Blatant Electoral Fraud and the Value of a Vote

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Abstract

This paper explores the relationship between malapportionment and blatant electoral fraud. Although blatant electoral fraud enables incumbents to win elections, it may undermine legitimacy and provoke protests. Malapportionment also helps the incumbent succeed by assigning larger portions of seats to party strongholds, yet its key features differ from electoral fraud. Since malapportionment neither involves coercion nor overt fraud, it is less likely to be followed by reactionary protests. But, it is an inflexible electioneering strategy, because reapportionment leads to difficult coordination problems among ruling legislators. Cross-national statistical analyses of 98 countries (1993-2012) show that, although malapportionment does not affect whether leaders use election violence and electoral cheating, political leaders become less dependent upon the simultaneous use of these fraudulent strategies when high levels of malapportionment are already endowed. The results suggest that although governments might continue to use specific types of blatant electoral fraud even when the levels of malapportionment are high, malapportionment allows governments to be more selective with combining different methods of blatant electoral fraud.

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1 Introduction

This paper explores the relationship between blatant electoral fraud and malapportionment by focusing on when political leaders utilize each of these electioneering strategies to win parliamentary elections.[1] Political leaders often resort to illiberal electoral strategies. For instance, some may use electoral cheating methods by tampering with the ballot box, strengthening illegal vote-buying, and packing election management bodies (Kelley, 2012). Others may exercise violence during elections to repress opposition figures and supporters (Hafner-Burton et al., 2014). These techniques of blatant electoral manipulation contribute to boosting the votes of governing parties to levels that the parties could not otherwise attain (Simpser, 2013). Blatant electoral fraud are frequently observed in authoritarian regimes and emerging democracies. Even in some old democracies, levels of electoral integrity are dissimilar in an era of democratic backsliding (Norris, 2017).

Besides blatant fraud, political leaders and their parties also engage in manipulating electoral rules, i.e., by deliberate institutional manipulation. Generally, the specific electoral systems chosen by governments significantly impact upon its electoral performance through seats-votes disproportionately (Boix 1999; Gandhi and Heller 2018). Gerrymandering, namely redistricting in favor of ruling parties, may be also employed as a further form of institutional manipulation (Wong 2019). Similarly, malapportionment, "the discrepancy between the shares of legislative seats and the shares of population held by geographical units," (Samuels and Snyder 2001: 652) helps incumbents win elections by increasing the value of a vote primarily within the ruling party's strongholds (Ong et al., 2017). For instance, Malaysia's United Malay National Organization (UMNO) increased the overrepresentation of rural districts where the party's major support base reside, which contributed to its election victory (Washida, 2018). In sub-Saharan Africa, unequal values of a vote between rural

[1]Throughout this paper, following Simpser (2013), I view electoral cheating and pre-electoral election violence as sub-categories of "blatant electoral manipulation" or "overt electoral fraud." Other electioneering strategies such as institutional manipulation (electoral system change, gerrymandering, and malapportionment) and economic policy maneuvering (political business cycles) are not included in the category of blatant electoral manipulation.

and urban areas helped incumbents to win elections (Boone and Wahman, 2015: 341-344). Even in advanced democracies like Japan, the ruling Liberal Democratic Party's (LDP) main support base had been overrepresented until the early 1990s, which helped the party to stay in power for long (Ong et al., 2017: 119).

We know for a fact that political leaders use these methods of electoral manipulation to win elections. We know less, however, about the conditions under which incumbents prefer to choose one specific electoral strategy. In particular, little research has been done thus far on the relationship between blatant electoral manipulation and a specific form of institutional manipulation, or malapportionment in legislative elections. This is unfortunate for policymakers and political scientists, given that predicting when and what electioneering strategy leaders are more likely to use is meaningful for improving electoral integrity.

This paper suggests that both malapportionment and blatant electoral fraud have pros and cons as electioneering strategies. Although both help the incumbent win parliamentary elections, blatant electoral manipulation is risky because it often undermines the leader's legitimacy and can subsequently lead to popular protests. By contrast, malapportionment is less risky, because it is an indirect, less overt form of electoral manipulation. However, it is also difficult for political leaders to flexibly manipulate the value of a vote in accordance with their electoral demands, because even pro-regime redistricting and reapportionment often face strong opposition from ruling legislators, who often have different, irreconcilable preferences over the design of electoral districts and legislative apportionment.

With these factors in mind, I test observable implications on a cross-national dataset of the value of a vote and overt election fraud. Replicating Hafner-Burton et al.'s (2014) statistical model, I use the starter to test my hypotheses. Cross-national statistical analysis covering 98 countries (from 1993 to 2012) finds that, although levels of malapportionment are not associated with election cheating and violence individually, political leaders become less likely to engage in the simultaneous use of these two electoral manipulation techniques as high levels of malapportionment are historically endowed. The overall results suggest that

political leaders may become less inclined to utilize every possible fraudulent measure when a high level of malapportionment has already guaranteed a significant seat premium to the ruling party. Furthermore, the inability to find clear evidence of correlations between malapportionment and each electioneering strategy, along with sluggish within-country changes in the extents of malapportionment, suggests that leaders may not be able to manipulate the value of a vote for their political needs. These results are robust to a battery of robustness checks, including alternative measures of election cheating and electoral violence, different estimators, outlier analysis, and different model specifications.

This paper's contribution to the literature is two-fold. First, it sheds new light on a political consequence of malapportionment, arguing that malapportionment could affect the leader's incentives to employ overt electoral fraud even after controlling for other confounding factors affecting blatant electoral fraud, such as levels of democracy. Second, this paper explores commonalities and differences between blatant electoral fraud and malapportionment. Thus, I situate the study of malapportionment into an already broad literature of electoral manipulation.

2 The Incumbent's Election Toolkit

Multi-party elections are when incumbents may lose their office. Even in elections where leadership turnover is not directly staked (e.g., parliamentary elections in presidential systems, semi-competitive elections in electoral autocracies), failure to win (big) weakens leaders' power bases and even provokes instability through protests and coups (Simpser 2013; Higashijima 2015; Wig and Rød 2016; Hafner-Burton et al. 2018). In this respect, election periods are a critical moment for political leaders.

Researchers have studied various methods in which political leaders win elections. Blatant electoral manipulation is a typical electioneering strategy most frequently observed in authoritarian regimes but also in more than a few democracies. Electoral cheating is a series

of non-repressive, yet undemocratic measures that bias election results (Kelley 2012; Simpser 2013: 34). During election campaigning, a government may undermine the level playing field by placing strong restrictions on the opposition's freedom to conduct campaigns, institute a pro-government media bias, and use other non-violent intimidation techniques (Frye et al. 2018). On election day, the incumbent may pack the central election committee in order to tamper with ballot boxes, and/or induce their supporters and party brokers to participate in illegal actions (Sjoberg 2016; Stokes 2005).

Political leaders may also resort to pre-electoral violence, a very direct form of blatant electoral manipulation (Dunning 2011; Bekoe 2012; Hafner-Burton et al. 2014, 2018). Election violence prevents opposition figures from carrying out effective election campaigns and often coerce them into boycotting elections. Election violence also plays an important role of depressing voter turnout among opposition supporters. Together, these techniques contribute to the incumbents' election victory (Hafner-Burton et al. 2018). When institutional constraints on the ruler are weak and a close result is expected, the incumbent is more likely to resort to using election violence (Hafner-Burton et al. 2014).

Governments also engage in institutional manipulation, namely, the manipulation of electoral institutions and electoral districts (Birch 2011). Besides electoral system change and gerrymandering, it is also well-known that malapportionment induces the pro-incumbent, conservative, and rural biases (Daxceker, 2019; Thompson 2013; Boone, 2014; Boone and Wahman, 2015; Samuals and Snyder, 2001, Snyder and Samuels, 2004). Numerous studies have demonstrated that malapportionment significantly helps ruling parties boost their parliamentary seats in both democracies and autocracies. According to Ong et al. (2017), although some levels of malapportionment exist across virtually all types of political regimes, competitive autocracy and new democracies are most likely to be malapportioned for ruling parties. Using constituency-level data from 8 sub-Saharan African countries, Boone and Wahmann (2015) offer empirical evidence demonstrating that high levels of malapportionment lead to overrepresentation of ruling parties. Likewise, analyzing cross-country panel

data from Latin America, Bruhn et al. (2010) show that malapportionment helps ruling groups preserve their power by insulating their political support from electoral competition.

It should be noted that leaders do not use these electioneering strategies at random. With regards to the relationship between election cheating and election violence, Simpser (2013) claims that election cheating and election violence go hand in hand, because coercing regime supporters to undertake these techniques enables rulers to signal their strength to potential opponents. Similarly, Hafner-Burton et al.'s (2014) cross-national analysis suggests that electoral cheating is positively correlated with pre-electoral violence.

Despite the fact that varying combinations of electioneering strategies have been of interest, we know little about how malapportionment is related to blatant electoral manipulation. Previous research on the value of a vote has primarily focused on the economic consequences of malapportionment (Horiuchi and Saito 2003) or determinants of malapportionment (Samuels and Snyder, 2001; Kamahara and Kasuya 2014; Horiuchi 2004; Ong et al. 2017). One important exception is Daxecker (2019), who uses constituency-level data of six parliamentary elections in India and finds that highly malapportioned districts tend to experience less electoral violence. The current study builds upon her research to extend the theoretical focus to election cheating. I explore the relationship between three major electioneering strategies (cheating, violence, and malapportionment). Empirically, this paper utilizes cross-national data from 98 countries to test hypotheses about the relationship between these electioneering strategies.

3 Blatant Electoral Fraud and the Value of a Vote

Effect of Malapportionment on Individual Use of Cheating and Violence

In regimes with multi-party elections, political leaders must successfully pass through two points of the election cycle (Hafner-Burton et al., 2018). First, leaders need to win the election itself. The aforementioned electioneering strategies increase the likelihood of winning

elections. Second, the post-election period can be also uncertain. This phase may include protest movements that force the incumbents to resign, hold new elections, or make large concessions to the opposition.

Employing blatant electoral fraud, political leaders can increase the likelihood of winning elections.[2] However, blatant electoral manipulation is also a risky strategy: it is overtly illegal and undemocratic, which undermines the incumbent's political legitimacy. Both electoral violence and election cheating damage popular perceptions about the fairness of elections and thus can invoke popular protests which can often be violent and destructive (Ong 2018). Much research has shown that blatant electoral manipulation backfires on political leaders. Norris (2014) demonstrates that electoral malpractice undermines people's confidence in governments and legal compliance. Excessive electoral cheating and electoral violence are often followed by popular protests (On electoral cheating, see Tucker 2007 and Bunce and Wolchik 2010. Regarding electoral violence, see Hafner-Burton et al. 2014, 2018).[3]

Compared to election violence and cheating, malapportionment is less costly and risky (Birch 2011). First, political leaders need not delegate brokers and supporters to manipulate elections in their regions through malapportionment. Political leaders within parliaments can revise their election laws to implement electoral redistricting and legislative reapportionment. Second, compared to electoral cheating and electoral violence, malapportionment is an indirect, and mostly "invisible" form of electoral manipulation. Redistricting and reapportionment can be implemented before election campaigning, enabling political leaders to distract citizens' and international organizations' attention away from the manipulation. Even if rulers manipulate electoral boundaries and district magnitudes during electoral pe-

[2]Opportunistic political leaders may also employ economic maneuvering by increasing spending levels before elections. This paper focuses on the relationship between blatant electoral fraud and malapportionment while controlling for the tool of economic maneuvering (Appendix B2)

[3]Rød (2019) finds that public goods spending mitigates the positive impact of blatant electoral fraud on popular protests. Dis-aggregating electoral cheating techniques, Harvey and Mukherjee (2018) and Szakonyi (2019), for example, argue that some types of electoral cheating (e.g., administrative fraud and deregistration of opposition figures) are more prone to provoking protests than others. The focus of this paper is on comparing a broad category of blatant electoral manipulation with an important technique of institutional manipulation – malapportionment.

riods, malapportionment is not blatant in the sense that it attempts to bias election results not through relentlessly thwarting opposition's election campaigns (as well as lowering their vote shares by fraud) but through reapportionment and redistricting. Along this line, Ong (2018: 162) asserts that malapportionment is a highly obscure electoral manipulation technique that requires a large amount of pre-existing knowledge to comprehend it and thus is less salient to voters. Therefore, high levels of malapportionment are less risky and less likely to be followed by protest movements. Indeed, my cross-national analysis shows that levels of malapportionment are not correlated with the likelihood of post-electoral protests in a statistically significant way (Appendix Table C-1).

Importantly, high levels of malapportionment enable incumbents to win elections as"cleanly" as possible without resorting to outright election cheating and electoral violence. Given the high costs of blatant electoral manipulation, political leaders may be more likely to refrain from using blatant electoral manipulation by increasing the level of malapportionment prior to elections. Such strategic manipulation of malapportionment levels leads to reducing the necessity of blatant electoral fraud techniques like election cheating and election violence. Therefore, I derive the first hypotheses, which are about the effects of malapportionment on the individual use of cheating and violence:

Hypothesis 1-a: Increasing malapportionment is likely to reduce the probability of electoral cheating.

Hypothesis 1-b: Increasing malapportionment is likely to reduce the probability of electoral violence.

Effect of Malapportionment on Simultaneous Use of Cheating and Violence

The discussion thus far assumed that political leaders can manipulate the levels of malapportionment flexibly enough to satisfy their political needs. However, reality suggests that

different regimes are "historically endowed" with various levels of malapportionment, which reduces leeway for leaders to manipulate the value of a vote at their disposal. For instance, investigating malapportionment in Latin America, Bruhn et al. (2010) document that malapportionment was so historically path-dependent in the region that it was not greatly adjusted even after democratic transitions. Ostwald and Courtin (2020) also find that in Myanmar the usage of colonial-era administrative boundaries to delineate electoral constituencies contributed to a very high level of malapportionment that over-represented non-Bamar and rural votes. Similarly, Boone and Wahmann (2015) demonstrate that levels of malapportionment in sub-Saharan African countries exhibited striking stability even in the era of democratic transitions in the region (1990-2010). Indeed, my cross-national comparison suggests that levels of malapportionment are less liable to change over time, compared to extents of election violence and electoral cheating (Appendix Table C2).

Broadly, there are two factors which make levels of malapportionment unlikely to be manipulated by politicians over time. First, malapportionment may have an important drawback as electioneering strategies – an intractable coordination problem among ruling politicians. When political leaders manipulate electoral institutions, they have to pass the revised electoral law through their respective legislative bodies. However, ruling politicians who may hold veto power and thus engage in decision-making processes in adopting the new electoral laws are often likely to have diverse, often mutually conflicting interests over the designs of redistricting and reapportionment. As Tsebelis (1990) argues, extant electoral rules may shape the interests of legislators within each party, which makes it difficult to change electoral systems, even if an alternative electoral system is rational for parties as a whole. Indeed, Boone and Wahmann (2015: 340-341) report that in sub-Saharan Africa legislative proposals for reapportioning were rejected by ruling legislators in many countries including Kenya, Zambia, Malawi, and Ghana.

Second, a high level of malapportionment is also endowed via demographic changes across electoral districts. For instance, when a large number of people move from rural to urban

areas (and thus the value of a vote becomes higher in the former), the ruling party with its main political support base in rural areas has no incentive to deal with the generated gap in the value of a vote, because the population change enhances the value of a vote in the party's strongholds. For example, thanks to rapid population inflows into urban areas which gradually widened the value of a vote between rural and urban areas, the ruling, rural-based Liberal Democratic Party increasingly enjoyed seat premiums and for a long time was hesitant to reform the malapportioned legislature (Sugawara 2009). Without adjusting for the gap between shares of seats and population size across different electoral jurisdictions, political leaders are able to bias election results in their favor.

When malapportionment is extensive due to these reasons, i.e., historical path dependency and demographic changes, political leaders may no longer rely heavily on every possible measure of blatant electoral manipulation, as Simpser (2013) has suggested.[4] Put differently, leaders may no longer need to use both violence and cheating as complements to win parliamentary elections because the baked-in "structural feature" of malapportionment provides seat premiums. Rather, when malapportionment is high, political leaders may become less dependent on blatant electoral manipulation in consideration of its risk. Under the condition of extensive malapportionment, given the relative flexibility of blatant fraud techniques, leaders may start thinking about striking a balance of election victory and political risk by doing without either violence or cheating. Namely, malapportionment may affect the extent of blatant electoral fraud as a substitute that lowers *the simultaneous employment of violence and cheating in elections*. Therefore, the second hypothesis is formalized as follows:

Hypothesis 2: Increasing malapportionment is likely to reduce the probability of simultaneous electoral cheating and violence.

[4]Simpser (2013) focuses exclusively on blatant electoral fraud and argues that its blatancy signals incumbents' strengths. In contrast, malapportionment is not a blatant form of electoral manipulation. Given that blatant electoral fraud often involves high political costs and thus produce backlash against incumbents, it is likely that malapportionment is a substitute of blatant electoral fraud rather than its complement when malapportionment is available for incumbents to bias election results.

4 Empirics

Sample and Malapportionment Data

To test the hypotheses proposed in the previous section, I conduct cross-national statistical analyses. My analysis includes 98 countries covering the period from 1993 to 2012. The unit of analysis is country-election year, and includes 248 legislative elections. As some levels of malapportionment and blatant electoral manipulation exist in both democracies and autocracies and thus arbitrarily selecting samples according to levels of political development risks the danger of selection bias. However, limiting the sample to developing countries and thus excluding industrial democracies (i.e., old members of the OECD) does not alter the main results (Appendix B4).

The main independent variable in this paper is the degree of malapportionment. I use an extensive cross-sectional time series dataset of malapportionment originally constructed by Kamahara and Kasuya (2014), complemented with Ong et al.'s (2017) cross-sectional data of malapportionment.[5] Malapportionment is defined as "the discrepancy between the shares of legislative seats and the shares of population held by geographical units" (Samuels and Snyder 2001: 652). It is measured as an index that employs a measure of the Loosemore-Hanby index (Kamahara and Kasuya 2014: 4):

$$MAL_{t,j} = \frac{1}{2} \sum |S_{i,t,j} - V_{i,t,j}|$$

where i denotes a particular district, t a certain election-year, j a given country, s denotes the proportion of allocated seats in district i to all districts, and v the share of population or electorates in district i to the entire population or electorates. When MAL is zero, the distribution of seats does not favor any electoral districts in the country. As this value increases, the legislature consists of representatives selected from more malapportioned electoral districts.

[5]The list of countries included in the analysis is shown in Appendix A1.

The mean of malapportionment is 0.06, meaning that on average countries have 6 percentage point difference in votes versus seats obtained across electoral districts.[6] Countries adopting a proportional representation system with a nationwide district do not have any malapportioned districts (e.g., Netherlands, Slovakia, Israel, and Kazakhstan), whereas countries like Chile (0.15), Spain (0.1), Gambia (0.27), Ghana (0.19), Togo (0.22), Tanzania (0.27), and Mongolia (0.14) maintain high levels of malapportionment.

Statistical Models

Dependent Variables We have three dependent variables in the analysis: (i) *only* election violence, (ii) *only* electoral cheating, and (iii) *both* election violence and electoral cheating. The dependent variables (i) and (ii) are operationalized to test the Hypothesis 1, whereas (iii) is to test the Hypothesis 2.

Whether an election experienced only election violence is measured by using Hyde and Marinov's (2011) *National Elections in Democracies and Autocracies (NELDA; Version 4)*. The NELDA dataset contains information on elections for national offices for all sovereign countries with populations greater than 500,000. The dataset is constructed by using various sources including newswire reports, newspaper archives, academic research, archives from specific countries and reports from intergovernmental organizations. Following Hafner-Burton et al. (2014: 165), we code the occurance of election violence if the government engaged in election-specific violence against civilians (coded from *Nelda33*) or harassed opposition members (*Nelda15*). Then, to measure the individual use of election violence, the dependent variable takes the value of 1 if election violence happens but election cheating does not occur and 0 otherwise. Of 248 country-election years, a total of 7.6% (19) of country-election years in the sample experienced only election violence (Appendix A2). In democracies, 6.3% (13) of country-election years had election violence, whereas election vi-

[6]The standard deviation is 0.056 with having 0 (e.g., Kazakhstan) and 0.27 (Tanzania) as the minimum and maximum values, respectively.

olence is observed in 14.6% (6) of autocratic country-election years.[7]

The second dependent variable is only election cheating, measured by using the NELDA dataset. This variable comes from *Nelda11* indicating whether there were "significant concerns that the elections will not be free and fair." This variable captures "domestic or international concern" about the quality of the election, including whether "elections were widely perceived to lack the basic criteria for competitive elections, such as more than one political party" (Hyde and Marinov 2011). 1 indicates there are serious concerns that the elections will be fraudulent. Similar to the measure of only election violence, the individual use of election cheating is coded 1 when election cheating happened but election violence does not occur. Of 248 country-election years, 5.6% (14) of country-election years in the sample experienced only election cheating (Appendix A). In democracies, 4.3% (9) of country-election years had the above mean level of election cheating, whereas the same level of electoral cheating is recorded in 12.2% (5) of autocratic country-election years. Although Hafner-Burton et al. (2014) states that this variable measures "another prominent tactic of electoral manipulation" distinct from election violence, one may wonder if the variable at least partially includes election violence. Therefore, I use an alternative measure of election cheating, based upon the Varieties of Democracy (V-Dem) dataset. The results are robust across those measures (Appendix B3).

Finally, the third dependent variable, the dual use of electoral violence and election cheating, is operationalized by coding whether a country-election year registers both election violence and electoral cheating simultaneously (on the NELDA dataset). In the sample, 10.0% of 248 parliamentary elections (25 country-election year) experienced both electoral violence and election cheating (e.g., Kenya, Moldova, Pakistan, Sri Lanka, and Ukraine), whereas 41.4% of autocracies (17 country-election years) and 3.8% of democracies (8 country-election years) experienced both violence and cheating, respectively.

[7] A country is coded as democracy if the Polity IV score is more than 6.

Model Specification To test Hypothesis 1-a and Hypothesis 1-b, i.e., that malapportionment reduces the probabilities of election violence and electoral cheating individually, I regress each of these variables on malapportionment and control for other covariates introduced by Hafner-Burton et al. (2014). Hypotheses 1-a and 1-b predicts the coefficients of the malapportionment variable to be negative and statistically significantly for the individual use of election violence and electoral cheating. Hypothesis 2 predicts that malapportionment reduces the probability of the simultaneous use of electoral fraud and violence. Note that here I do not test the causal effect of malapportionment on these techniques of blatant electoral fraud. This regression analysis is to test a correlation -i.e., whether leaders' simultaneous use of violence and cheating becomes less likely as levels of malapportionment become higher. If we find malapportionment is negatively correlated with the likelihood of the dual use of election violence (in Hypothesis 2) and cheating but not with each individually (in Hypothesis 1), the overall results suggest that political leaders become less dependent on a wide range of blatant fraud when levels of malapportionment are already high.

The model specification of this study follows Hafner-Burton et al. (2014). They provide a well-founded baseline model explaining cross-national variations in electoral violence in particular and blatant electoral manipulation in general. According to them, political leaders are inclined to use election violence when their election victories are uncertain, but the use of election violence is constrained when checks and balances toward the executive exist. This conditional effect is operationalized by introducing an interaction term between NELDA's measure of victory uncertainty[8] and Polity IV's strength of executive constraints.[9] Repressive regimes are more likely to use election violence and other fraud techniques. Without controlling for political repressiveness of countries, models run the risk of just estimating which regimes are more repressive in general. Therefore, my models include a physical integrity

[8]This variable is based on *Nelda12*, which indicates whether the incumbent or ruling party was confident of victory before the elections. The variable is coded 1 if the incumbent made public statements expressing confidence of victory and 0 otherwise.

[9]This measures institutionalized constraints on the decision-making power of the Chief Executive ranging from the 1-7.

index (one-year lagged three years moving average) to measure levels of government repression in non-electoral periods.[10] To ensure the estimation results are not spurious with the level of democracy, I include measures of political competitiveness[11] and executive recruitment[12] from the Polity IV project. Similarly to the physical integrity index, these measures of democracy are measured as one-year lagged, three-years moving averages to control for non-election-specific components. Logged population[13] and logged GDP per capita[14] are also included as controls because wealth and population size influence the use of violence and cheating (e.g., Lehoucq and Molina 2002; Fukumoto and Horiuchi 2011). Since political leaders may be more likely to use election fraud based upon their length of tenure or their experience, I include leader's tenure length and leader's age from *Archigos version 4.1*. Because civil conflict is associated with human rights abuses, I introduce a binary measure of civil war from the Peace Research Institute of Oslo (PRIO) dataset. Lastly, I include the number of demonstrations, anti-government strikes and riots to consider the possibility that civic mobilization encourages incumbents to use blatant electoral fraud (one-year lagged, from Banks' (2016) *Cross-National Time Series Data Archive*).

Estimator This study has three binary dependent variables (only election violence, only electoral cheating, and both violence and cheating) and therefore employs logistic regressions. Because time-series of this dataset are far shorter (2.6 election-years on average) than its cross-section (98 countries) and some independent variables (e.g., the malapportionment variable) are highly sluggish over time,[15] employing fixed effects (FE) estimators yields higher variance than random-effects (RE) estimators (Clark and Linzer 2015).[16] Therefore, I esti-

[10]This comes from the Cingaranelli-Richards dataset and measures pre-existing levels of government repression distinct from pre-election violence by a 0-8 scale.

[11]This measures the level of regulation of political participation and the competitiveness of participation.

[12]This measures the openness and competitiveness of executive selection, as well as the institutionalization of executive power transitions.

[13]One-year lagged, from the World Development Indicators [WDI].

[14]One-year lagged, from WDI.

[15]Countries such as Mongolia (2000-2008), Taiwan (2001-2008), and Mexico (2000-2006) experienced relatively sizable changes in levels of malapportionment but such cases are rare.

[16]In addition, FE estimators with the binary dependent variable drops countries that do not experience

mate RE logistic regressions with robust standard errors to consider country-level unobserved heterogeneity and heteroskedasticity. In a robustness check, I alternatively employ a multinomial probit regression in which I regard the four groups (no violence and no cheating, only violence, only cheating, and both violence and cheating) as distinct categories within a single categorical dependent variable, to find that the results are identical with those of the RE-logit estimator (Appendix Table B1). Each RE-logit model is formalized as follows:

$$Pr(OnlyViolence_{it} = 1) = f(\beta_1 MAL_{it} + \phi X_{it} + \gamma_i + \psi_t + \epsilon_{it}) \quad (1)$$

$$Pr(OnlyCheating_{it} = 1) = f(\beta_1 MAL_{it} + \phi X_{it} + \gamma_i + \psi_t + \epsilon_{it}) \quad (2)$$

$$Pr(Violence_{it} = 1 \cap Cheating_{it} = 1) = f(\beta_1 MAL_{it} + \phi X_{it} + \gamma_i + \psi_t + \epsilon_{it}) \quad (3)$$

where X_{it} is a vector of control variables. γ_i is random-effects controlling for unobserved country-level heterogeneity. ψ_t is year-fixed effects. (1) and (2) are for Hypothesis 1-a and Hypothesis 1-b respectively, while (3) tests Hypothesis 2.

Estimation Results Table 1 reports the estimation results. In Model 1 (where the dependent variable is whether only election violence occurred), the coefficient of the malapportionment variable is positive and not statistically significant. Similarly, in Model 2 (where the dependent variable is whether only electoral cheating occurred), the malapportionment variable's coefficient is positive and again not statistically significant. These results suggest that malapportionment does not reduce each of election violence and electoral cheating individually, contrary to the expectation proposed in Hypothesis 1.

Model 3 then test Hypothesis 2, which asserts that political leaders refrain from using both election violence and electoral cheating if high levels of malapportionment are endowed.

any change in the dependent variable from the sample, which invites possible selection bias.

As prima facie evidence, Figure 1 presents a jitter and violin plot on the relationship between malapportionment and blatant electoral fraud. As the figure shows, malapportionment levels tend to be lower when countries experience both election violence and cheating. Countries with low levels of malapportionment, such as Tajikistan, Thailand, Nepal, Ukraine, Belarus, Armenia, Kazakhstan, Russia, and Moldova experienced both electoral violence and election cheating (lower part of the "both vilence and cheating category."[17] The regression analysis (Model 3) shows that the coefficient of the malapportionment variable is negative and statistically significant at the 5 percent level, indicating that the higher malapportionment is, the less likely political leaders are to rely on both repressive and non-repressive measures of blatant electoral manipulation at the same time. Figure 2 illustrates changes in the predicted probabilities of the simultaneous use of election violence and electoral cheating according to the levels of malapportionment. When the value of a vote is the same across all electoral districts, electoral cheating is accompanied with electoral violence by a high probability, approximately 17 percent. As the degree of malapportionment becomes larger, however, elections become less likely to experience election violence and electoral cheating simultaneously. For instance, when the malapportionment score increases to 0.15, the likelihood that the dual use of violence and cheating happens becomes less than 6 percent at the 5 percent significance level. This provides supporting evidence for Hypothesis 2.

[Table 1 and Figures 1 and 2 about here]

Robustness Checks

I conduct a battery of sensitivity analyses to show that the main results are robust in the face of additional methodological issues such as (1) a different estimation method, (2) additional controls, (3) different measures of election violence and electoral cheating, (4) an alternative sample focusing on developing countries, (5) consideration of time dependence, and (6) potential outliers.

[17] Conversely, when a country experiences only violence or cheating, the country's level of malapportionment tends to be high on average, including the cases of Ghana, Zambia, Kenya, Ethiopia, and Mongolia (only violence) and Gabon, Ghana, Cameroon, Malawi, Chad, and Syria (only cheating).

The outcome of interest, i.e., patterns of blatant electoral fraud, can be modeled differently. Here, I employ a multinomial probit regression with four different outcomes of blatant electoral fraud – *no existence of both electoral violence and cheating, only electoral violence, only election cheating, and the dual use of election violence and cheating.*[18] The estimation results show that high levels of malapportionment make the simultaneous use of violence and cheating less likely from any other patterns of electoral manipulation. When malapportionment becomes higher, leaders are more likely to shift their blatant electioneering strategies from dependence on both violence and cheating, to cheating alone, violence alone, or neither (Appendix B1). In contrast, malapportionment is again not associated with the individual use of election violence and electoral cheating. These findings again suggest that political leaders rely less on blatant electioneering as malapportionment increases, but malapportionment may not completely eliminate all forms of electioneering.

Previous research suggests that malapportionment is correlated with majoritarian electoral systems and fiscal transfers or expenditures (e.g., Richard and Samuels 2003; Horiuchi and Saito 2003). Furthermore, other research also finds that both majoritarian electoral systems and financial resources are related to the specific extent of blatant electoral manipulation (Birch 2007; Higashijima 2015). To test whether the main results are robust to these possible confounders, I introduce electoral system types[19] and fiscal expenditure[20] as controls. The results are not sensitive to the inclusion of those variables (Appendix B2).

To examine whether the results are sensitive to different measures of electoral cheating and election violence, I use the *V-Dem* dataset as an alternative source to dichotomously categorize both election cheating and election violence. To do this, following the V-Dem project, I first measure the extent of electoral violence and election cheating by applying an Item Response Theory technique to create their latent variables. The latent electoral

[18]As the Hausman test rejected the null hypothesis that independence of irrelevant alternatives (IIA) holds, I decided not to use logistic regressions.

[19]This is operationalized by an effective electoral threshold measure. High values indicate majoritarian electoral systems

[20]This is measured by using central government's annual fiscal expenditures (percent of GDP) from Bodea et al. (2019).

cheating measure consists of (1) Voter registry(*v2elrgstry*), (2) vote-buying(*v2elvotbuy*), and (3) other voting irregularities(*v2elirreg*), whereas the latent election violence measure is made by (1) government intimidation (*v2elintim*) and other election violence (*v2elpeace*). Then, to make dummy variables of election violence and electoral cheating, I use the means of both measures as the thresholds above which elections are seen as those with electoral violence and cheating. Using these alternative measures of election violence and cheating does not affect the main results (Appendix B3).

The main analysis includes both developed and developing countries because of the reasons stated above, yet violence and cheating are more likely to occur in authoritarian regimes in particular and developing countries in general. Therefore, I limit my sample to non-OECD countries (62 countries) and run the same models to find that this alternative sampling does not affect the main conclusions (Appendix B4). Also, to control for time dependence of binary dependent variable models, I control for the time lapse since the last election violence and its time polynominals (Carter and Signorino 2009). The inclusion of these variables does not alter the original results (Appendix B5). Lastly, to take into account possible outliers that may derive from some extreme values of the malapportionment variable, I conduct jackknife analyses by excluding country and year one by one. The results remain robust.[21]

Additional Analyses on Different Features of Blatant Fraud and Malapportionment

The interpretation of the estimation results so far is based upon the assumption that blatant electoral fraud and malapportionment have different features as electioneering strategies. To test this assumption, I conduct additional analyses on differences in the key features of blatant electoral fraud and malapportionment. The first major difference between the two electioneering strategies is that, whereas blatant electoral fraud often provokes post-election protest movements, high levels of malapportionment do not, given its almost entirely indirect, invisible features of biasing election results. To test this additional observable im-

[21]The estimation results are available on Appendix B6.

plication, I estimate the effect of malapportionment on the likelihood of popular protests. Again, the estimation method (random-effects logit) and model specifications are based upon Hafner-Burton et al.'s (2014) analysis of post-election protests, except that I add the malapportionment variable to their models. The dependent variable, popular protests, is binary and measured by using *Nelda 29*, which indicates whether there were "riots or protests after elections" that were "at least somewhat related to the outcome or handling of the elections." The results are consistent with my theoretical expectation. The coefficient of malapportionment is highly uncertain (p = 0.402), suggesting that levels of malapportionment are unrelated to post-election protests (Appendix C1).

The second important difference between blatant electoral fraud and malapportionment is that malapportionment is a more inflexible electioneering strategy than blatant electoral fraud. One observable implication of this feature is that levels of malapportionment should change more slowly over time than both election violence and electoral cheating do. Comparing within-country standard deviations (SD) and the within-country mean of each variable, those of malapportionment are 0.006 (SD) and 0.06 (mean) and thus its correlation of variation (CV) is only 0.1. By contrast, the SD and the mean of election violence are 0.2 and 0.177 with a CV of 1.12, whereas those of electoral cheating are 0.185 and 0.157 with a CV of 1.18. These differences suggest that variances of blatant electoral fraud are much larger than that of malapportionment (Appendix C2). Malapportionment is an even more inflexible electioneering strategy for political leaders than election violence and electoral cheating.

5 Conclusions

This paper has investigated how malapportionment is related to blatant electoral manipulation. Political leaders choose their election strategies while considering the benefits and costs of each strategy. Although blatant electoral manipulation helps rulers to obtain election victories, such coercive measures may also backfire on rulers given the potential to undermine

political legitimacy and thereby spark popular protests. Malapportionment, a large gap in the value of a vote across electoral districts, enables political leaders to maintain legislative dominance by allocating more seats to their strongholds without using blatant electoral manipulation. Therefore, when malapportionment is high, political leaders should refrain from using electoral cheating and election violence. The cross-national statistical analysis has shown that, although malapportionment itself seems not to contribute to the reductions of election cheating and electoral violence each, political leaders become less inclined to use both cheating and violence simultaneously when high levels of malapportionment are endowed. This suggests that political leaders may not be able to flexibly manipulate electoral districts as a complete substitute for "good, old-fashioned"cheating and violence. Instead, they may carefully strike a balance between election results and blatant fraud by becoming less dependent on both electoral cheating and election violence when malapportionment has already made the electoral battlefield favorable to the incumbents.

This paper's findings may suggest several policy implications. Contemporary election monitoring tends to draw their attention toward overt electoral fraud and concludes that elections have no serious problems as long as the elections do not suffer blatant election fraud. However, the core implication of this paper is that, even if political leaders do not resort to cheating and violence, when malapportionment is high, such relatively "free and fair" elections may derive not from leaders' respect for transparent elections, but rather from the fact that they still hold big electoral advantages brought about by high levels of malapportionment. Policymakers and international organizations might need to consider the trade-off between overt electoral fraud and malapportionment, so as to be able to design election monitoring schemes accordingly.

Second, that being said, this research also suggests that international organizations may find it difficult to encourage political leaders to adjust huge gaps in the value of a vote since the current level of malapportionment may be a manifestation of a political equilibrium of electoral interests among legislators. That is, among several politicians there can be an

reluctant attitude whereby the potentially corrupting structures of misaligned and democratically unrepresentative regimes become ossified to the point where outright and blatant corruption transpires and even, in the worst cases, become normalized. Even if international civil society succeeds in correcting for malapportionment, what follows may be the eruption of blatant electoral manipulation by the leader who desires to hold onto power, followed by post-electoral popular protests by citizens, both of which may ultimately destabilize the country. In this sense, international support for improving the discrepancy in the value of a vote needs to be taken into account and more specifically, that consequences occur after their assistance should be considered.

Since this paper's empirical analysis is cross-national, it is generally difficult to test further observable implications at sub-national levels. For example, it may be that a high level of malapportionment is associated with the absence of election cheating and electoral violence in the electoral districts where gerrymandering does not involve serious coordination problems among ruling politicians or where population changes lead to favorable gaps in the value of a vote vis-á-vis ruling parties. To test such additional predictions, dis-aggregated, election-district level data on overt election fraud and malapportionment will be needed. Furthermore, the empirical analysis of this paper explores correlations between blatant electoral fraud and malapportionment. To test causal relationships between these electioneering strategies, future research may apply methods of causal inference.

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Table 1: Blatant Electoral Fraud and Malapportionment

	Model 1	Model 2	Model 3
Estimation Method	RE-Logit	RE-Logit	RE-Logit
Dependent Variable	Only Violence	Only Cheating	Violence and Cheating
Malapportionment (MAL)	32.70	17.34	**-16.96****
	(63.25)	(14.65)	**(7.243)**
Victory Uncertainty	7.002	16.16***	-2.785
	(12.50)	(6.156)	(2.545)
Executive Constraints	1.522	0.980	-0.912
	(2.623)	(0.871)	(1.288)
Uncertainty*Constraints	-1.088	-2.591***	0.587
	(1.950)	(0.987)	(0.603)
Physical Integrity Index	-1.343	-0.303	-0.460
	(1.740)	(0.263)	(0.303)
Executive Recruitment	0.611	1.134	-0.101
	(0.863)	(0.734)	(0.521)
Political Competition	-0.326	0.475	-0.0469
	(0.772)	(0.530)	(0.358)
Logged GDP per capita	-0.340	-0.889	-0.602
	(0.994)	(0.654)	(0.493)
Logged Population	0.482	-0.710***	-0.158
	(1.177)	(0.260)	(0.133)
Civil War	1.438	-1.001	-1.710
	(9.566)	(0.869)	(1.295)
Demonstration	-0.781	0.183	0.869***
	(1.630)	(0.122)	(0.334)
Leader's Tenure	0.186	-0.0596	0.115
	(0.189)	(0.0775)	(0.112)
Leader's Age	-0.0504	17.34	0.00756
	(0.190)	(14.65)	(0.0694)
Constant	-20.94	-6.077	11.40***
	(45.87)	(13.37)	(3.222)
N	248	248	248
Year Dummies	Yes	Yes	Yes
BIC	219.25	189.35	217.51
Number of Countries	98	98	98

Note: Robust standard errors in parentheses. ***<0.01, **<0.05, *<0.1.

Figure 1: Jitter−Violin Plot

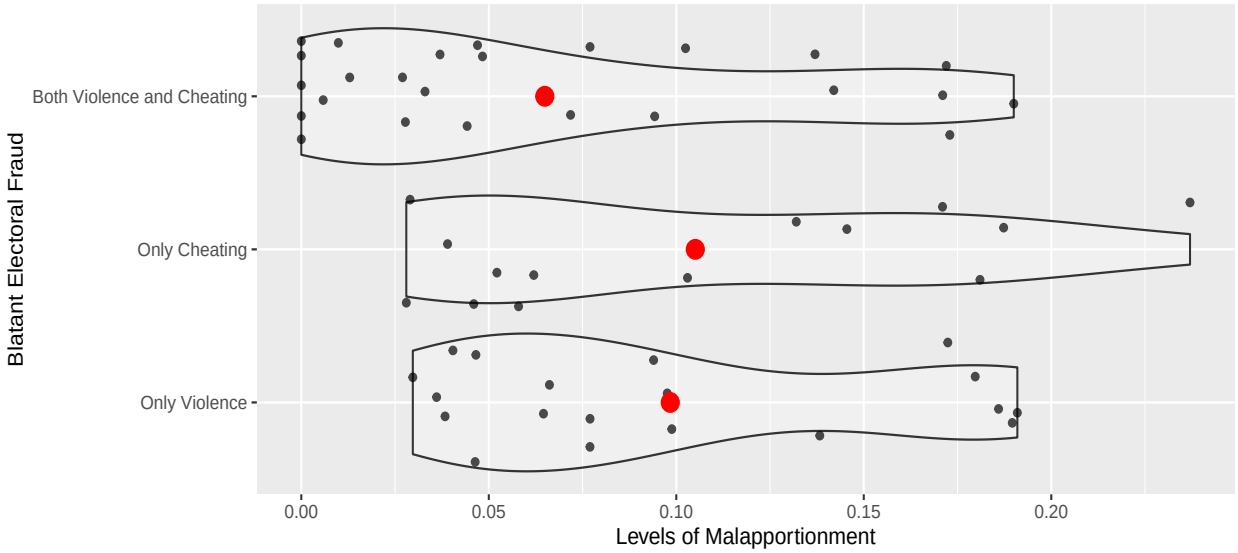
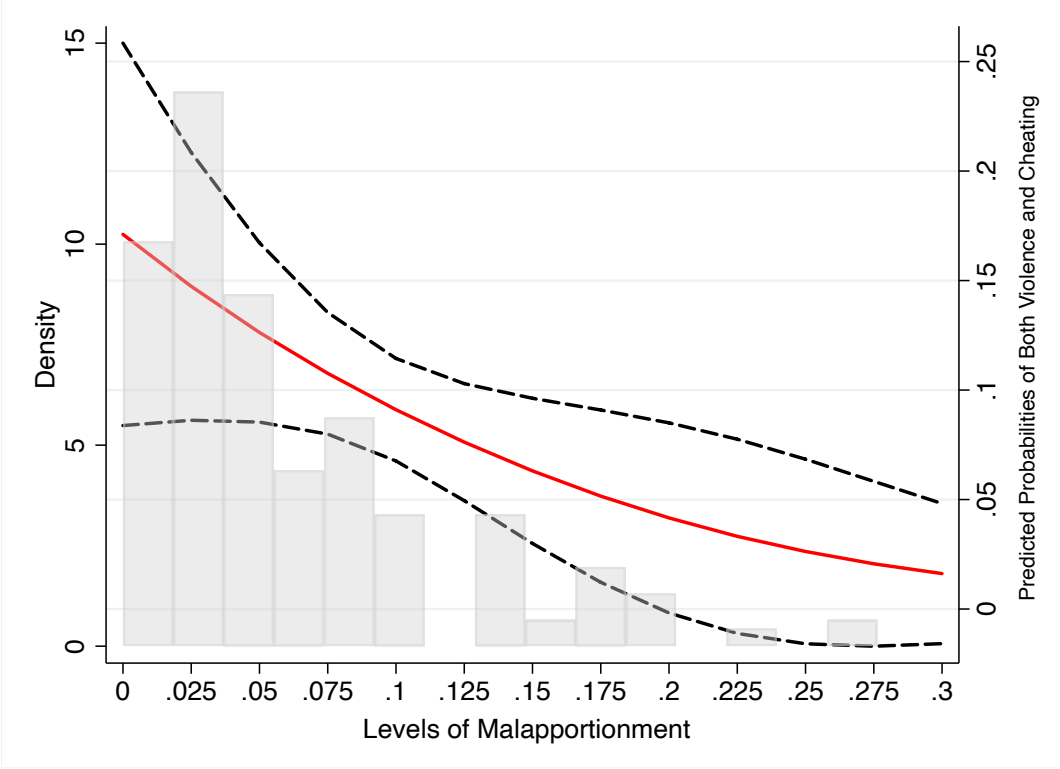


Figure 2: Predicted Probabilities of Dual Use of Election Violence and Cheating



Web Appendix

This supplementary appendix shows additional analyses and robustness checks that were not included in the main text due to space limitations.

Appendix A Table A1 shows a list of countries included in the analysis. **Table A2** shows descriptive statistics of variables used in the analysis.

Appendix B shows the results of robustness checks. Broadly, the tables and figures of the robustness checks contain the following methodological issues: (1) Multinomial Probit Regression Estimator (**Table B-1, Figure B1**), (2) additional controls (fiscal expenditure and electoral systems (**Table B-2 Figure B2**). (3) alternative measures of election violence and electoral cheating (V-Dem, **Table B-3 Figure B3**), (4) a sample of developing countries (**Table B-4 Figure B-4**), (5) time dependence (**Table B-5 Figure B-5**), and (6) jackknife analyses (**Figure B-6**).

Appendix C presents the results of additional analyses to explore the causal mechanisms. Specifically, the tables report the relationship between malapportionment and post-electoral protests (**Table C-1**) and descriptive statistics for blatant electoral manipulation and malapportionment to show inflexibility of malapportionment as an electioneering strategy (**Table C-2**).

Appendix A

Table A1: List of Countries

Albania	Dominican Republic	Lesotho	Senegal
Algeria	Estonia	Liberia	Serbia
Angola	Finland	Lithuania	Sierra Leone
Argentina	France	Malawi	Singapore
Armenia	Gabon	Mali	Slovakia
Australia	Gambia	Mauritius	Slovenia
Austria	Georgia	Mexico	South Africa
Azerbaijan	Germany	Moldova	South Korea
Belarus	Ghana	Mongolia	Spain
Belgium	Greece	Morocco	Sri Lanka
Benin	Guinea-Bissau	Namibia	Sweden
Bolivia	Honduras	Nepal	Syria
Botswana	Hungary	Netherlands	Taiwan
Brazil	India	New Zealand	Tajikistan
Bulgaria	Indonesia	Nicaragua	Tanzania
Cameroon	Ireland	Norway	Thailand
Canada	Israel	Pakistan	Togo
Cape Verde	Italy	Panama	Torinidad Tobago
Chad	Jamaica	Paraguay	Uganda
Chile	Japan	Peru	UK
Costa Rica	Kazakhstan	Philippines	Ukraine
Croatia	Kenya	Poland	USA
Cyprus	Kuwait	Portugal	Zambia
Czech Republic	Latvia	Romania	
Denmark	Lebanon	Russia	

Table A2: Descriptive Statistics

Variable	Mean	Standard Deviation	N
Only Election Violence (binary, NELDA)	0.076	0.266	248
Only Election Cheating (binary, NELDA)	0.056	0.231	248
Both Election Violence and Cheating (NELDA)	0.10	0.301	248
Malapportionment	0.06	0.056	248
Victory Uncertainty	0.37	0.48	248
Executive Constraints	6.14	1.41	248
Physical Integrity Index (avg)	5.53	1.97	248
Executive Recruitment (avg)	7.22	1.61	248
Political Competition (avg)	8.50	2.31	248
Logged GDP Per Capita (lag)	8.92	1.44	248
Logged Population (lag)	15.37	2.97	248
Civil War (lag)	0.080	0.27	248
Demonstration (lag)	0.435	1.1	248
Leader's Tenure Length	5.06	5.15	248
Leader's Age	58.2	9.74	248
Popular Protests	0.146	0.354	246
Fiscal Expenditure (% of GDP)	29.56	10.63	228
Electoral Systems (Effective Electoral Threshold)	17.78	14.17	228
Both Violence and Cheating (V-Dem)	0.282	0.451	248

Appendix B

Table B-1: Multinomial Probit Regression

1. From the "Non-Existence of Election Violence and Electoral Cheating" Category

Estimator	Multinomial Probit		
Category	To Only Election Violence	To Only Election Cheating	To Both Violence and Cheating
Malapportionment (MAL)	5.906	2.987	**-8.444****
	(4.173)	(4.088)	**(4.222)**
Victory Uncertainty	3.960	6.124***	0.787
	(2.664)	(2.064)	(1.478)
Executive Constraints	0.527	0.449*	-0.307
	(0.410)	(0.260)	(0.239)
Uncertainty*Constraints	-0.580	-0.884***	-0.0949
	(0.433)	(0.322)	(0.269)
Physical Integrity Index	-0.383***	-0.259***	-0.332**
	(0.124)	(0.0955)	(0.138)
Executive Recruitment	0.0875	-0.0167	-0.148
	(0.182)	(0.234)	(0.159)
Political Competition	-0.132	0.197	0.00205
	(0.159)	(0.181)	(0.135)
Logged GDP per capita	-0.249	-0.313	-0.468***
	(0.174)	(0.194)	(0.149)
Logged Population	0.112	-0.0370	-0.0898
	(0.0919)	(0.0770)	(0.0640)
Civil War	-0.262	-11.22***	-0.552
	(0.578)	(1.228)	(0.763)
Demonstration	-0.138	-0.315	0.330**
	(0.156)	(0.208)	(0.154)
Leader's Tenure	0.101**	0.0869*	0.0831*
	(0.0460)	(0.0498)	(0.0482)
Leader's Age	-0.00352	-0.0142	-0.000832
	(0.0208)	(0.0282)	(0.0207)
Constant	-3.206	-1.904	7.815***
	(3.319)	(3.140)	(2.228)
Number of Observations	248		
Number of Countries	98		
BIC	482.88		

Note: The baseline category is "no existence of both electoral violence and election cheating." Robust standard errors in parentheses. ***<0.01, **<0.05, *<0.1.

2. From the "Only Election Violence" Category

Estimator	Multinomial Probit		
Category	To Non-Existence of Violence and Cheating	To Only Election Cheating	To Both Violence and Cheating
Malapportionment (MAL)	-5.906	-2.919	**-14.35*****
	(4.173)	(3.625)	**(4.394)**
Victory Uncertainty	-3.960	2.163	-3.173
	(2.664)	(2.677)	(2.546)
Executive Constraints	-0.527	-0.0783	-0.835*
	(0.410)	(0.412)	(0.426)
Uncertainty*Constraints	0.580	-0.304	0.485
	(0.433)	(0.435)	(0.416)
Physical Integrity Index	0.383***	0.124	0.0506
	(0.124)	(0.137)	(0.142)
Executive Recruitment	-0.0875	-0.104	-0.236
	(0.182)	(0.260)	(0.213)
Political Competition	0.132	0.329*	0.134
	(0.159)	(0.200)	(0.179)
Logged GDP per capita	0.249	-0.0641	-0.219
	(0.174)	(0.228)	(0.207)
Logged Population	-0.112	-0.149	-0.202**
	(0.0919)	(0.101)	(0.0937)
Civil War	0.262	-10.96***	-0.290
	(0.578)	(1.093)	(0.836)
Demonstration	0.138	-0.178	0.468**
	(0.156)	(0.229)	(0.190)
Leader's Tenure	-0.101**	-0.0138	-0.0176
	(0.0460)	(0.0522)	(0.0528)
Leader's Age	0.00352	-0.0106	0.00269
	(0.0208)	(0.0299)	(0.0256)
Constant	3.206	1.303	11.02***
	(3.319)	(4.173)	(3.967)
Number of Observations	248		
Number of Countries	98		
BIC	482.88		

Note: The baseline category is "only election violence." Robust standard errors in parentheses. ***<0.01, **<0.05, *<0.1.

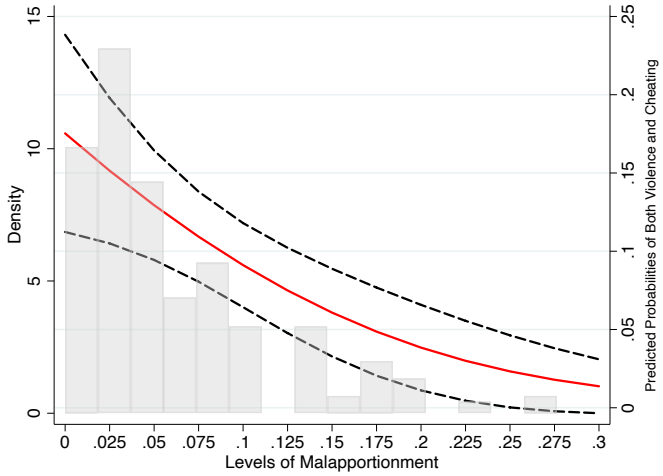
1. From the "Only Election Cheating" Category

Estimator	Multinomial Probit		
Category	To Non-Existence of Violence and Cheating	To Only Election Violence	To Both Violence and Cheating
Malapportionment (MAL)	-3.850	2.015	**-12.09*****
	(3.970)	(3.758)	**(4.346)**
Victory Uncertainty	-5.415***	-1.508	-4.754***
	(1.847)	(2.532)	(1.678)
Executive Constraints	-0.416*	0.0874	-0.737**
	(0.240)	(0.398)	(0.299)
Uncertainty*Constraints	0.782***	0.213	0.710**
	(0.292)	(0.416)	(0.303)
Physical Integrity Index	0.176**	-0.190	-0.112
	(0.0779)	(0.117)	(0.119)
Executive Recruitment	0.00697	0.0806	-0.168
	(0.215)	(0.240)	(0.189)
Political Competition	-0.161	-0.278	-0.146
	(0.159)	(0.188)	(0.151)
Logged GDP per capita	0.299	0.0456	-0.171
	(0.195)	(0.232)	(0.216)
Logged Population	0.0671	0.175*	-0.0314
	(0.0725)	(0.0983)	(0.0782)
Demonstration	0.314*	0.173	0.654***
	(0.182)	(0.210)	(0.225)
Leader's Tenure	-0.0819*	0.0168	-0.00293
	(0.0475)	(0.0506)	(0.0577)
Leader's Age	0.0179	0.0134	0.0141
	(0.0281)	(0.0302)	(0.0304)
Constant	1.418	-1.627	9.438***
	(3.061)	(4.078)	(3.480)
Number of Observations	248		
Number of Countries	98		
BIC	469.09		

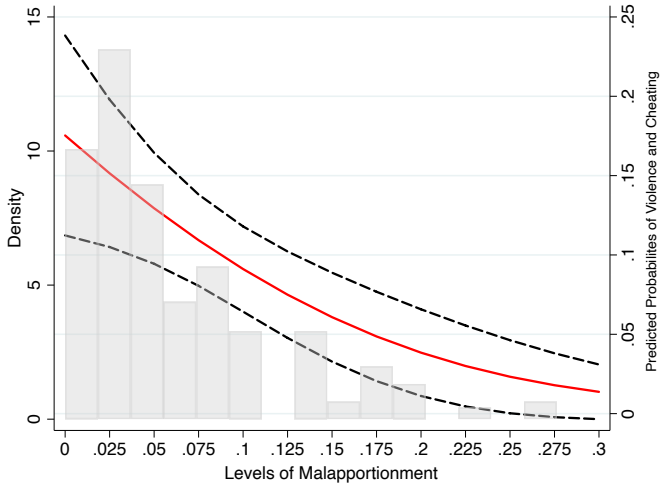
Note: The baseline category is "only election cheating." Robust standard errors in parentheses. Since including the civil war variable does not achieve model convergence, it is not included in this model. ***<0.01, **<0.05, *<0.1.

Figure B1: Multinomial Logistic Regression

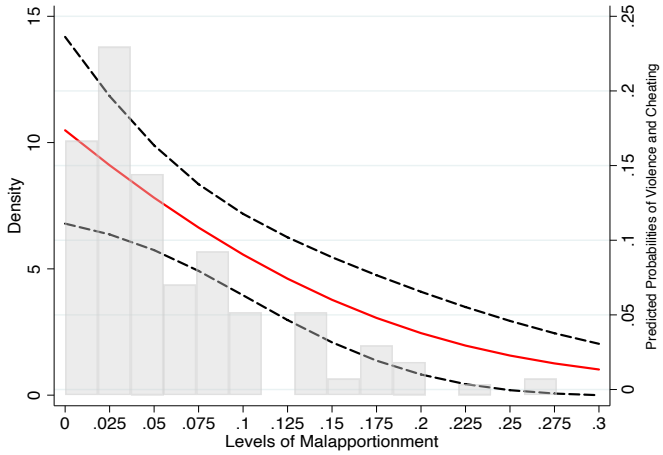
B1-1. Predicted Probabilities from Non-Existence of Violence and Cheating to Both Violence and Cheating



B1-2. Predicted Probabilities from Only Election Violence to Both Violence and Cheating



B1-3. Predicted Probabilities from Only Election Cheating to Both Violence and Cheating



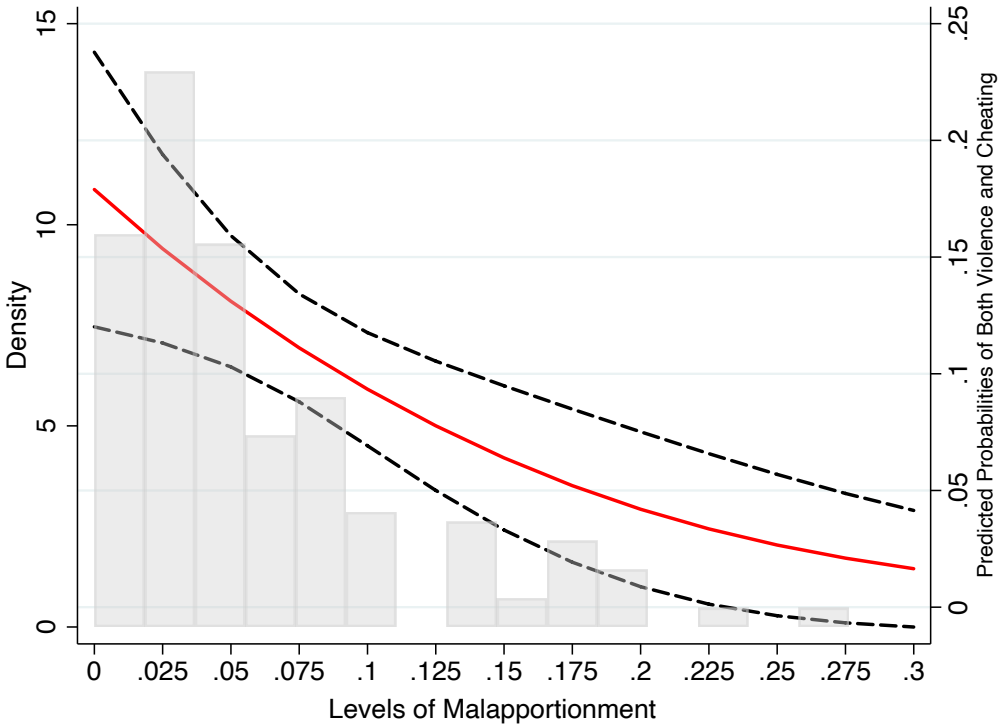
Note: The black, dotted lines represent the 95% confidence intervals. The red, straight line stands for the predicted values of electoral cheating.

Table B2: Additional Controls – Fiscal Expenditure and Electoral Systems

	Model B2
Estimation Method	RE-Logit
Dependent Variable	Electoral Violence
Malapportionment (MAL)	**-17.58*** **
	(6.184)
Victory Uncertainty	-2.108
	(1.908)
Executive Constraints	-0.845**
	(0.379)
Uncertainty*Constraints	0.535
	(0.431)
Physical Integrity Index	-0.511*
	(0.303)
Executive Recruitment	-0.0417
	(0.323)
Political Competition	-0.150
	(0.220)
Logged GDP per capita	-0.666***
	(0.214)
Logged Population	-0.111
	(0.0855)
Civil War	-1.740
	(1.149)
Demonstration	0.781***
	(0.278)
Leader's Tenure	0.0953
	(0.115)
Leader's Age	0.0190
	(0.0418)
Effective Electoral Threshold	0.0169
	(0.0198)
Fiscal Expenditure	0.0407
	(0.0375)
Constant	8.980***
	(3.424)
Number of Observations	228
Number of Countries	92
Year Dummies	Yes
BIC	220.76

Note: Robust standard errors in parentheses. ***<0.01, **<0.05, *<0.1.

Figure B2: Additional Controls – Fiscal Expenditure and Electoral Systems



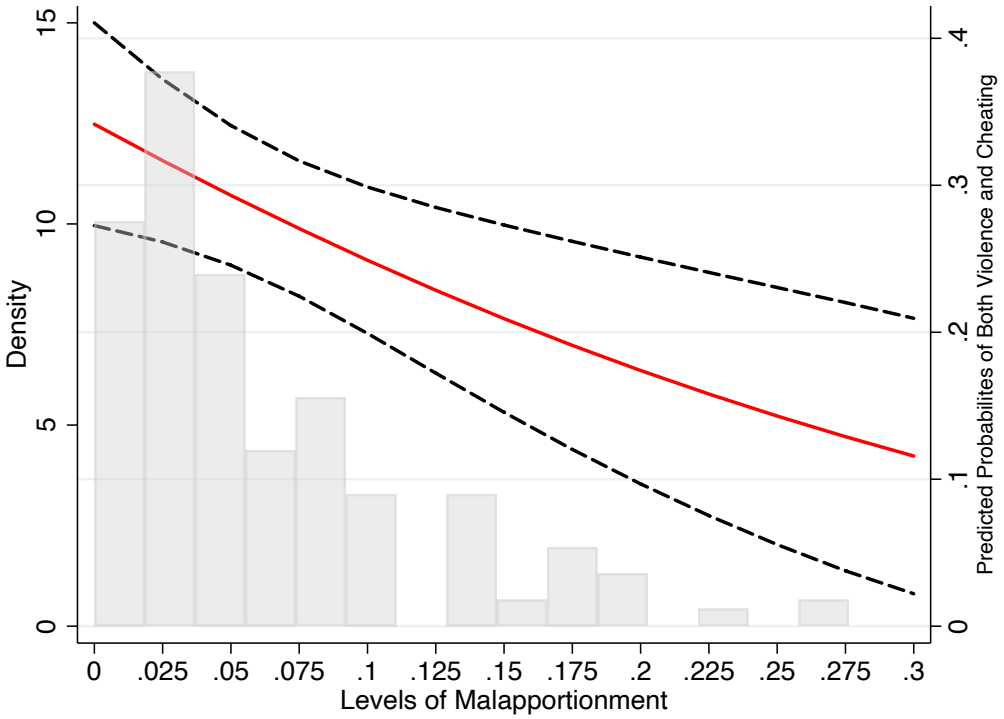
Note: The black, dotted lines represent the 95% confidence intervals. The red, straight line stands for the predicted probabilities of election violence.

Table B3: Alternative Measures of Election Violence and Electoral Cheating (V-Dem)

	Model B3
Estimator	Logit
Dependent Variable	Both Violence and Cheating (V-Dem)
Malapportionment (MAL)	**-23.94****
	(10.70)
Victory Uncertainty	-2.504
	(3.836)
Executive Constraints	-1.024
	(0.655)
Uncertainty*Constraints	0.466
	(0.686)
Physical Integrity Index	0.131
	(0.316)
Executive Recruitment	-0.246
	(0.357)
Political Competition	-0.143
	(0.301)
Logged GDP per capita	-3.900***
	(1.077)
Logged Population	1.185***
	(0.336)
Civil War	-4.445*
	(2.453)
Demonstration	0.127
	(0.296)
Leader's Tenure	-0.0105
	(0.1000)
Leader's Age	-0.0484
	(0.0493)
Constant	25.54***
	(7.468)
Number of Observations	248
Number of Countries	98
Year Dummies	Yes
BIC	193.36

Note: Robust standard errors in parentheses. ***<0.01, **<0.05, *<0.1.

Figure B3: Alternative Measures of Election Violence and Electoral Cheating (V-Dem)



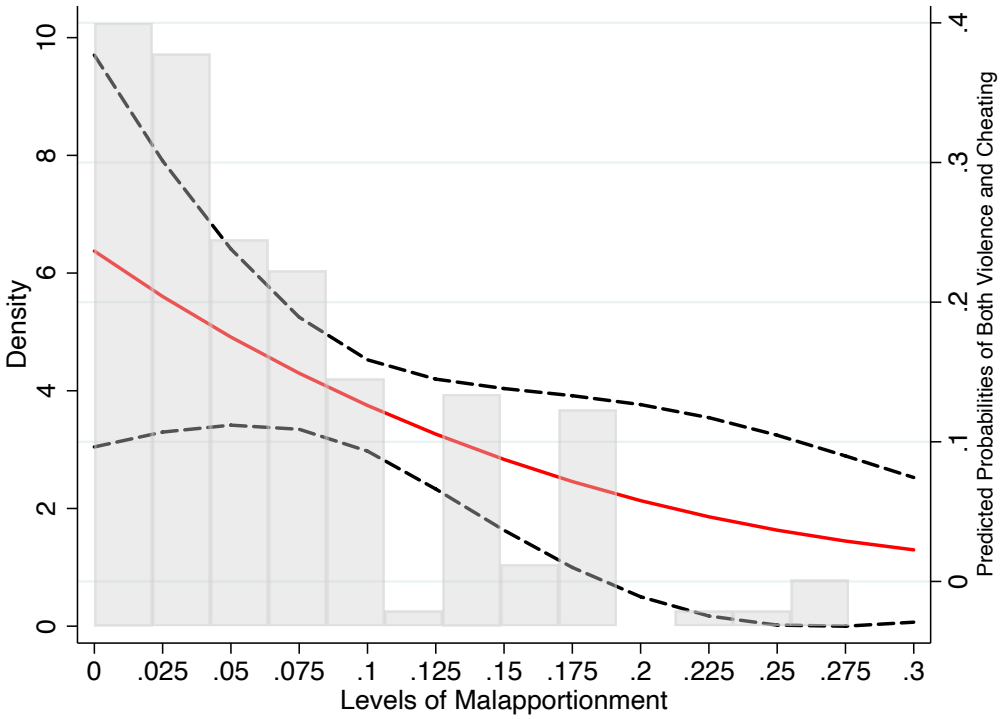
Note: The black, dotted lines represent the 95% confidence intervals. The red, straight line stands for the predicted values of electoral violence.

Table B4: Developing Countries

	Model B4
Estimator	RE-Logit
Dependent Variable	Both Violence and Cheating
Malapportionment (MAL)	-16.65*
	(8.831)
Victory Uncertainty	-2.779
	(3.202)
Executive Constraints	-0.909
	(1.677)
Uncertainty*Constraints	0.581
	(0.753)
Physical Integrity Index	-0.412
	(0.332)
Executive Recruitment	-0.106
	(0.712)
Political Competition	-0.0236
	(0.512)
Logged GDP per capita	-0.504
	(0.750)
Logged Population	-0.142
	(0.107)
Civil War	-1.577
	(1.272)
Demonstration	0.846**
	(0.382)
Leader's Tenure	0.111
	(0.113)
Leader's Age	0.00752
	(0.0812)
Constant	10.07**
	(4.066)
Number of Observations	179
Number of Countries	80
Year Dummies	Yes
BIC	208.09

Note: Robust standard errors in parentheses. ***<0.01, **<0.05, *<0.1.

Figure B4: Developing Countries



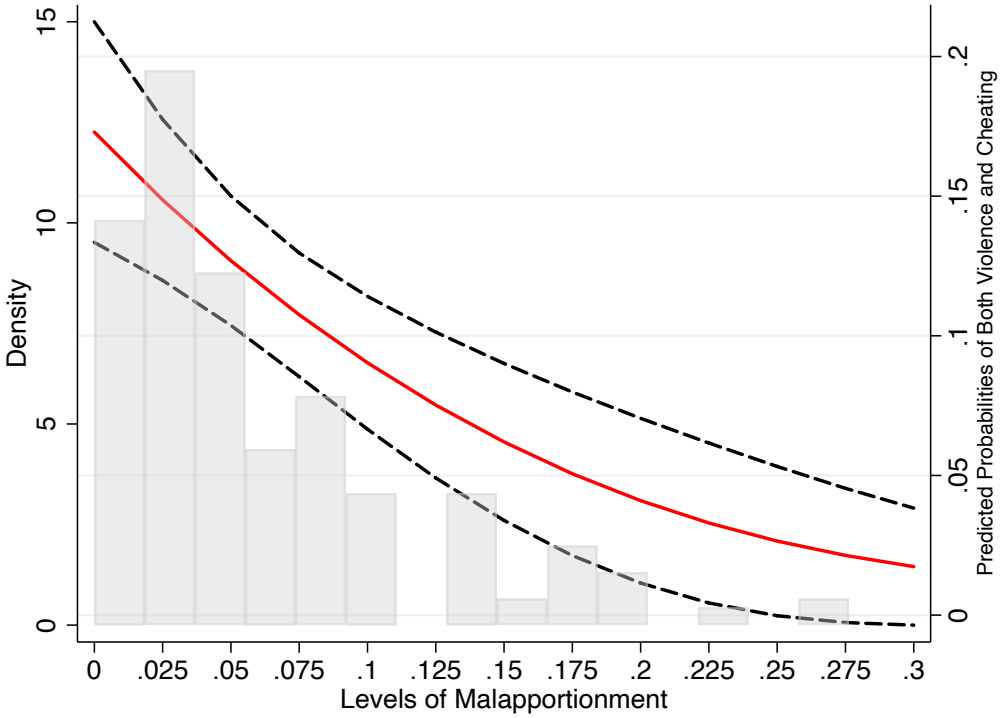
Note: The black, dotted lines represent the 95% confidence intervals. The red, straight line stands for the predicted probabilities electoral violence.

Table B5: Time Dependence

	Model B5
Estimator	RE-Logit
Dependent Variable	Both Violence and Cheating
Malapportionment (MAL)	**-19.26*** **
	(5.869)
Victory Uncertainty	-3.021
	(2.625)
Executive Constraints	-0.961**
	(0.482)
Uncertainty*Constraints	0.589
	(0.582)
Physical Integrity Index	-0.449*
	(0.258)
Executive Recruitment	-0.0302
	(0.342)
Political Competition	-0.0588
	(0.185)
Logged GDP per capita	-0.627*
	(0.348)
Logged Population	-0.204*
	(0.113)
Civil War	-1.604
	(1.302)
Demonstration	0.949***
	(0.296)
Leader's Tenure	0.141*
	(0.0747)
Leader's Age	0.0252
	(0.0503)
Time Lapse	0.791
	(0.526)
Time Lapse^2	-0.253*
	(0.132)
Time Lapse^3	0.0147**
	(0.00723)
Constant	10.84***
	(3.802)
Number of Observations	248
Number of Countries	98
Year Dummies	Yes
BIC	226.95

Note: Robust standard errors in parentheses. ***<0.01, **<0.05, *<0.1.

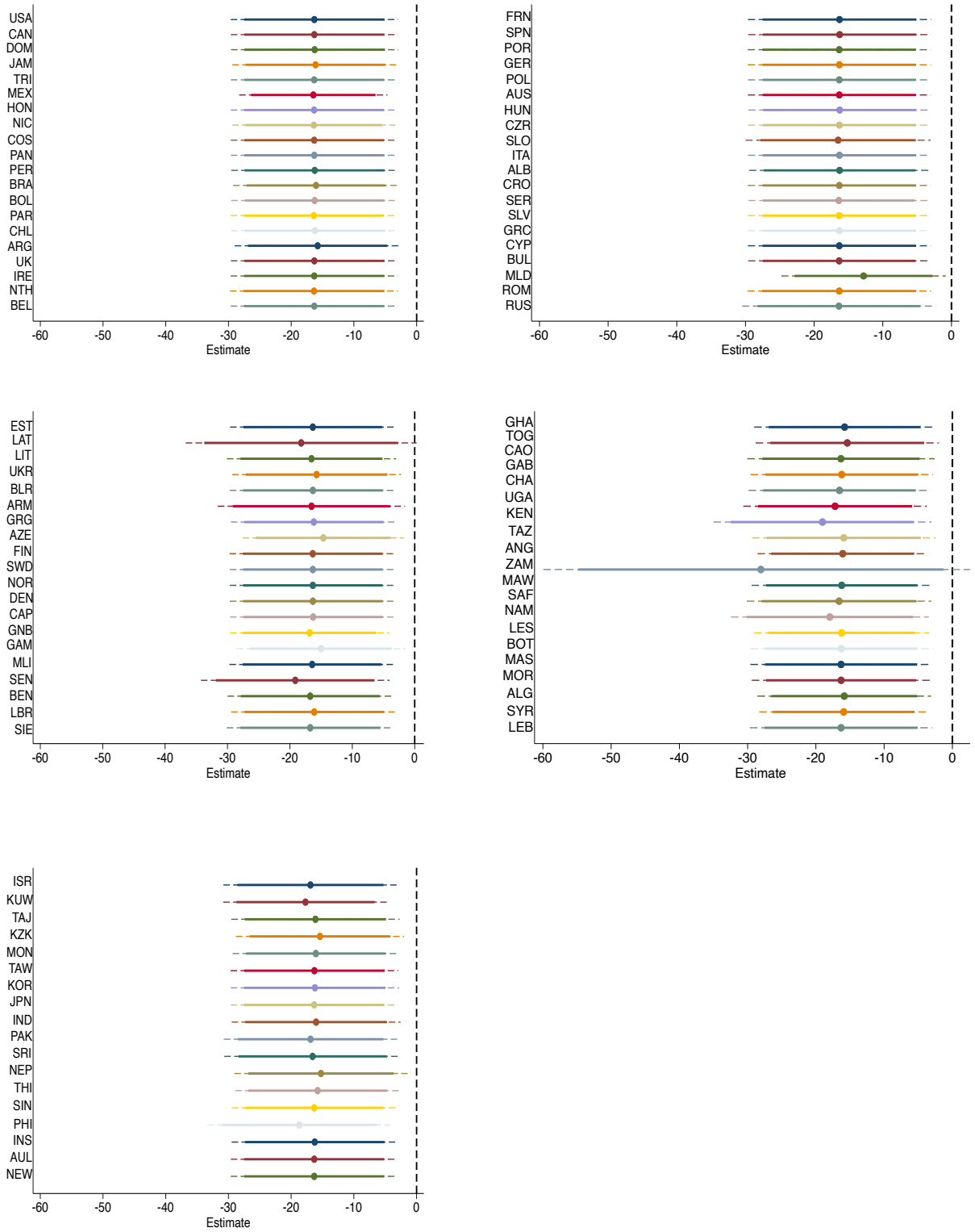
Figure B5: Time Dependence



Note: The black, dotted lines represent the 95% confidence intervals. The red, straight line stands for the predicted probabilities of election violence.

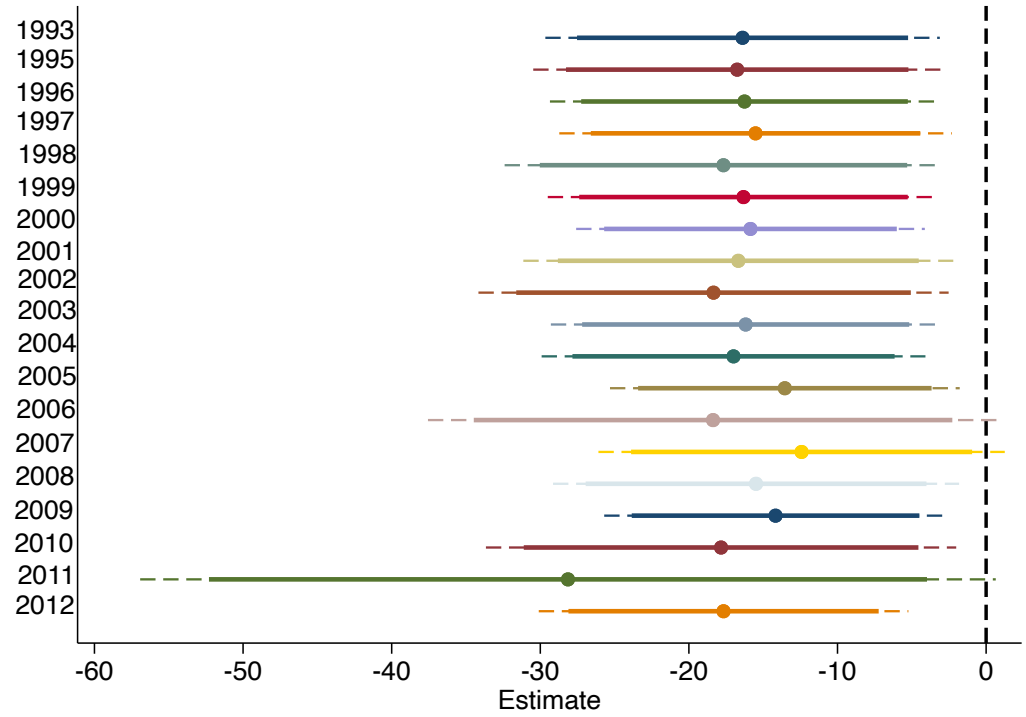
Figure B6: Jackknife Analyses

a. By Country



Note: The dots stand for point estimates of the malapportionment variable. The vertical axis shows a country dropped from analysis. The dashed lines represent the 95 percent confidence intervals, whereas the straight lines represent the 90% confidence intervals.

b. By Year



Note: The dots stand for point estimates of the malapportionment variable. The vertical axis shows a year dropped from analysis. The dashed lines represent the 95 percent confidence intervals, whereas the straight lines represent the 90% confidence intervals. The dataset does not have any 1994 election years and thus the jackknife analysis is not run for that year.

Appendix C

Table C-1: Malapportionment, Blatant Electoral Fraud, and Popular Protests

	Model C1
Estimation Method	RE-Logit
Dependent Variable	Post-Electoral Protests
Malapportionment (MAL)	**3.587**
	(4.283)
Physical Integrity Index	-0.206
	(0.130)
Victory Uncertainty	1.106
	(1.824)
Executive Constraints	-0.0455
	(0.269)
Uncertainty*Constraints	-0.163
	(0.308)
Logged GDP per capita	-0.167*
	(0.0900)
Logged Population	-0.717***
	(0.192)
Leader's Tenure	0.0187
	(0.0514)
Leader's Age	-0.00365
	(0.0227)
Civil War	0.812
	(1.076)
Constant	7.482**
	(3.184)
Number of Observations	246
Number of Countries	97
BIC	213.79

Note: Robust standard errors in parentheses. ***<0.01, **<0.05, *<0.1.

Table C-2: Between- and Within-Unit Variances of Electoral Manipulation

Electioneering Strategy		Mean	SD	Correlation of Variation (SD/Mean)	Observations
Election Violence	Overall	0.177	0.38	2.13	Country-Election Year = 248
	Between Country		0.38	2.13	Country = 98
	Within Country		**0.2**	**1.12**	Time Series (Average) = 2.53
Election Cheating	Overall	0.157	0.364	2.31	Country-Election Year = 248
	Between Country		0.4	2.54	Country = 98
	Within Country		**0.185**	**1.18**	Time Series (Average) = 2.53
Malapportionment	Overall	0.06	0.05	0.83	Country-Election Year = 248
	Between Country		0.06	1.00	Country = 98
	Within Country		**0.006**	**0.1**	Time Series (Average) = 2.53