

When Duverger Becomes Autocratic: Electoral Systems and Opposition Fragmentation in Non-Democratic Regimes

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Abstract

Do electoral rules matter [also] in non-democratic regimes? The literature on electoral system choice in democracies, and its political consequences, is vast. However, these issues have been neglected in previous studies on elections under dictatorship. In this paper, I address this lack of systematic research. I show that electoral rules have a substantive and enduring impact on political competition in dictatorships with multiparty elections, for they affect the cohesiveness of the opposition. In democracies, the so-called Duverger's law states that restrictive electoral rules shrink the size of the party system (Duverger, 1954; Cox, 1997). Such electoral systems constrain the number of electoral parties that are awarded with seats, and thus, create incentives for parties and voters to coordinate their entry and voting decisions, respectively. I argue that similar effects relate electoral rules and opposition fragmentation in authoritarian elections. These hypothesis are tested using a new dataset that encompasses the electoral rules used in all legislative multi-party elections held under both democratic and authoritarian regimes between 1950 and 2008. In order to address the potential endogeneity issues, I apply different identification strategies, finding robust evidence that electoral rules affect opposition cohesiveness. My results suggest that future studies of institutions under dictatorship should take electoral systems into account.

1 Introduction

Over the past decade, the paradox of why elections are held in non-democratic regimes has attracted much scholarly attention (Gandhi and Lust-Okar, 2009). Some authors argue that elections are an instrument used by dictators to co-opt elites and the opposition, thus ensuring their compliance and cooperation (Geddes, 2005; Gandhi, 2008; Boix and Svolik, 2009). Others claim that elections serve a symbolic purpose, namely preserving a certain kind of democratic legitimacy (Schedler, 2009), while also showing the strength of the regime and fostering the political loyalty of the masses (Magaloni, 2006). Elections are also thought to be used as an efficient method to share power among political elites (Magaloni, 2008), as a source of information for dictators about the extent and geographic distribution of his mass support (Brownlee, 2007), or as a democratic *façade* in order to deceive international donors (Joseph, 1997).

This growing body of literature on whether dictators establish elections or not (and when, why) contrasts with our lack of knowledge on *how* they do it. Most of these studies have often “ignored the specific institutional arrangements emerging during political liberalization” (Lust-Okar and Jamal, 2002, p.339). From a broader perspective, some studies have examined how dictators design and manipulate institutions in order to avoid revolutionary threats (Bueno de Mesquita et al., 2005; Bueno de Mesquita and Smith, 2008), and whether these strategies are successful at ensuring their political survival (Gandhi and Przeworski, 2007). These authors focus their attention on institutions such as civil and political liberties, the constitution of a legislature, or the structure of government. However, there is a lack of systematic research on the characteristics of non-democratic elections, and on how they affect political competition between the dictator and the opposition in these countries.

One of these characteristics is the electoral system. In democracies, the specific rules that translate votes into seats have a significant impact on a wide array of political phenomena (Golder, 2005). This relationship is mediated by the effect of electoral systems on how many –and which– parties obtain political representation. Restrictive electoral rules (i.e., majoritarian electoral systems and proportional systems with a low district magnitude) favor “mechanically” the largest parties and create incentives for parties and voters to coordinate, and thus shrink the size of the party system (Duverger, 1954; Cox, 1997). At the same time, asymmetries in the design of electoral rules lead to partisan bias in political representation (Grofman et al., 1997; Monroe and Rose, 2002). Therefore, through their impact on the structures of political competition, electoral systems affect the stability of democratic systems (Farrell, 2001), coalition dynamics (Iversen and Soskice, 2006), and policy output (Persson et al., 2007).

The purpose of this paper is to show that electoral systems are equally relevant in dictatorships that hold multi-party elections¹, because of their effect on the fragmentation of the opposition to the regime. In these countries, with very few exceptions, the

¹Multi-party elections are those in which voters are presented with more than one party list, with at least one major opposition party, even if competition is significantly disadvantaged by incumbent abuse (Levitsky and Way, 2010).

authoritarian ruler is represented in the parliament by only one party, which maintains a dominant share of power (Greene, 2007). However, the number of opposition parties that win seats varies greatly across different countries and over time, and this variation has substantive consequences. The fragmentation of the opposition is relevant because it affects the stability of the regime (Howard and Roessler, 2006; Levitsky and Way, 2010) and the likelihood of a transition towards democracy (Manning, 2005), and when this transition is successful, also the characteristics of the political system that is established afterwards (Lijphart, 1999; Kuenzi and Lambright, 2005).

The potential effect of electoral rules on the number of opposition parties has been acknowledged in the literature before. In her study of the survival and demise of the Mexican PRI, Magaloni (2006, p.24) points to opposition coordination dilemmas as a “key factor accounting for the survival of hegemonic-party autocracies”, and recognizes the “powerful role” of the electoral system in shaping incentives to coordinate. Posusney (2002) and Lust-Okar and Jamal (2002) also discuss how the divisiveness of the opposition in the Middle East might be the product of electoral rules. However, none of these studies examines the mechanisms by which these effects take place. Furthermore, since they are focused on a single country or, at most, a restricted geographical area, the variation in the electoral rules they study is limited. This paper addresses these two concerns by providing a theory of why electoral systems affect opposition fragmentation, and by testing it through an analysis all multi-party authoritarian elections since 1950.

My argument is that restrictive electoral rules create incentives for opposition parties to coalesce before the election, and for citizens to vote only for viable parties, in order to maximize their political representation. Under a more proportional system, on the contrary, this incentive disappears and the number of opposition parties that compete in the election increases, particularly in heterogenous countries.

In order to test this argument, I use a new data set that comprises information about the electoral rules chosen in all legislative elections held in independent, non-democratic states in the world between 1950 and 2008. I study only multi-party elections – those in which voters were presented with more than one party list, and major opposition is legal. This represents a total of 349 elections. A descriptive analysis of this data shows that the electoral rules used in these countries vary systematically across countries and over time.

The rest of this article proceeds as follows. Section 2 examines the importance of opposition cohesiveness in non-democratic countries. In Section 3 I develop the theoretical argument that links electoral system and opposition fragmentation and present the empirical strategy I will implement in order to demonstrate this effect. Section 4 describes the data I use in this study. Next, in Sections 5 and 6, I present and discuss the main results of my analysis and suggest future paths of research. Section 7 concludes.

2 Opposition Cohesiveness in Non-Democratic Regimes

The size of the party system is a consequential feature of democratic polities. “Fractionalized” party systems (Rae, 1968) form less durable governments (King et al., 1990), have higher rates of electoral volatility (Pedersen, 1979), and lower turnout (Blais and Dobrzynska, 1998), and foster political polarization (Mainwaring, 1993). At the same time, the quality of representation is thought to be better in multiparty democracies (Lijphart, 1999), where social conflict is less frequent (Powell, 1981).

In non-democratic regimes that hold multi-party elections, party system fractionalization matters too, although in a slightly different manner. The crucial factor is the number of parties in the opposition, which may be interpreted as an indicator of its cohesiveness. Two arguments support this idea, one is empirical and the other is analytical.

First, in authoritarian regimes that hold competitive legislative elections, the authoritarian ruler is represented in the parliament by a single party, which virtually always occupies a hegemonic position. The PRI in Mexico, the DJP in South Korea, the BDP in Botswana, the NDP in Egypt, the APRC in Gambia, the RDPC in Cameroon, Golkar in Indonesia, the PPP in Gambia, the PAP in Singapore, the RCD in Tunisia, the CCM in Tanzania or the ZANU-PF in Zimbabwe are just a few examples of parties or coalitions that match this general pattern. One could also think of counter-examples, such as Iran or Jordan, where most candidates are independent and political parties are loosely defined, Malaysia or Ethiopia, with multiple regime parties who coalesce after the election, or the last authoritarian election in Taiwan, which marked the split of the ruling party KMT. However, these are just exceptions to an empirical regularity: in those dictatorships that hold competitive elections, collusion among regime elites in the form of a single, hegemonic party is the most common form of autocratic rule (Magaloni, 2006; Greene, 2007) There is a good reason for this: elite unity is a key factor explaining regime longevity (Levitsky and Way, 2010).

The number of opposition parties that compete in these elections, on the contrary, does vary systematically across different countries and over time. In Brazil (1966-1978), Djibouti or Zimbabwe, the opposition is represented by a single party. Morocco, Algeria or Burkina Faso, on the other hand, have a highly fragmented opposition, and usually more than 30 parties compete in the election. We thus find stark differences in the cohesiveness of the opposition to the authoritarian ruler, and in the number of electoral options that voters who do not support the regime are presented with.

There is a second, more substantive, reason that justifies the importance of the number of opposition parties that compete in the election. Holding its size constant, the cohesiveness of the opposition has consequential implications for the economic and political stability of the regime and, when it collapses, on the characteristics of the regime that emerges after the political transition.

First, opposition fragmentation can affect political stability in a context of political liberalization. There are different theories about how authoritarian regimes ensure their survival by initiating such a process and holding multiparty elections. The most

prominent explanation argues that dictators offer particular groups of the potential opposition access to quasi-democratic parliaments in order to obtain their cooperation (Gandhi, 2008; Malesky and Schuler, 2010). At the same time, autocratic legislatures and elections also serve to divide the opposition (Magaloni, 2006). Selective co-optation of the opposition with rents or policy concessions prevents them from becoming a unified front that can rebel against the regime. When this strategy is not successful, the opposition can mount a credible challenge to the ruling party, giving the electorate a sense that change is possible and that the opposition is an alternative governing coalition (Howard and Roessler, 2006).

Furthermore, an uncoordinated opposition inside the parliament has less bargaining power with the ruling elites and therefore finds it more difficult to obtain concessions. As a drawback, this implies that it is more difficult for the dictator to identify the relevant opposition actors and to obtain a credible commitment to protect property rights (Wright, 2008). Although the comparative evidence is scarce (Bratton and Van de Walle, 1997), the literature on (democratic) dominant party systems (see for example Pempel, 1990; Laver and Schofield, 1991) clearly suggests that opposition fragmentation is a key factor explaining regime longevity.

But the unity of the opposition forces has implications that extend beyond the duration of the regime. After a liberalization process, the relative strength of the opposition elites reflect their previous position during the regime. When the opposition is fragmented and unable to counter the power of the former regime elites, the resulting democratic institutions are biased in their favor. For example, the electoral system during the first democratic elections is usually designed in such a way that it advantages the former regime party (Andrews and Jackman, 2005; Lago and Montero, 2005). Even when the regime collapses and the authoritarian elites exert no influence, the fragmentation of the opposition forces affects the stability of the new regime. Political transitions generate less durable democracies when a multiplicity of actors are involved in the bargaining process (Kuenzi and Lambright, 2005).

In conclusion, the cohesiveness of the opposition forces is, independently of their total size, a consequential factor in dictatorships. The more divided the opposition parties, the more susceptible they are to governmental manipulation, cooptation, and repression (Howard and Roessler, 2006). Although one would expect the opposition to be always united in a single electoral coalition, we nevertheless find substantive differences in the number of opposition parties that compete in non-democratic elections. How can we explain this variation? The main purpose of this paper is to show that the electoral system used in authoritarian, competitive elections has a significant effect on the cohesiveness of the opposition forces in a dictatorship.

3 The Political Consequences of Electoral Rules

Why do some autocratic regimes have only two parties (the regime party and the opposition party) and some have many (the regime party and multiple opposition parties)?

In democracies, the number of parties is thought to be the joint product of social pressures towards more heterogenous representation and the permissiveness of the electoral system (Duverger, 1954; Taagepera and Shugart, 1989; Cox, 1997; Mozaffar et al., 2003). In this paper, I claim that an analogous argument explains how electoral systems affect the number of opposition parties in authoritarian regimes.

In short, this argument is three-fold. First, as it is more difficult for smaller opposition parties to obtain seats under restrictive electoral systems, this type of electoral rules reduces *mechanically* the number of parliamentary opposition parties. Second, since both parties and voters are aware of this effect, it induces strategic behavior. Parties who are not viable – i.e., have no chance to win a seat – coalesce with larger parties or decide not to run. At the same time, voters have an incentive to vote only for viable parties, so as to not waste their vote. Finally, the magnitude of this “psychological” effect is mediated by the demand for political parties created by social heterogeneity. Permissive electoral rules fragment the opposition only when there are social or ethnic cleavages that hinder their unity.

In a purely proportional system, the distribution of seats between the different opposition parties reflects their electoral support. As the electoral rules become more restrictive, smaller opposition parties are underrepresented and, in some instances, lose all representation in parliament. Although different features of the electoral rules determine the size of this “mechanical effect”, the most important determinant is district magnitude². In single-member districts, only the largest opposition party has a chance of winning a seat. As district magnitude increases, holding the distribution of votes constant, more opposition parties can actually obtain representation. Therefore, we would expect to find the following:

Hypothesis 1. Mechanical Effect: *The number of electoral opposition parties should have a greater positive effect on the number of parliamentary opposition parties when district magnitude is large.*

Applying a similar empirical strategy as in Cox (1997) and Clark and Golder (2006), this hypothesis could be tested estimating the following interactive model:

$$ENPOP = \beta_0 + \beta_1 ENEOP + \beta_2 \log(DM) + \beta_3 ENEOP \times \log(DM) + \epsilon \quad (1)$$

where *ENPOP* is the effective number of parliamentary opposition parties, *ENEOP* is

²Even though most studies of electoral systems focus on the electoral formula – whether it is proportional or majoritarian –, the key factor explaining proportionality is district magnitude. This is due to three reasons. First, most majoritarian systems use small districts (Gallagher and Mitchell, 2005). Second, when a proportional formula is used in small districts, the results are as disproportional as in majoritarian systems (Carey and Hix, 2011). Third, district magnitude summarizes – even if imperfectly – in a single, continuous variable, most potential effects of an electoral system (Taagepera and Shugart, 1989).

the effective number of electoral opposition parties³, and DM is district magnitude⁴. The estimate of the “mechanical effect” is β_3 , which could be interpreted as the change in the marginal effect of electoral opposition parties as the electoral system becomes more permissive. Therefore, a positive sign in this coefficient would provide support for Hypothesis 1.

The existence of this reductive effect of electoral systems, which I will show in Section 5, is perceived by opposition parties and voters. It is precisely this effect that induces strategic behavior on their part. On one side, opposition parties are aware that only the largest electoral platforms are viable in small districts. This generates an additional incentive to coordinate with other parties, either by creating electoral coalitions or by withdrawing from the election. It is important to note that these incentives are additional to any additional political factor that fosters political unity against the regime in dictatorships. On the other side, under restrictive electoral rules, opposition voters are faced with the possibility of “wasting” their vote if they express support for their “sincere” first political preference, and the party that represents it happens not to be the largest. In consequence, they have incentives to vote “strategically” for a viable opposition party, even if that is their second or third preference. The empirical implication of these strategic behaviors⁵ is that, when district magnitude is small, we should find that the number of opposition parties that compete in the authoritarian election is low.

As the electoral rules become more permissive, the number of opposition parties should increase, but only when there exist social pressures for a more heterogenous representation. This point deserves further elaboration. If, as it was mentioned above, opposition unity has such an important effect on the likelihood of a transition towards democracy, one might wonder why it would be fractionalized at all. The reason is that economic and ethnic rivalries in divided societies are important deterrents to elite and mass coordination (Howard and Roessler, 2006). When opposition parties are not willing to set their differences aside, they are better off competing in the election rather than coalescing. Similarly, opposition supporters prefer to vote sincerely for a non-viable party rather than strategically for the strongest contender. The observable consequence of this behavior is that, in highly fragmented societies as the electoral system becomes more permissive – and therefore its “mechanical” effect diminishes in magnitude – the number of electoral opposition parties becomes higher.

Hypothesis 2. Psychological Effect: *District magnitude increases the number of*

³The effective number of parliamentary or electoral opposition parties is calculated as $1/\sum(x_i/\sum x_i)^2$, where x_i is the percentage of seats or votes won by the i^{th} opposition party – this is, the regime party (or parties) is excluded from the computation. Following the standard in the literature on electoral systems, I focus on the effective number of parties (Laakso and Taagepera, 1979). because it is considered the most meaningful measure of the number of “relevant” parties (Sartori, 1976). See Taagepera (2007) for a discussion of the existing alternatives.

⁴Because of the skewed distribution of the district magnitude variable and its possibly curvilinear relationship with the number of parties (Ordeshook and Shvetsova, 1994), I use its natural logarithm.

⁵In the literature on democratic electoral systems, scholars disagree over which of these two causal mechanisms – strategic entry or strategic voting – is more relevant. Following Cox (1997, 30), I assume that both are important, and leave individual tests of each of them to further research.

electoral opposition parties only when social heterogeneity is sufficiently large.

As above, this hypothesis can be tested estimating the following interactive model:

$$\text{ENEOP} = \beta_0 + \beta_1 \log(\text{DM}) + \beta_2 \text{HETEROG.} + \beta_3 \log(\text{DM}) \times \text{HETEROG.} + \epsilon \quad (2)$$

where *ENEOP* is the effective number of electoral opposition parties, *HETEROG.* is a measure of the ethnic and linguistic fractionalization of a country⁶, and *DM* is district magnitude. In order to contrast my hypothesis regarding the psychological effect of electoral systems, the quantity of interest in this case is the marginal effect of the electoral rules.

$$\frac{\partial \text{ENEOP}}{\partial \log(\text{DM})} = \beta_1 + \beta_3 \times \text{HETEROG.} \quad (3)$$

According to my argument, we should find that district magnitude does not influence the number of opposition parties in homogenous countries; that is, β_1 should not be significantly different from zero. In heterogeneous countries, on the contrary, we should find that permissive electoral rules increase the fragmentation of the opposition. Thus β_3 should be positive, and the marginal effect should become significantly larger than zero for high values of ethnolinguistic fractionalization⁷.

3.1 Identification Strategy

The challenge to this argument is that electoral systems are designed by the incumbents and therefore cannot be considered exogenous to the party system (Benoit, 2007). The endogeneity of electoral rules is particularly evident in authoritarian regimes (Lust-Okar and Jamal, 2002), where the dictator finds less obstacles to modify them in their own benefit as often as he needs to.

Since the dictator prefers a fragmented opposition, one would expect him to always choose proportional representation with large districts. According to my hypothesis, this would expand the size of the party system when there is a social demand for more heterogeneous fragmentation. However, the authoritarian elites also want to retain an hegemonic position, and a majoritarian formula used in small districts exert strong mechanical effects that bias the results in favor of the largest party.

⁶In this paper, I use the index of ethnolinguistic fractionalization designed by Alesina et al. (2003), which is the standard measure in the existing literature. This index reflects the probability that two randomly selected individuals from a given country will not belong to the same ethnolinguistic group, and is a proxy for the heterogeneity of that country.

⁷It is important to note that, while these hypothesis generate predictions about the number of parties at the district level, the empirical analysis in this paper relates electoral rules with number of opposition parties at the country level. Therefore, I assume that the effect of electoral rules is homogenous inside each country, which is consistent with the findings of Singer and Stephenson (2009) in democratic elections. Note, however, that this is a strong assumption, specially in those countries where ethnic heterogeneity is concentrated in particular geographical areas. Unfortunately, an empirical test using district-level data is not feasible in virtually all elections in my sample, as the distribution of votes in each district is usually not available.

As a result, when designing the electoral system, the dictator faces a trade-off between hindering opposition coordination and benefiting from restrictive electoral rules. Which side of this trade-off is prioritized by the dictator is not independent from the existing number of opposition parties. Therefore, any estimation of the psychological effect of the electoral systems that fails to account for this issue would be biased in an unknown direction.

In order to show the validity of my hypothesis, even in the presence of these concerns about the endogenous effects of electoral rules, I explore two different identification strategies. First, I estimate a two-stage least squares regression, in which I instrument district magnitude with three variables that have been found to affect electoral system choice in non-democratic regimes: type of autocracy, colonial history, and opposition size. The use of these instruments relies on two assumptions, namely, that they are good predictors of electoral system choice, and that their effect on the number of opposition parties is due only to their association with the design of the electoral system. As I argue below, there are good reasons to expect these assumptions to hold in each case.

Lust-Okar and Jamal (2002) posit that differences in authoritarian regimes affect the choice of new institutions during political liberalization. Their study of dictatorships in the Middle East finds that liberalizing monarchies support electoral rules that balance political power among competing forces. As they try to retain power by dividing the opposition and acting as a political arbitrator of their differences, the electoral systems they design usually feature proportional representation in large districts. On the contrary, former one-party states, such as Egypt, Algeria or Tunisia, are more likely to develop electoral laws that favor dominant parties. As a result, the use of majoritarian formulas and small districts is more frequent in civilian and military dictatorships.

Colonial history matters because path-dependent pressures influence the formation of institutions during the liberalization process. In the context of electoral system choice, Golder and Wantchekon (2004) document how british colonies in Africa are much more likely to adopt single-member districts. One interpretation of this stylized fact is that previous electoral rules could be some sort of “focal point”. Alternatively, as Mozaffar (1998) argues, this pattern could be the result of the institutional incentive structure that was developed under colonial rule, which remains intact during the authoritarian period. Therefore, it seems reasonable to expect that colonialism should not affect opposition fragmentation except through its effect on electoral system choice.

Electoral systems are a major point of contention between incumbent and their opponents (Lust-Okar and Jamal, 2002). Although dictators have much leeway to design the electoral law in their own benefit, opposition forces can sometimes exert some influence in this process and involve in an actual negotiation with the regime elites. Their bargaining power is of course conditional on their social support. When the opposition is strong, but not sufficiently large to overthrow the dictator, they might trigger an electoral system change. As the opposition will always prefer rules that favor small-party representation, we would expect electoral rules to be more proportional (and therefore districts to be larger) in those dictatorships where a larger share of the population supports the opposition. At the same time, the authoritarian ruler will also lean toward a

proportional electoral system where the opposition is strong, in order to minimize electoral risks (Boix, 1999) and disincentive the coordination of opposition parties.

With these instrumental variables, I estimate the following selection equation with a linear regression model:

$$\log(\text{DM}) = \alpha_0 + \alpha_1 \text{CIVIL} + \alpha_2 \text{MILIT} + \alpha_3 \text{BRITISH} + \alpha_4 \text{OPPOSITION} + \gamma \quad (4)$$

Here, *CIVIL* and *MILIT* are dummy variables indicating whether the regime is a civil or a military dictatorship, being monarchies the reference category. *BRITISH* is a dichotomous variable measuring whether a country is a former British colony. Finally, *OPPOSITION* is a proxy for the total size of the opponents to the regime, over the total population. By estimating this equation and generating a prediction of district magnitude, I will be able to identify its effect in equation (2). More details about the source and operationalization of these variables can be found in section 4.

As a second identification strategy, I examine longitudinal variation in the number of parties after a major electoral system change⁸ and exploit the exogenous variation in the level of information. In order to show that parties and voters adapt their behavior to the changing conditions of the electoral systems, we need to find exogenous variation in the specific rules under which elections take place. One alternative would be to examine the number of electoral opposition parties before and after each electoral system change. However, as I argued above, a modification of the electoral institutions is the result of a strategic calculation of the authoritarian ruler. Therefore, the opposition parties can anticipate any possible effect and modify their behavior accordingly, which brings into the question the validity of this type of analysis.

In this paper I adopt an alternative approach. I examine how opposition fragmentation evolves in the series of elections after an electoral system change. Neither parties nor voters have perfect information about the political consequences of electoral systems following a modification. There is uncertainty about which parties will win a seat and which parties will suffer the mechanical effect the most. Oftentimes, this uncertainty can lead them to poor strategic choices (Andrews and Jackman, 2005). This uncertainty, however, disappears or drastically diminishes over time after more than one election has been held. As the level of information increases, strategic electoral behavior is more frequent. (See Tavits and Annus, 2006 for a test of this hypothesis in new democracies.)

An alternative justification for this hypothesis lies in the implicit assumption that Duverger’s law only applies to party systems that are in some sort of “equilibrium”. Duverger himself acknowledged that he did not expect his theory to work particularly well in new democracies, since party systems were not fully institutionalized in these countries (Duverger, 1954, p.228). (See also Clark and Golder, 2006, p.706). From this intuition, we can hypothesize that electoral system change might work as an endogenous shock to the number of opposition parties. By examining how their fragmentation varies after such modifications, we can assess whether they oscillate towards the expected

⁸A ‘major’ electoral system change is defined as a modification of the electoral formula between two consecutive elections. This type of change is virtually always associated to large shifts in average district magnitude.

“equilibrium”.

As a consequence, we should observe a diverging pattern in this variable across time. In elections held using majoritarian systems, both opposition voters and parties should learn about the shrinking effect of this type of electoral rule, and therefore coordinate around a smaller number of platforms. We should thus see how the number of electoral opposition parties decreases. In the rest of elections, however, the direction of this change should be the opposite. Encouraged by the lack of barriers to win a seat in PR systems, the number of parties should increase in heterogenous countries, due both to the emergence of new parties and to the split of those that already exist.

Hypothesis 3. *The Effect of Electoral System Changes:* *The number of electoral opposition parties should increase during the sequence of elections that follow an electoral system change to proportional representation. It should decrease when the change is to majoritarian electoral rules.*

I test this hypothesis by estimating the following two equations:

$$ENEOP = \alpha_0 + \alpha_1 PR.ELEC + \alpha_2 \log(DM) + \alpha_3 PR.ELEC \times \log(DM) + \delta CONTROLS + \gamma \quad (5)$$

$$ENEOP = \alpha_0 + \alpha_1 MAJ.ELEC + \delta CONTROLS + \gamma \quad (6)$$

where *ENEOP* is the effective number of electoral opposition parties, *PR.ELEC* and *MAJ.ELEC* indicate the number of consecutive elections using proportional or majoritarian electoral rules, $\log(DM)$ measures the logarithm of average district magnitude⁹, and *CONTROLS* is a matrix with other control variables that might affect change in the number of parties over time¹⁰. According to my argument, we should find α_1 and α_2 in the first equation to be both positive, while α_1 in the second equation should be negative.

In conclusion, my purpose is not to show the change in the number of opposition parties after an exogenous variation of the electoral institutions. On the contrary, I examine how electoral coordination varies over time, holding the electoral system constant, and exploiting the exogenous variation in the levels of information of voters and parties as a result of the sequence of elections.

4 Electoral Systems in Non-Democratic Regimes

4.1 Definitions and Data

Under what type of electoral rules do elections take place in non-democratic countries? Before turning to the analysis of how the electoral system affects opposition fragmentation, I will characterize the electoral systems adopted in all competitive, non-democratic regimes from 1950 to 2008.

⁹An interaction between district magnitude and number of proportional elections is introduced in order to capture the conditional effect of proportional electoral rules when district magnitude is low or high (Carey and Hix, 2011).

¹⁰See Section 5 for a complete list of these variables

Following [Gallagher and Mitchell \(2005, p.3\)](#), I define electoral systems as “the set of rules that structure how votes are cast at elections for a representative assembly and how these votes are then converted into seats in that assembly.” The elements that characterize a simple electoral system are thus assembly size, the number of districts and their magnitude, and the electoral formula. In more complex settings, the electoral threshold, the number of tiers, the proportion of directly elected seats, and the ballot structure are also defining features.

The definitions of democratic and non-democratic regimes are considerably more complicated and will not be discussed here. For practical reasons, I classify as *democracies* those regimes whose chief executive and legislature are elected in multi-party elections, provided that alternation in power is possible ([Przeworski et al., 2000](#)). In my dataset, the classification of each election is based on the data collected by [Cheibub et al. \(2010\)](#) for the period 1950–2008.

Among all non-democratic elections, I focus my attention on those that featured multiple parties and were competitive. An election is competitive if voters are presented with more than one party list and major opposition can compete openly¹¹. This includes party lists and candidate lists, provided that not all candidates run as independents.

My universe of cases entails all legislative¹² elections between 1950 and 2008¹³ in every independent country with more than 500,000 inhabitants. Where bicameral legislatures exist, I consider only the lower chamber, as it usually plays the leading role in the legislative process. In all, this represents a total of 165 countries and 1,670 elections.

In [Figure 1](#) I plot the number of elections of each type held each year during the period 1950-2008. I summarize the evolution of the three types, grouping the frequencies by decade, in [Table 1](#).

As we can see, the total number of elections has increased steadily over the decades, paralleling the increase in the number of countries. As [Golder \(2005, p105\)](#) argued, only half of the world’s elections between 1950 and 2008 were held under democratic regimes. In non-democratic countries, multiparty elections have become the norm during the past 20 years. Over the past decade, their number has grown to represent more than 25%

¹¹I have considered the elections in which major political groups were explicitly excluded from running by law as non-competitive. For example, in Uzbekistan in 2003 election officials arbitrarily refused to register three major political parties that would probably have formed a parliamentary opposition. Even though other parties were allowed to run, they were all supportive of the policies of President Karimov. (Source: *Chronicle of Parliamentary Elections 2004*, edited by the *Inter-Parliamentary Union*.) However, an election can be competitive even if a portion of the opposition decides to boycott the elections. For instance, the elections in Belarus in 2000 are considered competitive, as they were contested by several parties, even if some member of the opposition alleged lack of access to state-controlled mass media and called for a nationwide boycott. (Source: *Chronicle of Parliamentary Elections 2000*, edited by the *Inter-Parliamentary Union*.)

¹²I focus only on legislative elections because the executive authority remains uncontested in most of these countries, if not completely unelected ([Posusney, 2002](#)). Furthermore, legislatures play a very important role under electoral authoritarianism since they become a forum for negotiation, an environment where controlled bargaining can take place, and an efficient method for the distribution of rents, privileges, and spoils to the opposition parties ([Gandhi, 2008, p78](#)).

¹³My dataset therefore covers the period after the end of World War II, when most modern countries emerged, through 2008, the last year for which data on regime type ([Cheibub et al., 2010](#)) is available.

Figure 1: Number of Legislative Elections, by Type of Election and Year

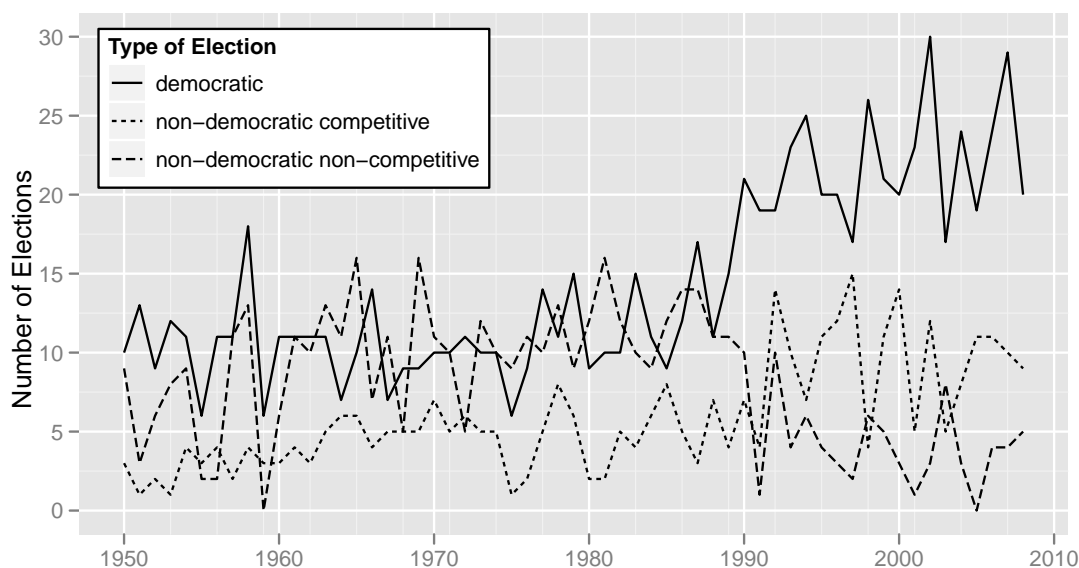


Table 1: Type of Legislative Elections by Decade, 1950-2008

Period	Democratic and competitive	Non-democratic and non-competitive	Non-democratic and competitive	Total
1950 – 1959	107 (54.3%)	63 (32.0%)	2 (13.7%)	197
1960 – 1969	100 (39.7%)	106 (42.1%)	46 (12.2%)	252
1970 – 1979	106 (41.4%)	100 (39.1%)	50 (19.5%)	256
1980 – 1989	119 (41.6%)	121 (42.3%)	46 (16.1%)	286
1990 – 1999	211 (59.1%)	51 (14.3%)	95 (26.6%)	357
2000 – 2008	206 (64.0%)	31 (9.6%)	85 (26.4%)	322
Total	849 (50.1%)	472 (28.3%)	349 (20.9%)	1,670

Source of data: revised version of dataset used in [Przeworski et al. \(2000\)](#), completed for period 2001-2008 from other sources. See section 4.

of all elections. Since 1950, 349 multi-party, non-democratic elections have been held, representing 20.9% of all elections – a figure more than substantial, in and of itself justifying the need for further research on this type of election¹⁴.

The classification of electoral systems is deliberately identical to the one used by [Golder \(2005, p.108-114\)](#). More specifically, he distinguishes between majoritarian, proportional, multi-tiered, and mixed electoral systems (I briefly describe each of these types of rules and provide examples in the next section.) For each of these elections, I have

¹⁴The complete list of non-democratic multi-party elections that I consider in my analysis can be found in the appendix.

coded the average district magnitude (in the lower tier, when the system is multi-tiered or mixed), which will be the key variable of my analysis in Section 5. My dataset also includes variables regarding assembly size, proportion of directly elected seats, number of districts, the effective number of electoral parties (that is, those that run in the election), and the effective number of parliamentary parties (those that obtain representation). The codification of these variables is based on Golder (2004) and Laakso and Taagepera (1979).

When compiling the distribution of seats and vote shares among different parties, I have coded whether each party belonged to the opposition or not. Using this information, I have computed the effective number of electoral and parliamentary opposition parties. I have also created a variable measuring the total share of voters who didn't support the regime parties. This variable will be used as a proxy for opposition size in the regression models. More specific information can be found in the appendix. The dataset is available upon request to the author¹⁵.

In the collection of these variables, I have relied extensively on the handbooks coordinated by Dieter Nohlen (Nohlen et al., 1999, 2001; Nohlen, 2005), the *Chronicles of Parliamentary Elections*, edited by the *Inter-Parliamentary Union*¹⁶, and the *Election Guide* developed by the *International Foundation for Electoral Systems*¹⁷. In case of discrepancy between these three sources or lack of available information, individual country reports in academic journals and official sources have been used to revise and complement the data.

An expanded version of the dataset on electoral systems in democratic elections, collected by Golder (2005), is also used in this paper in order to contextualize my results. This dataset, comprising all legislative elections from 1950 to 2000, has been updated through 2008 using the aforementioned sources¹⁸. Data regarding the 186 democratic elections held between 2001 and 2008 have been added to the 703 elections already coded.

In Table 2, I report the proportion of missing values for each variable in the dataset. The dataset is virtually complete for all multi-party elections, both democratic and non-democratic, during the period 1950-2008. Less than 1% of observations for the electoral system type variable are missing. This percentage is higher in the variable concerning the number of [electoral and parliamentary] parties, but remains below 8%. The missing values are more frequent in the elections taking place in the 1950's and 1960's. This is so especially when the number of electoral districts is high, since the vote aggregates are usually not published. In this case, only information about the distribution of seats in the parliament – if any – was present in the sources.

A final note on the reliability of this data is necessary. Due to electoral fraud, lack of transparency, or absence of coordination between the authorities in charge of carrying the election, it could be argued that some of the values in the dataset may not be reliable. This concern should not apply to the information about the electoral system, which can

¹⁵See Appendix for a complete list of all variables included in the dataset

¹⁶Available at <http://www.ipu.org>

¹⁷Available at <http://www.electionguide.org>

¹⁸The data for the period 2001-2008, as well as a file with instructions on how to append it to Golder's dataset, is available upon request.

Table 2: % Missing Values in Data Set, by Variable and Type of Election

Variable	Democratic	Non-Democratic
Elect. System Type	10 (0.8%)	6 (0.5%)
Ave. Dist. Magnit.	27 (2.3%)	28 (2.3%)
# Districts	25 (2.1%)	28 (2.3%)
# Seats	16 (1.3%)	14 (1.2%)
Assembly size	16 (1.3%)	14 (1.2%)
ENEP	49 (4.1%)	95 (7.9%)
ENPP	40 (3.3%)	34 (2.8%)
ENEOP	– (–)	117 (9.8%)
ENPOP	– (–)	73 (6.1%)
Total 1950–2008	849 elections	349 elections

be considered objective. However, the distribution of votes (from which the number of electoral parties has been computed) is more prone to manipulation, and therefore the analyses using this variable should be considered with caution¹⁹.

4.2 Descriptive Statistics

Table 3 shows that there is wide variation in the electoral rules used under authoritarian regimes with multi-party elections. Majoritarian electoral systems are more frequently used in non-democratic elections (57.1%) than in democratic elections (28.6%). The main characteristic of this type of electoral rule is that, in order to obtain representation for a district, the winning candidate must obtain a plurality or majority of the votes. The most common form of majoritarian system is plurality rule in single-member district, in which the most-voted candidate in each uninominal district obtains the seat. 70% of all non-democratic elections between 1950 and 2008 using majoritarian rules were conducted using this type of system. This is the case in Bangladesh (1973-2008), Ethiopia (1995-2005), Gambia (1966-2007), Malaysia (1959-2008), Mexico (1952-1963), Morocco (1963-1997), and Zimbabwe (1985-2008), for example. Other types of majoritarian systems feature majority rule in two-member districts with two rounds of voting (Egypt 1990-2005), or combine single- and multi-member constituencies with multiple-vote systems (Singapore 1988-2006, Thailand 1969-1988).

Proportional representation systems (usually abbreviated as “PR systems”) are less frequent in authoritarian countries, but were still used in 36.1% of all non-democratic, multiparty elections. The key characteristic of this system is that seats are allotted between party lists in a more or less proportional fashion, using either quota or highest

¹⁹An additional complication regarding this variable is that sometimes vote aggregates are reported for each coalition, rather than for the individual parties that belong to it. In those few cases, the distribution of votes at the party level has been extrapolated from the distribution of seats and the relative size of each coalition.

average systems²⁰. However, as I argued before, the extent to which this type of rule generates truly proportional distribution of seats depends strongly on the size of the districts and its variation (Monroe and Rose, 2002). PR systems with average district magnitude of five or fewer members generate levels of disproportionality not too different from majoritarian systems (Carey and Hix, 2011). This is the case in almost 35% of all PR, non-democratic elections in my dataset, for example, El Salvador (1964-1988), Chile (1989), Morocco (2002-2007) or Peru (1978-2000). However, as in democracies, most competitive authoritarian elections using PR also feature large districts, which range from 21 members (Bosnia and Herzegovina, 1996-2006) to 60 members (Paraguay 1963-1988), or even as many as 450 (Russia, 2007).

Table 3: Type of Electoral System by Type of Election, 1950-2008

Type of election	Majorit.	Proportional	Multi-tiered	Mixed	N
Democratic	240 (28.6%)	303 (36.1%)	189 (22.5%)	107 (12.7%)	839
Non-democratic	196 (57.1%)	91 (26.5%)	6 (1.7%)	50 (14.6%)	343
Total	436 (36.9%)	394 (33.3%)	195 (16.5%)	157 (13.3%)	1,182

Source of data for democratic countries, 1950-2000: Golder (2005). Non-democratic elections include only multi-party elections. Percentages are calculated over the number of elections with available data.

Multi-tiered and mixed-member electoral systems are rare in authoritarian regimes and account for only 1.7% and 14.6% of all elections, respectively. The former, most prominently used in Cameroon (1992-2007), uses the same electoral formula (either majoritarian or proportional) across multiple tiers²¹, employing one or two ballots. On the contrary, mixed-member electoral systems use a different formula in each tier (Shugart and Wattenberg, 2003). The most common variation, utilized in 60% of all authoritarian elections, combines single-member districts using plurality rule with multi-member districts in which seats are allotted proportionally between party lists. This is the case in Azerbaijan (1995-2005), Mexico (1979-1997), and Russia (1993-2003), among others.

These results suggest that electoral rules, in terms on their expected effect on the size of the party system (Duverger, 1954), are much more restrictive in authoritarian than in democratic elections. The relative importance of majoritarian systems in non-democratic countries is obvious considering the evolution in the use of each of these four types of electoral rules across time²², in Figure 2. While the first panel shows that the four types of rules have been used almost evenly since 1950 in democracies, with a significant increase in the use of mixed-member electoral systems in the past two decades (Massicotte and Blais, 1999), the second highlights how the widespread use of majoritarian systems is constant across time. However, this latter trend suggests that other systems are becoming more frequent as well.

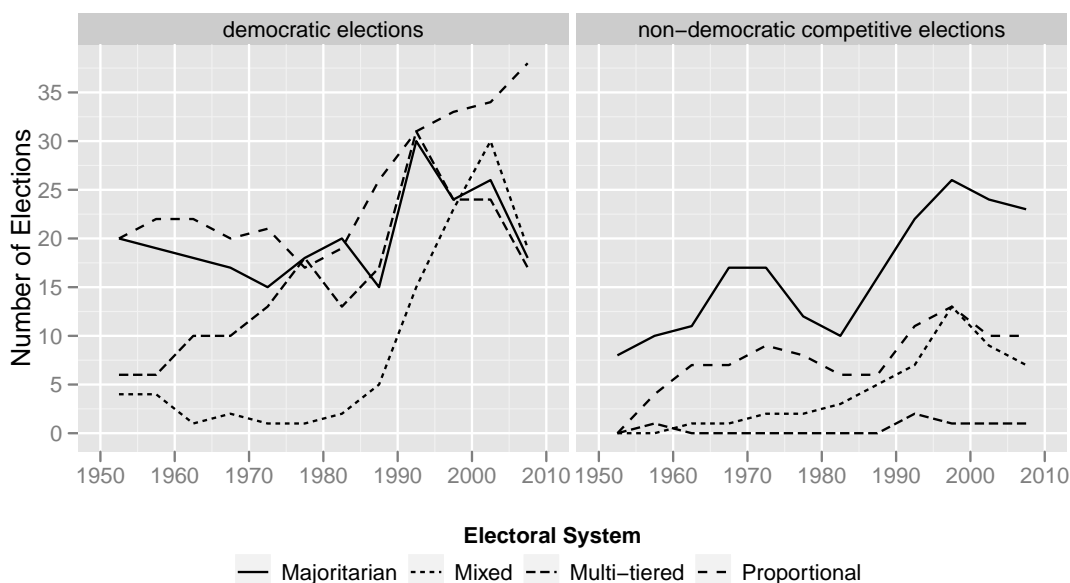
Dictators and political elites can also reduce the number of opposition parties that

²⁰See Gallagher and Mitchell (2005) for a more detailed summary of each of these two types.

²¹An electoral tier is each of the “levels in which votes are translated into seats” Golder (2005, p110).

²²Frequencies are grouped in five-year periods, in order to be able to perceive time trends more easily.

Figure 2: Use of Electoral Systems, by Type of Election and Five-Year Periods



obtain representation by modifying other elements of the electoral system, such as the number of districts and their size, the size of the assembly and the proportion of seats that are directly elected by the voters, and the threshold of votes necessary in order to obtain a seat. My dataset contains information about some of these variables (see Table 4), yielding additional evidence suggesting that dictators choose electoral systems that fragment the opposition. As expected, the average district magnitude when a PR system is chosen is lower in authoritarian than in democratic elections, although this difference is not statistically significant at conventional levels. Legislatures have also fewer members in non-democratic countries (175 seats, compared to 233 in democracies)²³, and up to 2.5% of them are not directly elected by the voters²⁴. Both of these

²³An alternative explanation for this difference might be that the population size of the average authoritarian country is lower than that of an average democracy. As [Taagepera and Shugart \(1989\)](#) argue, population and assembly sizes are highly correlated – the number of seats in a parliament is approximately the cubic root of the number of inhabitants of that country. Using data from [Gleditsch \(2002\)](#), I find that this is indeed the case: in my sample, dictatorships holding competitive elections have an average of 30.5 million citizens, while this figure raises to 49.0 millions in democracies. This difference, however, is not significant (t-statistic=1.24).

²⁴In a few cases, democratic legislatures reserve some seats for minorities that would not otherwise obtain representation. For example, in Slovenia, two members are chosen from the Hungarian and Italian minorities. In dictatorships, the ruling elite sometimes appoints a proportion of the representatives in the legislature. We also find some extreme cases in which a more than substantial percentage of all seats are allotted in this fashion, such as South Korea in 1978 (42.9%), Sudan in 1974 (50%), Morocco in 1970 (62.5%), or Swaziland from 1978 to 1987 (80%). In these countries, this electoral rule entails a severe restriction on political competition, even if access of opposition parties to the directly elected seats is not constrained.

differences are significant at the 1% level. Even though the effect of assembly size on the party system is probably not substantive and due to differences in population size, it is to be expected that the smaller the assembly is, the lower the number of representatives of the opposition parties will be.

Table 4: Electoral System Features, by Type of Election (Averages 1950-2008)

Election type	DM	N	Seats	Assembly	% Elected	N
Democratic	31.4	286	233.0	233.1	99.9%	833
Non-democratic	29.5	82	169.4	175.4	97.5%	335
Difference	1.88		63.5**	57.7**	2.4%**	
t-statistic	0.27		6.5	5.8	8.4	

Source of data for democratic countries, 1950-2000: [Golder \(2005\)](#). **Significant at the 1% level. Non-democratic elections include only multi-party elections. DM stands for ‘district magnitude’. N stands for ‘number of elections’. Average district magnitude is compared only for elections using proportional electoral systems.

The apparent stability that could be observed in [Figure 2](#) hides the fact that electoral system changes occur much more frequently in dictatorships than in democracies; 10% of all multi-party elections in non-democratic countries used an electoral system that was substantially different than that used in the election immediately prior (see [Table 5](#)). This represents a total of 28 major electoral system changes²⁵. If we expand the definition of change in order also to include substantial alterations in the average district magnitude or assembly size, the proportion rises to 27.8%, which represents 75 minor electoral system changes. The results of a t-test of difference of means show that electoral systems are significantly less stable in non-democratic regimes than in democracies, which is consistent with the intuition that dictators exert a direct influence on electoral system choice.

Table 5: Frequency of Electoral System Changes

Type of change	Election type		Diff.	t-stat
	Democratic	Non-democratic		
Major	49 (6.4%)	28 (9.9%)	3.5%*	1.94
Minor	100 (13.3%)	75 (27.8%)	2.6%**	5.47

Source of data for democratic countries, 1950-2000: [Golder \(2005\)](#). Significant at the *5% level and **1% level. Non-democratic elections include only multi-party elections. ‘Major’ change is defined as change in the type of electoral rules (e.g., from proportional to majoritarian electoral system). ‘Minor’ change is defined as a 20% or more change in average district magnitude or assembly size, and includes all ‘major’ changes as well. See [Golder \(2005, p.107\)](#) for more information. First elections after 1950 are left-censored for all countries.

The substantial time-series variation that we find in the electoral systems used in non-

²⁵A ‘major’ electoral system change is defined as a modification of the electoral formula between two consecutive elections.

democratic, multi-party elections represents *prima facie* evidence that they are relevant. Given that any institutional change is costly, even in authoritarian regimes, dictators must extract some benefit from the manipulation of electoral institutions, because otherwise they would remain stable. However, this is not sufficient proof that electoral rules matter. In the following section I show how, under particular circumstances, electoral rules fragment the opposition. This variation of electoral systems over time suggests, first, that political authorities are not indifferent to electoral institutions and, second, that they manipulate such institutions, possibly to their own benefit.

5 Results

5.1 Evidence for the Mechanical Effect

Coefficient estimates for the model in equation (1) are shown in Table 6. These results provide strong support for the hypothesis concerning the mechanical effect of electoral rules. Holding all else constant, the number of electoral opposition parties has an increasing, but less than proportional, effect on the number of parliamentary opposition parties ($0 < \beta_1 < 1$). However, as expected, this effect is mediated by the size of the electoral districts. As their average magnitude increases, the numbers of electoral and parliamentary opposition parties become more similar ($\beta_3 > 0$).

These coefficients indicate that an additional electoral party would lead to an additional 0.60 parliamentary parties in single-member districts. (A 95% confidence interval for this quantity of interest would range from 0.40 to 0.79.) In a country like Namibia, with a single 72-seat district and proportional representation since 1989, the effect of an additional electoral party would increase to 0.92 (0.71, 1.12) parliamentary parties, therefore generating an almost perfect proportionality between vote shares and seat shares. The size of these effects is very similar to those reported by [Clark and Golder \(2006\)](#) in their test of the mechanical effect of democratic electoral systems.

An alternative interpretation of these results is provided in Table 7. Here, I use the coefficient estimates in Model 1 to compute the predicted number of opposition parties that would obtain parliamentary representation, under different values of average district magnitude and number of electoral opposition parties. This table illustrates how incentives to coordinate are higher in restrictive electoral systems, when the opposition is fragmented. In the most extreme example, an opposition divided in ten different electoral parties would be reduced to only 6.54 parliamentary parties under a majoritarian system using single-member districts, while it would be almost proportionally represented (9.16 effective parties) if the country had a single district with 100 seats. These quantities confirm the existence of strong incentives for opposition parties and voters to coordinate in the election.

Table 6: Hypothesis 1: Mechanical Effect

Model 1	
Electoral Opp. Parties (ENEOP)	0.599*** (0.097)
log(Ave. District Mag.)	-0.197* (0.110)
Log(Ave.DM) \times # ENEOP	0.076* (0.040)
Constant	0.551** (0.223)
R^2	0.716
RMSE	0.872
N	208

Dependent variable is effective number of parliamentary opposition parties. Standard errors, clustered by country, in parentheses. Regression includes fixed-effects by region (omitted from output). Unit of analysis is election. Signif.: *5% **1% ***0.1%

Table 7: Predicted Effective Number of Parliamentary Opposition Parties

		Average District Magnitude					
		1	5	10	29.5	50	100
Electoral	2	1.75	1.67	1.65	1.60	1.57	1.54
Opposition	3	2.34	2.40	2.41	2.44	2.46	2.47
Parties	5	3.54	3.84	3.97	4.17	4.27	4.40
	10	6.54	7.46	7.85	8.47	8.77	9.16

Note: 29.5 seats is the average district magnitude in non-democratic elections. Estimates have been computed using coefficients in Model 1, Table 6.

5.2 Evidence for the Psychological Effect: Cross-Sectional Variation.

Coefficient estimates of equations (2) and (3) are reported in Table 8. Model 2 represents a naive test of Hypothesis 2, concerning the psychological effect of electoral rules. None of the coefficients is significant at conventional levels of confidence. This implies that ethnic fractionalization does not affect the number of opposition parties in dictatorships using single-member districts and also that district magnitude has no influence on opposition fragmentation when ethnic heterogeneity is zero.

However, my hypothesis needs to be tested by computing the marginal effect of district magnitude. As the positive coefficient of the interaction indicates, the slope of the marginal effect is positive: the number of electoral opposition parties increases

with district magnitude, but only when ethnic fragmentation is high. More specifically, the marginal effect only becomes positive in countries whose value in this variable is higher than 0.53. Although this relationship has the expected direction, it fails to be statistically significant even under high social heterogeneity. In a country like Uganda, with an ethnic fragmentation of 0.93 in this scale, the effect of a one-unit increase in the logarithm of district magnitude (e.g. from 20 to 55 seats) is associated with only 0.14 additional electoral parties. And this estimate is not statistically significant: its “correct” standard error (Brambor et al., 2006) is 0.29.

Table 8: Hypothesis 2: Psychological Effect

	Model 2	Model 3	Model 4
log(Ave. District Mag.)	-0.213 (0.231)		-2.945 (1.959)
Ethnic fractionalization	-0.044 (0.898)	0.200 (0.615)	-5.271 (4.108)
Log(Ave.DM) \times # Ethnic Fract.	0.380 (0.513)		5.023 (3.289)
Civil dictatorship		0.371 (0.495)	
Military dictatorship		0.853* (0.504)	
Former British colony		-1.108*** (0.272)	
Opposition Size		-0.763 (0.815)	
Constant	3.055*** (0.742)	1.152 (0.718)	6.045** (2.597)
R^2	0.040	0.243	.
RMSE	1.929	1.211	2.491
N	216	215	215

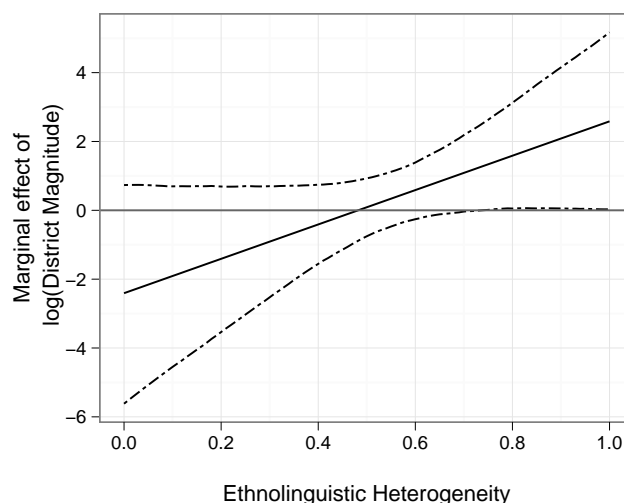
Dependent variable in models 2 and 4 is effective number of electoral opposition parties. Standard errors, clustered by country, in parentheses. Regression includes fixed-effects by region (omitted from output). Unit of analysis is election. Model 2 is an ordinary least squares regression. Models 3 and 4 are the selection and outcome equations, respectively, of a two-stage least squares regression where district magnitude has been instrumented. The value of the F-test for weak instruments (Sovey and Green, 2011) is 7.98. Significance: *5% **1% ***0.1%

As argued in the sections above, these results assume that district magnitude is exogenous to the number of electoral opposition parties. If this assumption does not hold – and this seems to be the case in non-democratic elections –, then the coefficients of this “naive” estimator might be biased. In this particular case, the small size of these

effects and their lack of significance suggest that the endogeneity of electoral systems led to an attenuation bias in my estimates.

In order to address this potential problem, I have computed a two-stage least squares regression, in which district magnitude is instrumented. Results of the selection equation are reported in Model 3. As hypothesized, district magnitude is higher in civil and military dictatorships than in authoritarian monarchies – although only this last difference is statistically significant. Colonial history is also an important determinant of electoral system choice: former British colonies elect their representatives using smaller districts. Finally, total opposition size appears not to have any significant effect, contrary to my expectations²⁶. The fit of this model, as measured by the R^2 and the standard deviation of the residuals, is acceptable. Finally, a test for weak instruments (Sovey and Green, 2011) yields an F-statistic of 7.98, which is slightly lower than the suggested value (10), but still indicates that the instruments chosen are highly significant predictors of average district magnitude.

Figure 3: Marginal Effect of District Magnitude on the Number of Electoral Opposition Parties, by Levels of Ethnic Heterogeneity



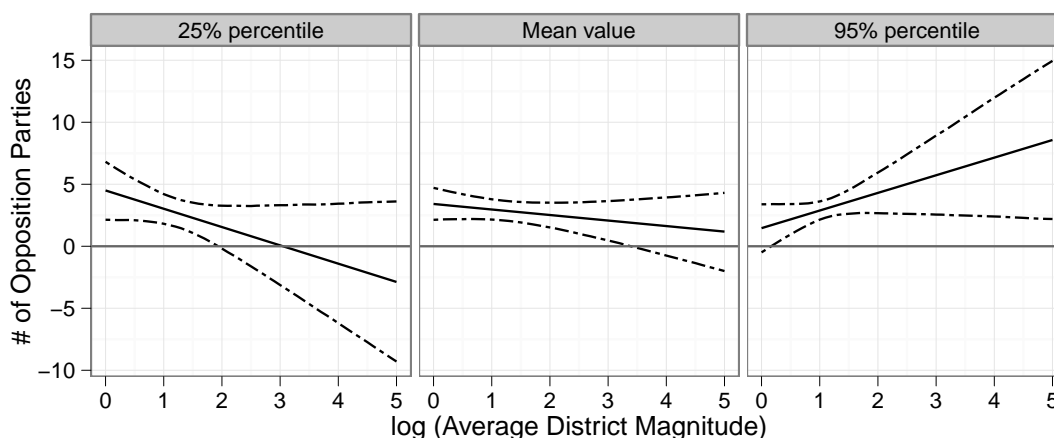
I present coefficient estimates for the second stage of the instrumental-variables regression in Model 4. After identifying the equation, the magnitude of all coefficients increases substantially, and the direction of the effects remains the expected. Again,

²⁶Note that opposition size was measured at the time of the election, which can raise endogeneity concerns. However, this was the only feasible option, as measuring opposition size from the results of the previous election would imply left-censoring a high number of observations, and it would be in some cases unreasonable, given the long periods between one election and the following. I assume that the dictator can approximate the size of the opposition before the election, and that his decision to change the electoral system is in response to that estimation. While the number of parties is partially a function of the electoral rules (that is what I try to show in this article), the size of the opposition is exogenous, as I expect to find very low values of electoral volatility between the regime and the opposition parties.

none of the estimates is significantly different from zero, but the t-statistic for the interaction term is now 1.53 ($p = 0.13$). As earlier, our interest lies on whether large districts foster opposition fragmentation when social heterogeneity is high. In Figure 3 I plot 90% confidence intervals of this marginal effect for all possible values of ethnic heterogeneity.

As can be seen in the plot, district magnitude increases significantly the number of electoral parties only when ethnic heterogeneity is higher than 0.65. After correcting for endogeneity, we find a one-unit increase in the logarithm of district magnitude (e.g. from 20 to 55 seats) to generate 1.74 additional electoral parties in a country like Uganda. A 90% confidence interval for this estimate ranges from -0.34 to 3.77.

Figure 4: Predicted Number of Electoral Opposition Parties, by Levels of Ethnic Heterogeneity



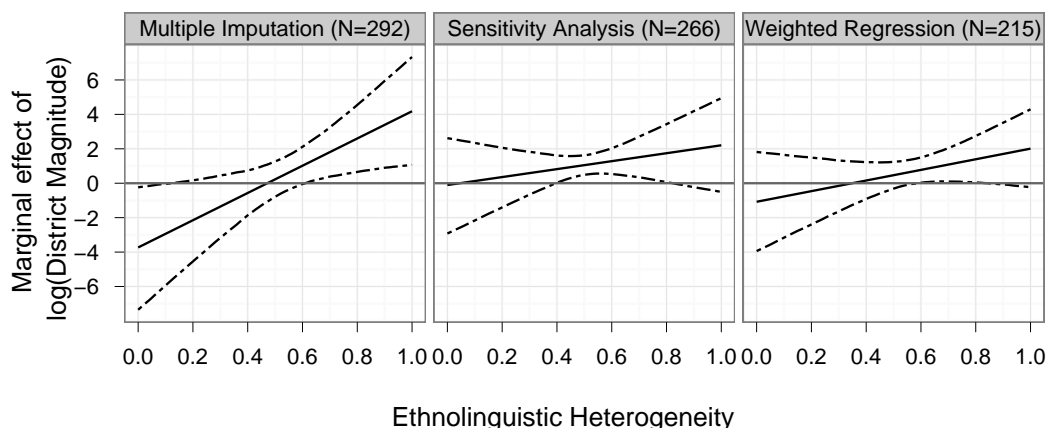
An alternative graphical visualization of this effect is explored in Figure 4. Here, I plot 90% confidence intervals of the predicted number of electoral opposition parties for different average district magnitudes (the horizontal axis ranges from $DM = 1$ to $DM = 150$). Each panel reproduces the same calculation under three different levels of ethnic heterogeneity. The first one corresponds to a country in the 25% percentile, such as Lesotho (0.25) or Taiwan (0.27). The middle panel simulates the effect of district magnitude in a country with an average ethnic heterogeneity, such as Morocco (0.48) or Mexico (0.54). In these two sets of countries, an increase in district magnitude would not be associated with higher levels of opposition fragmentation. It is only in the right-hand panel that we find the electoral system to have a significant impact on the number of electoral opposition parties. Under a value of ethnic heterogeneity such as those of Kenya (0.86) or Liberia (0.90), my model predicts between 0 and 3.48 electoral opposition parties in single-member districts, but up to 4.69 (2.62, 6.76) electoral opposition parties when average district magnitude is 10.

To sum up, these results clearly suggest that the electoral system can modify the level of fragmentation of the electoral opposition to the regime, but only when there exist social pressures in favor of a more diverse representation. The evidence in favor

of this conclusion is, however, somehow weak, as these effects are only significant at the 90%, and when the level of ethnic heterogeneity is higher than average.

In Figure 5 I summarize three robustness checks that confirm that my main result is consistent across different regression specifications. A relevant concern in the previous analysis was the high proportion of missing values, as a consequence of the unavailability of complete electoral data in many countries. By assuming that the missingness mechanism is ignorable, in the first panel I show that the estimated marginal effect remains substantially unchanged after applying a multiple imputation technique (King et al., 2001). The second panel shows the result of a sensitivity analysis, where the imputed number of electoral parties is the number of parliamentary parties, modified as a function of the expected magnitude of the mechanical effect in each country. (Estimates of the mechanical effect are drawn from the results in Table 6.) Finally, the third panel plots the marginal effect of district magnitude after re-estimating Models 3 and 4 using a weighted regression, where each country has identical weight. By performing this test, I show that differences in the number of elections held in each dictatorship are not driving my results.

Figure 5: Robustness Checks. Marginal Effect of District Magnitude on the Number of Electoral Opposition Parties, by Levels of Ethnic Heterogeneity



5.3 Evidence for the Psychological Effect: Longitudinal Variation.

Finally, I turn to assessing the plausibility of Hypothesis 3. Results in Table 9 are coefficient estimates for equations (5) and (6). Both are linear regressions whose dependent variable is the number of electoral opposition parties. Besides the key regressors – the number of consecutive elections using majoritarian and proportional electoral rules –, I have also controlled for district magnitude, ethnic fractionalization, and type of dictatorship. As the results above have shown, all these variables have a direct or indirect effect

on the number of electoral parties, so its use is necessary in order to account for the variation across countries. The value of these results is that they allow me to examine the psychological effect of electoral rules by testing for one of its observable implications: the evolution of the number of electoral opposition parties after an electoral system change.

Table 9: Hypothesis 3: Change in Psychological Effect Over Time

	Model 5	Model 6
# Consecutive PR Elections	0.193** (0.089)	
# Consecutive Maj. Elections		-0.100** (0.046)
log(Ave. District Mag.)	0.091 (0.190)	-0.070 (0.135)
Ethnic fractionalization	0.762 (0.826)	0.824 (0.784)
Log(Ave.DM) \times # Cons. PR	-0.073** (0.034)	
Civil dictatorship	-3.109** (1.231)	-3.030** (1.261)
Military dictatorship	-2.805** (1.267)	-2.753** (1.285)
Constant	5.214*** (1.266)	5.501*** (1.287)
R^2	0.146	0.144
RMSE	1.820	1.822
N	216	216

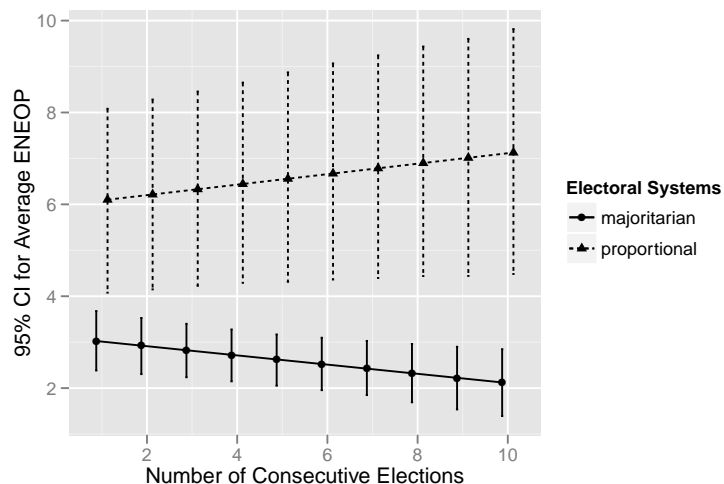
Dependent variable is effective number of electoral opposition parties. Standard errors, clustered by country, in parentheses. Regression includes fixed-effects by region (omitted from output). Unit of analysis is election. Base category for regime type: monarchy. Significance: *5% **1% ***0.1%

The two coefficients of interest can be found in the top two rows. Both of them have the expected sign and are statistically significant. First, I find the number of electoral opposition parties to increase by 0.19 additional parties after each consecutive election using a PR formula. Interestingly, this effect is smaller as district magnitude becomes larger, and loses its significance when the average district has 12 seats. On the contrary, when the parliament is elected using a majoritarian formula, the predicted effect is the opposite: opposition parties increase their electoral coordination and therefore the number of parties decreases by 0.10 parties after each election.

In Figure 6 I offer a graphical interpretation of these coefficients. The horizontal axis

indicates the number of consecutive elections held under the same electoral system. For each of the years, the graph shows 95% confidence intervals for the predicted number of electoral opposition parties, holding all other variables at their means or modes. As expected, the effective number of electoral opposition parties shows a divergent pattern for each of the two types of electoral rules.

Figure 6: Predicted Evolution of Number of Electoral Opposition Parties, by Number of Consecutive Elections under Same Type of Electoral System



6 Discussion

As the results in the previous section have shown, electoral rules create incentives for opposition parties and voters to coordinate in non-democratic elections. Small districts limit the number of opposition parties that can obtain representation, due to the mechanical effect. On the side of opposition supporters, casting a vote for a small, non-viable party is likely not to yield political representation in parliament. On the side of the opposition elites, an additional electoral party is translated into an additional parliamentary party only when district magnitude is sufficiently high. Since most dictatorships choose restrictive electoral systems (see Section 4), this implies that a fragmented opposition will find it hard to match their vote share with an equivalent seat share in parliament. My results provide robust evidence of the existence of these incentives, which are of similar magnitude as those inducing strategic behavior in democratic elections (Clark and Golder, 2006).

But the existence of these incentives does not prove that electoral rules can indeed modify the behavior of the regime opposition. In order to do so, it is necessary to test whether the number of opposition parties that compete in the authoritarian election (and receive votes) changes in response to the electoral system. I have done so in the

previous section, implementing two different identification strategies. My results show that dictators can foster opposition fragmentation when they choose proportional systems with large districts, but only when the society is heterogeneous and demands for a more diverse political representation. The evidence supporting this result is robust, but weak and barely significant, which suggests that the psychological effect of electoral rules is less important in authoritarian elections than in democratic elections.

There are two possible explanations for the small size of this effect. Throughout this article, I have assumed that the average district magnitude is the only feature of an electoral system that affects the number of opposition parties. A first explanation might be that this *ceteris paribus* assumption is too strong. Many other elements of the electoral law can foster or hinder electoral coordination, and it is possible that its use by the dictator might modify the effect of changes in district magnitude.

The most prominent example is the case of Mexico. According to my results, we would expect the electoral reforms that took place in Mexico during the 70s and 80s to have no effect on the fragmentation of the opposition to the PRI, as average district magnitude did not change. However, since my analysis focused on constituency size in the lower tier, it was not able to predict the increase in the number of opposition parties that was due to the implementation of proportionally distributed compensatory seats (Diaz-Cayeros and Magaloni, 2001). A similar case would be that of Egypt, where the electoral reform of 1984 introduced a proportional system, but actually reduced the effective number of parliamentary opposition parties to only one. This was the result of a high electoral threshold, which represented an additional source of electoral coordination that was not captured in my model.

The array of electoral instruments available to authoritarian rulers does not end here. Dictators can also modify the boundaries of the electoral districts to their own benefit (“gerrymandering”). For example, in Malaysia (1969) the “Alliance” – the governing party – obtained a wide parliamentary majority despite achieving less than 50% of the vote thanks to a heavily “gerrymandered” system (Nohlen et al., 2001). In Cameroon (1997), several “special constituencies” were created to profit from regional patterns of voting behavior; the governing party, CDPM, was stronger in the south and center of the country (Nohlen et al., 1999). In Morocco, the boundaries of the districts have been subject to constant revisions and are not actually included in the electoral law, but rather approved by decree before every election (Sater, 2009).

In conclusion, a first interpretation for the small size of the psychological effect might be that electoral engineering is just too complex to be modeled in a single, parsimonious equation. In other words, opposition parties and voters may behave strategically in competitive, non-democratic elections as a result of incentives created by the mechanical effect of restrictive electoral systems. But the decision to coordinate or to ‘go it alone’ may be induced by other electoral incentives beyond merely district magnitude.

A second – and possibly complementary – explanation is simply that electoral rules may not have such strong shrinking effects in authoritarian regimes. This would be consistent with Duverger’s original intuition that multipartism might be confused with the lack of an institutionalized party system. Empirically, Clark and Golder (2006)

also find that Duverger's theory received much weaker support in new democracies. Their argument is that party systems in these countries may have not reached a certain "equilibrium" in which both parties and voters coordinate perfectly in response to the incentives created by the electoral rules. I have partially addressed this possibility by studying variation over time in the number of parties. My results suggest that this is indeed the case: there is some kind of "learning process" after an electoral reform, during which opposition parties adapt to the new situation of the electoral arena. However, this interpretation is only preliminary and further research is needed.

There is another source of coordination failures that should be discussed. Almost by definition, the information available to opposition parties in a dictatorship is very limited. With very few exceptions, no public opinion polls are available, the number of previous elections is often small, and electoral fraud makes electoral results uncertain. Opponents to the regime usually have an approximate idea of their social support, and the distribution of their political preferences. But this might not be enough to ensure their ability to coordinate adequately, particularly when districts are small. As a result, the small and barely significant effect of electoral rules might be the result of miscalculations on the side of the opposition: unaware of their likelihood of winning a seat, even in highly-contested single member districts, the number of opposition parties that decide to compete would be higher than that if perfect information was available. At the same time, uninformed voters are not able to vote strategically and will always vote for their first, "sincere" preference.

7 Conclusions

The main purpose of this article is to justify that electoral systems are relevant *also* in non-democratic regimes, and therefore that any study on the type of institutions that are established during the liberalization processes should take this variable into account. As I have shown, electoral rules vary substantially across countries and over time, affect electoral outcomes, and influence political representation.

This is so because the electoral system has a profound impact on the structure of electoral competition. Duvergerian gravity also affects the number of opposition parties in non-democratic elections. Restrictive electoral systems (those with small districts) constrain the number of opposition parties that can win a seat from those who run in the election. On the contrary, large districts are permissive to the multiplication of the number of electoral opposition parties and indeed fragment the opposition when the society is heterogenous.

These results have important implications for non-democratic politics. For the authoritarian incumbent, an electoral system that induces political fragmentation can appease domestic and international opposition, and therefore ensure his survival in power. For the opposition to the regime, electoral rules that foster the presence of a unified block in parliament can make the difference between being relegated to the status of permanent minority and being able to have their voice heard or, eventually, alter the

balance in power.

Furthermore, the relevance of electoral rules in place during non-democratic regimes goes beyond the duration of the dictatorship. Formal institutions generate path-dependent dynamics. As [Lust-Okar and Jamal \(2002\)](#) argue, electoral system choice in dictatorship has *ad-futurum* consequences in newly liberalizing countries. In my dataset, 33 of 43 countries (79%) that experienced a transition from dictatorship to democracy used the same type of electoral system in the first elections following the fall of the authoritarian regime. This was the case in Chile, Mexico, Pakistan (in 1977), Kenya, Taiwan, Senegal, or Indonesia, for example. Even if the dictatorship had already collapsed, many other countries reformed their contemporaneous electoral institutions during a period of transition, while the previous distribution of power (as shaped by previous electoral rules) was still valid. As a result, the electoral rules in countries such as Spain, Portugal, Albania, Poland, or Estonia have clear biases towards those political groups that had higher levels of support during such a transition period ([Lago and Montero, 2005](#); [Monroe and Rose, 2002](#); [Andrews and Jackman, 2005](#)). In other words, electoral system choice in dictatorships has an enduring impact on the distribution of power both during the regime and afterwards.

My discussion of electoral system choice in dictatorship assumed that dictators design electoral rules in order to stay in power. This raises a necessary follow-up question: Are they successful? That is, are these institutional reforms successful in increasing dictator survival? If so, under what conditions? Is the effect of elections on the survival of non-democracies larger conditional on the specific electoral system that is used? I hope that this article, and the new dataset that I have collected, can open new lines of research that may help us better to understand the paradox of why dictators decide to hold legislative elections.

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Appendix A. List of Elections Included in the Analysis.

Table 10: Legislative Multi-Party Elections under Non-Democratic Regimes

Country	Years
Afghanistan	2005
Albania	1991
Algeria	1997 2002
Angola	1992 2008
Azerbaijan	1995 2000 2005
Bangladesh	1973 1979 1986 1988 2008
Belarus	2000 2004 2008
Bolivia	1956 1958 1960 1962 1979 1985
Bosnia & Herzegovina	1996 1998 2000 2002 2006
Botswana	1969 1974 1979 1984 1989 1994 1999 2004
Brazil	1966 1970 1974 1978
Burkina Faso	1970 1978 1992 1997 2002 2007
Burundi	1965 1993 2005
Cambodia	1955 1972 1993 1998
Cameroon	1964 1992 1997 2002 2007
Central African Rep.	2005
Chad	1997 2002
Chile	1989
Comoros	1992 1993 1996
Congo	1992 1993 2002 2007
Czechoslovakia	1990
Djibouti	1992 1997 2003 2008
Dominican Rep.	1962
Egypt	1950 1979 1984 1987 1990 1995 2000 2005
El Salvador	1956 1961 1964 1966 1968 1970 1972 1974 1978 1982 1985
Equatorial Guinea	1993 1999 2004 2008
Ethiopia	1995 2000 2005
Fiji	2001 2006
Gabon	1964 1990 1996 2001 2006
Gambia	1966 1972 1977 1982 1987 1992 1997 2002 2007
Georgia	1995 1999
Ghana	1969 1992
Guinea	1995 2002
Guinea Bissau	1994 1999
Haiti	1957 1961 1990 1997 2000 2006
Honduras	1981
Ivory Coast	1990 1996 2000
Indonesia	1955 1971 1977 1982 1987 1992 1997
Iran	1950 1954 1956 1960 1967 1971 1996 2000 2004 2008
Iraq	1953 2005
Jordan	1951 1954 1956 1993 1997 2003 2007
Kenya	1966 1992 1997

To be continued on next page

Table 10: Legislative Multi-party Elections under Non-Democratic Regimes (cont.)

Country	Years
Korea, South	1950 1954 1958 1963 1967 1971 1973 1978 1981 1985
Laos	1960 1965 1967 1972
Lebanon	1996 2000 2005
Lesotho	1970 1998 2002 2007
Liberia	1985 1997 2005
Libya	1952
Madagascar	1965 1970 1983 1989
Malaysia	1959 1964 1974 1978 1982 1986 1990 1995 1999 2004 2008
Mauritania	1992 1996 2001 2006
Mexico	1952 1955 1958 1961 1964 1967 1970 1973 1976 1979 1982 1985 1988 1991 1994 1997
Montenegro	2006
Morocco	1963 1970 1977 1984 1993 1997 2002 2007
Mozambique	1994 1999 2004
Namibia	1994 1999 2004
Nepal	1959
Nicaragua	1957 1963 1967 1974
Niger	1996 1999
Pakistan	1971 1985 2002
Paraguay	1963 1968 1973 1978 1983 1988
Peru	1978 1992 1995 2000
Philippines	1965 1969 1984
Russia	1993 1995 1999 2003 2007
Senegal	1963 1978 1983 1988 1993 1998
Serbia	1992 1996 2000
Sierra Leone	1962 1973 1977 1996
Singapore	1968 1972 1976 1980 1984 1988 1991 1997 2001 2006
Somalia	1964 1969
Sri Lanka	1977
Sudan	1965 1968 1986 1996
Syria	1954 1961
Swaziland	1972
Taiwan	1986 1989 1992 1995
Tajikistan	2000 2005
Tanzania	1995 2000
Thailand	1969 1975 1979 1983 1986 1988 2006
Togo	1994 1999 2002 2007
Tunisia	1959 1994 1999 2004
Uganda	1980 2006
Uruguay	1984
Venezuela	1958
Yemen	1993 2003
Zambia	1968 1991 1996 2001 2006
Zimbabwe	1985 1990 1995 2000 2005 2008

Appendix B. List of variables

countryn Country name.

country Country code.

year Year of election.

id Country-year unique identifier.

democracy Dummy variable coded 1 if the regime qualifies as democratic. From [Cheibub et al. \(2010\)](#).

legelec Number of legislative elections that took place during the year. Note: whenever two elections were held in a year, only the results for the last one are considered. From [Przeworski et al. \(2000\)](#) (1950-2000) and the *Election Guide* of the *International Foundation for Electoral Systems* (2001-2008).

elecparty_leg Number of lists presented to voters in legislative elections: -1 if no legislature or state parliament or fully appointed legislature, 0 if none, 1 if one, 2 if more. From [Przeworski et al. \(2000\)](#) and the *Election Guide* of the *International Foundation for Electoral Systems* (2001-2008).

election_type Type of legislative election: democratic election (0), non-democratic non-multi-party election (1), non-democratic multi-party election (2). Constructed from variables “democracy”, “legelec”, and “elecparty_leg”.

avemag Average district magnitude in the lowest electoral tier. This is calculated as the total number of seats allocated in the lowest tier divided by the total number of districts in that tier. Values for democratic elections (1950-2000) from [Golder \(2005\)](#).

districts Number of electoral districts or constituencies in the lowest electoral tier for the lower house of the legislature. Values for democratic elections (1950-2000) from [Golder \(2005\)](#).

electoralsystem_type Variable that indicates the type of electoral system used: majoritarian (1), proportional (2), multi (3), mixed (4). Values for democratic elections (1950-2000) from [Golder \(2005\)](#).

enep Effective number of electoral parties based on the following formula from [Laakso and Taagepera \(1979\)](#): $\frac{1}{\sum v_i^2}$, where v_i is the percentage of the vote received by the i^{th} party. Independents or ‘others’ are treated as a single party. Values for democratic elections (1950-2000) from [Golder \(2005\)](#).

enep_others This is the percentage of vote going to parties that are collectively known as ‘others’ in the official electoral results. Values for democratic elections (1950-2000) from [Golder \(2005\)](#).

enep Effective number of electoral opposition parties, calculated as $1 / \sum (v_i / \sum v_i)^2$, where v_i is the percentage of votes won by the i^{th} opposition party.

opposition Aggregate vote share of opposition parties in current election.

enpp Effective number of parliamentary parties. Constructed using the following formula from [Laakso and Taagepera \(1979\)](#): $\frac{1}{\sum s_i^2}$, where s_i is the percentage of seats won by the i^{th} party. Independents or ‘others’ are treated as a single party. Values for democratic elections (1950-2000) from [Golder \(2005\)](#).

enpp_others This is the percentage of the seats going to parties that are collectively known as ‘others’ in the official electoral results. Values for democratic elections (1950-2000) from [Golder \(2005\)](#).

enpop Effective number of parliamentary opposition parties, calculated as $1/\sum(s_i/\sum s_i)^2$, where s_i is the percentage of votes won by the i^{th} opposition party.

opp_seats Proportion of seats in the legislature that are won by opposition parties.

golder Dummy variable identifying information about electoral systems that comes from [\(Golder, 2005\)](#).

seats Total number of directly elected seats in lower house of legislature.

assembly Total number of seats in lower house of legislature.

party_j Percentage of vote share for party j , over total of valid votes. Used for calculation of effective number of parties. Total may not add up to 100% due to invalid votes. In case of those elections with more than one round, the distribution of votes correspond to the first round.

seats_j Percentage of seats for party j . Used for calculation of effective number of parties. Total may not add up to 100% due to vacant seats.

regime Six-fold classification: parliamentary democracy (0), mixed (semi-presidential) democracy (1), presidential democracy (2), civilian dictatorship (3), military dictatorship (4), royal dictatorship (5). From [Cheibub et al. \(2010\)](#).

civilian Dummy indicating whether the regime type was “civilian dictatorship”.

military Dummy indicating whether the regime type was “military dictatorship”.

monarch Dummy indicating whether the regime type was “royal dictatorship”.

ethnic Ethnic fractionalization. Reflects probability that two randomly selected individuals from a given country will not belong to the same ethnolinguistic group. The higher the number, the more fractionalized society. From [Alesina et al. \(2003\)](#), obtained from The Quality of Government Dataset ([Teorell et al., 2011](#)).