (SMD) in federal elections. A few municipalities were coterminous with a single SMD; these are coded as having no neighbors. When the territory of a municipality comprised multiple SMDs, I counted as neighbors all municipalities belonging to at least one of these SMDs. Source: INE.

Copartisan neighbor (dummy)$_{m,t}$: 1 if at least one neighbor was governed by the party of interest (i.e., if *Copartisan neighbors* > 0), and 0 otherwise.

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[37] The use of lagged values explains why, despite having data since 1980, the analysis begins in 1984.

Control variables. *Incumbency$_{m,t}$*: 1 if the party of interest was the incumbent of municipality *m* at the moment of election *t*. Formally, *Incumbency$_{m,t}$* = *Winner$_{m,t-1}$*. Municipalities employing *Usos y Costumbres* had nonpartisan elections, so *Incumbency* takes the value of 0 for all parties.

Previous vote$_{m,t}$: vote share of the party of interest in municipality *m* at *t* − 1. Municipalities employing *Usos y Costumbres* had nonpartisan elections, and thus all parties are coded as receiving no votes.

Previous winner (federal)$_{m,t}$: 1 if the party of interest had received a plurality of the vote in the municipality in the previous federal election, i.e. *Previous winner (federal)$_{m,t}$* = *Winner (federal)$_{m,t-1}$*.

Previous vote (federal)$_{m,t}$: vote share of the party of interest in municipality *m* in the previous federal election.

Vote neighbors$_{m,t}$: average value of *Vote share* among neighboring municipalities.

Alternation$_{m,t}$: 1 if the state in which municipality *m* is located had already experienced alternation in the past (i.e., if the PRI had already conceded the governorship to *any* opposition party), and 0 otherwise. Source: CIDAC.

Gubernatorial concurrent$_{m,t}$: 1 if the state in which municipality *m* is located held a gubernatorial election in year *t*. Sources: SEIs, CIDAC.

Split municipality$_{m,t}$: 1 if the municipality *m* had been split in the past to create a new municipality. Source: INEGI.

Poverty$_{m,t}$: Factor scores from a single-factor analysis of several measures of economic development taken from the national census, such as the proportion of the population that is illiterate, did not complete primary school, or lives in households that lack basic utilities (sewerage, electricity, running water), etc. This variable is similar to CONAPO's Marginalization Index, a widely used measure of municipal-level poverty, but with two main differences. First, I employ factor

analysis rather than principal components. And second, to account for variation over time, I did not estimate a separate analysis for every census year; rather, I calculated the factor scores by pooling data from all census years together, thus accounting for the fact that poverty has been decreasing sharply over time. Source: CONAPO.

Rural$_{m,t}$: 1 if municipality *m* had a population of $20,000$ in year *t*, and 0 otherwise (see De Remes 2000:17). Population figures are only available for census years (1980, 1990, 1995 and 2000), so I interpolated values for other years assuming a constant rate of growth. Sources: INEGI, CONAPO.

A3.2 Robustness checks

This section shows that the results presented in Tables 3.3 and 3.4 are robust to a variety of specifications and/or subsamples. To save space, the table only reports the point estimates and standard errors for *Copartisan governor* or *Copartisan neighbors* variables.

(1) Table A3.1 presents the results for *mayoral elections*. Column 1 reproduces the baseline estimates from Table 3.3. The models in column 2 add additional controls for *Poverty* and *Rural* municipality. Columns 3 and 4 presents the results for models with nearest-k and SMD neighbors instead of contiguity neighbors. Specifications in column 5 replace *Copartisan neighbors* with *Copartisan neighbor (dummy)*. The models in column 6, replace the municipality fixed effects with the lagged dependent variable. Column 7 shows the results for models in which PAN-PRD alliances are counted as being dominated by the PAN or the PRD, respectively. Specifications in column 8 exclude all observations from Oaxaca.

(2) Table A3.2 presents the results for *federal elections*. Column 1 reproduces the baseline estimates from Table 3.3. The models in column 2 add additional controls for *Poverty* and *Rural* municipality. Columns 3 and 4 presents the results for models with nearest$k$ and SMD neighbors instead of contiguity neighbors. Specifications in column 5 replace *Copartisan neighbors* with *Copartisan neighbor (dummy)*. The models in column 6, replace the municipality fixed effects with the lagged dependent variable. Column 7 shows the results for models in which PAN-PRD alliances are counted as being dominated by the PAN or the PRD, respectively. Specifications in column 8 exclude all observations from Oaxaca.

TABLE A3.1: Robustness checks (1): Mayoral elections.

	Table 3	add. controls	nearest-k neigh.	SMD neigh.	neigh. dummy	lagged DV	incl. alliances	excl. Oaxaca
(a) PAN (*Winner*)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Copartisan governor	0.07	0.07				0.06	0.06	0.06
	(0.02)	(0.02)				(0.02)	(0.02)	(0.02)
Copartisan neighbors	0.12	0.10	0.15	0.09	0.04	0.12	0.11	0.12
	(0.04)	(0.04)	(0.06)	(0.07)	(0.01)	(0.04)	(0.04)	(0.04)
(b) PAN (*Vote share*)								
Copartisan governor	0.03	0.03				0.04	0.02	0.02
	(0.01)	(0.01)				(0.01)	(0.01)	(0.01)
Copartisan neighbors	-0.03	-0.04	-0.08	-0.02	0.00	-0.05	-0.04	-0.03
	(0.02)	(0.02)	(0.03)	(0.03)	(0.01)	(0.02)	(0.02)	(0.02)
# municipalities	2419	2419	2419	2415	2419	2419	2419	1849
# elections	6	6	6	4	6	6	6	6
# observations	11908	11908	11908	8368	11908	11908	11908	10105
(c) PRD (*Winner*)								
Copartisan neighbors	-0.08	-0.08	-0.11	-0.10	-0.00	-0.02	-0.08	-0.10
	(0.05)	(0.05)	(0.07)	(0.06)	(0.01)	(0.04)	(0.05)	(0.05)
(d) PRD (*Vote share*)								
Copartisan neighbors	-0.03	-0.02	-0.06	-0.03	0.00	-0.03	-0.03	-0.04
	(0.02)	(0.02)	(0.03)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
# municipalities	2415	2415	2415	2415	2415	2415	2415	1849
# elections	4	4	4	4	4	4	4	4
# observations	8368	8368	8368	8368	8368	8368	8368	7096
municipality FE	yes	yes	yes	yes	yes	no	yes	yes
year FE	yes	yes	yes	yes	yes	yes	yes	yes

OLS regression estimates. Except in models 3 and 4, specifications report the estimates for the *Copartisan governor* or *Copartisan neighbors* variables under different specifications and/or alternative samples. Estimates for models 3 and 4 correspond to nearest-k (k = 12) and SMD neighbors, respectively. All specifications control for *Previous vote*, the corresponding *Vote neighbors* variable(s), *Gubernatorial concurrent*, *Split municipality* and state election cycles. Robust standard errors clustered by municipality in parentheses.

TABLE A3.2: Robustness checks (2): Federal elections.

	Table 4	add. controls	nearest-k neigh.	SMD neigh.	neigh. dummy	lagged DV	incl. alliances	excl. Oaxaca
(a) PAN (*Winner*)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Copartisan governor	0.15	0.15				0.12		0.15
	(0.03)	(0.03)				(0.02)		(0.03)
Copartisan neighbors	0.11	0.10	0.15	0.04	0.01	0.09	0.10	0.11
	(0.05)	(0.04)	(0.06)	(0.07)	(0.01)	(0.04)	(0.05)	(0.05)
(b) PAN (*Vote share*)								
Copartisan governor	0.07	0.06				0.05		0.06
	(0.01)	(0.01)				(0.00)		(0.01)
Copartisan neighbors	-0.02	-0.02	-0.03	-0.03	-0.01	-0.03	-0.02	-0.02
	(0.01)	(0.01)	(0.02)	(0.02)	(0.00)	(0.01)	(0.01)	(0.01)
# municipalities	2395	2395	2396	2373	2395	2395	2395	1836
# elections	3	3	3	3	3	3	3	3
# observations	6146	6146	6163	6060	6146	6146	6146	5302
(c) PRD (*Winner*)								
Copartisan governor	0.14	0.14				0.12		0.14
	(0.04)	(0.04)				(0.04)		(0.04)
Copartisan neighbors	0.07	0.05	0.16	0.10	-0.01	0.10	0.07	0.11
	(0.04)	(0.04)	(0.06)	(0.05)	(0.01)	(0.04)	(0.04)	(0.05)
(d) PRD (*Vote share*)								
Copartisan neighbors	0.12	0.12				0.12		0.12
	(0.01)	(0.01)				(0.01)		(0.01)
Copartisan neighbors	-0.03	-0.03	-0.04	-0.01	-0.00	-0.02	-0.03	-0.02
	(0.01)	(0.01)	(0.02)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
# municipalities	2395	2395	2396	2373	2395	2395	2395	1836
# elections	3	3	3	3	3	3	3	3
# observations	6146	6146	6163	6060	6146	6146	6146	5302
municipality FE	yes	yes	yes	yes	yes	no	yes	yes
year FE	yes	yes	yes	yes	yes	yes	yes	yes

OLS regression estimates. Except in models 3 and 4, specifications report the estimates for the *Copartisan governor* or *Copartisan neighbors* variables under different specifications and/or alternative samples. Estimates for models 3 and 4 correspond to nearest-k (k = 12) and SMD neighbors, respectively. All specifications control for *Previous vote*, the corresponding *Vote neighbors* variable(s), *Gubernatorial concurrent*, *Split municipality* and state election cycles. Robust standard errors clustered by municipality in parentheses.

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