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When do electoral institutions trigger electoral misconduct?

Abstract:

Drawing on two complementary mechanisms, this article explores the question of whether electoral institutions and conditions of electoral competition create incentives to promote electoral misconduct in young or developing democracies. The first mechanism explains how majoritarian institutions like disproportional electoral systems are more likely to trigger electoral fraud than consensus electoral institutions like PR. However, for this mechanism to be activated, the incumbent must feel effectively threatened by the opposition. To better understand the way this mechanism works, the electoral history of the country also needs to be taken into consideration. Democracies which have a historical record of running clean elections are less likely to experience fraud than countries with a history of electoral misconduct. I test these theoretical claims using a dataset that contains relevant information for 323 parliamentary elections in 59 new or developing democracies in the period between 1960 and 2006. The empirical analysis shows a strong and robust empirical support for the two mechanisms.

Keywords: democracy, electoral fraud, political representation, developing countries, electoral institutions.
Introduction

Under what conditions is electoral misconduct more likely to happen? Since early 1990s, the number of regimes holding elections has increased exponentially but some of those elections have not managed to meet the conditions to establish well-functioning democracies\(^1\). Electoral misconduct, or electoral fraud, has been identified as one important factor why democracy has not fully consolidated in some of these countries\(^2\). According to Donno and Roussias\(^3\), approximately 15% of the democratic elections in Latin America and post-communist countries between 1990 and 2004 failed to comply with some of the recognized international principles for genuine democratic elections\(^4\). Using international reports, Kelley also shows that about 50% of such documents indicated major or moderate problems in the elections occurred between 1980 and 2004\(^5\).

In this article, I argue that a key reason why electoral misconduct is observed in some new or developing democracies has to do with the institutional design regulating the functioning of elections. This article shows that when upcoming electoral contests are expected to be close, majoritarian institutions, like disproportional electoral systems, create incentives for incumbents to limit competition unlawfully. The mechanism, however, is not straightforward. To properly understand the combined effect of electoral rules with levels of political competition, one must also take into account the electoral history of the country.

A rich and growing literature has focused on the consequences of electoral misconduct on party systems, electoral turnout or the quality of elections. A general conclusion of these works is that electoral fraud limits the number of competitors; decreases turnout; reduces the quality of elections and increases the political survival of cheating incumbents\(^6\).
The literature analysing the reasons for the use of electoral misconduct is, however, still developing. There are two approaches that provide theoretical and empirical evidence to understand why electoral fraud happens. One set of explanations focuses on the role played by economic conditions or state capacity in facilitating electoral malpractices by incumbents. Lehoucq and Molina’s study on Costa Rica finds socioeconomic conditions, such as inequality and literacy, to be major factors that explain electoral fraud. Changing economic and labour market conditions are also related to electoral misconduct as Varela-Ortega shows for the case of Spain during the Restoration period and as Mares and Ziblatt find using data from Imperial Germany. Looking at state capacity as an indicator of public-good provisions, Fortin-Rittberger shows that fraud is unlikely observed in countries with solid infrastructures.

Institutional explanations also account for why some elections are rigged while others are not. Here, electoral rules and electoral competition are key determinants of electoral misconduct. Birch concludes that electoral fraud is more likely to be observed in single-member than in multi-member districts given the mechanical effect of such electoral systems and the more personalistic role candidates play in smaller districts. Kolev shows that the use of proportional representation (PR) electoral formulas increases the quality of elections only in ethnically polarised countries; in countries with low ethnic fragmentation, however, quality increases when majoritarian electoral formulas are used instead. In this institutional explanation of electoral fraud, political competition is also considered but neither the theory nor the empirical evidence is unanimous about how electoral closeness is related to misconduct. Magaloni develops a formal model whereby the unity of all opposition forces prevents incumbents from engaging in fraudulent acts. Empirically, Lehoucq and Molina show that fraud in
Costa Rica was more likely when electoral competition was high; but Simpser finds that fraud was used by dominant parties to intimidate minor opposition parties.

What these explanations are generally missing is an analysis of the combined effect of specific electoral system designs under varying levels of expected electoral competition. This is the main contribution of this article. In the following pages, I theorise two complementary mechanisms that provide a novel understanding of the role electoral institutions play in understanding electoral misconduct.

The first, and main, mechanism is based on the assumption that the dichotomy between majoritarian and proportional electoral institutions is better observed when there is an expectation that the forthcoming elections will be close. Electoral races under distinguishable types of electoral rule may produce different types of winners and losers. Winner-takes-all institutions create scenarios whereby political power is exercised almost monopolistically by parties getting the majority of the electoral support; however, in proportional representation institutions, political power is redistributed according to the concrete popular endorsement each party receives.

Following this logic, electoral misconduct is more likely to occur in less proportional than in more permissive electoral systems but only when electoral competition is expected to be tight. Since absolute political winners and losers emerge from restrictive electoral systems, ruling parties will use a variety of strategies to minimise the risk of losing power when elections are expected to be close. Such strategies may include unlawful actions limiting the chances of winning by members of the opposition. This behaviour is, however, not expected if proportional representation rules are used since these electoral systems do not generate absolute but relative political winners and losers.
A second, and complementary, mechanism to explain electoral misconduct has to do with electoral history and the reputation of political actors. The effect of institutions and competition on promoting electoral misconduct decreases if countries have a continuous historical record of holding clean elections. Unfolding the reasons why this is the case is, however, not straightforward. A reason that is suggested in this article has to do with the adoption of electoral management bodies like independent electoral commissions that effectively prevent actors from using electoral malpractices\textsuperscript{20}.

I test these theoretical mechanisms using a large dataset which covers 323 parliamentary elections between 1960 and 2006 that occurred in young or developing democracies. Parliamentary elections account for a large variation in electoral rules and levels of competition; in addition to this, the generalisation of the findings is increased by analysing a large sample of countries and years.

This paper is structured in several sections. Following the introduction, I develop the main theoretical framework that explains in detail the relationship between electoral misconduct and electoral institutions. Then I define the dependent variable and present the method and data used in the empirical analysis. The empirical discussion is followed by a series of robustness tests. The article concludes by discussing some venues for future research.
The dynamics of electoral institutions in explaining electoral misconduct.

Political institutions are arrangements that determine who holds and how to exercise power\textsuperscript{21}. The distinction between majoritarian and consensual institutions first developed by Arendt Lijphart is a good example of this idea\textsuperscript{22}. Lijphart’s point of departure is that in heterogeneous and polarised societies with a clear dominant group, majoritarian institutions exacerbate that superiority by marginalising the rest of the groups in society. However, this is not the case when consensus institutions are adopted as they “share, diffuse, separate, divide, decentralize and limit power”\textsuperscript{23}.

The electoral system is a typical institution that clearly reflects this consensus and majoritarian distinction. It is also an institution that is useful to extend Lijphart’s original concern on conflict to other politically relevant phenomena like corruption. Studies explaining cross-country variations in the level of political corruption start with an hypothesis based on the idea that political actors’ interests may differ depending on how they are selected. Political rent-seeking may be a strategy for some representatives if re-election, for example, is costly. While, the empirical findings are mixed, there is a clear consensus on the importance of electoral rules and the type of representation that they generate as drivers of political corruption. Kunicova and Rose-Ackerman\textsuperscript{24} show that PR electoral systems are positively associated with high levels of political corruption, a finding that is also consistent with the results obtained by Persson, Tabellini and Trebbi\textsuperscript{25}. However, Chang and Golden\textsuperscript{26} argue that it is the combined effect of district magnitudes and the type of ballots what best explain political corruption.

The relationship between electoral rules and type of ballot has also been used in the literature explaining electoral misconduct\textsuperscript{27}. The most canonical example is Birch’s study on Central and Eastern Europe\textsuperscript{28}. In this research, Birch explores the relationship
between electoral rules and electoral misconduct developing, like some studies on political corruption, a theory based on incentives to cultivate a personal vote\textsuperscript{29}. She concludes that electoral fraud is more likely to be observed in single- than in multi-member districts given the incentive structure of the former to limit electoral competition around particular candidates rather than parties.

The main theoretical contribution of this article shares with studies on corruption the importance of electoral rules. It also agrees with Birch’s theory that single-member districts are more likely to promote electoral misconduct than multi-member districts. However, the reason why this occurs is not due to the incentives of individual candidates to win the seat at stake, but rather as part of a broader strategy adopted by the incumbent’s party to survive in power. This strategy is more likely to be put forward when the incumbent feels that the opposition party poses a real threat to their dominant position. As such, even though actions may be taking place at the district level, the decision may be coming from the central government.

For example, during the 1970 elections in Costa Rica, electoral campaigns were subsidised by the State. The government was, then, ultimately responsible for providing financial endowments to the different parties so that they could run their campaigns. This procedure was eventually manipulated by the government (run by the National Liberation Party) in order to make political competition harder for rival parties, particularly the UN (National Unification Party) or the PFN (National Front Party). As a result, political rallies organised by these parties during the electoral campaign were disrupted by supporters of rival parties compromising the conditions of political competition.\textsuperscript{30}

The link between conditions of electoral competition and political survival has mostly been used to explain institutional change but not often to explain the use of
electoral fraud. This article contributes to this literature by developing a novel mechanism that links the performance of electoral systems under certain levels of political competition with political survival. By doing so, electoral misconduct is explained as an action adopted by a political actor who seeks to maximise their tenure in office.

Following Lijphart, what defines majoritarian institutions is that they create absolute winners and losers whereas consensus arrangements generate relative ones; however, to clearly perceive these effects, the conditions under which electoral competition takes place must be considered. By electoral competition, I simply mean the risk incumbents face of being deposed by the opposition. In consensus institutions, like PR electoral systems, the intrinsic redistributive nature of the system grants access to power to all groups regardless of how close the opposition and incumbent parties are. These institutional and electoral conditions should, on average, not encourage the use of unlawful electoral actions by the incumbent: even if the elections were lost, the incumbent would not be completely barred from exercising power. In the event of losing an election, the incumbent, or the incumbent’s party, would still retain a certain number of seats and access to political resources given the proportionality of the electoral system. However, when majoritarian electoral systems are in place the picture may be different depending on how incumbents assess the risk of being deposed by the opposition.

If the upcoming elections are expected to occur in a context of clear electoral advantage for the ruling party, i.e. where the opposition party is weak, political losers know they have little chance of accessing power and, more importantly, incumbents remain confident that they will continue to be the political winners. However, the party in government may feel threatened when the elections are expected to be close and
the electoral system is designed to only favour the electoral winner\textsuperscript{34}. In this scenario, majoritarian electoral systems, i.e. small district sizes combined with majoritarian electoral formulas, may create incentives for an incumbent to rig the election given the real possibility of becoming an absolute political loser\textsuperscript{35}. The following hypothesis summarises this theoretical expectation:

H1: Electoral misconduct is likely to be observed when majoritarian electoral systems are used in a context when elections are expected to be close.
Elections and reputation as mechanisms to explain electoral misconduct

A complementary mechanism explaining electoral fraud refers to the cumulative history of electoral misconduct. When elections occur in countries that have developed a sustained historical record of holding clean elections, then the risk of observing electoral misconduct declines significantly despite the existence of institutional and electoral conditions that could promote fraud as developed in the previous section.

Logically, this mechanism is linked to a prior question related to why some countries never experience episodes of electoral fraud. While the analysis of this question in full is beyond this research, a tentative explanation can be outlined here based on the idea of institutions as credible commitments\(^36\). As the literature has shown, credible commitments are decisions adopted by, for example, rulers to convince other political actors about their seriousness in a particular course of action decided by the ruler himself. Examples of credible commitments in this sense are the holding of elections by autocrats\(^37\) or the adoption of limited government\(^38\).

In the context of electoral integrity, examples of credible commitment are the adoption of electoral management bodies (EMB) like independent electoral commissions or allowing international actors to monitor the elections\(^39\). In fact, such credible commitments on election management has become an international norm signalling the intention of domestic political actors to comply with election results\(^40\).

When such electoral management institutions are truly independent and effectively serve the purpose for which they were designed, the quality of the election may increase and electoral competition could improve\(^41\). For the purpose of this article, the assumption is that by adopting independent and effective electoral management bodies, countries create the institutional conditions to generate a historical record of clean elections. It is the presence of such a record that also explains the outcome of
observing electoral misconduct regardless of the existence of other conditions that could promote it. The following two examples illustrate this idea well.

Ghana has been holding competitive and periodic elections since 1996 and most of the elections have been monitored by international bodies which have declared them to comply with international standards. Also, following the adoption of the 1992 constitution, an independent electoral commission was adopted to guarantee the transparency of the elections. According to the V-Dem dataset, the level autonomy of EMBs in Ghana is considered to be of the highest quality indicating full impartiality. In 2012, the presidential race was decided by an electoral difference of less than 3% of the votes. Akufo-Addo, the leader of the opposition, contested the electoral outcome alleging electoral fraud. The allegations were investigated by the Electoral Commission as well as the Supreme Court and the fraud claims were rejected in both cases. Akufo-Addo accepted his defeat following these verdicts.

Kenya became a democracy in 1998 and, like Ghana, also invited international electoral organisations to monitor the presidential elections of 2002 where a number of irregularities were observed. Furthermore, according to the V-Dem dataset, the election management bodies in Kenya between 2002 and 2006 were considered to be partial and clearly biased towards the party in government. In the 2007 presidential and parliamentary elections, the difference between the two main candidates was less than 3% but, compared to Ghana, in Kenya the elections were considered fraudulent by the voters as well as by international organisations who were monitoring this electoral process. Both Kenya and Ghana use pure majoritarian electoral systems. Following this theoretical assessment, a second hypothesis can be stated:

H2: Having a historical record of running clean elections reduces the probability of observing electoral misconduct.
Limiting political competition as a form of electoral misconduct

Electoral misconduct is defined in the literature broadly. Lehoucq defines electoral fraud as a concealed and unlawful conduct that may potentially affect election results\(^4\). Likewise, Birch defines electoral fraud as those "activities that lead to a violation of the ‘level playing field’ that is the ideal of electoral processes."\(^3\) So defined, electoral misconduct covers any actions which occur before, during or after the occurrence of elections.

For the purpose of this article, electoral misconduct, the dependent variable, refers to concrete actions aimed at limiting political competition.\(^5\) Such actions are expected to occur mostly before an election and include practices carried out by the government to prevent opposition leaders, or their voters, from participating freely in the upcoming election.\(^6\) More concretely, given a certain level of political competition in a democracy, electoral misconduct will occur when: a) Opposition leaders are prevented from running for elections; or b) The government intentionally uses some form of formal or informal coercive power against the opposition in order to clearly limit political competition.\(^7\)

To operationalise these actions limiting political competition during an election, I have relied on the information provided by the National Elections Across Democracy and Autocracy (NELDA) dataset.\(^8\) This dataset contains qualitative information on major election events occurred from 1945-2011 in new and developing democracies. The NELDA dataset allows one to look at rather detailed pieces of information about key aspects of any election to fine tune the definition of the dependent variable.\(^9\) To this end, the dependent variable is operationalised on the basis of variables NELDA13 and NELDA15. When the information in the NELDA dataset was not clear, I relied on election observation reports from international institutions like the Organisation for
Security and Cooperation in Europe (OSCE), the European Union (UE) or the African Union (AU).  

Figure 1 shows the yearly proportion of elections where episodes of electoral misconduct aimed at limiting political competition took place together with the total number of elections. The graph indicates that electoral competition was severely compromised in the period between 1960 and 1980 when the number of developing democracies was small. As the number of new democracies increased specially after 1989, electoral misconduct became stable averaging less than 20%.

**Figure 1 – Electoral misconduct between 1960 and 2006**

Source: Variables NELDA13 and NELDA15 (Hyde and Marinov 2014)
Method and Data

The above theoretical mechanisms are tested using a dataset that covers 323 parliamentary elections that occurred in the period from 1960 to 2006 in 59 new or developing democracies. As discussed above, the dependent variable, electoral misconduct, is a dichotomous variable where 1 indicates that in a particular election, electoral actions targeting and compromising political competition were observed. Overall, electoral misconduct occurred in 17% of the sample.

The hypotheses developed in the previous sections are tested sequentially. In both cases, probit models are used and errors are clustered by country to account for potential heteroskedasticity that the data may generate given its structure. All the models also include temporal fixed effects to account for unobserved variations that could be caused due to particular time dynamics. The variables of interest used in the models are the following:

**Electoral System** refers to the proportionality of the electoral system. This variable is measured using the Aggregated Threshold Functions (ATF) as calculated by Ruiz-Rufino. This indicator summarises in a unique value the combined effect of district magnitude and electoral formula providing the minimum proportion of votes nationwide required to win half of the seats in parliament. So defined, this indicator reflects the nature of electoral institution better than just average district magnitude. Higher values of ATF indicate greater proportionality. ATF ranges from 0.08 (Thailand 1983-2000) where multi-member districts are combined with super-majoritarian electoral formulas to 0.49 which is observed in countries using a single district and a PR electoral formula like Slovakia.

**Expected competition** is a lagged variable and refers to the electoral gap (%) between the winner and the front-runner in the previous election. It ranges from 0.10%
(Venezuela 1978 and Comoros 1992) to 87% (Jamaica 1989). The data for this variable comes from various electoral sources.60

**Electoral misconduct history** is a binary variable indicating whether or not a country has experienced electoral misconduct in any election in the past. Put differently, if a country receives a 0 in a particular election year, this indicates that misconduct never occurred prior to that particular election, however, if misconduct was observed in a given election, then, this variable is given the value 1 for all the subsequent elections.

Along with the main independent variables, the following variables are also included in the models to control for path-dependence effects, institutional conditions and economic development:

**Past misconduct**, is a lag variable of the dependent variable used to control for path-dependence effects.

**Previous elections**, refers to the number of previous democratic elections held by each country in election year t since the adoption of democracy. It is a categorical variable where 0, the base category, indicate the first democratic election, 1 the second democratic elections and so on. This variable accounts for the potential effect that holding elections *per se* can have in consolidating democracy.61 The variable is operationalised using the DD dataset62 and the NELDA dataset.

**Authoritarian legacy** is a binary variable that takes the value 1 when a country had a dominant party in the previous autocratic regime or not. This variable is operationalised using the regime classification made by Cheibub et al.63 For example, Malawi is labelled as 1 since the Malawi Congress Party (MCP) had dominated political life since 1964 until the arrival of democracy.

**British legacy** is a binary variable that takes a value 1 when a country was a former British colony. Both Authoritarian and British legacy variables are used in the
models to capture the dynamics of institutional origin. A similar approach is used by Brancati\textsuperscript{64}.

**Ethnicity** indicates the level of ethnic fractionalisation existing in each country. The data come from Alesina et al\textsuperscript{65}.

**Conflict**, is a binary variable that takes the value 1 if there was any type of intra-country armed conflict during the inter-election period. This variable comes from the PRIO Armed Conflict Dataset v4-2009 dataset.

**GDP (log)**, reflects the logged values of GDP per capita in constant 2000 US$ (World Bank).

**Trade**, indicates the product of exports and imports of goods and services as a percentage of GDP (World Bank).

**Agriculture**, indicates the percentage contribution of agricultural activity to GDP (World Bank).

Table 1 summarises the relevant information about the main independent and control variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misconduct</td>
<td>323</td>
<td>0.170279</td>
<td>0.376461</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Electoral System</td>
<td>323</td>
<td>0.259015</td>
<td>0.110112</td>
<td>0.08</td>
<td>0.49</td>
</tr>
<tr>
<td>Electoral gap</td>
<td>281</td>
<td>14.20164</td>
<td>13.97658</td>
<td>0.1</td>
<td>87</td>
</tr>
<tr>
<td>Historical misconduct</td>
<td>323</td>
<td>0.359133</td>
<td>0.480491</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Electoral System change</td>
<td>242</td>
<td>0.002124</td>
<td>0.029402</td>
<td>-0.16</td>
<td>0.27</td>
</tr>
<tr>
<td>British Legacy</td>
<td>323</td>
<td>0.22291</td>
<td>0.416844</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Authoritarian Legacy</td>
<td>323</td>
<td>0.204334</td>
<td>0.40384</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Conflict</td>
<td>323</td>
<td>0.232198</td>
<td>0.42289</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Ethnicity</td>
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<td>0.436548</td>
<td>0.210432</td>
<td>0</td>
<td>0.8791</td>
</tr>
<tr>
<td>GDP (log)</td>
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<td>7.286309</td>
<td>1.094767</td>
<td>4.69389</td>
<td>9.575549</td>
</tr>
<tr>
<td>Trade</td>
<td>314</td>
<td>1125.257</td>
<td>1122.52</td>
<td>14.17606</td>
<td>7479.361</td>
</tr>
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<td>Agriculture</td>
<td>268</td>
<td>19.67832</td>
<td>13.28642</td>
<td>1.339242</td>
<td>63.39004</td>
</tr>
<tr>
<td>Previous elections</td>
<td>322</td>
<td>3.431677</td>
<td>3.3474</td>
<td>0</td>
<td>16</td>
</tr>
</tbody>
</table>
Effect of electoral institutions and expected competition on misconduct

The first hypothesis stated how electoral misconduct was likely to be observed when majoritarian electoral systems operated in a context in which elections were expected to be close. To test this claim, the following model is used:

\[
\text{Misconduct}_{c,t} = \beta_0 + \beta_1 ES_{c,t} + \beta_2 \text{Exp.Com}_{c,t} + \beta_3 \text{Interaction}_{c,t} \\
+ \theta_t \text{Controls}_{c,t} + \delta_t + \epsilon_{c,t}
\]

Where \( ES \) refers to the proportionality of the electoral system of country \( c \) in election year \( t \) and \( \text{Exp. Com} \) refers to the expected level of competition in country \( c \) in year \( t \). Note however that the variable \( \text{Expected Competition} \) in the current election is operationalised using the electoral gap observed in the previous election, \( t-1 \). The idea is that incumbents use the last electoral information point that they have available to create an expectation about how competitive the upcoming elections might be. By using this strategy, the model reduces the level of potential endogeneity that could emerge if competition in year \( t \) were included instead. To capture the combined effect of the level of proportionality and the expected level of competition, an interaction term between these two terms is included. Finally, a vector of control variables is added and the model also controls for years fixed effects as indicated in the vector, \( \delta^{66} \). Table 2 shows the main results of this analysis.
Table 2 – Electoral results and expected competition

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1) Baseline</th>
<th>(2) Electoral</th>
<th>(3) Electoral</th>
<th>(4) Competition</th>
<th>(5) Competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elector System</td>
<td>0.157*</td>
<td>-2.59**</td>
<td>-1.67</td>
<td>-10.85***</td>
<td>-11.12***</td>
</tr>
<tr>
<td></td>
<td>(0.852)</td>
<td>(1.228)</td>
<td>(1.359)</td>
<td>(2.749)</td>
<td>(3.155)</td>
</tr>
<tr>
<td>Expected competition</td>
<td>-0.08***</td>
<td>-0.08**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.028)</td>
<td>(0.031)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction</td>
<td>0.28**</td>
<td>0.27**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.116)</td>
<td>(0.123)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous misconduct</td>
<td>0.94***</td>
<td>0.76**</td>
<td>1.21***</td>
<td>0.80*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.305)</td>
<td>(0.305)</td>
<td>(0.388)</td>
<td>(0.423)</td>
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</tr>
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<td>British Legacy</td>
<td>0.17</td>
<td>-0.45</td>
<td>-0.32</td>
<td>1.23***</td>
<td>1.43***</td>
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<tr>
<td></td>
<td>(0.270)</td>
<td>(0.299)</td>
<td>(0.366)</td>
<td>(0.468)</td>
<td>(0.482)</td>
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<tr>
<td>Authoritarian Legacy</td>
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<td>-0.27</td>
<td>1.23***</td>
<td>1.43***</td>
</tr>
<tr>
<td></td>
<td>(0.249)</td>
<td>(0.366)</td>
<td>(0.439)</td>
<td>(0.427)</td>
<td>(0.607)</td>
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<td>GDP (log)</td>
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<td>-0.49**</td>
<td>-0.32</td>
<td>-0.74**</td>
<td></td>
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<tr>
<td></td>
<td>(0.208)</td>
<td>(0.205)</td>
<td>(0.230)</td>
<td>(0.311)</td>
<td></td>
</tr>
<tr>
<td>Conflict</td>
<td>0.95***</td>
<td>0.91***</td>
<td>1.30***</td>
<td>1.29***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.263)</td>
<td>(0.340)</td>
<td>(0.363)</td>
<td>(0.461)</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-0.03</td>
<td>-0.12</td>
<td>0.01</td>
<td></td>
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<tr>
<td></td>
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<td>(0.631)</td>
<td>(0.663)</td>
<td>(0.786)</td>
<td></td>
</tr>
<tr>
<td>Trade</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>-0.01</td>
<td>-0.05***</td>
<td>-0.03</td>
<td>-0.09***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.017)</td>
<td>(0.020)</td>
<td>(0.033)</td>
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</tr>
<tr>
<td>Constant</td>
<td>-0.25</td>
<td>0.28</td>
<td>4.14*</td>
<td>4.20</td>
<td>10.57***</td>
</tr>
<tr>
<td></td>
<td>(0.329)</td>
<td>(2.062)</td>
<td>(2.163)</td>
<td>(2.924)</td>
<td>(3.618)</td>
</tr>
<tr>
<td>Observations</td>
<td>301</td>
<td>192</td>
<td>192</td>
<td>171</td>
<td>152</td>
</tr>
<tr>
<td>Dummies</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>past elections</td>
<td>YES</td>
<td>YEAR</td>
<td>YEAR and</td>
<td>YEAR</td>
<td>YEAR and</td>
</tr>
<tr>
<td>FE</td>
<td>NO</td>
<td>YEAR and</td>
<td>REGION</td>
<td>REGION</td>
<td>REGION</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2 shows different estimations that are obtained using distinct model specifications. Model 1 is a baseline model where only institutional factors are considered. In this model, the coefficient for electoral system is negative and statistically significant. Models 2 and 3 refine the baseline model to include year fixed effects and the vector of control variables. These two models are like the ones used in Birch and show similar results but only when year fixed effects are considered. When this is the case, the effect of electoral system is, again, negative and statistically
significant. In other words, more majoritarian electoral systems increase the probability of observing electoral misconduct. However, if regional fixed effects\textsuperscript{68} are included, the effect of the electoral system disappears.

Models 4 and 5 test the main theoretical claim of this article: electoral misconduct is better explained when electoral rules are considered together with the perceived level of competition in the upcoming elections. When incumbents feel that the opposition may win the election and, consequently, lose all power, then, one possible strategy is to engage in unlawful electoral practices. This theoretical expectation is fully confirmed in the empirical analysis. Model 4 shows that the interaction coefficient, as well as its individual components, have the expected directions and statistical significance\textsuperscript{69}. Furthermore, the effects remain unaltered after the addition of regional fixed effects.\textsuperscript{70}

Figure 2 provides a more detailed interpretation of the main empirical finding. The graph shows the predicted probability of observing electoral misconduct once the effect of the interaction is considered using the minimum and the maximum value of the proportionality of the electoral system\textsuperscript{71}. When electoral systems are highly proportional, i.e. high values of ATF, then probabilities are never different from zero regardless of the expected level of electoral competition. When these conditions exist, incumbents may feel that losing the election may not necessarily mean losing all power and that may explain why electoral misconduct is not part of their strategy. However, when competition is expected to be close and electoral rules are very restrictive, i.e. low values of ATF, then the political survival of the incumbent may be at risk. Under this scenario, electoral misconduct is part of the strategy used by the incumbent to retain power. More concretely, when the electoral gap is expected to be close to zero, i.e. both the incumbent and opposition parties are expected to have similar electoral support, the
probability of observing electoral fraud is above 60%. This probability decreases to about 30% when the expected distance between the incumbent and the opposition parties is about 20%. For expected values of competition greater than 30%, the predicted probabilities are no longer different from zero. This result confirms the validity of hypothesis 1.

Figure 2 – Effect of expected level of competition and electoral rules.
The effect of electoral history on electoral misconduct

The second hypothesis developed in this article complements the main explanatory mechanism by considering the historical record of running clean elections. To test this hypothesis, the previous model is reformulated as:

\[ Misconduct_{c,t} = \beta_0 + \delta_1 \text{Electoral misconduct history}_{c,t} \]

\[ + \theta_t \text{Controls}_{c,t} + \theta + \epsilon_{c,t} \]

where the main variable to test is the effect of historical electoral misconduct of country \( c \) in election year \( t \) on the occurrence of electoral misconduct in country \( c \) in year \( t \). Note that the vector of controls, \( \theta \), now also includes the Electoral system and the Expected competition variables along with their interaction. The historical electoral misconduct variable is a binary indicator of how clean elections have been up to the election under study. As explained before, one assumption behind this variable is that it could be an indirect way of testing the existence of effective electoral management bodies. Recent datasets, like the V-Dem dataset, have collected data on the autonomy of EMBs but the use of such data in models like the one used here is problematic. This would be so because of the endogeneity that the inclusion of such variable would generate in the model. As the literature has explained, a key methodological issue regarding the use of variables reflecting the independence of EMB is the selection bias that is associated with these variables\(^2\). This problem does not exist when the variable reflecting historical electoral misconduct is used.
Table 3 shows the different models used to test the effect of historical electoral misconduct on electoral fraud.

Table 3 – Electoral misconduct history results

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1) Competition</th>
<th>(2) Competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electoral misconduct history</td>
<td>1.62*** (0.393)</td>
<td>1.37*** (0.426)</td>
</tr>
<tr>
<td>Electoral system</td>
<td>-12.17*** (3.101)</td>
<td>-12.15*** (3.129)</td>
</tr>
<tr>
<td>Expected competition</td>
<td>-0.07** (0.028)</td>
<td>-0.06** (0.027)</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.27** (0.119)</td>
<td>0.27** (0.116)</td>
</tr>
<tr>
<td>British Legacy</td>
<td>-1.82*** (0.527)</td>
<td>-1.82*** (0.513)</td>
</tr>
<tr>
<td>Authoritarian Legacy</td>
<td>-0.21 (0.405)</td>
<td>-0.11 (0.530)</td>
</tr>
<tr>
<td>GDP (log)</td>
<td>-0.73*** (0.250)</td>
<td>-0.95*** (0.275)</td>
</tr>
<tr>
<td>Conflict</td>
<td>1.57*** (0.360)</td>
<td>1.36*** (0.415)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>0.02 (0.631)</td>
<td>0.18 (0.833)</td>
</tr>
<tr>
<td>Trade</td>
<td>0.00** (0.000)</td>
<td>0.00 (0.000)</td>
</tr>
<tr>
<td>Agriculture</td>
<td>-0.05*** (0.018)</td>
<td>-0.09*** (0.027)</td>
</tr>
<tr>
<td>Constant</td>
<td>8.13*** (3.073)</td>
<td>11.45*** (3.136)</td>
</tr>
<tr>
<td>Observations</td>
<td>175</td>
<td>175</td>
</tr>
<tr>
<td>Dummies past elections</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>FE</td>
<td>YEAR</td>
<td>YEAR and REGION</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Model 1 in Table 3 shows a positive and strongly statistical effect of historical electoral misconduct on the occurrence of electoral misconduct a result that is consistent with the previous models. The result is also robust when regional fixed effects are added in model 2. This result confirms hypothesis 2 and the two models corroborate the
expectation that in the absence of a history of electoral misconduct, the quality of current elections seems to be higher. To present this finding with greater clarity, Figure 3 shows the predicted probability of observing electoral misconduct taking into account the electoral conditions that, according to the previous finding, favour the occurrence of unlawful electoral actions. That is, assuming an expectation of close electoral competition and the minimum and maximum levels of electoral proportionality.

**Figure 3 – Probability of observing fraud given electoral misconduct history.**

Figure 3 confirms the main findings of this article. First, it shows that electoral misconduct history is relevant to understand episodes of electoral fraud. Countries with a tradition of rigging elections are more likely to continue doing so than countries with no such tradition. Secondly, and more important for the argument being developed here, the combined effect of restricted electoral rules and perceived close competition continues to be the most decisive factor driving electoral misconduct. The predicted probability of observing electoral misconduct in countries that use majoritarian electoral
systems, ATF values below 0.32, ranges from 0.60 to 0.20 approximately when electoral misconduct was used in the past. However, such probabilities range from 0.20 to 0.02 when no history of electoral misconduct exists.
Robustness tests

The previous findings are further tested against various alternative explanations in order to check their robustness. Table 4 shows the different models used when performing these tests. Model 1 uses the more conventional log of the average district magnitude instead of ATF to measure the performance of the electoral system. When this variable is included, the expected electoral competition is significant but, as is important for the argument here, the interaction term between electoral system and competition retains both its statistical significance and direction.

Model 2 in table 4 looks at institutional change. An implication of the main hypothesis of this article is that if some institutional arrangements generate incentives to rig elections, then one should observe a certain level of institutional change in those situations in which these rules are not favourable for the incumbent. Model 2 incorporates a variable that measures the size of the change of ATF in any two consecutive elections. The coefficient is not significant and the main coefficients of interest remain unaltered.

Model 3 includes the democracy index developed in the Polity IV dataset. Since this variable already includes the level of electoral competition in its operationalisation, the Polity2 score is lagged one electoral period to avoid endogeneity. Once the model is run, both the interaction between the electoral rules and the expected level of competition remain statistically significant and with the same direction than the original models in table 2.

Finally, models 4 and 5 use some infrastructural – kilometres of road – and state capacity indicator – the proportion of GDP from tax revenue following Fortin-Rittberger’s main findings. The sample used in this analysis is also different as most
of this data is only available since 1990s. In neither case is the coefficient significant, but the interactions of interest remain unaltered.
<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aver. District (log)</td>
<td>-0.74***</td>
<td>(0.244)</td>
<td>-0.08*</td>
<td>-0.00</td>
<td></td>
</tr>
<tr>
<td>Interaction district</td>
<td>0.03***</td>
<td>(0.012)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change ATF</td>
<td></td>
<td>1.46</td>
<td>(3.701)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polity2 score (lag)</td>
<td>-0.08*</td>
<td>(0.050)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roads</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.25***</td>
</tr>
<tr>
<td>ATF</td>
<td>-13.02***</td>
<td>(3.207)</td>
<td>-10.61***</td>
<td>-25.17***</td>
<td>-9.11***</td>
</tr>
<tr>
<td>Expected competition</td>
<td>-0.04**</td>
<td>(0.019)</td>
<td>-0.08***</td>
<td>-0.26***</td>
<td>-0.11***</td>
</tr>
<tr>
<td>Interaction ATF</td>
<td>0.32**</td>
<td>(0.125)</td>
<td>0.27**</td>
<td>1.13***</td>
<td>0.39***</td>
</tr>
<tr>
<td>Previous misconduct</td>
<td>1.95***</td>
<td>(0.358)</td>
<td>0.38</td>
<td>0.66</td>
<td>1.74***</td>
</tr>
<tr>
<td>British Legacy</td>
<td>-0.79*</td>
<td>(0.470)</td>
<td>-1.40***</td>
<td>-1.29**</td>
<td>-1.00*</td>
</tr>
<tr>
<td>Authoritarian Legacy</td>
<td>-0.12</td>
<td>(0.567)</td>
<td>-0.15</td>
<td>-0.24</td>
<td>2.14***</td>
</tr>
<tr>
<td>GDP (log)</td>
<td>0.13</td>
<td>(0.173)</td>
<td>-0.88***</td>
<td>-0.67**</td>
<td>-0.90***</td>
</tr>
<tr>
<td>Conflict</td>
<td>0.92***</td>
<td>(0.334)</td>
<td>1.29***</td>
<td>1.31***</td>
<td>4.02***</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>0.12</td>
<td>(0.689)</td>
<td>0.12</td>
<td>0.48</td>
<td>-5.09**</td>
</tr>
<tr>
<td>Trade</td>
<td>0.00</td>
<td>(0.000)</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>-0.10***</td>
<td>(0.033)</td>
<td>-0.09**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-1.28</td>
<td>(1.514)</td>
<td>11.89***</td>
<td>10.06**</td>
<td>10.77***</td>
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<tr>
<td>Observations</td>
<td>184</td>
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<td>140</td>
<td>152</td>
<td>84</td>
</tr>
<tr>
<td>Dummies past elections</td>
<td>YES</td>
<td></td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1
Conclusion

Political institutions, especially institutions that regulate electoral competition, are strong predictors of electoral misconduct in emerging democracies. Two related mechanisms operate in this regard. First, when incumbents perceive that the upcoming elections will be tight and the electoral rules are majoritarian, the risk for the ruling party of becoming an absolute loser in political terms increases. Under this scenario of high uncertainty, electoral misconduct may be part of the menu of actions that incumbents use to survive in power. This mechanism can, however, be mediated by the electoral history of the country. If a country has been successful in running clean elections in the past, then the probability of observing electoral misconduct decreases.

This article contributes to the literature on electoral fraud and institutions by incorporating a clear mechanism that links the performance of electoral rules with the expected level of competition. This crucial relationship has been mostly overlooked by studies showing the strength of electoral rules to explain electoral malpractice or the relevance of electoral competition. This relationship is important since under different scenarios of electoral competition, institutions may generate different incentives to cheat on elections. The data analysed here show that, given various levels of expected competition, electoral misconduct is rare under consensus institutions. Electoral misconduct is also rare when majoritarian institutions are used and the incumbent has a high level of certainty about obtaining an electoral victory. However, if such certainty does not exist, the winner-takes-all nature of majoritarian institutions triggers the use of electoral fraud.

Electoral misconduct is also explained by the electoral misconduct history of a country. When elections are usually run and managed to a high quality standard, it is unlikely that fraud will be observed in a given election. The theoretical justification for
this empirical observation could be found in the successful adoption of institutions monitoring the quality of the elections. As the literature has recently shown, there seems to be a relationship between the quality of elections and the adoption of independent electoral management bodies like electoral commissions. When these institutions are credible, the quality of elections increases and that may condition the strategy of incumbents to rely on electoral misconduct.

Nevertheless, there are questions that need to be addressed in future research. For example, following the work by Przeworski, one could explore whether alternation in power is the key mechanism to explain electoral fraud. I leave this question for further research.
BIBLIOGRAPHY


Notes

1 Flores et al., *Elections in Hard Times*.
3 Donno and Roussias, ‘Does Cheating Pay?’
4 On this, see http://www.eueom.eu/how-do-we-support-elections/-key-publications and http://www.osce.org/odihr/elections/68439
5 Kelley, *Monitoring Democracy*.
7 Lehoucq and Molina, *Stuffing the Ballot Box*.
8 Varela-Ortega, *El Poder de la Influencia*.
9 Mares, *From Open Secrets to Secret Voting*.
10 Ziblatt, ‘Shaping Democratic Practice and the Causes of Electoral Fraud’.
11 Fortin-Rittberger, ‘The role of infrastructural and coercive state capacity in explaining different types of electoral fraud’.
13 Kolev, ‘Contingent effect of institutions’.
14 Magaloni, ‘The game of electoral fraud and the ousting of authoritarian rule’.
15 Lehoucq and Molina, *Stuffing the Ballot Box*.
17 Anderson and Guillory, ‘Political institutions and satisfaction with democracy’.
18 Rae, *The Political Consequences of Electoral Laws*.
19 Anderson et al., *Losers’ Consent*.
21 Svolik, ‘Equilibrium analysis of political institutions’.
22 Lijphart, *Democracy in Plural Societies*.
24 Kunicova et al., ‘Electoral rules and constitutional structures as constraints on corruption’.
25 Persson et al., ‘Electoral rules and corruption’.
26 Chang et al., ‘Electoral systems, district magnitude and corruption’.
27 Lehoucq and Molina, *Stuffing the Ballot Box*.
28 Birch, ‘Electoral systems and electoral misconduct’.
29 Carey et al., ‘Incentives to cultivate a personal vote’.
31 Rokkan, *Citizens, Elections, Parties*. Boix, ‘Setting the rules of the game’; Przeworski, ‘Conquered or granted?’.
32 Lijphart, *Patterns of Democracy*.
33 This may differ if elections occur in autocracies. As Alberto Simpser, *Why Governments and Parties Manipulate Elections: Theory, Practice, and Implications* (New York: Cambridge University Press, 2013) has shown, even when incumbents enjoy great electoral support, they sponsor electoral fraud to send the opposition a signal about their strength.
34 Taagepera et al., *Seats and Votes*.
35 Lehoucq et al., ‘Varying the un-variable’.
36 North, ‘Institutions and credible commitments’.
37 Magaloni, ‘Credible power-sharing and the longevity of authoritarian rule’.
38 North et al., ‘Constitutions and commitment’.
39 Elklit et al., ‘The impact of election administration on the legitimacy of emerging democracies’.
40 Hyde, *The Pseudo-Democrats’ Dilemma*.
41 The evidence testing this hypothesis, however, is mixed, and it remains unclear what the real impact, if any, electoral management bodies really have on the quality of elections. See Hyde et al., ‘Election administration’; Hartlyn et al., ‘Electoral governance matters explaining the quality of elections in Latin America’.
42 The variable analysed is v2elembaut_ord
43 Pemstein et al., ‘The V-Dem Measurement Model’.
The opposition party NPP also won the parliamentary elections by an even smaller margin but obtained less seat than rival NDP. See Pryce et al., 'The 2012 General Elections in Ghana'.


The difference between the two main parties in the parliament was, however, 10%. See Cheeseman, 'The Kenyan Elections of 2007'.


Lehoucq, 'Electoral Fraud', 235.

Birch, 'Electoral Systems and Electoral Misconduct', 1535.

Electoral misconduct actions limiting political competition target both candidates and voters from opposition parties. The 1970 election in Costa Rica is an example of the latter while the violent clashes among voters during the pre-electoral period in the 1989 elections in India is an example of the former. However, actions like clientelism are not considered in this paper. Clientelism follows a distinct pattern linked to distributive politics that does not necessarily respond to the same type of actions described here. See Stokes et al. Brokers, Voters and Clientelism.

The notes provided by the NELDA dataset show that in the time period covered in this article all fraudulent actions took place during the pre-electoral period.

Using the notes provided by NELDA, two examples illustrate this idea of electoral misconduct limiting political competition. During the 1983 elections in Turkey, the military banned some opposition candidates from running in the elections. In Bangladesh, the government arrested and harassed members of opposition parties that were protesting against the 1988 general elections.

Hyde et al., ‘Which Elections can be Lost?’.

The NELDA dataset contains a variable that accounts for electoral fraud. NELDA11 is a subjective indicator that shows whether there was “domestic or international concerns” on the quality of the election. Hafner-Burton et al, for example, use this variable as an indicator of fraud. In this paper, however, this variable is not used in a try to capture objective facts rather than subjective perceptions which can accommodate some level of bias. See Kelley, ‘Elections Observers and Their Biases’.

More concretely, I have defined electoral misconduct using two questions in the NELDA dataset. Variable NELDA13 asks: “Were opposition leaders prevented from running” and variable NELDA15 asks: “Is there evidence that the government harassed the opposition?” If a “yes” was coded in either of these questions, then electoral misconduct existed, if a “no” was coded, then I considered that such fraud did not exist. Those “N/A” or “unclear” cases are treated as missing values. Some of the cases identified by NELDA as having this type of misconduct were, however, recoded. This is particularly the case of the elections in Albania (2001) and Latvia (2006). In Albania some form of fraud occurred but only in the fifth round of the legislative elections. In Latvia the OSCE reported some minor forms of electoral misconduct but political competition was not compromised. The version of the dataset that I have used for this paper is NELDA v3 (http://hyde.research.yale.edu/nelda/). NELDA v4 refers mainly to developed democracies which are not covered in this article. Also the relevant variables used from NELDA v3 were cross-checked with NELDA v4 to maintain internal consistency.

This selection of countries is similar to the samples used in other comparative studies on electoral fraud. See Donno et al.,’Does Cheating Pay?’; Birch, ‘Electoral Systems and Electoral Misconduct’. Also, this particular sample concentrates most of the variation of the dependent variable as most of the existing reports on electoral observations missions come from this group of countries. In any case, the selection of countries and years used in this paper shows large regional and temporal variation.

Ruiz-Rufino, ‘Characterizing Electoral Systems’.

ATF data can be accessed at https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/15528. For elections that happen after 2000, ATF was calculated as suggested in Ruiz-Rufino, ‘Characterizing Electoral Systems’.

Bormann et al., ‘Democratic Electoral Systems around the world, 1946-2011’

Nohlen, Enciclopedia Electoral Latinoamericana; Nohlen, Elections in the Americas; Nohlen et al., Elections in Asia and the Pacific; Perez-Liñán et al., ‘La Evolución de los Regímenes Políticos y el Sistema Electoral en Latinoamérica, 1903-2004’.

Lindberg, Democratization by Elections.

Cheibub et al., ‘Democracy and Dictatorship Revisited’.

Ruiz-Rufino, ‘Characterizing Electoral Systems’.

ATF data can be accessed at https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/15528. For elections that happen after 2000, ATF was calculated as suggested in Ruiz-Rufino, ‘Characterizing Electoral Systems’.

Bormann et al., ‘Democratic Electoral Systems around the world, 1946-2011’

Nohlen, Enciclopedia Electoral Latinoamericana; Nohlen, Elections in the Americas; Nohlen et al., Elections in Asia and the Pacific; Perez-Liñán et al., ‘La Evolución de los Regímenes Políticos y el Sistema Electoral en Latinoamérica, 1903-2004’.

Lindberg, Democratization by Elections.

Cheibub et al., ‘Democracy and Dictatorship Revisited’.
Since the unit of analysis is election year in country $c$, the vector of years fixed effect refers to decades rather than year to maximise the number of observations used in the analysis. This type of fixed effects constitute a suitable estimation method when the structure of the cross-section time-series data is unbalanced like this one. The data also contains repeated time values within the panel given that some countries like Thailand held two elections in the same year (1992). See Wooldridge, *Econometric Analysis of Cross Section and Panel Data*.

The sample of countries is classified into six regions: Africa, America, Asia, Europe, Middle East and Post-soviet.

The number of observations reduces given the use of lag variables and lack of information of Agriculture. When Agriculture is excluded, models 4 and 5 remain, however, the same.

The models are also tested for serial autocorrelation. The correlation between the residuals and the lag residuals of the model is -0.05

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