Dangerous Elections:

Causes of Electoral Violence in Unconsolidated Regimes

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Abstract

Most countries in the world today use elections as a method of transferring political power and bring legitimacy to ruling incumbents. However, some elections are marred by wide-spread electoral violence, a specific sub-category of political violence. What are the causes of electoral violence in unconsolidated regimes? This is the research question of this thesis. I use a new and global dataset on election-related violence in 136 countries from 1990 to 2012, adding up to a total of 1,184 election rounds. This is combined with additional country-level and election-level data. Previous studies on the phenomenon of electoral violence have been limited by lack of disaggregated data which establishes a substantive link between elections and violence, or by quantitative data limited to the much-studied continent of Africa. In this thesis, I attempt to take full advantage of the new and improved dataset, by studying the causes of different types of election violence, distinguished by perpetrators (government, pro-government and opposition actors) and timing (pre-election and post-election). The different camps of actors can have different incentives to resort to electoral violence, and dynamics of election violence can differ before and after the elections, as the terms of the contest is suggested to change. I find some support for the all the hypotheses regarding electoral system, ethno-political exclusion, economic inequality, executive constraints, uncertainty of outcome of the election and post-election protest, although not for all types of election violence.

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1. Introduction

"Nigeria's electoral commission (Inec) has said that its officials were subjected to "threats, harassment, intimidation, assault, abduction and even rape" during last week's presidential election" (BBC News 2019a).

"People have voted in Afghanistan presidential poll amid heavy security and deadly bomb attacks from militants. [...] Low turnout was widely reported, as many voters were worried about security following threats from the Taliban. [...] Despite the increased security, at least four people were killed and 80 wounded in bomb and mortar attacks on voting centres" (BBC News 2019b).

"Violent protests have erupted in at least nine cities in Bolivia amid ongoing confusion about the result of Sunday's presidential election" (BBC News 2019c).

These are extracts from BBC articles this year reporting on violence in the Nigerian presidential election on February 23rd, the Afghan presidential election on September 28th, and the Bolivian general elections on October 20th. Most countries in the world today use elections as a method of transferring political power and bring legitimacy to ruling incumbents (Birch and Muchlinski 2017a, 1). Quoting Rapoport and Weinberg (2001, 17): "When the electoral process works well, we forget the axiom that ballots are substitutes for bullets". There is a strong expectation that elections will over time lead to more consolidated democracies (Lindberg 2006, 72). According to Cheeseman and Klaas (2018, 6), "The greatest political paradox of our time is this: there are more elections than ever before, and yet the world is becoming less democratic". Daxecker and Jung (2018, 53) argue that "the introduction of electoral processes in developing countries has led to a mix of voting and violence rather than the establishment of peace and stability". The research question of this thesis is the following:

What are the causes of electoral violence in unconsolidated regimes?

What is electoral violence?

To give you the short answer: electoral violence is violence that concentrates around elections and corrupts the electoral process (Fjelde and Höglund 2016a, 8). This is obviously highly

simplified, and it is important to recognise that neither "violence" nor "electoral violence" have a consistent social-science definition (Straus and Taylor 2012, 19). Experts previously struggled to define and distinguish electoral violence from the broader field of political violence (Bekoe and Burchard 2017, 74). As the research field is developing, increasingly more scholars adhere to the notion that the phenomenon can be distinguished from other types of violence by its timing, perpetrators, victims, objectives, and methods (Höglund 2009, Bekoe 2012, 3; Fjelde and Höglund 2016a, 8). Hence, the electoral violence is depicted as a phenomenon in need of its own explanations, underpinned by the assumption that the violence would not have happened, or would at least have manifested itself differently if an election had not been held (Fjelde and Höglund 2016, 8). While electoral violence is a sub-type of political violence, it is also a sub-type of electoral fraud (Birch and Muchlinski 2017a, 2). It is just one of many strategies, such as vote-buying and harassment of the opposition, used by political elites to manipulate the electoral outcome (Fjelde and Höglund 2016a, 8).

Even though the academic literature still has not established a definition of electoral violence (Kovacs 2018, 5), a brief overview of some the different efforts to conceptualise the phenomenon is still in order. Straus and Taylor (2012, 19) define electoral violence as "physical violence and coercive intimidation directly tied to an impending electoral contest or an announced result".[1] As Straus and Taylor themselves admit, "one problem with this seemingly straightforward definition is that it in some instances can be difficult to know whether violence is directly related to an election". Birch and Muchlinski (2017a, 3), does not share this concern. They define electoral violence as "coercive force, directed towards electoral actors and/or objects, that occurs in the context of electoral competition", arguing that essentially all political violence that happens in the electoral cycle can be assumed to have an impact on the electoral process either directly or indirectly, and vice versa. Laakso (2007, 227) defines it as "an activity motivated by an attempt to affect the results of the elections – whether by manipulating the electoral procedures and participation or by contesting the legitimacy of the results". The term "electoral conflict and violence" is by Fischer (2002, 3) defined as "any random or organized act or threat to intimidate, physically harm, blackmail, or abuse a political stakeholder in seeking to determine, delay or otherwise influence an electoral process". This definition catches both the physical and physiological sides of electoral violence. Sisk (2008, 5) defines "electoral-

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[1] They also include the possibility of violence after an election was annulled (Straus and Taylor 2012, 19).

related violence" as acts or threats of coercion, intimidation, or physical harm perpetrated to affect an electoral process or that arises in the context of electoral competition".

In this thesis I use the definition of electoral contention by Daxecker, Amicarelli and Jung in ECAV, with a slight modification. They define electoral contention as "*public acts of mobilization, contestation, or coercion by state or nonstate actors that are used to affect the electoral process or that arise in the context of electoral competition*" (Daxecker, Amicarelli and Jung 2018, 3). Implicit in this definition is that events of electoral contention must be publicly observed and are linked to the electoral process in timing and substance (Daxecker, Amicarelli and Jung 2018, 3). I add a further criterion, namely that the events need to involve the threat or actual use of force or violence, as I in this thesis am only concerned with electoral contention which turned violent. There are several advantages with this broad definition. It is wide enough to include electoral violence taking place both before, during and after the election. As it does not mention specific acts of violence, it can include anything from violent strikes, riots, demonstrations, protests, arrestations, and so on, as long as the incident can be tied to an election. Further, it explicitly includes both state and non-state actors. Table 1. shows how electoral violence can be divided into different types based on actors and timing, with a variety of examples of events from the Electoral Contention and Violence (ECAV) database (Daxecker, Amicarelli and Jung 2019).

Table 1. Examples of different types of electoral violence from ECAV

	Violence by state actors (police, military, political parties)	Violence by non-state actors (opposition parties, guerrillas, rebels, citizens)
Before the election: Assault of political candidates, election workers during campaigning, interfering with voter registration and displacement of voters	Philippine soldiers raided a communist guerrilla camp of National People's Army (NPA), killing five rebels and seizing a cache of explosive materials and ammunition before the upcoming election of 2007.	Vandals in Haiti burned voter registration material shortly before the start of registration for the election of 2000.
On the election day(s): Attacks on voters, election workers and polling stations	Troops fired shots in four capital districts in Togo on the day of election in 2005, leaving three citizens dead and thirteen injured.	In 2005 in Iran, armed insurgents stormed two polling stations after voting had ended, stealing filled ballot boxes and kidnapping ten election workers.
After the election: Contest the election results, violent protests and riots, punish opposition voters, counterattacks for pre-election violence	Three people injured as the police used tear gas to break up a crowd of 300 right-wing demonstrators urging a ballot recount in Budapest, Hungary's election of 2002.	More than 200 people protesting the news of Zedillo's victory tried to occupy election offices in Tijuana, Mexico in 1994.

Sources: Höglund 2009, 418; Daxecker, Amicarelli and Jung 2019.

The first example in Table 1. from the Philippines illustrates an incident of pre-election violence by soldiers against an insurgent force. The event is linked to the election because the National People's Army were demanding extortion money from election candidates and the army was trying to combat these activities. The example of Haiti shows the importance of studying the phenomenon long enough ahead of the pools. The incident took place 23rd of January 2000, almost five months ahead of election day the 21st of May. While Table 1 presents election day(s) as a separate category, many scholars on election violence find that the election day itself is usually peaceful (Straus and Taylor 2012, Höglund 2009; Laakso 2007, 228; Rapoport and Weinberg 2001, 19).[2] For example, violence which had cost the lives of 29 candidates came to a halt as voting commenced in the Zimbabwean election of 2000 (Rapoport and Weinberg 2001, 20). This highlights the importance of studying both the pre- and post-election periods (Bekoe 2012, 2).

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[2] Laakso (2007, 228) points out that while violence often ceases when the voting begins, this might be due to the fact that the actually polling day is the most monitored phase of the electoral cycle.

Why study electoral violence?

In spite of the problematic nature of electoral violence, relatively little is still known about the causes of this phenomenon (Birch and Muchlinski 2017a, 1). Höglund (2009, 413) advance that "electoral violence deserves to be studied as a phenomenon in itself". This is true both from a policy perspective and a scholarly perspective, since its particular features and manifestations separate it from the broader field of political violence. Some oppose the value of studying electoral violence as a separate field, arguing that electoral violence, per capita, does not constitute a considerable source of violence. With electoral violence being usually short, time- and event-bound periods of violence, with generally lower levels of tension, other conflicts often present a more significant source of violence (Bekoe 2012, 4). However, electoral violence can have huge implications for both security and democracy in a country (Brancati and Snyder 2013, 823). Moreover, it can erode both citizens' trust in democratic governing institutions, the legitimacy of leaders and popular support for democracy (Burchard 2015, 18). In the worlds of Collier and Vicente (2012, 118), "elections are conventionally regarded as the institutional mechanism at the core of democracy". Free and fair elections grant the regime in power both legitimacy and 'the right to rule' (Lindberg 2006, 1), through the facilitation of representation, guaranteeing accountability and peacefully regulating access to political power (Dahl 1971; Huntington 1991). Therefore, it is highly unfortunate when elections are corrupted and marred by violence. Instances of electoral violence threatens the overall integrity of elections, as well as the democratic progress made in such cases (Fjelde and Höglund 2016b, 297). It can prevent citizens from using their political rights, by influencing voter turnout or candidates' participation in elections and can polarise intergroup relations (Fjelde and Höglund 2016a, 1; Höglund 2009, 417-419). Previously, pre-election violence has in some cases resulted in politicians withdrawing from the electoral contest (for example Morgan Tsvangirai in Zimbabwe in 2009) or opposition parties boycotting the election (for example in Burundi in 2010). This mostly benefited the party most responsible for the violence (Bekoe and Burchard 2017, 75-76).

Violence has been a prevalent characteristic of electoral politics throughout the world (Fjelde and Höglund 2016a, 1; Birch and Muchlinski 2017a, 1), and as shown in the recent examples in the introductory, continues to do so. Because electoral violence is closely connected to the electoral contest (Fjelde and Höglund 2016a, 8), it is implicitly a more predictable phenomenon, but possible also more persistent, as elections are recurring events (Burchard 2015, 12). A better

understanding of conditions which increase the risk of and factors which trigger electoral violence can hopefully provide some lessons to the efforts by made by actors such as international organisations and non-governmental organisations (NGOs) to prevent electoral violence and resolve electoral disputes peacefully (Hafner-Burton, Hyde and Jablonski 2014, 175).

What do we know about electoral violence?

Only a decade ago, electoral violence remained to a large extent an unmapped research field, but has since gained increased attention from practitioners, academics and policymakers (Bekoe and Burchard 2017, 74). Political scientists are starting to offer explanations to why some elections are violent while others are not. From a theoretical point of view, electoral violence makes little sense, as elections fundamentally should be a part of the democratic remedy which peacefully resolve political conflict (Laakso 2007, 225). "Sometimes elections are used to silence guns, but ballots also seem to provoke bullets" (Rapoport and Weinberg 2001, 16). Straus and Taylor (2012, 21) state that "elections present periods of fluid authority when *who* governs is in question, which in itself creates an opportunity for the use of violence". Elections in Africa have acquired a reputation for violence (Goldsmith 2015, 181), perhaps as a result of this, there is a bias in the literature as existing work have mainly focused on electoral violence in African elections (see for example Smidt 2016; Opitz, Fjelde and Höglund 2013; Goldsmith 2015; Burchard 2015; Bekoe 2012). The African Electoral Violence Database (AEVD) was the first systematic effort to examine the extent of electoral violence, although limited to the Sub-Sahara African context. The pioneering evidence in AEVD, provided by Straus and Taylor (2012, 23), found that 58 per cent of the elections in the ten-year period between 1998 and 2009 witnessed intimidation, threats and violence aimed at voters and political candidates. Of these, 20 per cent experienced so-called large-scale violence, involving high-level assassinations and general killings (Straus and Taylor 2012, 18). AEVD also indicate that pre-election violence is more common than post-election violence[3], and that incumbents are the main, and frequently also the most brutal, perpetrators of electoral violence (Straus and Taylor 2012, 28-29). This last finding has become an implicit assumption in further work (for example Hafner-Burton, Hyde and Jablonski 2014, 150), but Daxecker and Jung (2018, 54) find that, globally, unknown actors and armed groups make up the largest category of perpetrators of election violence.

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[3] However, when post-electoral violence does occur, it is more likely to reach a higher level than pre-election violence. This suggests that the terms of the contest change (Straus and Taylor 2012, 29).

Until recently, we knew relatively little about the frequency and geographical distribution of electoral violence across countries. Figure 1 is based on one of the new datasets made specifically on contention and violence in relation to elections, the Electoral Contention and Violence (ECAV) dataset, by Daxecker, Amicarelli and Jung (2018). Although the map includes both violent and contentious events, Figure 1 show that electoral violence can be characterised as a global, as opposed to solely an African, phenomenon.[4]

Figure 1. Global distribution of ECAV events, 1990-2012
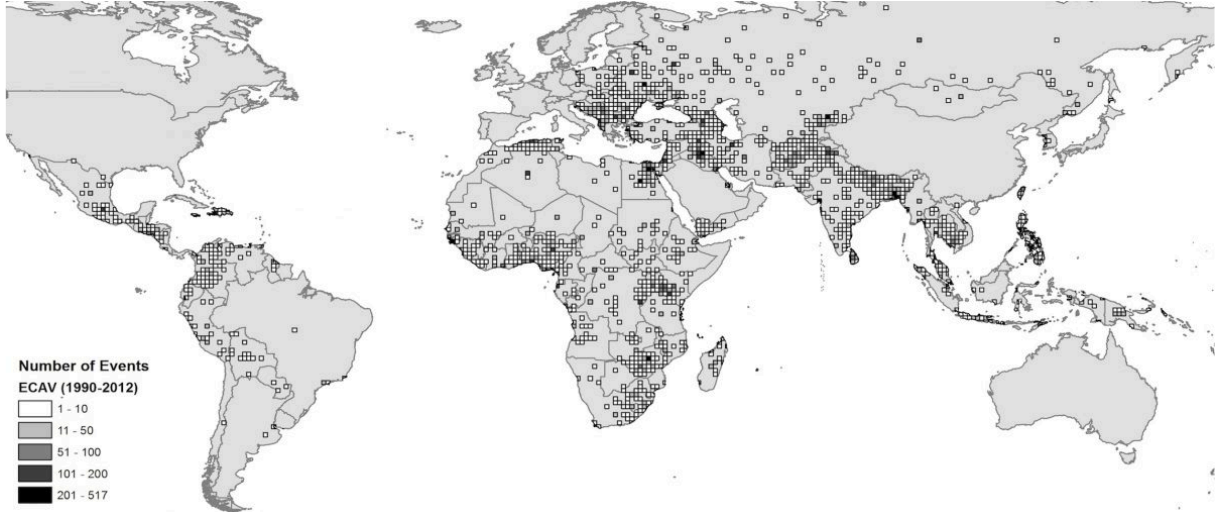
Source: Daxecker, Amicarelli and Jung (2019, 716).

The region experiencing the most contentious events is Asia (31 per cent), with Africa following close behind (26 per cent), and then the Middle East (20 per cent), Eastern Europe (15 per cent), and finally Latin America (8 per cent). It is worth noting these regional patterns, as previous research has mainly focused on Africa, and thus disregarding considerable contention in Asia and the Middle East (Daxecker, Amicarelli and Jung 2019, 715-716). Previous arguments for focusing solely on Africa or Sub-Saharan Africa, especially after the Cold War, are that the region already constitutes around fifty states, and a regional and temporal focus affords a degree of control of the sample. This is based on the argument that the countries have experienced a historically similar transition period, with the end of the Cold War triggering a remarkable change from military dictatorships and one-party regimes to multiparty

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[4] An important point to make is that countries with more election rounds in the period of 1990-2012 are more "exposed" to the threat of electoral violence. This map only displays contentious events without showing the number of election rounds held in each country. It is therefore not a representative image of which countries are the most at risk of electoral violence.

competition. Lastly, there is considerable variation in how many and which African states experienced electoral violence, thus fulfilling the important criteria of variation in the dependent variable (Straus and Taylor 2009, 6-7; 2012, 18-19; Goldsmith 2015, 820; Bekoe 2012, 2; Smith 2016, 231). Much of the previous knowledge came from qualitative case studies, but rapidly increasing data on the phenomenon has led to an increase in papers systematically examining electoral violence from a quantitative perspective (see for example Hafner-Burton, Hyde and Jablonski 2014; Daxecker 2012, Straus and Taylor 2012; Fjelde and Höglund 2016b). Improved data on 'low-level' conflict events previously lacking allow for much-needed testing of theories developed in the qualitative literature (Salehyan and Linebarger 2015, 27). Empirical research on the causes of electoral violence focus on both structural and situational factors, and find that elections held under majoritarian electoral rule, more competitive elections, as well as elections evaluated as fraudulent by election monitors are more likely to experience electoral violence (Daxecker 2012; Fjelde and Höglund 2016a; Hafner-Burton, Hyde and Jablonski 2014; Salehyan and Linebarger 2015). The pioneering work on Sub-Saharan Africa by Bekoe (2012) and her contributors give evidence to the link between electoral violence and past histories of violence, close elections, a state's economic fortunes and weak institutions. With evidence in the existing literature mainly collected from African elections, there is no certainty that these conclusions also hold true for other world regions (Daxecker and Jung 2018, 54). This brings me to the objective of this thesis, which will now be presented.

Objective of the study

As previous research on causes of electoral violence have primarily been limited to Africa or Sub-Saharan Africa, this thesis aims to fill a gap in the literature. In this thesis I will examine whether the theoretical arguments and empirical findings of Fjelde and Höglund's (2016b) study on African elections can be extended to all unconsolidated regimes, using a new and global dataset. The Electoral Contention and Violence (ECAV) dataset provides disaggregated event data on electoral violence in all unconsolidated regimes from 1990 to 2012. I examine whether the electoral system, size of the largest excluded or discriminated ethno-political group, and economic inequality have an effect on the level of electoral violence. I will also examine the theory of Hafner-Burton, Hyde and Jablonski (2013) on the relationship between electoral violence and institutional constraints on incumbents' decision-making powers, uncertainty of incumbents' popularity, and post-election protest. While they used a dummy variable of

electoral violence from the global dataset of National Elections Across Democracy and Autocracy (NELDA), new count data on the phenomenon may yield different results.

Hence, this thesis is in a sense a replication study of previous studies in the field, which were arguably limited when it comes to regional coverage and disaggregated data on the phenomenon. The factors presented in the previous paragraph are related to the nature of politics, the nature of elections, and the nature of political institutions. By studying these factors, I ultimately seek to examine the underlying conditions and triggering factors for electoral violence in unconsolidated regimes from 1990 to 2012. Claiming to establish determinants of electoral violence is all too ambitious. There are few, if any, set rules in the social sciences. By comparing election rounds across and within countries, I simply aim to offer insights into which factors increase, or alternatively decrease, the risk of electoral violence in unconsolidated regimes. I can only see indications of what have caused electoral violence in the past, while the future remains unknown. My dependent variables are different types of electoral violence, as I distinguish between whether the violence is initiate by government, pro-government or opposition actors before (and including on the election day/s) and after the election. This distinction is done based on the assumption that different dynamics of electoral violence might be at play during the pre- and post-election period, and that different actors may have different incentives and disincentives for using violence.

Scope of the study

Data on electoral violent events is obtained from the Electoral Contention and Violence (ECAV) created by Daxecker, Amicarelli and Jung (2018). It covers all unconsolidated regimes with more than half a million citizens between 1990 and 2012 that held competitive elections. This leaves me with 136 countries, and the entire list can be found in Appendix 3. I study electoral violence in national elections to both the executive and legislative branch as well as elections to the constituent assembly, but only where the party/candidates are directly elected. This leaves me with 1,184 election rounds, where 541 of them did not experience any electoral violence.

Central findings

I shall briefly present the central finding of this thesis, namely the analyses which yielded significant results. Firstly, majoritarian electoral formulas appear to increase the risk of post-

election violence perpetrated by both pro-government and opposition actors. Results regarding the pre-election period are more inconclusive, hence no affirmative conclusions can be drawn from this. Secondly, larger mean district magnitude (i.e. more electoral seats per constituency), an inherent feature of proportional systems, is shown to have a violence-reducing effect on pre-election violence by opposition-initiated actors in countries where the largest excluded ethno-political group is above a certain size (approximately above 0.4 as a fraction of the country's total population). Thirdly, mean district magnitude also displays a mediation effect of electoral violence in countries with more economic inequality. The findings of this are significant for opposition violence before election and pro-government violence after elections. Fourthly, Executive constraints appear to restrain government from employing violence ahead of elections, even when the incumbent is unsure about its victory. And fifth and lastly, although I do not find the interaction effect of institutional constraints and post-election protest to be significant, the variables are all significant by themselves, indicating that institutional constraints on the executive's decision-making powers decrease violence, while post-election protests increase government violence.

Organisation of the study

The study is divided into seven chapters. This chapter has introduced the theme of electoral violence, provided a definition of the phenomenon, the aim of the study and its main findings. In Chapter 2, I review the existing literature in the field, provide the theoretical framework and present my hypotheses. Chapter 3 presents the data sources, operationalisations of variables and descriptive statistics. Chapter 4 presents the choice of method and the statistical models. Using a time-series cross-sectional analyses, more specifically, negative binomial regressions, the empirical evidence is analysed in Chapter 5. The results of the analysis are then discussed in Chapter 6. A final chapter (7) concludes the study.

2. Theory

I begin my analysis of the causes of electoral violence in unconsolidated regimes by a review of the literature to see how scholars have answered this question in the past, highlighting agreements and disagreements. The key criterion for choosing which works to include in the literature review is relevance to my own research question. I have sought to identify central contributors of both qualitative and quantitative studies, while also providing a broader overview of the field with both preliminary and more recent research. Although much of the literature is limited to the African context, studies from other regions have also been included. On the basis of a discussion of the emerging field of electoral violence research, I develop a theoretical framework and a set of testable hypotheses.

Literature review

The relationship between democracy, democratisation and armed conflict has been studied by scholars. While more democracy can in many instances be the remedy for political violence in the long run, some studies suggests that the democratisation process can initially be a source of conflict (Höglund 2009, 419-420). Snyder's (2000) work on nationalist conflict and weak institutions is one example. The introduction of multiparty elections is crucial when developing from authoritarian to democratic politics, and it has become a critical part of post-conflict peacebuilding efforts in the post-Cold War era (Höglund 2009, 414). Earlier research on peacebuilding have emphasised the advantages and disadvantages of holding elections early or late following a war (see for example Brancati and Snyder 2013, 822). However, it is generally agreed among scholars of comparative politics that a country is not necessarily democratic even if it holds elections (Diamond 2002; Levitsky and Way 2010). International pressure has led less than democratic countries to adopt elections, but such elections are often rigged and manipulated (Daxecker 2012, 503). In 2014, Hafner-Burton, Hyde and Jablonski (2014, 152) calculated that less than half of the governments that held direct elections for national office did so within a context of consolidated democratic political institutions and respect for human rights.

The discipline of comparative politics has for long been interested in electoral politics (Fjelde and Höglund 2016a, 8). Moreover, almost twenty years ago Rapoport and Weinberg (2001, 20) stated that scholars were aware that elections may trigger violence and made a call for tapping

into this relationship. In 2000, Rapoport and Weinberg wrote that "a scarce literature exists on how ballots may eliminate bullets in civil war settlements, while questions concerning why ballots can create occasions for bullets and the relationship between violence-producing and violence-reducing propensities of elections are ignored" (Rapoport and Weinberg 2000, 15). The last decade has seen a substantial increase in comparative studies of elections in non-democratic and democratising regimes (Fjelde and Höglund 2016b, 299). However, a lot of the current literature still consider electoral violence only as part of a case (Bekoe 2012, 243). For instance, early studies treated electoral violence as a side effect of democratisation or just another manifestation of the political instability generally associated with hybrid regimes (see for example Huntington 1968; 1991). The literature on peace and conflict also identify that elections do not necessarily bring peace and stability in post-conflict situations, and democracy may encourage violence. For instance, as elections are competitive in nature, mobilisation might be along existing conflict lines and potentially fuel social cleavages (Höglund 2008, 85). The link has previously been made between elections and two other forms of political violence, namely repression and armed conflict. A lot of research has been concerned with elections as causes of violent ethnic riots, armed conflict, and the recurrence of conflict, with a special emphasis on the "precariousness" of elections in post-war societies (Brancati and Snyder 2013). In countries transitioning from authoritarian formula there is a significant risk that the electoral competition could slip into violence (Fjelde and Höglund 2016a, 1). Intimidation and violence during elections is in this context seen as unfortunate, yet unavoidable, events connected with political liberalisation, which will eventually disappear as countries completely democratise or alternatively slip back into autocracy (Kuhn 2015, 1). In some contexts, electoral violence can be part of the broader conflict dynamics (Höglund 2009, 413), with armed groups as potential perpetrators of electoral violence, along with state and non-state actors (Daxecker and Jung 2018, 54-55).

Only recently have scholars started to explicitly define and conceptualise electoral violence as a distinct sub-category of political violence (see for example Rapoport and Weinberg 2000; Fisher 2002, Basedau, Erdmann and Mehler 2007; Höglund 2009). There has been an upswing in studies on the distinct causes and dynamics of electoral violence in the last decade or so (Fjelde and Höglund 2016a, 8). Fisher (2002, 8) argues that the perpetrators, victims and motives of electoral violence varies both from state to state and election to election, but some general trends (at least in the African contexts) has been detected. Government-initiated electoral violence links up to the larger literature on state violence and repression, while

opposition-initiated electoral violence link up to studies of rebellion and protests (Straus and Taylor 2012, 20). As mentioned in Chapter 1, electoral violence takes place in temporal proximity to elections, either before the election when voters and parties are being registered and the campaigning has started, on the election day, and after elections, when the votes have been counted and the results announced (Höglund 2009, 416). Recall Table 1 from the introductory Chapter 1, where I display examples of different types of electoral violence based on when it takes place in the election cycle and which actors perpetrate the violence. This is also in line with the argument of Birch and Muchlinski (2017a, 2), that electoral violence should be regarded as a continuum, where a variety of strategies can be employed by several different actors at various points in the election period.

Other typologies of electoral violence have been made. Birch and Muchlinski (2017a, 4-5) themselves adopt what they call a "who-did-what-to-whom" framework, identifying a perpetrator, victim and action (either attack or threat) of every election-related violent incident. Burchard (2015) distinguishes between incidental and strategic violence. In a review article, Staniland (2014) differentiate between intra-systemic and anti-systemic electoral violence, based on the assumption that "not all electoral violence involves trying to win an election" (Staniland 2014, 112). Even countries where there is an ongoing civil war, elections can motivate the armed competitors to employ strategic violence, such as attacks on polling stations, to prevent free and fair elections from taking place (Fjelde and Höglund 2016a, 8). Pre-election violence can hinder the holding of elections altogether (Rapoport and Weinberg 2001, 18). Causes of electoral violence are tied to the timing, actors, victims, objectives and methods of electoral violence. Theoretical explanations for electoral violence have partly focused on the institutional setting under which elections take place, and partly on characteristics of the electoral contest itself. Finally, a critical point to make is that most studies on this subject are gender neutral, as the academic literature has mostly ignored the gendered implications of election violence. Electoral violence is in fact gendered in nature. Both men and women experience and perpetrate electoral violence but is has been argued that the forms of electoral violence they suffer from are completely different, both in timing, location and frequency (Bardall 2011). I shall now review the specific literature on causes of electoral violence, first discussing studies focused on pre-election violence, and afterwards the literature on post-election violence, as their causes are often theorised to be different. Keep in mind, some studies do not make the distinction, either theoretically or empirically (such as Salehyan and Linebarger 2015), while others provide different explanations for each.

Literature on pre-election violence

The research on causes of pre-election violence can to some extent be separated into two groups. One group place a particular emphasis on the structural or "enabling" factors which put some countries at increased risk of experiencing electoral violence (for example Höglund 2009b; Straus and Taylor 2009; Salehyan and Linebarger 2015). The other group pay greater attention to the motives and incentives of the perpetrators of the violence, most often used as an illegitimate campaign strategy to rig elections in their favour (for example Chaturvedi 2005; Wilkinson 2004; Collier and Vicente 2012).[5] Increasingly more studies are starting to combine the two approaches when studying the causes of pre-election violence (for example Fjelde and Höglund 2016b; Hafner-Burton, Hyde and Jablonski 2014).

Increasingly more research study electoral processes and systems in conflict-ridden regimes and examine how electoral system design may encourage peaceful solutions to conflict and prevent new ones from occurring (Höglund 2009; Reilly 2001). Fjelde and Höglund (2016b, 310) find that winner-takes-all electoral rules increase the risk of election violence. In a case study on South Sudan, Brosché and Höglund (2016) links electoral violence to the participations of politicians from previous rebel groups, weak institutional structures and increased stakes in being part of the government, the only channel to economic and political influence. For Sub-Saharan African elections, studies find that the most violence takes place ahead of elections in order to influence voting behaviour, preferences and alternatives at the ballot box and is committed by incumbents and their supporters seeking re-election. They also demonstrate that pre-existing social conflict and the quality of founding elections shape pre-vote violence (Straus and Taylor 2012, 37; Taylor, Pevehouse and Straus 2017, 405)

Similarly, Höglund (2008, 85) argues that existing conflict and societal cleavages might be magnified by elections, as they are intrinsically competitive in nature. It is far from uncommon for political mobilization to be based on already existing conflict lines in countries emerging from long-lasting conflict (Paris 2004). Some research suggests that electoral violence increases the more ethnic voting there is. Straus and Taylor (2009) theorise that close election races, regime type, level of ethnic polarisation and growth rates affect the risk of electoral violence.

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[5] Examining the consequences of electoral violence is out of scope of this thesis. However, studies by Wilkinson (2004), Bratton (2008) and Collier and Vicente find that voter turnout is negatively affected by intimidation.

Zolberg (1966) pointed out decades ago that the risk of electoral violence is greater where deeper political loyalties and identities prevails, particularly when election candidates highlight ethnic or sectarian differences in order to sway supporters. Using 54 nationally representative surveys from 19 countries in Sub-Saharan Africa, Kuhn (2015) investigates the relationship between ethnic voting and pre-electoral violence. He argues that a high level of ethnic voting heightens electoral competition while decreasing the effectiveness of other campaign strategies, like programmatic appeals and patronage. This in turn incentivise candidates to resort to violence and intimidation in order to increase their chance of winning elections.

Election violence is just one of many strategies used by political elites to manipulate the result of the election, including also coercive inducements, such as threats and physical intimidators of voters and political candidates (Bratton 2008; Collier and Vicente 2012). There is still a lack of knowledge about how state and non-state actors choose between illicit forms of electoral manipulation strategies (Fjelde and Höglund 2016a, 8). Fjelde and Höglund (2016b, 299) argue that physical violence or coercive intimidation can be used to decrease the uncertainty of the result of the election, or to influence the political course following the announcement of the election outcome, thus bypassing democratic procedures. Chaturvedi (2005) and Collier and Vicente (2012, 120) argue that a party with lower initial electoral support will, ceteris paribus, employ more political violence. Chaturvedi (2005) develops an agent-centred theory of violent electoral fraud, stating that, when two parties are competing for office, the potential for pre-election tactics decreases as the share of undecided voters increases. Moreover, he argues that incumbents have a greater chance of employing violence due to their advantage of access to state resources (Chaturvedi 2005, 195). Although providing what Chaturvedi labels "historic and journalistic evidence" in support of his theory, he does not systematically examine his hypotheses.

In his influential work, Wilkinson (2004) seeks to explain observed variation in Hindu-Muslim riots between Indian states. He shows that Indian states with greater levels of party fractionalisation with minorities as important swing voters, have lower levels of violence than states with less party competition, arguing such swing voters trade support for security. Similarly, Collier and Vicente (2012) develop a theory where political actors use illicit electoral strategies to influence the electoral process in their favour. They theorise that nationally weak incumbents will resort to voter intimidation, while a stronger incumbent substitute violence for ballot fraud and vote-buying in the face of local competition. While Collier and Vicente (2012,

135-145) discuss the applicability of the model to some elections in Sub-Saharan Africa, they do not attempt to systematically test their model.

Sisk (2012) compares elections in Nigeria (2007 and 2011) and Sudan (2010). His study also confirms that incumbents use violence when they are threatened by challengers and about to lose power. By using violence to win elections, they can legitimate their rule without risking losing control (Sisk 2012, 68). He argues that structural and institutional drivers of conflict found in historical path dependencies and demographic, social, economic and environmental conditions that lead to competition over scarce resources and control of the state must be seen in connection with resource capture, state power, and identity politics, as mobilisation often occurs along ethnic or religious lines (Sisk 2012). Some studies find that electoral violence increases the more competitive elections are. Hafner-Burton, Hyde and Jablonski (2014) use a global measure of election violence from the National Elections Across Democracies and Autocracies (NELDA) dataset by Hyde and Marinov (2012) and study how lack of institutionalised constraints on the incumbents' decision-making powers, together with uncertainty of victory in the upcoming election can influence the use of pre-election violence. A case study by Collier and Vicente (2013) in Nigeria found that community campaigns by non-governmental organisations (NGOs) reduced the intensity of actual election violence. Using data from the Social Conflict Analysis Database (SCAD), Daxecker (2014) uncovers that the presence of international monitors makes governments temporally shift violence to the pre-election period, as this is the part of the electoral process which is the least monitored. This is to avoid international exposure on election day, when more observers are present.

Literature on post-election violence

I shall now review the literature on causes of post-election violence. Taylor, Pevehouse and Straus (2013) demonstrate that post-election violence is affected by democratic institutionalisation and low economic growth. Existing research demonstrate that government and opposition actors have different motives for using post-electoral violence. Opposition groups employ violence as a form of protest against fraud, repression, unfavourable outcomes and socio-economic grievances (Hafner-Burton, Hyde and Jablonski 2014; Anderson and Mendes 2006; Kuntz and Thompson 2009; Tucker 2007). Tucker (2007) uses case studies to examine the "coloured revolutions" in Kyrgyzstan, Ukraine, Georgia and Serbia in the early 2000s. By employing a collective action framework, he argues that protesters in authoritarian

regimes can overcome their collective action problems in the face of massive electoral fraud, which becomes a "focal point" that affects the entire population (Tucker 2007, 541).[6] Smith (2009) compares causes of post-election violence in Ethiopia and Kenya. Both were contested elections with heightened stakes, but this only led to inter-ethnic violence in the former, while surprisingly not in the latter. Smith argues that this can partly be explained by the extensive constitutional and institutional reforms in Ethiopia, which Kenya did not undergo (Smith 2009, 869). Hafner-Burton, Hyde and Jablonski (2014, 174) find that government can use violence to deter and supress dissent after election day, including harassment and killing of protesters. However, the incentive to use violence against protesters can be mitigated by institutionalised constraints on the executives' decision-making powers. Opitz, Fjelde and Höglund (2013) study the influence of "inclusive" electoral management bodies (EMBs) on the likelihood of electoral violence triggered by opposition protests during elections. By comparing three semi-authoritarian elections in Malawi in 2004, and Ethiopia and Zanzibar in 2005, their findings suggest that opposition representation in EMBs can hinder potential violent outbursts of protests by "sore losers".

A lot of the quantitative studies of post-election violence mainly examine the effect of external election monitors on the risk of electoral violence (Daxecker 2012; Daxecker 2014; von Borzyskowski 2019; Hyde and Marinov 2014). Increasingly more research is emerging which examine how the behaviour of government and opposition actors are influenced differently by international observers (Hyde 2007; Hyde and Marinov 2014; Kelley 2011; Simpser and Dunno 2012). However, this distinction between opposition and government initiators has been neglected in research on how observers impact electoral violence (Daxecker 2012; Kelley 2012; Smidt 2016, 227). In her study on post-election violence in Africa, Daxecker (2012) finds that the presence of international election observers increases the risk of post-electoral violence after highly fraudulent elections. The theoretical argument is that election monitors might add to the potential for post-election violence because they can detect and credibly report on election fraud. Daxecker (2012) uses data from the Armed Conflict Location and Event Data Project (ACLED) to measure post-election violence in African elections from 1997 to 2009. This is a flaw of the study, as ACLED does not distinguish between the issue(s) at stake during the violent event (Raleigh, Linke and Hegre 2010).

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[6] Although major electoral fraud does *not* entirely solve the free rider problem of collective action (Tucker 2007, 542).

As is clear from the literature review, the lion's share of the literature on electoral violence focus on (Sub-Saharan) African experiences in particular. It is challenging to empirically establish a substantive connection between violence and elections, which is why some studies have considered all political violence around elections as instances of electoral violence (Daxecker 2012; Straus and Taylor 2012). Birch and Muchlinski (2017a, 2) state that, at the highest level of abstraction, any event involving the use of coercive force can be regarded as electoral violence if it coincides with the electoral process. That being said, timing alone does not make an act of violence electoral violence, simply because it occurs around election time (Bekoe 2012, 2). As shown in the literature review, many studies aggregate data on electoral violence and do not differentiate between violence perpetrated before or after elections or by government or opposition actors. Lack of data can explain why previous studies of election violence had to rely on more general measures of violence. While some studies might theoretically distinguish between pre- and post-election violence, when empirically their measures do not, their results cannot be said to do so either.

The measure of Nelda33[7] from NELDA (Hyde and Marinov 2015) is an often-used measure of electoral violence, probably because of its early accessibility and its broad geographical and temporal coverage. However, the studies using this measure needs to be conscious that this lumps together violence by various perpetrators at various points in the electoral cycle, thus being inefficient in testing theories perpetrated by either incumbent or opposition actors or related to the pre- and post-election violence. In addition, as Nelda33 require at least one civilian death, it fails to include a number of lower-intensity election-related violence. While a lot of the previous research failed to differentiate between violence employed by government or opposition actors, there are some exceptions such as Straus and Taylor (2012), Daxecker (2014), Fjelde and Höglund (2016b). Thanks to the incredible increase in high-quality data on electoral violence, there has been a substantial growth in quantitative studies systematically examining the causes of pre-election violence. The burgeoning alternatives to data on election violence will be discussed in Chapter 3. However, there is still a lack of quantitative studies on a global scale, with some exceptions being Daxecker and Jung (2018) and Hafner-Burton, Hyde and Jablonski (2013). Using disaggregated data, I attempt to fill some of these research gaps.

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[7] NELDA33 is a binary variable asking, "Was there significant violence involving civilian deaths immediately before, during, or after the election?" (Hyde and Marinov 2015, 16).

Theoretical Framework

Building on the literature review in the last section, I will now outline the theoretical arguments of this theses and present my hypotheses. In order to study causes of electoral violence in unconsolidated regimes, I expand on the theoretical framework proposed by Höglund (2009) mainly with theories of Fjelde and Höglund (2016) and Hafner-Burton, Hyde and Jablonski (2014). Höglund (2009) differentiates between conditions which enable the use of electoral violence and factors which trigger electoral violence and identifies three main areas where they can be found: 1) in the nature of politics; 2) in the nature of competitive elections; 3) in the nature of electoral institutions. Building on the work of distinguished researchers such as Robert Dahl (1971) and Paris (2004), Höglund argues that countries with a history of violent conflict frequently suffer from a weak economy and unstable institutions, which are far from favourable when trying to reduce uncertainty of the democratisation process (Höglund 2009, 420). While Höglund's framework is designed for conflict-ridden countries[8], I believe it has potential explanatory power for unconsolidated regimes. As Höglund (2009, 413) herself admits: "it could be argued that all societies which experience electoral violence are to some extent conflict-ridden". Table 2 summarises the framework of this thesis, with the different conditions which are hypothesised to enable or trigger state and non-state actors to employ electoral violence. Notice how absence of election monitors can enable election violence, but also be a triggering factor. The theories and specific hypotheses examined in this thesis will now be presented in detail.

Table 2. Causes of electoral violence

	Conditions enabling the use of electoral violence	Factors triggering electoral violence
Nature of politics	Neopatrimonialism Conflict cleavages Few institutionalised constrains on executive decision-making power	Misuse of political rights
Nature of elections	Competitiveness Political mobilisation along ethnic lines Stakes	"Close races" Post-election protests Election fraud
Electoral institutions	Systems creating clear winners and losers Few regulations about electoral conduct Absence of election monitors	Election monitors Incumbents uncertainty of popularity

Sources: Höglund (2009); Fjelde and Höglund (2016); Hafner-Burton, Hyde and Jablonski (2014).

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[8] Höglund (2009, 413) defines this as a context which experiences or has experienced sustained violent political conflict.

Increased stakes of elections

Fjelde and Höglund (2016b, 297) develops a theory that connects the use of violent electoral tactics to the high electoral stakes put in place by majoritarian electoral institutions. This study is to the best of my knowledge the first major quantitative study to analyse the effect of institutional factors on a country's risk of electoral violence. They test and confirm this theory by using cross-national data on electoral violence in Sub-Saharan elections between 1990 and 2010. Their study suggests that countries with majoritarian voting rules and fewer legislators elected per district are more likely to experience electoral violence. As further predicted in their theory, majoritarian institutions are especially likely to provoke violence where large ethno-political groups are excluded from power and where significant economic inequalities exist (Fjelde and Höglund 2016b, 297). The theory of Fjelde and Höglund (2016b, 297) is based on the existence of powerful informal institutions, particularly patron-client relationships, which interact with the formal rules of the country. Taylor, Pevehouse and Straus (2017) also argue that clientelism can explain the pattern of pre-election violence in Sub-Saharan Africa, where there is an increased risk of violence in elections where the incumbent presidential candidate seeks re-election. I shall now outline the theoretical arguments.

Electoral system

"The electoral system is important because it determines who wins, how, and by how much" (Sisk 2012, 42). The electoral laws describe the method for converting votes into seats and it greatly affects patterns of political mobilization and representation (Birch 2005; Lindberg 2005). Since majoritarian electoral systems, most commonly exercised as single-member plurality or absolute majority, are designed to produce clear winners and decisive outcomes, they tend to increase the stakes of the elections (Fjelde and Höglund 2016b, 301). Fjelde and Höglund (2016b, 297) argue that majoritarian systems have a tendency to benefit larger parties disproportionately and impose high barriers on political representation (Fjelde and Höglund 2016b, 297). This might make minority parties feel underrepresented or even excluded from political power (Sisk 1996, 32; Lindberg 2005). Proportional representation (PR) and larger electoral districts, on the other hand, tend to lower barriers to representation for smaller parties. Advocates of PR systems highlight how minority representation, the accommodation of plurality and power-sharing mechanisms are important for conflict prevention (Lijphart 2004). To be clear, the distinction between majoritarian and PR systems is a simplified dichotomy. Each category contains a number of different options regarding electoral formulas, thresholds,

and district sizes, and various countries combine different systems (Fjelde and Höglund 2016b, 300).

Fjelde and Höglund (2016b, 301) argue that the threat of losing the election is not a sufficient condition to motivate politicians to utilise violent electoral tactics in regimes where democratic institutions are consolidated. Formal institutions shift power from individual political actors through a set of rules and are essential in "institutionalizing uncertainty" (Przeworski 1991) of the election outcome. Actors are more motivated to follow the democratic rules and admit being defeated at the ballot box since they will be permitted to promote their interests in the future (Fjelde and Höglund 2016b, 301). Hence, the theory of Fjelde and Höglund (2016b, 297) is based on the existence of powerful informal institutions, particularly patron-client relationships, which interact with the formal rules, in some situations increasing the risk of electoral violence. Across the African continent, competitive elections and other nominally democratic institutions often coexist alongside illiberal and even authoritarian features, which often tilts the electoral playing field in favour of the incumbent.[9] Studies examining other regions such as Latin America, post-communist Eurasia and Asia indicate that informal "rules of the game" often shape political life. Varying forms of neo-patrimonial rule in these regions heighten the stakes of the elections and weaken the work of democratic institutions (Helmke and Levitsky 2004, 725). Fjelde and Höglund refer to patron-client relationships as the joint practices of clientelism – loyalty given to providers of patronage – and political corruption – the misuse of public office for private gain (Fjelde and Höglund 2016b, 301). Collier and Vicente (2012, 120) define clientelism as "votes for favours conditional on electoral outcomes".

The informal institutions are argued to increase the stakes of winning (or losing) the election in two ways. Firstly, when the government have access to state resources which can be used as a source of patronage, the advantage of the incumbency is strengthened by such informal institutions (Fjelde and Höglund 2016b, 298). Secondly, politicians are motivated to seek public offices for the privileges they entail, and voters are inclined to cast their ballots based on candidates' assumed trustworthiness and reliability as potential patrons (Kitschelt and Wilkinson, 2007, van de Walle 2007; Bratton and Lewis 2007; Bratton 2007, Bratton 2008). When elections in Africa become bitter battles over access to state-controlled resources

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[9] The particular importance of patron-client relationships as powerful informal institutions in the electoral regimes of Africa is recognised by many scholars, for example Bratton 2007; Diamond 2008; van de Walle 2003; Fjelde and Höglund 2016b.

(Bratton 2008, 621), patron-client relationships increase the stakes for all actors and their supporters in an election, making it more beneficial to win and costlier to lose (Bratton 2007; Lindberg 2003). Majoritarian systems produce a winner-takes-all dynamic which reinforce the perception of electoral competition as a zero-sum contest (Fjelde and Höglund 2016b, 298). Hence, based on the assumed winner-takes-all dynamics in majoritarian systems, the study of Fjelde and Höglund (2016b) bring attention to how these informal institutions affect the incentives of political actors and shape political behaviour within the formal institutions. Both government and opposition actors can be incentivised to use violent electoral tactics to manipulate the election result in their favour, since the majoritarian rules are assumed to increase the cost of losing the election and heighten fear of permanent exclusion from politics (Fjelde and Höglund 2016b, 298).[10]

In an earlier study on electoral violence in three parliamentary elections Sri Lanka, Daxecker (2012, 147-148) found, contrary to most theories on the consequences of electoral systems, that PR systems involve certain risks of electoral violence, as it seems to boost intra-party hostility and the increase of constituencies led to heightened struggle over funds. However, perhaps this result would have been different if the three elections compared were not all for the parliament, but also included elections to the executive branch in the study. Existing research from Africa suggests that elections employing an electoral system with majoritarian rules experience more violence, but this pattern has not been confirmed on a global dataset (Daxecker and Jung 2018, 55). This brings me to the first hypothesis of this thesis, which will be tested on a global dataset.

Hypothesis 1: The risk of electoral violence is higher in countries with a majoritarian electoral system than in those with a PR system.

While the unit of analysis is "country-months", Fjelde and Höglund (2016b) regrettably do not differentiate between pre- and post-election violence. When studies fail to distinguish between pre- and post-election, this is problematic since the dynamic of violence in the different periods are expected to be fundamentally different (see Daxecker 2014; Hafner-Burton, Hyde and Jablonski 2014). The use of pre-election violence is usually theorised to be employed strategically to decrease uncertainty of election result, which could be thought to be influenced

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[10] Although not accounted for in this thesis, it is important to note that "the choice of electoral institutions is not exogenous to the dynamics of political competition and outcomes" (Fjelde and Höglund 2014b, 308, see Benoit 2004 for a review of theories of electoral system change).

by the electoral formula. However, post-election violence is often a response to the election result, or the conduct of election, and largely takes place outside the framework of electoral institutions. Hence, the study of Fjelde and Höglund (2016b) are unable to account for the possibility that incentives of political actors can change based on timing. Moreover, their theory is based on increased "stakes" of elections, based on electoral system and patron-client relationships. Hence, while the theory is dependent on the existence of patron-client relationships, this is not tested empirically, neither by Fjelde and Höglund, nor in this thesis. As will be shown later, Hafner-Burton, Hyde and Jablonski (2014) use two much more concrete measures of "stakes", namely "Victory Uncertain" and "Polling Unfavourable".

Ethno-political exclusion

Another finding from the study of Fjelde and Höglund (2014, 298), based on African data, is that majoritarian institutions are more likely to lead to electoral violence where large ethno-political groups are excluded from formal political power. Again, their argument has been tested on Sub-Saharan Africa. Ethnic groups are everywhere, but there are only some places where ethnicity becomes politicised (Gerring 2012, 281). In most Sub-Saharan African societies, citizens have strong sub-national identities, and the link to political violence is evident in the literature. Proportional electoral systems are often assumed to politicise ethnicity, as the lower barrier for representation makes it simpler to establish parties based on even fairly small ethnic groups (Huber 2012, 993). Reilly (2001) emphasise the importance of majoritarian preferential systems in encouraging cross-ethnic vote pooling. In countries with ethnic voting, the allegiance of voters can be readily inferred from their ethnicity, which may make it easier to target violence aimed at discouraging the turnout of opposing voters (Collier and Vicente 2012, 121).

Competing patron-client networks are often structured along ethnic lines. The argument follows that the stakes of the election are raised by these informal institutions, as politicians pursue public office due to the privileges which comes with it, while people are inclined to vote for their own ethnic group, with hopes that their candidate will use the office to favour that ethnic groups when granting state resources (Fjelde and Höglund 2016b, 298). Within the context of spoils-based politics, political parties mobilise voters less on the basis of parties' political platforms and more on the basis of ethnic, religious, or regional loyalties (Lynch and Crawford 2012; van de Walle 2003; Bekoe 2012). Some politicians explicitly build their support by exploiting existing cleavages and grievances for their own political gain. By depicting elections

as a zero-sum game between a country's ethno-regional communities, it reinforces the sense of both political and economic marginalisation that the losing group will feel (Kirschke 2000, 390-391; Collier 2009; Fjelde and Höglund 2016b, 302). In such environments, "an election can become an ethnic head-count" (Horowitz 1985, 196). Both the incumbency and opposition might perceive an opposition with a substantial electoral constituency as a plausible threat to the government party, and hence motivate both sides to use violent strategies to win the election (Fjelde and Höglund 2016b, 298). Thus, the second hypothesis is as follows:

Hypothesis 2: The risk of electoral violence under majoritarian electoral systems will increase with the size of the largest excluded ethno-political group.

Economic inequality

Fjelde and Höglund also hypothesise that countries with majoritarian institutions and high levels of economic inequality have a higher risk of electoral violence. They argue that when economic wealth and political power are closely connected and distributed unequally, the cost of losing elections is magnified (Fjelde and Höglund 2016b, 298). Fjelde and Höglund (2016b, 306) presuppose that political and economic class often overlap. They theorise that a narrow concentration of wealth, in their study the distribution of land, significantly heightens the cost of political defeat under majoritarian systems. Again, the argument follows that majoritarian systems favour decisive victories and disproportionately reward the winning side. Here too does the argument hinge on the existence of informal institutions such as patron-client relationships, as it ties political power to economic benefits for the individual politician, his family and his ethnic kin (Fjelde and Höglund 2016b, 298). The economic incentives can increase the stake of electoral competition beyond a certain threshold so political candidates and voters feel that they cannot afford to lose the election (Boone 2009, 193), and resort to violent electoral tactics. PR systems are again hypothesised to diffuse the high stakes by "dispersing the nodes of political power" (Fjelde and Höglund 2016b, 306).

Hypothesis 3: The risk of electoral violence under majoritarian electoral systems will increase with higher levels of economic inequality.

The theoretical arguments of Fjelde and Höglund (2016b) are originally made for the nature of African politics, with features such as politicised ethnicity, a weakly institutionalised opposition and pervasive clientelism. This highlights the power of informal institutions in

affecting the workings of formal institutions. That being said, other regions than Sub-Saharan Africa are confronted with issues of corruption, social fragmentation and party competition hindered by powerful authoritarian legacies which all affect the nature of elections (Fjelde and Höglund 2016b, 317). Therefore, it is interesting to examine these hypotheses on a global scale, with the exclusion consolidated democratic regimes.

Institutional constraints and uncertainty of popularity

Hafner-Burton, Hyde and Jablonski (2013) conducts a global study where they examine when governments are likely to use violence as an electoral tactic. They argue that an incumbent's decision to use election violence before or after an election is influenced by institutional constraints on its decision-making power and information about the incumbent's popularity (Hafner-burton, Hyde and Jablonski 2014, 154). Uncertainty about the incumbents' chances of winning the upcoming election or staying in power might induce violence. In their cross-national study, they find that incumbents are more likely to use violence, such as voter intimidation and harassment of opposition candidates, to avoid being beaten at the polls, when they are afraid of losing and have few institutionalised constraints on their decision-making power (Hafner-Burton, Hyde and Jablonski 2014, 174).

The theory distinguishes between electoral violence taking place before and after election day. For pre-election violence, that is, leading up to and on the election day, the incumbent may use violence to reduce the electoral competition and prevent an unfavourable election outcome[11]. Violence can cause opposition parties and candidates to boycott the election and/or influence voter turnout in favour of the incumbent. However, fear of losing is not a sufficient condition to cause incumbents to use violence. The argument is contingent upon whether the incumbent face significant institutional constraints on decision-making power. This is because it increases the odds that the incumbent will be held accountable by for example the military, the legislature or the courts (Hafner-Burton, Hyde and Jablonski 2014, 150). In other words, whether there are consequences for the use of violence, as it can lead to legal or political prosecution either while the incumbents are in office or afterwards (Hafner-Burton, Hyde and Jablonski 2014, 158).

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[11] An unfavourable election outcome includes both the incumbent outright losing the election, but also if the victory margin is believed to be insufficiently large, making the incumbent look weak (Hafner-Burton, Hyde and Jablonski 2014, 151).

A replication study by Birch and Muchlinski (2017a, 15) using new data from Countries at Risk of Electoral Violence (CREV) finds a reversed relationship than the main finding of the original study. Using a continuous count variable of electorally violent events, as opposed to a dummy variable, they demonstrate that that unfavourable polls for incumbents are correlated with *less* electoral violence. However, the results of the original study continue to hold when they record a dichotomous dependent variable with the new data from CREV. This suggests that there may be a threshold effect for polling (Birch and Muchlinski 2017a, 16). I will examine this relationship using a new, continuous measure of state-initiated post-electoral violence from the Electoral Contention and Violence (ECAV) dataset.

Hypothesis 4: an incumbent who is uncertain about winning the election and does not face significant institutional constraints is more likely to use electoral violence.

While unfavourable polls and uncertainty of victory can be a threat to the government before an impeding election, post-electoral protests may represent a threat to the incumbent after elections (Hafner-Burton, Hyde and Jablonski, 2013, 151). Protests signals that citizens have solved a collective action problem to mobilise against their government, and they might call for the incumbent to hold new elections or even step down (Tucker 2007). Governments have often reacted to protests with repression and extensive deployment of security forces (Opitz, Fjelde and Höglund 2013, 715; Hafner-Burton, Hyde and Jablonski 2014, 153). Hafner-Burton, Hyde and Jablonski (2013, 158) argue that the likelihood of the incumbent employing violence against protesters in the post-election period is greater where institutional constraints are fewer. I shall test this theory using a different measure of state-initiated post-election violence. While Hafner-Burton, Hyde and Jablonski (2013, 172) use a measure of whether the government employed violence against demonstrators, I argue that post-election protests and few institutional constraints can increase state-initiated post-electoral violence *in general*. This was the case in the Iranian election of 2009 where the government employed massive violence against protestors, partly because of a combination of unpopularity and extensive post-election protests against a government with very few institutionalised constraints (Hafner-Burton, Hyde and Jablonski 2014, 162). The election exposed the fact that the opposition candidate presented a bigger threat to the incumbency than expected. The election was judged as fraudulent, which spurred a post-election protest movement which additionally threatened the power of the regime. The government reacted with extensive violence towards protesters, killing or detaining

leaders of the protest movement and "creating a climate of fear" (Hafner-Burton, Hyde and Jablonski 2014, 162-163). Hence, the hypothesis is as following:

Hypothesis 5: facing protest, an incumbent who lacks significant institutional constraints is more likely to use violence in the post-election period.

The study by Hafner-Burton, Hyde and Jablonski (2014) has several weaknesses. Firstly, their measure of pre-electoral violence (combining NELDA33[12] and NELDA15[13]) do not specify the perpetrator of violence (Hyde and Marinov 2015, 16), which is highly problematic as their theory regards incumbents employing violence in the pre-election period to increase their chances at the polls (Hafner-Burton, Hyde and Jablonski 2014, 150). In addition, this measure records all violent events immediately before, during and after the election, despite the fact that their theory depends on the division between pre- and post-election violence. This means that the measure of pre-election violence contains post-election violence, thus clouding the effect of the former on the latter. I explicitly separate between violence perpetrated in the pre-election and post-election period, as well as distinguish between government and opposition actors employing the violence. As these last two hypotheses regards government violence, I exclude all elections where the office of the incumbent leader was not contested.

Control variables

Other factors than the ones presented above have been shown to affect the risk of electoral violence. These needs to be controlled for. I separate between control variables at the country level and election level. At the country level, there is population size, level of economic development, level of democracy and civil war. At the election level there is competitiveness of election, incumbent running, election fraud and election observers. These factors are expected to have a more immediate effect on electoral competition that the structural drivers in the country-control variables. I also include a lagged dependent variable in all the regression models.

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[12] Recall that NELDA33 is a binary variable asking, "Was there significant violence involving civilian deaths immediately before, during, or after the election?" (Hyde and Marinov 2015, 16).
[13] NELDA15 specifies the perpetrator, asking, "Is there evidence that the government harassed the opposition", and contrary to NELDA33 also includes lower-intensity violence such as arrestations of opposition leaders and harassment of media (Hyde and Marinov 2015, 10).

Country-level control variables

Population size

In the literature on armed conflict and state repression, earlier empirical research indicate that population size significantly increases the chance of a country experiencing social conflict (see for example Fearon and Laitin 2003; Davenport 2007, 3). In the literature on electoral violence, studies also indicate that countries with larger populations experience more post-election violence (Daxecker 2012, 513; Hafner-Burton, Hyde and Jablonski 2014, 167).

Level of economic development

I also include level of economic development as a control variable to measure major macro-economic changes between and within countries. Economic development from the literature on armed conflict and state repression is also suggested to influence the risk of social conflict (Fearon and Laitin 2003; Davenport 2007, 3). A higher GPD per capita is found to reduce the risk of post-electoral violence (Daxecker 2014; 238; Daxecker 2012, 511; Hafner-Burton, Hyde and Jablonski 2014, 167). Collier (2009) states that in poor countries, democratic elections heighten the chances of political violence. In his study, he shows that the electoral contest in poorer, newly democratising regimes do not incentivise politicians to improve its performance, since essential checks and balances are not yet established. Instead, it invites governments to use any means at their disposal in order to win, including violence and repression (Collier 2009, 18-52). Salehyan and Linebarger (2015) found strong evidence from the African contexts that more affluent countries have fewer conflict incidents during elections. This supports the long-held notion that economic development promotes democratic (Salehyan and Linebarger 2015, 41). Smidt (2016, 233) labels this state capacity, arguing that low state revenue may be associated with underpaid, underequipped and consequently unprofessional state security agents. Hence, countries with lower levels of state capacity are expected to be more prone to post-electoral violence. However, Taylor, Pevehouse and Straus (2017, 406) finds no support that poorer countries have more electoral violence, neither before nor after elections.

Level of democracy

A number of studies claim that the risk of electoral violence is substantially lower in countries where democratic institutions are consolidated (Fjelde and Höglund 2016b, 309; Hafner-Burton, Hyde and Jablonski 2014; Salehyan and Linebarger 2015). Kuhn (2015, 1) argue that

competitive electoral autocracies are the regime types most vulnerable to electoral violence. Therefore, I control for each states' overall level of democracy.

Civil war

Since the occurrence of electoral violence could be triggered or increased by internal conflict, I control for whether internal or internationalised internal armed conflict was on-going in the country during the election year (Fjelde and Höglund 2016b, 309; Hafner-Burton, Hyde and Jablonski 2014, 167). Moreover, internal conflict is correlated with human rights violations (Dunning 2011). That being said, Salehyan and Linebarger (2015, 41) find, as they themselves admit, the somewhat surprising evidence that elections taking place amid civil war or soon after do not automatically have an increased risk violence, more specifically riots and small-scale attacks.

Election-level control variables

Competitive elections

Competitiveness of elections is an explanation for pre-election violence frequently emphasised in the literature (Chaturvedi 2005; Collier and Vicente 2012; Wilkinson 2004). An election is regarded as competitive if 1) opposition was allowed, 2) more than one party was legal, and 3) there was a choice of candidates at the ballot (Fjelde and Höglund 2016b, 312).

Incumbent running

Based on the assumption that stakes of the elections are increased when the executive seeks re-election (Fjelde and Höglund 2016b, 312), I include a control dummy variable for whether the incumbent was running or not. Note that this variable applies to leadership positions only.

Election observers

Kelley (2012, 147) state that "International election monitoring has become the most prominent tool in the liberal effort to promote democracy and create a more stable and just world". However, the effect of election observers on election violence remains unclear. Nevertheless, Daxecker (2014, 237) includes election monitors as a control variable in her study, as states with expected electoral violence is assumed to have greater chances of having election monitors sent. The study of Daxecker (2014) uncovers that the presence of international monitors makes governments temporally shift violence to the pre-election period, as this is the part of the

electoral process which is the least monitored. Therefore, I control for the presence of election monitors.

Election fraud

Fischer (2002, 7) argues that the political legitimacy of elections is undermined if the electoral process is regarded as corrupt, unfair or unresponsive. This might encourage stakeholders to move beyond the established norms in order to fulfil their aims. Daxecker (2012) argues that it is the credible information of observers about fraud which strengthens the capacity of losing parties to mobilise for collective action and therefore turn to violence. Therefore, I control for whether there were allegations of fraudulent elections.

Underlying assumptions

An underlying assumption of this thesis, echoing the words of Collier and Vicente (2012, 118) from their model about electoral manipulation: "our world is one where politicians care primarily about winning the election". Another assumption is that actors in election are rational. An implication of this is that violence will only be used as an electoral tactic when the expected reward is greater than the expected cost. Hence it is expected that electoral violence will only be used either when the expected reward of using it is relatively high, for example increased stakes in an election, or when the expected cost of using it is relatively low, for example the absence of institutional constraints on governments' decision-making powers. Lastly, I assume that institutions are "sticky structures", in the sense that I only examine the effect of electoral institutions on electoral violence, but not vice versa.

3. Data and measurements

This is the first chapter of two where the research design is presented. In this chapter, the sample selection and sources of data are discussed, and the operationalisations of the variables are introduced. According to Gerring (2012, 78), research design is about "the selection and arrangement of evidence". Data analysis of this evidence can determine the degree to which a theoretical hypothesis is correct. It is important to have a carefully thought-out research design which fits the puzzle at hand (Gerring 2012, 79). I employ a non-randomised research design. Also referred to as non-experimental, it is often classified as observational, since it generally involves the *ex post* evaluation of data generated "naturally", meaning that it has not been manipulated or controlled by the researcher (Gerring 2012, 257).

Hypotheses

Before I move on, Table 3 provides a recap of the hypotheses under investigation with the variables from the dataset as well as the studies with the corresponding theories.

Table 3. Hypotheses

Hypothesis	Explanatory Variables	Literature	Data for explanatory variables
H1: The risk of electoral violence is higher in countries with a majoritarian electoral system than in those with a PR system.	Majoritarian system; mean district magnitude	Fjelde and Höglund 2016b	Institutions and Elections Dataset (IAEP)
H2: The risk of electoral violence under majoritarian electoral systems will increase with the size of the largest excluded ethno-political group.	Majoritarian system; mean district magnitude; ethno-political exclusion	Fjelde and Höglund 2016b	Institutions and Elections Dataset (IAEP); Ethnic Power Relations (EPR) dataset
H3: The risk of electoral violence under majoritarian systems will increase with higher levels of economic inequality.	Majoritarian system; mean district magnitude; economic inequality;	Fjelde and Höglund 2016b	Institutions and Elections Dataset (IAEP)
H4: An incumbent who is uncertain about winning the election and does not face significant institutional constraints is more likely to use electoral violence.	Institutional constraints; uncertainty of victory; unfavourable polls	Hafner-Burton, Hyde and Jablonski 2014	National Elections Across Democracy and Autocracy (NELDA); Polity IV Dataset
H5: facing protests, an incumbent who lacks significant institutional constraints is more likely to use violence in the post-election period.	Institutional constraints; Post-election protest	Hafner-Burton, Hyde and Jablonski 2014	National Elections Across Democracy and Autocracy (NELDA); Polity IV Dataset

Sample selection

Which cases should be included in the analysis? There are three choices that had to be made for this thesis: 1) which countries to include; 2) which time-period; and lastly 3) which elections. The sample selection is affected both by the theories, the method I have chosen to analyse the hypotheses and lastly, the availability of data. In the research literature it is often emphasised that it is positive, if possible, to increase the number of observations (King, Keohane and Verba 1994, 208). King, Keohane and Verba (1994, 24) writes that "in order better to evaluate a theory, collect data on as many of its observable implications as possible. This means collecting as much data in as many diverse contexts as possible". Similarly, to determine whether some pattern or relationship between variables exists, Fearon and Leitin (2008, 757) argue that "the best approach is normally to identify the largest feasible sample of

cases relevant to the hypothesis or research question, then to code cases on the variables of interest, and then to assess whether and what sort of patterns or associations appear in the data".

Countries

A key criterion when choosing the sample is that there needs to be variation in the dependent variables, across time and/or space (King, Keohane and Verba 1994, 128-129; Fearon and Leitin 2008, 763). Hence, I need election rounds where different types of election violence occurred, for example post-election government-initiated violence, or pre-election violence perpetrated by opposition actors, and again some election rounds which were peaceful. Theoretical arguments presented in Chapter 2 are based on political competition in a contest where democratic institutions remain weakly consolidated. Hence, the cases selected are limited to unconsolidated regimes, as I am concerned with countries with elections where electoral violence is feasible. As Daxecker (2014, 236) argues for her own study: "limiting the sample to unconsolidated regimes seems warranted since the option to engage in fraud, in particular violent manipulation, is usually not available in consolidated regimes". While consolidated democracies experienced substantial electoral contention and violence when they democratised, the risk of violence in the post-Cold War period is marginal (Daxecker, Amicarelli and Jung 2018, 3).

As mentioned in Chapter 1, data on electoral violent events is obtained from ECAV, which covers 136 unconsolidated regimes between 1990 and 2012 that held competitive elections (Daxecker, Amicarelli and Jung 2019). The sample is selected by removing all consolidated democracies, operationalised as countries whose three most recent elections before 1990 (i.e. the first year of coding), were free and fair and whose results were accepted by election losers. This overlapped with all OECD countries in 1990, except Turkey, while a couple of more countries also passed the test but were kept in the dataset "to preserve comprehensive regional coverage" (Daxecker, Amicarelli and Jung 2018, 3).[14] Micro-states, that is, countries with a population of less than 500,000 citizens at the time of the election, are also excluded from the sample.[15] See Appendix 3 for the entire list of countries as well as notes on some special cases.

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[14] Countries excluded from the study are therefore Australia, Austria, Belgium, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States, in addition to excluding micro-states and states without direct, competitive elections (Daxecker, Amicarelli and Jung 2019, 716). Countries included to preserve regional coverage are Argentina, Botswana, Costa Rica, Ecuador and Mauritius (Daxecker, Amicarelli and Jung 2018, 3).

[15] In addition to ECAV, several other of the datasets used in this study makes the same exclusion criteria (National Elections Across Democracy and Autocracy (NELDA) Dataset by Hyde and Marinov (2012); Ethnic

This thesis sets out to study the causes of electoral violence globally, in the sense that it analyses all cases of electoral violence in all unconsolidated regimes according to the aforementioned operational definition applied. By using the entire sample of the dataset, I avoid the concern that I have intentionally or unintentionally cherry-picked cases within this group (Fearon and Laitin 2008, 764) which confirms my hypotheses (King, Keohane and Verba 1994, 128). However, this does not bypass the fact that the sample in the dataset can have selection biases.

Time

The period of 1990 to 2012 was chosen for several reasons. Firstly, the most important part of choosing the time period, was to be able to use as recent as possible data to be able to get the most relevant results. Secondly, 1990 to 2012 is the time available from ECAV, the dataset on electoral violence which was evaluated to be the most fitting for this study, as is discussed in the next section. Daxecker, Amicarelli and Jung (2019, 715) argue that beginning the data collection in 1990 is appropriate because almost all countries adopted competitive elections after 1990. By setting the start in 1990, I do not have to confront the fact that countries in central and eastern Europe went from being non-democracies to democracies, and countries in Africa from being dictatorships and one-party states. The ECAV dataset currently ends in 2012, because at the time of coding, NELDA election dates were available until this year (Daxecker, Amicarelli and Jung 2018, 2). As my unit of analysis is country-election round, there are no fixed intervals between the observations in my study. Rather, it depends on when and where elections take place. Even if elections frequently take place at fixed intervals, they differ between countries and elections are sometimes disrupted by postponements, cancellations or coup d'états. For example, 17 municipalities were reported to have experienced high levels of unrest after the general election in Guatemala on the 16th of June 2019. Due to electoral violence, results in five of the municipalities were declared invalid and repeated elections took place on the 11th of Augusts the same year to ensure legitimacy of the vote (IFES 2019, 4-5). This also means that a given country can have more than one election round per year.

Elections

In line with the theoretical framework presented in Chapter 2, the election rounds included in this study needs to be competitive. In other words, there needs to be a chance, however slim, that another party/candidate than the incumbent may win. Hence, all dictatorships and one-

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Power Relations (EPR) Core Dataset by Bormann, Girardin, Hunziker and Vogt 2018, 24; the Institutions and Elections Project (IAEP) dataset by Wig, Hegre and Regan 2015, 3).

party states are excluded.[16] I study electoral violence in national elections to both the executive and legislative branch as well as elections to the constituent assembly, but only where the party/candidates are directly elected. The ECAV dataset originally contained 1,208 election rounds (Daxecker, Amicarelli and Jung 2019, 715), but concurrent election rounds, for example when rounds of executive and legislative elections were held on the same day, were collapsed into one, leaving me with 1,184 election rounds. Note that since the dataset on election violence, ECAV, is based on the dataset on elections, NELDA, electoral violence is only recorded if elections actually took place, excluding events where contention demanding elections did not succeed (Daxecker, Amicarelli and Jung 2019, 716).

Data and operationalisations

I use several prominent data sources to create an original dataset which fits the conceptual discussions from Chapter 2, and which permits me to answer the research question in a convincing manner. I will be using an original dataset consisting of 1) event data from the Electoral Contention and Violence (ECAV) database; data on election rounds from National Elections Across Democracy and Autocracy (NELDA) version 4; and country-level variables gathered from the Institutions and Elections Project (IAEP), Database of Political Institutions (DPI), Ethnic Power Relations (EPR) version 2918.1.1; Standardized World Income Inequality Database (SWIID), Polity IV Project; Penn World Table (PWT); and Uppsala Conflict Data Program/International Peace Research Institute (UCDP/PRIO) Armed Conflict Dataset version 19.1. A few words about data collection are in order. I do not provide any original data in this thesis. This is partly due to limited time and resources, and mainly because sufficient data already exists on the phenomenon of electoral violence, as well as the explanatory variables. When working with quantitative data, it is often necessary to merge data from multiple sources. Various databases were considered and evaluated based on the quality, coverage, validity and reliability. I will now present the operationalisations of the variables, together with the data used for each. Afterwards, the data will briefly be presented with descriptive statistics.

Data on electoral violence

As presented in the literature review in Chapter 2, a number of studies have explored the causes of electoral violence both within and across countries, mostly in Africa, but also globally.

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[16] According to Daxecker, Amicarelli and Jung (2018, codebook 2), China, Eritrea, Somalia, Saudi Arabia, United Arab Emirates and Qatar are the only regimes without competitive national elections.

Previously, research on electoral violence was impeded by insufficient data on the phenomenon (Birch and Muchlinski 2017a, 1). Even though electoral violence can be a broad concept (Staniland 2014, 100), studies of it have usually relied on several general measures (Birch and Muchlinski 2017a, 2). When studying electoral violence as a separate field of research it is vital to differentiate between violence related to elections and violence taking place more generally (Fjelde and Höglund 2016a, 9). Until recently, a lack of globally available data made it difficult to properly describe and understand electoral violence (Daxecker and Jung 2018, 53). Important puzzles about the causes, consequences, timing, perpetrators, and nature of electoral violence are left unanswered when broad measures of the phenomenon is employed, which conceal the tactics employed, hide the identity of actors involved, do not report on the nature of the violence itself, or otherwise give indicators of such violence at a relatively high level of aggregation and generality (Birch and Muchlinski 2017a, 2). Fortunately, there is a growing body of datasets on elections and violence available. In the following I will briefly discuss some of their strengths and weaknesses, highlighting why ECAV was the best fit for this study.

National Elections Across Democracy and Autocracy (NELDA) (Hyde and Marinov 2012), Quality of Elections (QED) (Kelley and Kolev 2010), Varieties of Democracy (V-DEM) (Coppedge et al. 2018[17]), Perceptions of Electoral Integrity (PEI) (Norris and Grömping 2019), and Countries at Risk of Electoral Violence (CREV) (Birch and Muchlinski 2017a) are all global datasets on elections which deliver information on contention and violence at election- or election-month level. The pitfall, however, is that they do not permit for temporally or spatially disaggregated analyses of electoral violence (Daxecker, Amicarelli and Jung 2019, 715). NELDA, V-DEM, and PEI simply record whether an election was violent. NELDA includes a measure of whether there was any government harassment of the opposition, in addition to recording whether there were significant violence involving civilian deaths immediately before, during or after an election.

The UCDP Georeferenced Event Dataset (UCDP GED) (Sundberg and Melander 2013; Croicu and Sundberg 2017) and the Armed Conflict Location & Event Data Project (ACLED) (Raleigh, Linke and Hegre 2010), provides disaggregated event data on non-violent and violent contentious events. Their drawback however, especially in regard to this study, is that they both report on acts of violence in general. In addition, UCDP GED is centred on fatalities, and thus

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[17] Complete citation with all authors included is found in references.

overlook lower-intensity events. An advantage of the dataset is that it covers the whole world, except for Syria, between 1989 and 2017 (Croicu and Sundberg 2017, 2). ACLED on the other hand, has a lot of data from Africa (fifty countries from 1997 to present), but data for other regions is severely limited.

The African Electoral Violence Database (AEVD) (Straus and Taylor 2012) and the Social Conflict Analysis Database (SCAD) (Salehyan, Hendrix, Hamner, Case, Linebarger, Stull and Williams 2012) also report on election-related violence. AEVD by Straus and Taylor was ground-breaking at the time. It was the first cross-sectional dataset that focused specifically on electoral violence in Africa and that measured electoral violence across nearly two decades (Straus and Taylor 2012, 17). While SCAD records "elections" as one of the issues for violence, the codebook is unclear about the criteria of issue selection. While SCAD has expanded its coverage from solely African countries, its scope is limited to include Mexico and countries in Central America and the Caribbean.

As already stated, in this study I use the dataset of Daxecker, Amicarelli and Jung (2019), namely the Electoral Contention and Violence (ECAV) dataset. To the best of my knowledge, this is the newest dataset on electoral violence, and thus far only used by Daxecker and Prins (2016) and Daxecker and Jung (2018). I will now argue why ECAV is the most suitable dataset for this study of causes of electoral violence. What are the advantages and disadvantages of using this dataset? Since a number of different political as well as social actors might be motivated to employ violence as an electoral tactic, it is essential to have a broad measure of electoral violence in order to catch all the vast types of violence used in order to influence electoral processes or outcomes (Birch and Muchlinski 2017a, 4). Daxecker and Jung (2018, 53) argue that the effort to correctly describe and comprehend electoral violence was difficult due to lack of globally available data on the phenomenon. Together with their colleague, Elio Amicarelli, they took matters into their own hands, and created the ECAV dataset. Hence, this is one of the few datasets specifically concerning electoral violence with a much broader scope than Africa. This is important, because as already shown in Chapter 1, geographically, the majority of electoral violence takes place in the Asia and the Middle East as well (Daxecker and Jung 2018, 54). Elections marred by violence can most certainly not be described as solely an African trend.

Daxecker, Amicarelli and Jung (2019, 715) also state there was a lack of data establishing a substantive link between elections and violence. It is difficult to prove this link empirically, which can explain why all instances of political violence during election times have frequently been regarded as election violence in empirical assessments (see for example, Daxecker 2012; Straus and Taylor 2012). This runs the risk of including violent events which would have occurred regardless of the election (Daxecker, Amicarelli and Jung 2019, 715). Therefore, another advantage of ECAV is that the dataset seeks to establish a substantive link between elections and violence, because it codes the events by issue. While ECAV records almost 9,000 violent events, compared to more than 150,000 events in CREV, it is undetermined whether such a large discrepancy exists due to issues other than elections or whether duplicate events are included in CREV (Daxecker, Amicarelli and Jung 2019, appendix 5). Another advantage of ECAV is that it provides disaggregated information on the location, timing, and actors of election violence (Daxecker, Amicarelli and Jung 2019, 714). This makes it possible to distinguish whether the violence took place before or after the election, and which actor(s) perpetrated the violence, as opposed to event data aggregated by year, which only provide yearly information on fluctuations in the number of violent events. Moreover, the number of countries, years and events coded is deemed sufficient to conduct this study.

I shall end with two disadvantages of ECAV which is important to keep in mind. Firstly, a disadvantage of ECAV, compared to CREV, is that the latter incudes weights in the dataset, designed for users who wish to weight the event data by per capita media coverage, using total number of coded events in the ICEWS data for the given country in a given year, divided by population (in millions) (Birch and Muchlinski 2017b). While ECAV do provide the number of media articles used to code the violence, this is aggregated for each country for all elections and years, and hence useless for this purpose. Another arguably disadvantage of ECAV is that the dataset was coded by graduate students in social sciences at University of Amsterdam (Daxecker, Amicarelli and Jung 2018, 7). All coders of the data by UCDP, on the other hand, were conducted by "full-time long-term employees of UCDP, typically following conflicts and countries for long periods, attaining in many cases specialist status in certain geographical areas" (Croicu and Sundberg 2017, 13).

Problems with event data

Event data are subject to their own methodological problems of unreliability and invalidity (Goldsmith 2015, 819). In general, measurement validity concerns the relationship between the

concept the study intends to capture and the observed variable, in other words, whether a variable measures what it is supposed to measure (von Borzyskowski and Wahman 2019, 2; King, Keohane and Verba 1994, 24; Adcock and Collier 2001, 530). von Borzyskowski and Wahman (2019, 2) argue that pervious research on election violence have often assumed that their data on the phenomenon do not have systematic measurement errors and demonstrate dynamics on the ground fairly well. von Borzyskowski and Wahman disagree with this and show that conventional data, such as SCAD, which is highly similar to ECAV, underreport events throughout the election cycle. ECAV consists of systematic, human-coded data (Daxecker, Amicarelli and Jung 2019, 717). Hence the data is subject to coding errors due lack of concentration and tiredness. Schrodt (2012, 552) argues that there is no consensus on how many sources are sufficient for event data; while some studies suggest as few as two, whereas others make extensive use of non-news sources such as NGO and legal reports. Neither is there agreement on the circumstances under which local sources, rather than just international sources, are needed. ECAV uses the database LexisNexis to gather information from three newswires: Associated Press, Agence France Press and BBC Monitoring. Event data coded from news reports can be subject to reporting bias. In von Borzyskowski and Wahman's (2019, 2) words "event data suffer from *systematic* measurement error due to the logic of reporting", which threatens measurement validity (Adcock and Collier 2001, 531). News reports represent an extremely small part of all the events that takes place each day, and they are not selected randomly by reporters and editors (Schrodt 2012, 554). There is always a chance of incorrect results if election violence took place that were not recorded. Goldsmith (2015, 834 footnote 10) points out that "electoral violence may be overrepresented in political event datasets due to increased media attention in countries while elections are underway". This is not a concern of this thesis, as I am only interested in electoral violence. However, Daxecker, Amicarelli and Jung (2019, Appendix section C) examine whether there is a trend in changes in reporting over time and an increase in number of events recorded. In other words, whether a perceived increase in election-related violence can actually be the result of better reporting. While article reports seem to increase slightly over time, no comparable trend is evident as shown in Figure 2.

Figure 2. Time trends in newswire reports and ECAV events
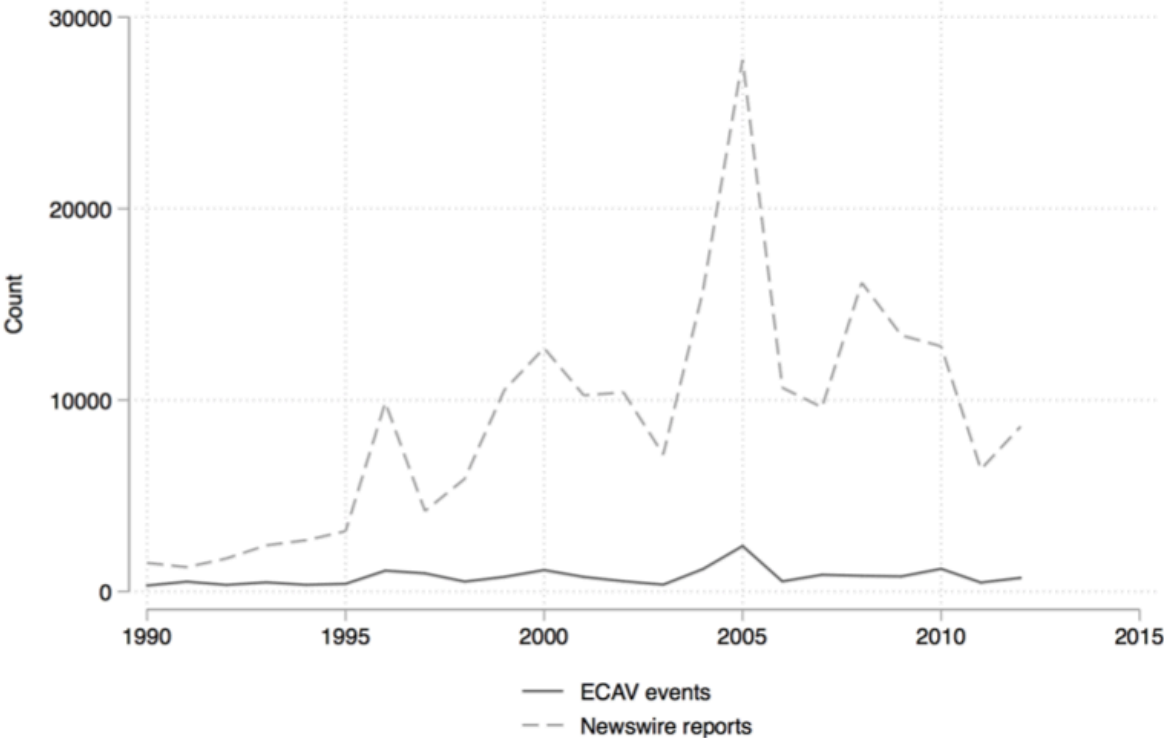
Source: Daxecker, Amicarelli and Jung (2019, Appendix section C, 3).

Measurement errors can also be random, which means that repeated applications of a given measurement procedure produce inconsistent results. This is usually referred to as problems of reliability (Adcock and Collier 2001, 531). If a hypothesis was to be tested again and again, the closeness of the results, on average, to the actual value would represent the validity of the theory. On the other hand, the test results to each other would represent the reliability of the study (Gerring 2012, 82). Although they are interconnected, measurement validity is different from validity of causal inference, and both can be further divided into internal (about the cases being studied) and external validity (the generalisability to a broader set of cases) (Gerring 2012, 84). Birch and Muchlinski (2017a, 2) carries out a replication study of the well-known work by Hafner-Burton, Hyde and Jablonski (2014) to demonstrate that the new dataset, ECAV, measuring underlying concepts comparable to the measured in earlier datasets on electoral violence, in this case NELDA. The replication study shows that relationships found with electoral violence are sensitive to coding, but the two studies find similar results.

Operationalisation of electoral violence

I now move on to describe the operationalisations of the dependent and independent variables presented in Chapter 2. Carmines and Zeller (1980, 2) defines measurement as "the process of linking abstract concepts to empirical indicants". The measurements are used in an effort to (hopefully) make contact with empirical reality (Gerring 2012, 156). The validity of generalisations relies on the operationalisations (Sartori 1970). Gerring argues that most, if not all, important social science concepts, like democracy or power, cannot be observed directly. Another issue which is typical to the social sciences is the fact that we study human action, that is, behaviour which is to some degree decisional. We study phenomena which are sensitive and/or hard to interpret, as human action is filled with actor-defined meanings and motivations (Gerring 2012, 157). With this in mind, I continue with the operationalisation of the dependent variables on electoral violence.

Recall the definition of electoral violence used in this thesis: *violent public acts of mobilization, contestation, or coercion by state or nonstate actors that are used to affect the electoral process or that arise in the context of electoral competition*. Substantive and temporal criteria determine whether an event is deemed as election related. The events must be linked to the ongoing electoral process in substance, meaning that the articles explicitly mention the electoral process as an issue around which contestation occurs. Alternatively, if it can be inferred that actors perpetrated the violence in relation to elections (Daxecker, Amicarelli and Jung 2019, 717). As for the temporal criterion, electoral violence can occur at all points of the electoral cycle: before the election, on the election day, and after election. However, limiting the precise time period is a disputed issue. Events too far ahead of election day is hard to tie to the actual election, and unrelated incidents might wrongfully be included.[18] On the other hand, limiting the scope too close to the election may lead to underreporting of electoral violence (Bekoe 2012, 2). ECAV includes events occurring between six months before and three months after the election (Daxecker, Amicarelli and Jung 2019, 717).[19] Researchers admit that this time frame is somewhat arbitrary. "The length of the electoral cycles differs across countries, and electoral violence may take place both very early and late in the electoral cycle" (Fjelde and Höglund

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[18] Goldsmith (2015, 823) employs both a prolonged and a brief election "cycle", with the first being 36 months, i.e. 3 years and the last being 4 months. In my opinion, while the former appears excessively long, the latter is a bit on the short side.

[19] Daxecker, Amicarelli and Jung (2019, appendix 3) used SCAD to determine the time period of their dataset. With a timeframe of nine months before and six months after elections, their calculations showed that 80 per cent of election-related events with at least one conflict occurred within the nine-month time frame (six months before and three months after).

2016a, 9). Almost a year ahead of the polls, starting in October 1991, hundreds of people in Kenya were killed in ethnic clashes (Bekoe and Burchard 2017, 85). This speaks against setting the timeline to six months prior to elections. The same goes for the case of the Congo Republic, where claims that the 1992 parliamentary election were fraudulent caused political parties to arm their supporters in the next election of 1993 (Rapoport and Weinberg 2001, 20). Daxecker argue that a three-month post-election period seems justifiable to credible claim causal links between elections and subsequent conflict events (Daxecker 2012, 509). The argument for the use of a common timeframe for every election round is the large amount of cases which makes it "practically impossible" to examine every single one and find the best suited start and end point (Daxecker, Amicarelli and Jung 2018, 4). Moreover, when elections have several rounds, they frequently take place soon after one another. For these cases, the timeframe is six months prior to the first round and three months following the last round. When elections of a different type (that is, presidential and parliamentary elections, thus not rounds of the same election) are held within less than nine months of each other, the time period between them is divided in half (Daxecker, Amicarelli and Jung 2018, 4).

ECAV consists of event-day-location observations of contentious and violent election events reported in a media source on a single day in a particular location. This means that events that takes place in several locations and/or occurs over more than one day are coded separately. Although temporal aggregation is possible (Daxecker and Jung 2018, 5), I have chosen to count each day separately. Although, for example, five days of demonstrations may be related to the same event, keeping them separately arguably makes them more comparable to say a single violent event, say a forceful arrestation of an opposition candidate. The ECAV dataset includes a dummy variable, EventViolence, which codes the event as violent if it involves the threat or actual use of force intended to inflict harm on people"[20] (Daxecker, Amicarelli and Jung 2018, 4). In this thesis I am only concerned with electoral contention which turned violent, and hence I remove all events which were recorded to be non-violent. Starting with 18,208 reported violent events, 7,233 are dropped. Although ECAV has a variable on total number of deaths, ParticipantDeaths, I am not only interested in electoral violence with fatal outcomes, and therefore this dummy variable is not used. To identify electoral regimes, ECAV uses the National Elections across Democracy and Autocracy (NELDA) dataset, which provides

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[20] Daxecker, Amicarelli and Jung 2018b, 14) provides an example: "an act of intimidation involving a gun held to an opposition party candidate's head, is coded as a violent event. An arrest without any mention of the threat or use of force is coded as nonviolent".

detailed information on all election events in the time period studied. An advantage of NELDA is that includes flawed elections. As ECAV only contains those elections with contentious events, I merge the remaining ones from NELDA. I also use NELDA for some of the measures of explanatory variables, which will be described shortly.

Previous studies have relied on dummy variables (Hafner-Burton, Hyde and Jablonski 2014; Bekoe and Burchard 2017), ordinal values (see the "landmark study" by Lindberg 2006; Straus and Taylor 2012), and count variables on number of events per month (Fjelde and Höglund 2016b). According to Goldsmith (2015, 820) an ordinal ranking scheme like the one of Lindberg (2006) is very useful for an overview, but it loses detail and could be unreliable depending on how systematically the primary qualitative information was gathered. [21] I argue that the same goes for dummy variables.

For this thesis, I aggregate how many violent events took place within each election round in each country. My dependents variable is therefore a count variable, namely number of violent electoral events per election round. Several dependent variables are included in this study, as I separate between violence taking place before and after election day, initiated by either government, pro-government or opposition actors. In the ECAV dataset I use the variable Electiondate to identify date of election, and [Date] to identify date of violent event. By using these variables, I code whether the electoral violence took place before or after election (election day/s are included in the pre-election period). To distinguish between different actors who perpetrated the violence, I use the variable ViolenceInitiator and also the variables for which side (pro- or anti-government) the initiator was on. Note that the initiator of violence in an event can be different from the initiator of the event. The separation between actors and timing is made because many of the theories on election violence concern specific actors or is related to either the pre- or post-election period. Hence, in order to test my hypotheses, I use six different dependent variables: 1) Pre-election government actor; 2) Post-election government actor; 3) Pre-election opposition actor; 4) Post-election opposition actor; 5) Pre-election pro-government actor; and 6) Post-election pro-government actor. The first four are used for the three first hypotheses regarding electoral systems, economic inequality and ethno-

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[21] Staffan Lindberg (2006, 44-45) uses three ordinal values to characterize how peaceful elections were, namely 1) systematic, widespread politically related violence, 2) non-systematic and isolated incidents of violence 3) entirely, or almost entirely peaceful behaviour. Straus and Taylor have four values: 1) no reported electoral violence before or after a vote 2) violent harassment 3) violent repression 4) highly violent political campaigns with repeated, coordinated physical attacks leading to at least 20 deaths.

political exclusion. The fifth and sixth dependent variable is used to analyse the last two hypotheses, which concerns executive constraints on the incumbents decision-making power and uncertainty about popularity of the incumbent.

Thus, the different dependent variables count the number of violent events that took place within the specified type. This way of measurement is also far from perfect. Is there even a point in trying to quantify electoral violence and examine it? It is problematic to consider the number of violent events as a continuous variable. This is because violent events can differ massively in scope with regards to time, geographical area and severity. Straus and Taylor (2012, 21) warns against lumping all cases of electoral violence into the same category, and rightly argue that a few incumbent security forces beating a few opposition supporters is substantively different from the incumbent security forces killing a hundred opposition supporters. Aggregating this to a single number loses a great amount of information and is therefore a big trade-off for this thesis. Still, I will argue that this is more preferable than making electoral violence into an ordinal scale or a dummy variable. A disadvantage with the division between government, pro-government and opposition actors is that for many of the events recorded in ECAV, the initiator of the violence cannot be determined (2,207 events) or the actor who initiated the violence is recorded as unknown (2,648 events). For example, in Kazakhstan in November 12th of 2005, less than a month before the executive election on December 4, an opposition leader was found shot dead in his home, with two bullets in his chest and another in his head (Daxecker, Amicarelli and Jung 2018). According to the official investigation, his death was a suicide. Opposition leaders wondered how a man could manage to shoot himself three times in two different places. While the government denied any involvement in the attack, it displayed all the characteristics of President Nursultan Nazarbayev's strategy to maintain political control (Cheeseman and Klaas 2018, 49). Yet, the perpetrator of the violence is recorded as unknown in the ECAV dataset (Daxecker, Amicarelli and Jung 2018).

Electoral system

To differentiate between majoritarian systems and other forms of electoral systems I use two measures of electoral law. The first is a dummy variable of whether a country employs either plurality (first-past-the post) or majoritarian formulas in the election of legislators. The use of proportional representation (PR) formulas is the reference category. For this measure, I use data from the Institutions and Elections Project (IAEP) (Wig, Hegre and Regan 2015). I also include

a dummy variable to separate out mixed systems[22] for which I have no particular theoretical expectations.

Secondly, I include a variable for the Mean District Magnitude (MDM) of each country. More seats per district is an inherent feature of proportional systems. Data on this variable is from the Database of Political Institutions *(*DPI) (Cruz, Keefer and Scartascini 2018). Using the method of Huber (2012, 993-4) and later by Fjelde and Höglund (2016b), I use the log of average district magnitude (DM), where DM measures the mean size of all electoral districts in a country. This is because beyond a certain threshold, the variable should have no further effect on diffusing the stakes of the electoral contest and on reducing the incentives for violent manipulation (Fjelde and Höglund 2016b, 308). It is important to recognize that a country's average mean district magnitude can hide large differences in district magnitude. For example, Russia have a mean district magnitude of 2, but half of the legislators are elected from one large PR district, while the rest is elected in single-member districts (Huber 2012, 994-95).

The reason for using two measures of electoral system is that even though countries with PR systems always have multi-member districts, countries with majority electoral rules usually have single-member districts, but multi-member districts is also possible (International IDEA n.d., 9). Empirically approximately 29.7 per cent of election rounds in the sample use PR, 34.6 per cent majoritarian, 28.9 per cent use mixed. Data on election formula is missing for 6.6 per cent of the election rounds. The average mean district magnitude for all election rounds in the study is 18.09 legislative seats.

Ethno-political exclusion

To examine the second hypotheses, I measure size of largest excluded ethno-political group using data from the Ethnic Power Relations (EPR), dataset, version 2018.1.1 released on December 11, 2018 (Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin 2015). The current version of EPR data is available in research-ready country-year and group-year format from the GROW[up] Research Front-End data portal (Girardin, Hunziker, Cederman, Bormann and Vogt 2015). Ethnicity is by the EPR Core dataset defined as "any subjectively experienced sense of commonality based on the belief in common ancestry and shared culture" (Bormann,

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[22] Mixed systems combine PR with either plurality or majority, for example if there are two chambers with different methods of selection, or different methods of selection within one chamber (Fjelde and Höglund 2016b, 307).

Girardin, Hunziker and Vogt 2018, 24-25). All politically relevant ethnic groups are recorded by the EPR dataset and their member's access to central state power is tracked over time. Note that "state power" inly refers to executive power, hence, access to judicial and legislative institutions are unaccounted for. "State power refers to executive power only, disregarding access to legislative and judicial institutions" (Vogt and Rüegger 2018, 4). An ethnic group is regarded as relevant for the group-year is minimum one political organisation state to represent it in national politics, or alternatively, if its members are politically discriminated by the state (Bormann, Girardin, Hunziker and Vogt 2018, 25). I create a variable for the size of the largest ethno-political group that was excluded from power, by either being powerless or discriminated against. The variable group size ranges between 0 and 1, with the group's population size as a fraction of the country's total population. Note that this measure captures group representation within formal political structures and not, for example, the use of violence to exclude groups from popular influence as part of the electoral process (Fjelde and Höglund 2016b, 2014).

Economic inequality

For the measure of economic inequality, I use the most standard measure of income inequality, namely the Gini coefficient. The Gini coefficient has the most data of all measures on income inequality. Efforts have been made in recent years to improve both its quality and accessibility, for the most part by combining data from different sources employing the same definitions. Originally, this ranges between 0 and 1, where 0 represent perfect income equality and 1 represent perfect inequality (UNU-WIDER 2018a, 17). The source for the Gini index is the Standardized World Income Inequality Database version 8.1 (SWIID) produced by Frederick Solt (2019a). SWIID is based on the World Income Inequality Database (WIID) provided by UNU-WIDE, but with all observations multiply imputed as a remedy for missing values (Jenkins 2015, 629). Hence, this is a secondary data compilation, meaning that it compiles country-year estimates of summary measures of income distributions (Jenkins 2015, 629-630). In version 8.1 of the SWIID, the inequality estimates and their associated uncertainty are represented by 100 draws from the posterior distribution. Hence, for any given observation, the differences across these imputations capture the uncertainty in the estimate. A datafile is provided which is pre-formatted to facilitate taking this uncertainty into account (Solt 2019b, 1). SWIID's first priority is breath of coverage, and its second is comparability (Solt 2019a, 1). SWIID is notable in terms of coverage of countries and years, for this study, SWIID only misses data for Cuba and North Korea. It is a convenient and accessible source, but this must be seen

in comparison to the drawbacks of lack of data comparability and data quality[23] and the plausibility of the assumptions underlying the imputation model (Jenkins 2015, 630). SWIID provides the estimate of the Gini index of inequality in equivalised (square root scale) household disposable (post-tax, post transfer) income. The Luxembourg Income Study data has been used as the standard.

This measure of inequality has its strengths, but definitely also its weaknesses. The Gini index hides differences of income distribution within each population. Dividing the population in two with decile 5-9 and decile 1-4 and 10, they appear to get a similar income share throughout the world (about half), but the division within these constituents are very different. While the middle and upper-middle deciles are quite homogenous, the two tails, namely the top and bottom deciles of the population are rather heterogenous (with South Africa as the exception) (Palma 2019, 1140). Moreover, using data from SWIID carries with it some issues related to potential bias and issues of precision related to the multiply imputed data (Jenkins 2015, 630). If the imputation model used for the data is considered to be problematic, then the data provided from it concerning the inequality and its relationship with other variables in the analysis might be wrong, resulting in incorrect regression point estimates. It is not easy to estimate the extent of this possible bias, since it is, by definition, no external point of reference for every observation in samples with global coverage (Jenkins 2015, 669). Still, I evaluate that the use of SWIID is more fruitful in this study compared to for example the World Income Inequality Database (WIID) (UNU-WIDER 2018b). However, instead of running the analyses with the multiply imputed data, I take the 100 imputed variables and create an average for each country and year (containing one or more election round).

Other measures of economic inequality were considered. Fjelde and Höglund (2016b, 308) use a measure of level of land inequality. They argue that this could be the most important source of wealth in the agrarian economies of Africa, and thus function as a "proxy for the cost of electoral defeat to those in power". Vanhanen (1997, 48) also states that control or ownership of land is a crucial resource, particularly in agricultural societies. However, when broadening the scope to cover all unconsolidated regimes, the measure of the Gini index is judged to be a better measure. Data from the World Bank (2019) find that massive growth in cities worldwide indicate the demographic development from rural to urban. This is identified with transitions

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[23] For a more general discussion on the benefits and trade-offs of using secondary data sets on inequality see Atkinson and Brandolini (2009).

from agriculture-based economies to mass industries (World Bank 2019). Due to this, I avoid using distribution of land as a measure for economic inequality. Other relevant measures could perhaps have been the standard of living or percentage of people living below the poverty line. Atkinson, Piketty and Saez (2011) measured inequality using tax data, and reported top income shares rather than Ginis, which is usually derived from household surveys. Compared to household surveys, tax data are assumed to be less subjected to underreporting.

Executive constraints

To measure institutional constraints on the incumbents' decision-making powers, I use a variable from the Polity IV dataset, XCONST (Marshall, Gurr and Jaggers 2019). This variable aims to measure the extent of institutionalised constraints on the decision-making power of chief executives, be they individuals or collectivities. Hence, it is about the checks and balances of the decision-making process, and the limitations may be controlled by any "accountability group", such as legislators, the ruling, party, the military, and an independent judiciary. The measure is a seven-category scale, ranging from 1) unlimited executive authority to 7) executive parity or subordination (see Marshall, Gurr and Jaggers 2019, Addendum B, for extended definition and coding procedures). This measure of executive constraints is admittingly problematic as it is based on the executive being constrained by limitations imposed by any "accountability groups", which includes actors as varied as legislatures, the military, or "councils of nobles" (Marshall, Gurr and Jaggers 2019, 24).

Unfavourable polls

I have two measures of whether the election outcome was in doubt, using data from NELDA (Hyde and Marinov 2012). NELDA26 evaluates information provided by public opinion polls "where they favourable for the incumbent?" which builds on NELDA25 "were there reliable polls that indicated popularity of ruling political party or of the candidates for office before elections" (Hyde and Marinov 2015, 13). Combining this I create the dummy variable *polling unfavourable* coded 1 if 1) reliable polls existed that did not favour the incumbent, or 2) reliable polls did not exist, making the outcome uncertain. The variable is coded 0 if reliable polls existed and favoured the incumbent.

Uncertainty of victory

The second measure allude to the incumbent's confidence of victory, and here I use the variable NELDA12 "was the incumbent or ruling party confident of victory before elections?". It is

recoded into the dummy variable *victory uncertain*, where 0 indicates either that 1) the incumbent or ruling party made public statements expressing their confidence in victory, or 2) they have been dominant for a number of years and is projected to win in a landslide, or 3) there is no chance of the opposition winning, Otherwise it is coded as 1, indicating uncertainty of victory (Hyde and Marinov 2015, 8).

Post-election protests

To measure post-election protests, I use the dummy variable included in NELDA, namely NELDA29, which asks "were there riots and protests after the election?". This is recoded to 1 for "yes" and 0 for "no". The riot or protest needs to be somewhat related to the handling or outcome of the election in order to be included (Hyde and Marinov 2015, 15). While the theory argues that incumbents use electoral violence against post-election protesters specifically, I still use the broader measure of government-initiated post-election violence in these analyses. Even if these do not specify the target of the violence, I argue that post-electoral protests can lead to an overall more unstable environment, incentivising state actors to crack down on opposition in general, not just protesters. Empirically, 217 of the election rounds in the dataset experienced post-election protests.

Interaction variables

As all but the first hypothesis in this thesis assumes interaction effects, much of the variables described above will be combined in the analyses as interaction variables. These are quickly presented below:

Hypothesis 2: Majoritarian rules and ethno-political exclusion.

Hypothesis 2: Mean district magnitude and ethno-political exclusion.

Hypothesis 3: Majoritarian rules and economic inequality.

Hypothesis 3: Mean district magnitude and economic inequality.

Hypothesis 4: Executive constraints and uncertainty of victory.

Hypothesis 4: Executive constraints and polling unfavourable.

Hypothesis 5: Executive constraints and post-election protests.

Control variables

The relevant control variables are identified based on the literature on political violence in general and the field of electoral violence in particular. I differentiate between country-level control variables and election-level control variables. All the country level control variables

(both polity and polity squared, population size, and GDP per capita) are lagged by one year in order to address concerns of reverse causation.

Country-level

Population size

The variable for population size is from the Penn World Table (PWT) (Feenstra, Inklaar and Timmer 2015) and is measured in millions and logged.

Level of economic development

To measure level of economic development in each country I use gross domestic product (GDP) per capita at constant 2011 national prices from the Penn World Table (PWT) (Feenstra, Inklaar and Timmer 2015). The variable is labelled "RGDP^{na} (in mil.2011US$)" in the original dataset. I divide this measure by the aforementioned control variable, population size, making it real GDP per capita. Because of high skewness, this variable also is log-transformed.

Level of democracy

To measure the level of democracy in each country, I use a measure from the Polity IV Project dataset by Marshall, Gurr and Jaggers (2019). I use the Revised Combined Polity IV index, [POLITY2], a 21-point Polity scale used for time-series cross-sectional analysis. This measure ranges from -10 for strongly autocratic regimes to +10 for strongly democratic regimes. Wig, Hegre and Regan (2015, 1) asserts that the most widely used indicator of democracy. Amongst others, it is used by both Fjelde and Höglund (2016b, 309) and Daxecker (2012) in their studies on electoral violence. I also include a squared term to capture non-linear effects (Fjelde and Höglund 2016b).

Civil war

This measure is from Uppsala Conflict Data Program/International Peace Research Institute (UCDP/PRIO) Armed Conflict Dataset version 19.1 (Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg 2019). It is recorded as a dummy variable of whether a civil war took place or not. The types of conflict included is internal and internationalised internal, and I include both conflicts with minor intensity (between 25 and 999 battle-related deaths in a given year) and war (at least 1,000 battle-related deaths in a given year) (Pettersson 2019, 5-6).

Election-level

Competitive elections

Again, I use data from NELDA (Hyde and Marinov 2012) to code a dummy variable of whether an election was competitive or not. The variable is coded as 1 if 1) opposition was allowed; 2) more than one party was legal; and 3) there was a choice of candidates at the ballot, and 0 if these criteria were not filled. NELDA3 record that opposition was allowed if at least one opposition political party existed to contest the election. A party is counted as an opposition party if it is not affiliated with the incumbent party in power. NELDA4 measures whether multiple political parties were technically legal. Hence, there may be other non-legal barriers to the development of opposition parties. This variable does not indicate whether there actually exists a functioning opposition party, be it legal or not. Lastly, NELDA5 indicate whether the number of candidates competing for a slot exceeded the number of slots to be filled, meaning there was an actual choice of candidates to be made (Hyde and Marinov 2015, 5-6). An alternative measure could have been to calculate the margin of victory for each previous election in the data, as done by for example Daxecker, Amicarelli and Jung (2019, 719).

Incumbent running

Using the measure of NELDA21, the dummy variable controls for whether the incumbent was running or not. Note that this variable applies to leadership positions only (Hyde and Marinov 2015, 11).

Election monitors

NELDA also includes measures of whether election monitors were present. They divide between international and Western monitors, and I recode NELDA45 and NELDA46 into a dummy variable of whether Western monitors were present, with 1 for "yes" and 0 for "no". It is important that the observer missions are regarded as credible and willing or able to criticise the electoral process if necessary. In the study by Daxecker (2014, 236) she does not regard observer missions from the African Union (AU) or the Economic Community of West African States (ECOWAS) as credible international election observer missions because they are considered less willing or able to criticize elections. Empirically, (770 observations) 66.7 per cent of the election rounds in the dataset were monitored by one or more credible missions. Data is missing for 30 election rounds.

Election fraud

I use a measure from the Database of Political Institutions (DPI) by Cruz, Keefer and Scartascini (2018), which asks "were vote fraud or candidate intimidation serious enough to affect the outcome of elections?". When the opposition was banned or irregularities not mentioned, a 0 was recorded. When opposition was legal but supressed anyway or if any of the important parties carried out any forms of boycotts before or after parliamentary elections, a 1 was recorded. Fraud is recoded regardless of whether only claims were made by opposition actors, or the allegations were backed by independent international monitors. There is a chance that incidents of electoral manipulation occurred which were not reported, thus resulting in false negatives (Cruz, Keefer and Scartascini 2018, 17). The advantage of this measure is that it allows me to examine the effect of election fraud on post-election violence for both monitored and unmonitored elections, unlike other measures (such as NELDA47 from the NELDA dataset). A word of caution with this measure is that the variable could include incidents of electoral violence, which is a type of election fraud. This is problematic when trying to measure its impact on electoral violence. 223 election rounds in the dataset experiences serious fraud.

Lagged dependent variables

I include a lagged dependent variable in all the regression models, to control for temporal dependence in consecutive elections within the countries.

Contested incumbent office

When examining the effect of executive constraints on government, I exclude all elections where the office of the incumbent leader was not contested. NELDA includes a measure of this, NELDA20, which ask "Was the office of the incumbent leader contested in this election?". I recode "Yes" to 1 and "No" no to 0. This includes both presidential elections or parliamentary elections where the leader is the Prime Minister (Hyde and Marinov 2015, 11).

Descriptive statistics

Below I present descriptive statistics for the variables. Table 4 includes descriptive statistics for the different dependent variables. Note that variance is presented, rather than standard deviation. The table clearly show that the variance is greater than the mean, indicating that the data is overdispersed, although for the regression analyses it is the *conditional* mean and

variance that are important. I shall get back to this in the chapter on methods. Total number of electoral violent events is not used in the regression analysis but is presented here to give an overview. Note that the sum of the different types of election violence is *not* equal to the sum. This is both because pro-government actors and government actors contain some of the same events, and other events are excluded due to unknown actors or inability to determine which actor initiated the violence.

Table 4. Descriptive statistics for dependent variables

Variable	Min	Max	Median	Mean	Variance	N
Pre-election government actor	0	29	0	0.75	7.15	1,184
Post-election government actor	0	31	0	0.40	4.25	1,184
Pre-election pro-government actor	0	148	0	1.31	49.45	1,184
Post-election pro-government actor	0	42	0	0.55	8.12	1,184
Pre-election opposition actor	0	210	0	2.02	114.51	1,184
Post-election opposition actor	0	57	0	0.81	18.32	1,184
Sum violence	0	755	1	9.26	1229.48	1,184

Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012).

Table 5 presents descriptive statistics for the explanatory variables. For variables that are lagged and/ or logged, both the original variable and transformed variable is included.

Table 5. Descriptive statistics of explanatory variables

Variable	Min	Max	Median	Mean	Standard deviation	N
Explanatory variables						
Majoritarian system	0	1	0	0.37	0.48	1,105
Mixed system	0	1	0	0.31	0.46	1,105
Mean district magnitude	0.72	450	5.2	18.09	48.44	957
Mean district magnitude, $_{log}$	-0.33	6.10	1.64	1.63	1.45	957
Ethno-political exclusion	0	0.84	0	0.04	0.14	1,183
Economic inequality	0.21	0.62	0.38	0.38	0.07	1,012
Executive constraints	0	7	5	4.77	1.95	1,143
Polling unfavourable	0	1	1	0.70	0.45	1,059
Victory uncertain	0	1	0	0.47	0.49	1,046
Post-election protest	0	1	0	0.18	0.38	1,179
Country-control variables						
GDP pc	366.60	97374.69	6685.70	9445.36	10303.58	1,154
GDP pc, $_{log\ lag}$	5.30	11.49	8.79	8.65	1.03	1,152
Population	0.41	1214.27	9.47	28.08	81.97	1,154
Population, $_{log\ lag}$	-0.91	7.08	2.22	2.27	1.37	1,152
Polity score	-10	10	6	3.21	6.00	1,167
Polity score, $_{lag}$	-10	10	5	2.63	6.18	1,159
Polity sq, $_{lag}$	0	100	49	45.15	30.62	1,159
Civil war	0	1	0	0.18	0.38	1,184
Election-control variables						
Competitive elections	0	1	1	0.90	0.28	1,177
Incumbent running	0	1	1	0.63	0.48	667
Observers	0	1	1	0.66	0.47	1,154
Fraud	0	1	0	0.22	0.41	1,054

Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015); Solt (2019).

Figure 3 present the average election rounds and types of election violence per year. It shows that overall (meaning aggregated pre- and post-election violence), opposition actors are more frequently the perpetrators of election violence in unconsolidated regimes than government or pro-government actors. This is contrary to findings in most quantitative studies on election violence from African elections (Straus and Taylor 2012; Fjelde and Höglund 2016b).

Figure 3. Average election rounds and types of election violence per year

Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012).

Looking at Figure 3, there is no apparent time trend. However, an immediate pressing question arises: what happened in 2005? The top two most violent election rounds in ECAV both belong to Iraq in 2005. The year started with extensive electoral violence during the January Parliamentary election (739 violent events recorded) and ended with another violent Parliamentary election in December (369 violent events recorded). Data on solely African elections show that elections in that region were particularly violent in 2005 as well (see for example, Fjelde and Höglund 2016b, 309 using data from SCAD).

4. Method

The purpose of this chapter is to present the method I use in this thesis, highlighting the advantages and disadvantages. Studying the causes of electoral violence is a difficult task at best, and as shown in the literature review, it can be done in multiple ways. Although arguably based on the same underlying logic of interference, a distinction is usually made between qualitative and quantitative methods (King, Keohane and Verba 1994, 3; Landman 2008, 21). In this thesis I take a quantitative approach to the research question, as I have chosen to conduct a time-series cross-sectional analysis (TSCS). Given that my dependent variables measure the number of different types of violent election-related events, a count model is the appropriate statistical technique. I will first present and discuss the choice of method. Afterwards the specific regression models and most appropriate estimation technique are discussed.

Establishing cause and effect

The theories presented in Chapter 2 contains hypotheses which specifies causal factors and outcomes. Hence it is appropriate to add some words concerning causality. Even if quantitative method can mostly only offer support for concluding that two variables correlate with each other, that is, co-variation, the objective is to establish whether there is a causal relationship between the variables (Gerring 2012, 199). Gerring (2014, 199) presents a minimal definition of causality: A factor X is a cause of an outcome, Y, is to say that a change in X generates a change in Y relative to what Y would otherwise be (the counterfactual condition), given certain background conditions (ceteris paribus assumptions) and scope-conditions (the population of the inference). The background factors include all factors other than X which might influence Y, either directly or indirectly. If not specified, background conditions are presumed to hold constant (Gerring 2014, 200).

Randomised experiments are the only way to truly establish causality, as this is the only way to be completely sure that one has controlled for all possible alternative explanations of why X and Y correlate. It is often not possible to rely on experimental logic in quantitative method, and patterns or associations in observational data are not sufficient to make conclusions about causality (Fearon and Laitin 2008, 758). There is always the possibility that unknown factors that are relevant are left out, or alternatively, that we do not have data for important variables. Due to this, researchers try to approximate causality in a different way.

Principally, there are at least three requirements for demonstrating a causal relationship between an explanatory variable and an outcome: 1) There must be co-variation between the explanatory variable and the dependent variable; 2) the explanatory variable must come before the dependent variable in time; 3) alternative explanations must be ruled out (Gerring 2012, 199). The first criterium is the easiest to demonstrate, merely show that the variables are correlated. The second criterium can be harder to verify, but in some cases, it can be easy if the temporal ordering is obvious or reverse causality is highly unlikely or impossible. For example, that gender comes before education, rather than your education affecting your gender. Criterium number three is the most difficult one to confirm whether you have accomplished. By including control variables, multivariate regression analysis can partly rule out alternative explanations that are known of and can be controlled for. Hence, a key aspect of quantitative method is about controlling for the effect of other theoretically uninteresting variables (Gerring 2012, 200). The idea is that the effect of the theoretically interesting variable becomes more realistic (Fearon and Laitin 2008, 758). Before I move on, I'll add Gerring's (2012, 198) words about why to even bother about causality: "One important purpose of causal inference is to offer insight into what may happen in the future. To say that X causes Y is to imply (usually) that it will continue to do so – perhaps not indefinitely, but at least tomorrow and next year" (Gerring 2012, 198).

Time-series cross-section analysis

Quantitative methods consist of a large number of observations and often aim to find a general relationship between dependent and independent variables (Fearon and Leitin 2008, 757). Hence, the advantage of a quantitative analysis is that it allows me to compare information from a large number of cases, which provides for statistical control and hence the potential for generalisation (King, Keohane and Verba 1994). This comes at the expense of complexity and particularities about unique cases (Ragin 1987). Which method that shall be used depends both on which analysis is the most suitable for the research question and also the types of data which are available (Gerring 2012, 167). Cross-sectional analyses study different units, for example countries, at a certain point in time. Time-series analyses, on the other hand, focus on a single unit and study it over several time periods, usually with fixed intervals between the observations. Panel analysis combines both cross-sectional and time-series analysis, thus observing the same entities at several points in time (Dougherty 2016, 113). "Panel data involve two dimensions: a cross-sectional dimension N, and a time series-dimension T" (Hsiao 2003,

291). Using time-series cross-sectional analysis, I study the causes of electoral violence across 1,184 election rounds in 136 countries between 1990 and 2012.

An advantage of panel data is that it can reveal dynamics which are difficult to discover in only cross-section data (Dougherty 2016, 529), as "a single time-series data set usually cannot provide precise estimates for dynamic coefficients either" (Hsiao 2003, 5). In order to design effective politics to deal with recurrent election violence, one needs to know the characteristics of the countries and election rounds affected or the most at risk (Dougherty 2016, 529). Another advantage is that it gives me more observations to study 136 countries (i = 1,…, N) between the years of 1990 and 2012 (t = 1,…, N) (Hsiao 2003, 1). It is possible to test more complicated behavioural models when using time-series cross-sectional data rather than just cross-sectional *or* time-series data. With a greater amount of data points, panel data often increase the degrees of freedom and reduce collinearity between the independent variables (Hsiao 2003, 1). Moreover, by using data collected both across time and space, I decrease the issue of omitted variables. Sometimes specific effects are found (or not found) in empirical studies because variables that are either mismeasured or unobserved are correlated with the explanatory variables. This can better be controlled for when using information about the individual entities as well as the intertemporal dynamics (Hsiao 2003, 5).

Note that the terms panel data and time-series cross-section (TSCS) data are often used interchangeably. However, there is a difference between the two. TSCS data is distinguished by repeated observations on fixed political units. This if often annual observations of countries (Becks 2001, 271). Panel data, on the other hand, are also repeated cross-sectional data, but here the units of analysis are samples usually observed only a couple of times. Moreover, panel data often contain surveyed respondents drawn from random sampling schemes (Beck 2001, 273). The units observed in panel data are usually of no interest, since all important inferences regards the underlying population. The units in TSCS data are usually quite interesting entities, such as countries, and all inferences are based on their observations (Beck 2001, 273).

Analysing count data

My dependent variables are categorical, more precisely count variables. Counts are whole numbers that can range from no less than zero through infinity (Orme and Combs-Orme 2009, 152). Count variables count the number of times something has happened (Long and Freese 2014, 481), often within a specific domain of observation, for instance within a particular

geographical area, population size or time period (Orme and Combs-Orme 2009, 152). This is known as exposure and regards the opportunity of an event to occur (Orme and Combs-Orme 2009, 155). In this thesis, I count the number of election-related events in each election round. The exposure was specified in the section on sample selection. Recall that I differentiate between pro- and anti-government actors, as well as pre- and post-election violence. Hence, one of the dependent variables counts the number of post-election violent events perpetrated by anti-government actors in a given election round.

Perhaps the most widely used regression model in the social science is the linear regression model. Although it has the advantage of being easy to interpret, the model only applies to cases in which the dependent variable is unbounded (Freese and Long 2014, 8). Count regressions are nonlinear (Cameron and Trivedi 2010, 567). A lot of researchers treat count variables as continuous variables and run their regressions with ordinary least squares (Allison 2009, 2). Whereas linear regression models can sometimes yield reasonable results, it is a lot safer to apply models made specifically for analysing count outcomes (Long and Freese 2014, 481). When analysing count dependent variables, there are several regression models to choose from (Orme and Combs-Orme 2009, 152), also in Stata. The Poisson regression model (PRM) is the foundation for other count models, and many of the other count regression models are based on it (Orme and Combs-Orme 2009, 152). The Poisson regression model itself belongs to the family of generalised linear models (Coxe, West and Aiken 2009, 122). A basic feature of the Poisson distribution is that the mean is equal to the variance, also known as equidispersion (Orme and Combs-Orme 2009, 170). Count variables are usually overdispersed (Cameron and Trivedi 2010, 641), which means that the variance is greater than the mean (Long and Freese 2014, 482). That the distributions of count outcomes are often overdispersed, in other words, highly skewed (Allison 1984, 2), means that many count variables have more observed zeros than what is predicted by the Poisson distribution (Long and Freese 2014, 482). Thus, finding out which model to use is based on how the data were collected and the distribution of the independent variables (Long and Freese 2014, 484). As all my dependent variables are overdispersed. A common method for dealing with overdispersion is the negative binomial regression model (Coxe, West and Aiken 2009, 132), which is used in this thesis. The model will be discussed in the following section.

Negative Binominal Regression Model

I have a large number of zeros in my dataset, meaning a lot of the election rounds do not have any violence at all (which is indisputably a good thing!). On all of the dependent variables in this thesis, the conditional variance is always larger than the conditional mean. Since all my dependent variables are overdispersed, a negative binominal regression is appropriate to model the count variables. This was confirmed using the countfit procedure in Stata 15, which showed "very strong" support for the negative binominal regression model. The negative binominal regression model is based on the Poisson distribution (Long and Freese 2014, 481), but with less restrictive assumptions (Orme and Combs-Orme 2009, 153). All models where created using panel negative binominal regression (xtnbreg) with random effects (RE) and OIM standard errors. [24] OIM stands for observed information matrix and concerns how the standard errors are calculates (StataCorp 2019a). An advantage of the negative binominal is that, in contrast to the Poisson, the estimator is designed to explicitly deal with overdispersion (Cameron and Trivedi 2010, 641). It takes care of overdispersion by predicting that there will be unexplained variability between entities with the same predicted value (Coxe, West and Aiken 2009, 132).

Different versions of the negative binomial model (nbreg) are available, such as zero-inflated or truncated negative binominal models. However, these are not correct to use. A zero-inflated nbreg model implies that there are two different kinds of zeros. It is used when there are an excess number of zeros because a subgroup of units is included which will never display the counted behaviour (Coxe, West and Aiken 2009, 121). Since my unit of analysis is country-election rounds as opposed to country-years or country-months (as for example Fjelde and Höglund 2016b), I do not include "excess zeroes" in my count variables, meaning that I do not record periods without elections as zero, as these are excluded from the analysis. Hence, a zero-inflated model is not appropriate. Truncated models are used when entities which have zero counts are excluded beforehand (Coxe, West and Aiken 2009, 121).

Postestimation

Directly after the regression analyses, margins are estimated, with the predict function of nu0, meaning predicted number of events, assuming random effects is zero (Stata xtnbreg postestimation, 4). For the interaction variables with factor variables or one factor and one

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[24] The Do-file for the regression models is available upon request.

continuous variable, I use margin plots to graph the results. For interaction effects with two continuous variables, such as mean district magnitude and economic inequality, two-way contour are used.

Fixed effects versus random effects

Recall that the unit of analysis in this thesis is country-election round, meaning that I have repeated observations on elections rounds (time-series variable) across countries (cross-section variable). The TSCS-models are thus structured hierarchical (Bell and Jones 2015, 135), with "within" and "between" effects (Bell and Jones 2015, 137). The most common treatments for TSCS data are the fixed and random effects model (Greene 2006, 41; Beck 2001, 285). The logic behind fixed effects estimation is arguably straightforward and convincing, which might clarify why it is so popular. The issue of heterogeneity bias can be evaded by using the higher-level entities themselves as dummy variables to control for all higher-level variance, including all between effects (Allison 2009; Bell and Jones 2015, 138). This means that unobserved effects are incorporated into the model (Dougherty 2016, 533-536). Bell and Jones (2015, 137) argue that this is unfortunate, as any possible correlations between higher-level variance and covariates thus become irrelevant. The source of endogeneity should be examined further and perhaps even modelled explicitly, as it contains large amount of information which oftentimes is interesting in itself (Bell and Jones 2015, 137-139).

For the models in this thesis, random effects are regarded as the more suitable estimation technique. Bell and Jones (2015, 135) state that a well-specified "random effects (RE) model can provide everything that fixed effects (FE) model promises and more". They go as far as to claim that "there are few, if any, occasions in which FE modelling is preferable to RE modelling" (Bell and Jones 2015, 134). However, this is contingent on that the RE model "properly specifies the within and between effects" (Bell and Jones 2015, 144). A feature of the RE model which is rather advantageous for this study is that the model includes time-invariant variables (Bell and Jones 2015, 133). Some of my explanatory variables are assumed to be rather constant over time within countries, for example electoral system. When using the RE model, a number of particular assumptions needs to be fulfilled. The exogeneity assumption of RE models assumes that the residuals are independent of the covariates (Bell and Jones 2015, 136). The RE model assumes that the effects are drawn from a random distribution. However, in the TSCS analysis, the units are fixed entities, namely countries, and it is important to note that scholars have deemed RE models inappropriate for such data (Beck 2001, 284).

Clark and Linzer (2012, 2 in Bell and Jones 2012, 139) argue that the use of a Hausman test is "neither necessary nor sufficient" test to only base this methodological decision on. Nevertheless, estimated higher-level effects may still be biased by omitted variables. As such, as in any model, interpretation should be made with caution (Bell and Jones 2015, 133). When I ran Hausman tests for the different models with the different dependent variables, all have significant p-values, which show support for fixed effects being used. However, the loss of constant explanatory variables is highly problematic for the analysis. A random effects model is also suitable since some countries did not have that many elections between 1990 and 2012 (Daxecker, Amicarelli and Jung 2019, 720). Moreover, Beck and Katz (2007, 191) demonstrate that RE models perform well when it comes to TSCS data, also in cases where the normality assumptions are violated. Hence, the models in this thesis are presented with random effect. However, I have additionally run all models with fixed effects, and most of these models are included in Appendix 2. Note that the models for hypothesis 1 with additional country-control variables are not included in the Appendix.

Lagged variables

Some of the countries in the analysis have had very few elections between 1990 and 2012. The mean of election rounds per country in the sample is 8,7. The countries of Solomon Island, Libya and Surinam have only one observation each, while Bhutan and Myanmar have two. For these countries it does not make too much sense in lagging variables, but it is nevertheless done so for consistency. The lagged variables are polity score, polity score sq, population size and GDP per capita, in addition to lagging all the dependent variables.

Logged variables

As already mentioned, some of the variables are log transformed. Recall that I use the log of average district magnitude (DM), where DM measures the mean size of all electoral districts in a country. This is because beyond a certain threshold, the variable should have no further effect on diffusing the stakes of the electoral contest and on reducing the incentives for violent manipulation (Fjelde and Höglund 2016b, 308). The variables population size and GDP per capita are also logged.

Interaction effects

Several of the hypotheses presented in Chapter 2 are contingent on an interaction effect between two variables. When I examine whether size of largest ethno-political exclusion has an effect on electoral violence, this assumed effect is dependent on whether the country employs a majoritarian electoral system. The same goes for the hypotheses on executive constraints and uncertainty of outcome and post-election protest. When there is an interaction effect, the focus is on what effect the independent variable X have on the dependent variable Y as a function of another independent variable Z (Midtbø 2012, 136). This is an important difference in comparison to the other analyses which examine the effect of X on Y, with control variables Z. Control variables will still be included in the models with interaction effects.

Heterogeneity bias

TSCS data is often praised for its theoretical ability to isolate the effects of explanatory variables. However, "this is based on the assumption that the data is generate from controlled experiments" (Hsiao 2003, 8). In observational data, the units of analysis can be influenced by an infinite number of factors, which is neither possible nor desirable to include in the analysis. While variables assumed to be insignificant are usually left out, one still needs to take into account the either time- or individual-specific effects can be present between time-series or cross-sectional units, as these can result in parameter heterogeneity in the model specification. Hsiao (2003, 8) further asserts that ignoring such heterogeneity bias can lead to inconsistent or outright meaningless estimates.

5. Analysis and results

In this chapter I present the findings from my regression analysis. Recall that since all my dependent variables are count variables, I use negative binomial models with random effects. I differentiate between pro-government and opposition perpetrators, and also between pre-election and post-election violence. In the models below I present the coefficients b. However, I will often refer to the exponentiated coefficients e^b. In negative binominal models, the exponentiated coefficients have the interpretation of incidence-rate ratios (IRR) (StataCorp 2019b). Due to space constraints, I do not report IRRs in my regression tables.

The first hypothesis of this thesis posits that majoritarian electoral formulas and smaller electoral districts are associated with a higher risk of electoral violence in unconsolidated regimes. Building on this, the second hypothesis proposes that the risk of electoral violence under majoritarian electoral systems will increase with the size of the largest excluded ethno-political group. The third hypothesis set forth that the risk of electoral violence under majoritarian electoral systems will increase with higher levels of economic inequality. I will now present the analysis of the three first hypotheses in turn, firstly for the dependent variables for electoral violence initiated by pro-government actors, and afterwards for opposition-initiated electoral violence. Both categories allow for the inclusion of both state and non-state actors, although events by anti-government state-actors are rare in the dataset. Afterwards, the analysis of the two hypotheses for executive constraints and uncertainty of popularity of incumbent are presented. These are limited to government-initiated violence, but also disaggregated by pre- and post-election period.

Increased stakes of elections: pro-government violence

I start the analysis of whether majoritarian electoral systems increase the risk of electoral violence by pro-government actors. In Table 6, I only include country control variables, while table 7 includes additional election control variables. In model 2 and Model 4, the coefficients for mean district magnitude (MDM) are positive. This is contrary to the hypothesis, as more representatives elected per district is expected to decrease the stakes of the election and therefore also election violence. However, neither coefficients are significant. The coefficients for majoritarian system in Model 1 and Model 3 are both positive, indicating that majoritarian electoral rules increase the use of violence by pro-government actors. However, it is only for

the post-election period that the coefficient is actually significant (at the 99 per cent confidence interval). This means that, all other things being equal, majoritarian systems significantly increase the number of violent events by pro-government actors in the post-election period, compared to PR systems. The incident rate-ratio is 2.54.

Table 6. Electoral system and electoral violence initiated by pro-government actors

	Pre-election violence		Post-election violence	
	(Model 1)	(Model 2)	(Model 3)	(Model 4)
Majoritarian system	.075		.933***	
	(.234)		(.318)	
Mean district magnitude		.048		.007
(MDM), $_{log}$		(.058)		(.081)
Polity score, $_{lag}$	-.017	-.032*	.017	.000
	(.017)	(.017)	(.021)	(.022)
Polity score sq, $_{lag}$	-.012***	-.012***	-.009**	-.008*
	(.003)	(.003)	(.004)	(.004)
Population, $_{log\ lag}$	.325***	.345***	.386***	.387***
	(.070)	(.070)	(.084)	(.091)
GDP pc, $_{log\ lag}$	-.180*	-.223**	-.406***	-.425***
	(.094)	(.095)	(.121)	(.131)
Mixed system	.296		1.023***	
	(.231)		(.324)	
Civil war	.447**	.428**	.416*	.447*
	(.181)	(.184)	(.224)	(.242)
Dependent variable, $_{lag}$	.013***	.013***	-.007	-.011
	(.004)	(.004)	(.018)	(.018)
Constant	-.351	.007	-.121	.990
	(.780)	(.767)	(.986)	(1.016)
N	969	873	969	873

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

The models in Table 7 include election control variables. I control for reports of fraud, competitiveness of elections, whether the incumbent was running, and the presence of electoral monitors. The effect of majoritarian systems on post-election violence in Model 7 is still positive and significant at the 99 per cent confidence interval, although the IRR slightly decreased to 2.50. It is worth noting that the coefficients for MDM in Model 6 and Model 8 changes direction, but they are still not significant. Model 5 also shows that fraud increase pre-election violence, here the IRR is 1.50. Moreover, in model 8, where the incumbent is running there is an increased risk of post-election violence, with IRR of 1.59. Both are only significant at the 90 per cent level and therefore need to be interpreted with caution. Also note that mixed system in Model 3 appears to have a positive and significant effect on post-election violence.

Table 7. Pro-government-initiated electoral violence with election-level control variables

	Pre-election violence		Post-election violence	
	(Model 5)	(Model 6)	(Model 7)	(Model 8)
Majoritarian system	.261		.917***	
	(.265)		(.334)	
Mean district magnitude, $_{log}$		-.015		-.067
		(.068)		(.092)
Electoral fraud	.408*	.308	.181	.208
	(.212)	(.218)	(.262)	(.273)
Competitiveness	-.365	-.267	-.172	-.203
	(.395)	(.422)	(.487)	(.498)
Incumbent running	.166	.249	.354	.464*
	(.196)	(.195)	(.250)	(.252)
Observers	.006	.069	.284	.243
	(.233)	(.240)	(.267)	(.270)
Polity score, $_{lag}$	-.019	-.033	-.000	-.025
	(.024)	(.025)	(.029)	(.031)
Polity score sq, $_{lag}$	-.009**	-.009**	-.006	-.005
	(.004)	(.004)	(.005)	(.005)
Population, $_{log\ lag}$	.260***	.272***	.363***	.373***
	(.079)	(.079)	(.100)	(.107)
GDP pc, $_{log\ lag}$	-.268**	-.231**	-.483***	-.423***
	(.114)	(.116)	(.146)	(.155)
Mixed system	.299		.663*	
	(.264)		(.360)	
Civil war	.359	.377	.438	.419
	(.240)	(.244)	(.302)	(.321)
Dependent variable, $_{lag}$	.021***	.020***	.008	.003
	(.004)	(.004)	(.023)	(.023)
Constant	.653	.367	.602	.996
	(1.110)	(1.116)	(1.398)	(1.406)
N	496	467	496	467

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

Next I present the regression analyses for hypothesis 2 and 3 in Table 8 and 9 respectively. Note that election control variables are not included here. Following the argument of Fjelde and Höglund (2016b, 312), that while electoral institutions are an inherent part of the negotiations between central actors when the institutions are first established, they are not anticipated to be influenced by more election-specific drivers. Omitted variable bias only applies when the following two conditions both are true: 1) the control variable is correlated with the independent variable of interest; and 2) the control variable has a non-zero effect on the outcome variable (King, Keohane and Verba 1994, 169). Recall one of my assumptions from the theory chapter: institutions are "sticky structures". Thus, I am confident in leaving them out of the main model and only include a limited number of country-level control variables.

The second hypothesis proposes that the risk of electoral violence under majoritarian electoral systems will increase with the size of the largest excluded ethno-political group. I do not find any support for this when it comes to election violence perpetrated by pro-government actors ahead of elections. The interaction variable with majoritarian system and ethno-political exclusion (Model 1) is positive, while MDM*exclusion (Model 2) is negative. The directions of the effects are thus as expected in the hypothesis. Majoritarian formulas are expected to increase violence with the size of the largest excluded group. More seats per district, a feature of PR systems, is expected to have a violence-reducing effect with the larger excluded groups. However, neither coefficients are significant. For the post-election period, this relationship is reversed. Here, majoritarian formula appears to have a violence-reducing effect on pro-government violence when the largest excluded group increases, while larger electoral districts appears to increase violence when ethno-political groups are larger. This is contrary to the expected hypothesis, yet neither is significant here either. Also note that the coefficients for ethno-political exclusion by themselves negative, both before elections and after. In Model 4, this coefficient is also significant (granted at the 90 per cent interval). This implies that there is a negative relationship between larger excluded ethno-political groups and pro-government violence in the post-election period. Also note that the coefficient for majoritarian formula is still positive and significant at the 99 per cent interval in Model 3. This means that going from mixed/PR system to majoritarian, the rate for post-election pro-government violence would be expected to increase by a factor of 2.71 (IRR), while holding all other variables in the model constant.

Table 8. Pro-government-initiated electoral violence, electoral system and ethno-political exclusion

	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	-.034		0.997***	
	(.249)		(.337)	
Mean district magnitude (MDM), log		.071		.021
		(.061)		(.086)
Ethno-political exclusion	-.907	-.398	-.274	-2.170*
	(.816)	(1.047)	(1.077)	(1.284)
Maj*Exclusion	1.491		-2.096	
	(1.220)		(1.666)	
MDM*Exclusion		-.197		.237
		(.438)		(.545)
Polity score, lag	-.017	-.037**	.0116	-.007
	(.017)	(.017)	(.021)	(.023)
Polity score sq, lag	-.012***	-.012***	-.009**	-.008*
	(.003)	(.003)	(.004)	(.004)
Population, log lag	.326***	.343***	.373***	.379***
	(.070)	(.070)	(.086)	(.092)
GDP pc, log lag	-.197**	-.251***	-.405***	-.470***
	(.095)	(.098)	(.124)	(.134)
Mixed system	.243		1.012***	
	(.235)		(.331)	
Civil war	.445**	.415**	.389*	.404*
	(.181)	(.185)	(.227)	(.244)
Dependent variable, lag	.012***	.012***	.012	-.016
	(.004)	(.004)	(.018)	(.018)
Constant	-.107	.259	-.018	1.532
	(.809)	(.790)	(1.039)	(1.055)
N	969	873	969	873

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

The third hypothesis sets forth that the risk of electoral violence under majoritarian electoral systems will increase with higher levels of economic inequality. For the pre-election period, the interaction effect of majoritarian system and economic inequality (Model 1) is positive, while MDM*inequality (Model 2) is negative. This is in line with the hypothesis that mean district magnitude have a violence-reducing effect when there is increased economic inequality, while majoritarian formula and greater inequality increase such violence. But here too, the coefficients are insignificant. Looking at the effect of electoral system on pro-government violence in the post-election period, I find no support for that majoritarian system and economic inequality increase the risk of violence. Although the coefficient is positive, it is not significant. A larger mean district magnitude and economic inequality, on the other hand, has the expected negative effect on electoral violence. This coefficient, showed in Model 4, is significant at the 95 per cent confidence interval. Also note that the coefficient for MDM in the same model is

also significant at the 95 per cent confidence interval. This is contrary to the expectation in the hypothesis, as it suggests that larger electoral constituencies, that is, more legislative seats per district, actually increase the risk of pro-government violence in the post-election period.

Table 9. Pro-government-initiated electoral violence, electoral system and economic inequality

	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	-.112		-.084	
	(1.073)		(1.353)	
Mean district magnitude (MDM), $_{log}$		.348		.826**
		(.284)		(.389)
Economic inequality	.291	.942	-2.421	1.127
	(1.666)	(1.816)	(2.318)	(2.293)
Maj*Inequality	.436		2.781	
	(2.630)		(3.235)	
MDM*Inequality		-.761		-2.203**
		(.750)		(1.030)
Polity score, $_{lag}$	-.025	-.045**	.033	-.009
	(.018)	(.018)	(.023)	(.024)
Polity score sq, $_{lag}$	-.011***	-.011***	-.010**	-.008*
	(.003)	(.003)	(.004)	(.004)
Population, $_{log\ lag}$	.303***	.317***	.363***	.400***
	(.075)	(.075)	(.094)	(.097)
GDP pc, $_{log\ lag}$	-.145	-.194*	-.473***	-.505***
	(.105)	(.106)	(.138)	(.143)
Mixed system	.214		1.022***	
	(.240)		(.349)	
Civil war	.575***	.588***	.496**	.550**
	(.190)	(.195)	(.248)	(.259)
Dependent variable, $_{lag}$	.013***	.012***	-.013	-.016
	(.004)	(.004)	(.018)	(.019)
Constant	-.738	-.573	1.515	1.149
	(1.182)	(1.207)	(1.586)	(1.575)
N	854	788	854	788

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

The interaction terms with continuous predictors are difficult to interpret by just looking at the coefficients. Following Brambor, Clark and Golder (2006), a graphical representation is more appropriate. Due to limited space, these margin plots and two-way contours of the interactions are included in Appendix 1 whenever they do not show any significant results. MDM*Inequality from Model 8 is displayed below in Figure 4. It visualises the predicted number of pro-government violent events in the pre-election period at different levels of mean district magnitude and ethno-political exclusion. Larger mean district magnitude and less

economic inequality is displayed to have higher average marginal effects on predicted numbers of events, assuming random effects are zero.

Figure 4. Post-election pro-government violence, mean district magnitude and economic inequality
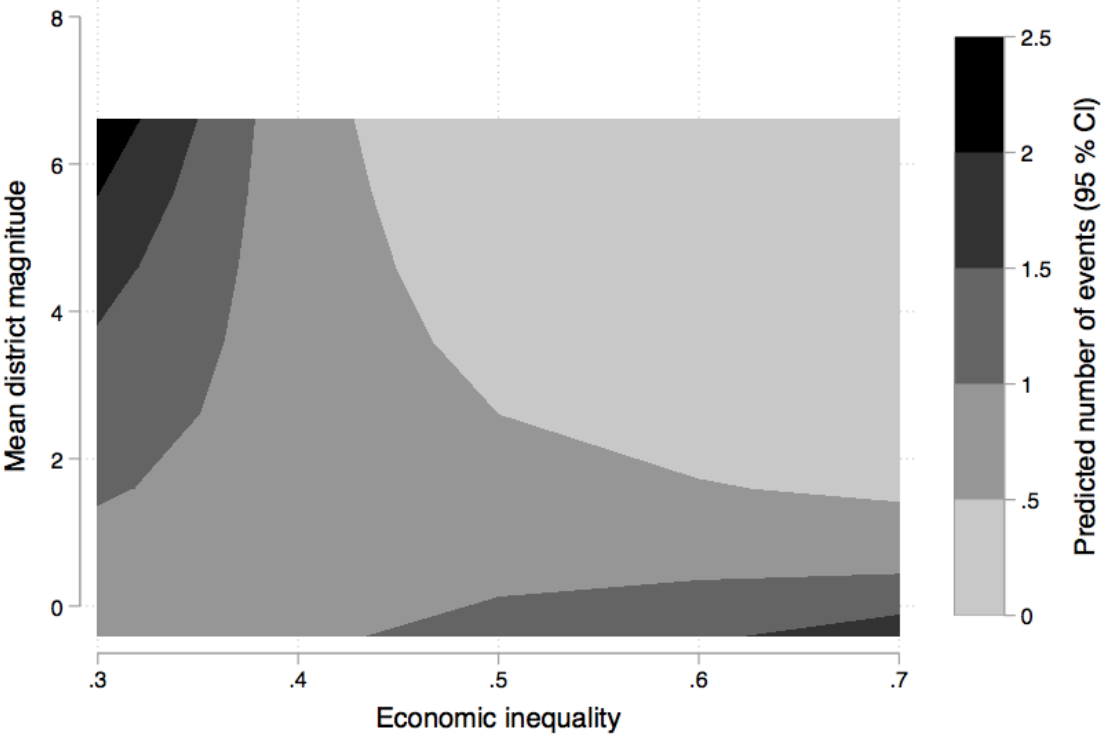
Note: This is the interaction variable found in Table 9, Model 4. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Increased stakes of elections: opposition violence

I now move on to present the regressions for the first three hypothesis when it comes to opposition-initiated violence. Starting with the first one, that majoritarian systems increase the risk of electoral violence, I find some support for this hypothesis in Table 10. Model 1 and Model 3 shows that the coefficient for majoritarian system, is both positive and significant at the 90 per cent and 99 per cent confidence interval respectively. The IRR is 1.50 for opposition-initiated violence in the pre-election period, while the IRR is 0.96 for post-election violence. In line with the hypothesis, larger mean district magnitude has a violence-reducing effect on election violence, but the coefficients in Model 2 and Model 4 are not significant.

Table 10. Electoral system and electoral violence initiated by opposition actors

	Pre-election violence		Post-election violence	
	(Model 1)	(Model 2)	(Model 3)	(Model 4)
Majoritarian system	.408*		.713***	
	(.229)		(.276)	
Mean district magnitude (MDM)		-.081		-.032
		(.063)		(.080)
Polity score, lag	.028	.019	.065***	.048**
	(.018)	(.018)	(.023)	(.024)
Polity score sq, lag	-.006**	-.008**	-.011***	-.009**
	(.003)	(.003)	(.004)	.004
Population, log lag	.336***	.387***	.354***	.396***
	(.070)	(.075)	(.085)	(.092)
GDP pc, log lag	-.192**	-.136	-.421***	-.425***
	(.097)	(.103)	(.123)	(.131)
Mixed system	.327		.550*	
	(.216)		(.292)	
Civil war	1.008***	.864***	.809***	.763***
	.170	(.176)	(.210)	(.223)
Dependent variable, lag	.010	.009	.011	.014
	(.007)	(.007)	(.010)	(.010)
Constant	-1.065	-1.238	.284	.669
	.850	(.860)	(1.057)	(1.070)
N	969	873	969	873

Note: * p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

With the inclusion of additional control variables for the election rounds in Table 11, the coefficient for majoritarian formula in Model 5 lose significant. In Model 7 it is still significant, and the effect is even stronger with an IRR of 2.26. Contrary to Table 10, the coefficient for MDM is now significant, and negative, which is according to the theory that larger mean district magnitude decreases stakes of the election and leads to less violence. Note that the significance interval is only 90 per cent. Election fraud before the election is also suggested to increase by a factor of 1.55 (IRR), while holding all other variables in the model constant.

Table 11. Opposition-initiated electoral violence with election-level control variables

	Pre-election violence		Post-election violence	
	(Model 5)	(Model 6)	(Model 7)	(Model 8)
Majoritarian system	.407		.817**	
	(.285)		(.343)	
Mean district magnitude, $_{log}$		-.141*		-.036
		(.080)		(.102)
Electoral fraud	.235	.443*	-.147	-.023
	(.244)	(.251)	(.312)	(.320)
Competitiveness	.195	.261	.207	.559
	(.492)	(.524)	(.643)	(.774)
Incumbent running	-.005	-.075	-.030	.035
	(.203)	(.198)	(.242)	(.249)
Observers	-.060	-.092	.088	-.063
	(.209)	(.209)	(.280)	(.285)
Polity score, $_{lag}$	.032	.026	.056	.043
	(.028)	(.028)	(.038)	(.041)
Polity score sq, $_{lag}$	-.003	-.004	-.010*	-.009
	(.004)	(.005)	(.006)	(.006)
Population, $_{log\ lag}$	.323***	.358***	.400***	.491***
	(.088)	(.091)	(.106)	(.114)
GDP pc, $_{log\ lag}$	-.309**	-.192	-.327**	-.386**
	(.136)	(.143)	(.152)	(.176)
Mixed system	.141		.289	
	(.276)		(.353)	
Civil war	1.333***	1.279***	.936***	.930***
	(.246)	(.254)	(.305)	(.319)
Dependent variable, $_{lag}$	.007	.009	.014	.010
	(.010)	(.010)	(.012)	(.012)
Constant	-.377	-1.043	-.922	-.414
	(1.254)	(1.277)	(1.501)	(1.645)
N	496	467	496	467

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

I will now present the results for the regression models on opposition violence for the second hypothesis, that the risk of electoral violence under majoritarian electoral systems will increase with the size of the largest excluded ethno-political group. The results are presented in Table 12. Model 2 show that there is a negative, and significant, effect of MDM and size of largest excluded ethno-political group ahead of elections. This is as expected by the hypothesis and implies that when there are larger excluded groups, the stakes of the elections are decreased when there are more seats per constituency. The interaction is visualised in Figure 5. In Model 2, the coefficient for ethno-political exclusion is positive and significant at the 95 per cent confidence interval. This supports the argument that the size of the largest excluded or discriminated ethno-political group affects the stakes of elections and by extension, the use of violent tactics to secure the vote. The interaction variable with majoritarian formula and ethno-political exclusion is positive, as expected, but not significant. For the post-election period, I

do not find a significant effect of electoral system and ethno-political exclusion on opposition violence. Only the coefficient for majoritarian system in Model 3 is positive and significant at the 95 per cent confidence interval.

Table 12. Opposition-initiated electoral violence, electoral system and ethno-political exclusion

	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	.347		.682**	
	(.239)		(.291)	
Mean district magnitude, log		-.044		-.035
		(.066)		(.084)
Ethno-political exclusion	-.282	2.108**	.128	-.284
	(.953)	(1.031)	(1.060)	(1.290)
Maj*Exclusion	1.638		.873	
	(1.325)		(1.478)	
MDM*Exclusion		-1.148**		.106
		(.539)		(.536)
Polity score, lag	.031*	.0190	.070***	.048*
	(.018)	(.018)	(.024)	(.024)
Polity score sq, lag	-.007**	-.008**	-.011***	-.009**
	(.003)	(.003)	(.004)	(.004)
Population, log lag	.342***	.392***	.365***	.395***
	(.071)	(.075)	(.085)	(.092)
GDP pc, log lag	-.199**	-.129	-.416***	-.429***
	(.098)	(.102)	(.123)	(.133)
Civil war	1.011***	.893***	.820***	.757***
	(.170)	(.177)	(.209)	(.225)
Dependent variable, lag	.010	.0100	.012	.014
	(.007)	(.007)	(.010)	(.010)
Mixed system	.319		.544*	
	(.219)		(.293)	
Constant	-1.009	-1.424*	.164	.724
	(.861)	(.856)	(1.077)	(1.110)
N	969	873	969	873

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

The interaction for MDM*Exclusion is visualised in Figure 5. Here the predicted number of violent events is larger where ethno-political exclusion is larger, while moving from 1 to 2 mean district magnitude the amount of violence is reduces. are expected where the mean district magnitude is low and ethno-political exclusion is high.

Figure 5. Pre-election opposition violence, mean district magnitude and ethno-political exclusion
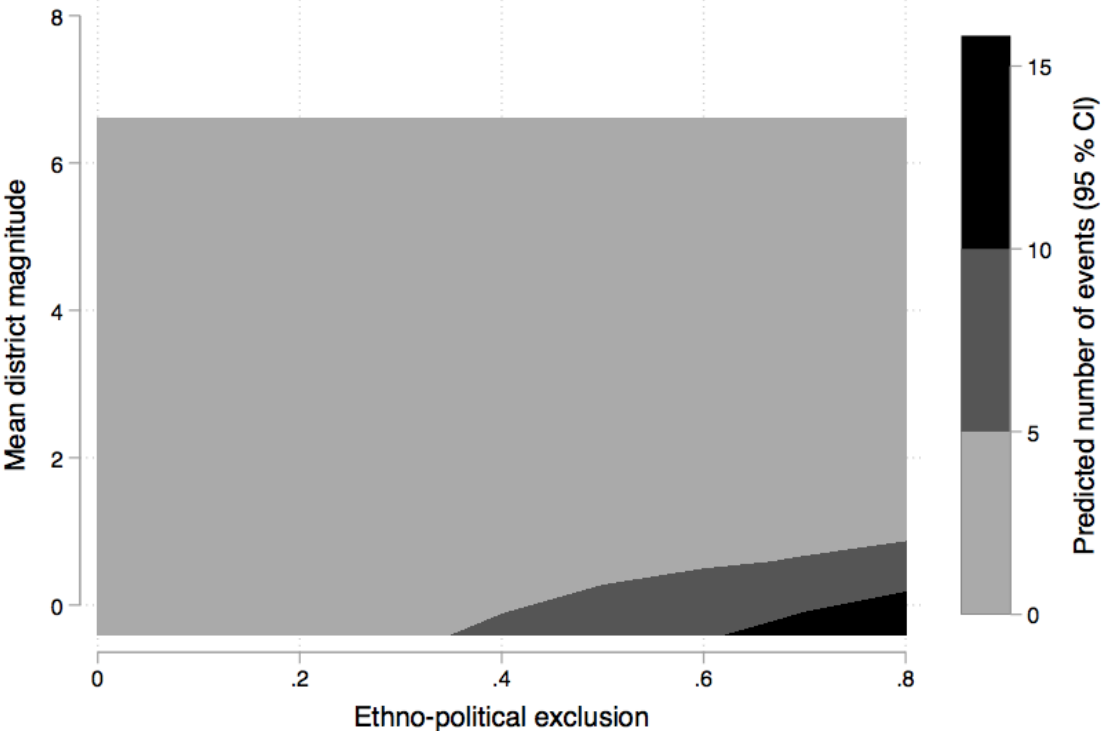
Note: This is the interaction variable found in Table 12, Model 2. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

The third hypothesis sets forth that the risk of electoral violence under majoritarian electoral systems will increase with higher levels of economic inequality. The results for opposition violence are presented in Table 13. For the pre-election period, in Model 1, majoritarian system and greater inequality have a strong positive and significant effect on the risk of violence. This interaction is graphed in Figure 6. Also notice that the coefficient for majoritarian system by itself is *negative* and significant, which indicate that majoritarian systems decrease the risk of opposition actors initiating violence ahead of elections. In Model 2, the violence-reducing effect of larger mean district magnitude with heightened inequality is also, as expected, negative and significant (but only at the 90 per cent interval). This interaction is visualised in Figure 7. In the same model, the effect of economic inequality alone is positive and significant at the 99 per cent interval. Neither of the interactions are significant in the post-election period. However, I do find that economic inequality is significant and positive in both Model 3 and Model 4. Higher

economic inequality is assumed to increase stakes of losing an election, perhaps making opposition actors resort to violence.

Table 13. Opposition-initiated electoral violence, electoral system and economic inequality

|	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	-2.429**		-.719	
	(1.136)		(1.364)	
Mean district magnitude, $_{log}$		.433		.297
		(.294)		(.403)
Economic inequality	1.572	5.068***	3.620*	5.583**
	(1.579)	(1.700)	(1.984)	(2.273)
Maj*Inequality	6.854***		3.664	
	(2.623)		(3.128)	
MDM*Inequality		-1.218*		-.841
		(.736)		(.986)
Polity score, $_{lag}$	.0162	.004	.060**	.039
	(.020)	(.019)	(.025)	(.026)
Polity score sq, $_{lag}$	-.006*	-.007*	-.009**	-.005
	(.003)	(.003)	(.004)	(.004)
Population, $_{log\ lag}$	.415***	.467***	.468***	.479***
	(.077)	(.076)	(.094)	(.099)
GDP pc, $_{log\ lag}$	-.184*	-.123	-.412***	-.451***
	(.106)	(.107)	(.127)	(.137)
Civil war	1.126***	.989***	.870***	.890***
	(.181)	(.181)	(.221)	(.232)
Dependent variable, $_{lag}$	.007	.009	.005	.008
	(.007)	(.007)	(.010)	(.010)
Mixed system	.266		.476*	
	(.223)		(.286)	
Constant	-2.045*	-3.872***	-1.894	-1.888
	(1.203)	(1.147)	(1.431)	(1.461)
N	854	788	854	788

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Figure 6. Pre-election opposition violence, majoritarian rules and economic inequality
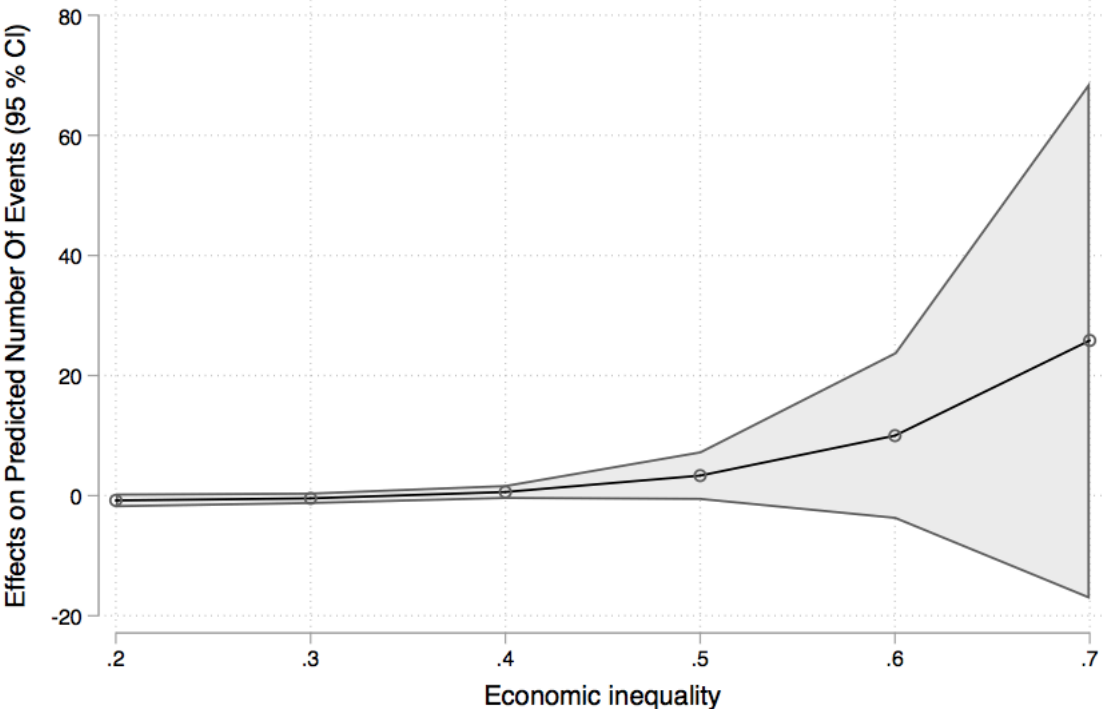
Note: This is the interaction effect found in Table 13, Model 1. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Figure 7. Pre-election opposition violence, mean district magnitude and economic inequality
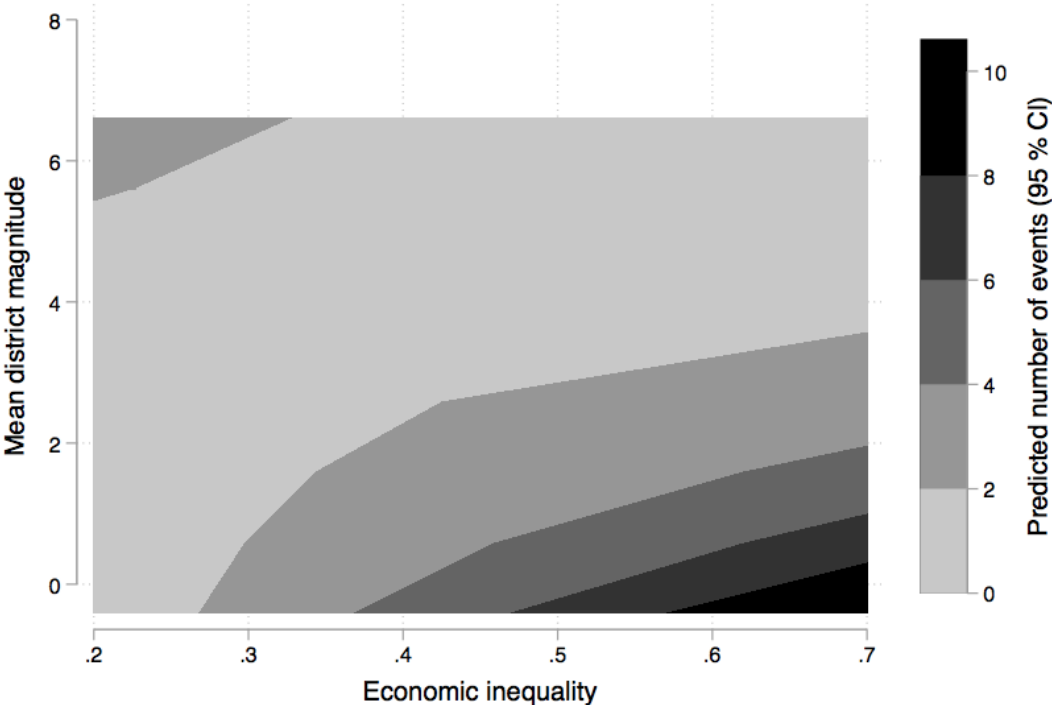
Note: This is the interaction found in Table 13, Model 2. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Institutional constraints and uncertainty of popularity

I now move on to analyse the two hypotheses regarding executive constraints and uncertainty of popularity of the incumbent. Hypothesis four suggests that an incumbent who is uncertain about winning the election and does not face significant institutional constraints is more likely to use pre-electoral violence. Hypothesis five suggests that, facing post-election protest, an incumbent who lacks significant institutional constraints is more likely to use violence in the post-election period. The results are presented in Table 14. Note that this measure of government violence includes only state-actors, as opposed to in the previous models of election violence by pro-government actors.

Model 1 to Model 3 in Table 14 only includes elections where the incumbent office is contested. The variables for uncertainty of victory and unfavourable polls are all positive, as expected, except in Model 3. The expectation is that uncertainty about winning the upcoming election,

either through unfavourable polls, or that the incumbent has not indicated itself that it is confident in winning. The interaction variable of executive constraints and victory uncertain in Model 2 is negative, as expected by the hypothesis that executive constraints can mitigate the use of government violence even when polls are unfavourable to the incumbent. However, this coefficient insignificant. The interaction variable with executive constraints and victory uncertain in Model 4 is negative and significant at the 90 per cent confidence interval. This suggests that executive constraints decrease the risk of election violence even when the government is uncertain about winning the upcoming election. This interaction effect is visualised in Figure 8. When it comes to the post-election period, Model 5 and Model 6 show negative and significant effects of executive constraints on government-initiated violence. The models also show positive and significant effects (at the 99 per cent confidence interval) that protest increase post-election government-initiated violence. This supports the expectation that executive constraints prevent governments form employing violence as they face a greater risk of being held accountable for their actions. The coefficients for post-election protests in Model 5 and Model 6 are both positive and significant. Post-election protests can be seen as a threat to the government, as it suggests that the people have solved a collective action problem, and they might demand the holding of new elections or that the government step down. However, the hypothesised interaction effect, presented in Model 6, is very weak and also insignificant.

Table 14. Negative binomial regression for executive constraints government violence

	Pre-election violence				Post-election violence	
	Without interaction (Model 1)	With interaction (Model 2)	Without interaction (Model 3)	With interaction (Model 4)	Without interaction (Model 5)	With interaction (Model 6)
Executive constraints	.022 (.103)	.062 (.141)	-.039 (.122)	.046 (.129)	-.230** (.100)	-.231** (.113)
Polling unfavourable	.248 (.236)	.504 (.657)				
Victory uncertain			-.187 (.226)	.801 (.619)		
Executive constraints*polling unfavourable		-.055 (.132)				
Executive constraints*victory uncertain				-.209* (.124)		
Protest					1.718*** (.199)	1.707*** (.514)
Executive constraints*protest						.002 (.120)
Electoral fraud	.023 (.246)	.017 (.246)	.134 (.240)	.161 (.239)	.063 (.232)	.063 (.232)
Polity score, lag	-.064* (.034)	-.064* (.034)	-.050 (.036)	-.054 (.036)	.032 (.030)	.032 (.030)
Polity score sq, lag	-.008* (.004)	-.008* (.004)	-.004 (.004)	-.003 (.004)	-.003 (.004)	-.003 (.004)
Population, log lag	.273*** (.097)	.269*** (.097)	.221** (.093)	.206** (.092)	.371*** (.089)	.371*** (.091)
GDP per capita, log lag	-.317** (.126)	-.320** (.126)	-.347*** (.118)	-.341*** (.117)	-.436*** (.121)	-.435*** (.123)
Civil war	.472* (.284)	.477* (.284)	.641** (.270)	.681** (.271)	.072 (.252)	.030 (.252)
Dependent variable, lag	.023 (.023)	.024 (.023)	.022 (.023)	.023 (.023)	.013 (.030)	.013 (.030)
Constant	.653 (1.219)	-.628 (1.536)	1.391 (1.160)	1.006 (1.158)	1.149 (1.044)	1.151 (1.049)
N	463	463	471	471	923	923

Note: * p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Model 1-4 are limited to elections where the incumbent office is contested. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Marshall, Gurr and Jaggers (2019); Cruz, Keefer and Scartascini (2018); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

Figure 8. Pre-election government-initiated violence, executive constraints and uncertainty of victory
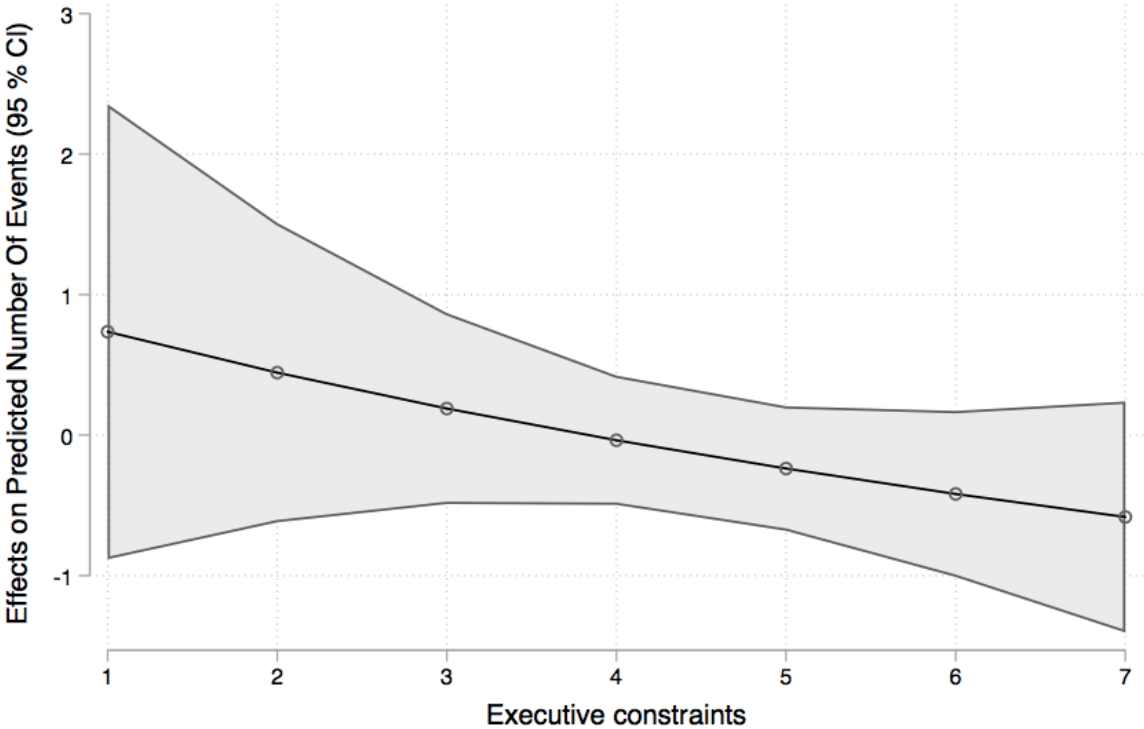
Note: This is the interaction variable found in Table 14, Model 4. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Marshall, Gurr and Jaggers (2019); Cruz, Keefer and Scartascini (2018); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

6. Discussion

In this thesis I have tested five hypotheses to examine how the nature of politics, the nature of institutions and the nature of elections affect the risk of electoral violence in unconsolidated regimes. There are several interesting findings in this thesis. While the result of the analysis shows some support for existing arguments in the literature on the field, other findings are at odds with conclusions drawn in previous academic research. Based on the analyses in the previous chapter, I shall now discuss the hypotheses in turn.

Hypothesis 1: The risk of electoral violence is higher in countries with a majoritarian electoral system than in those with a PR system.

For testing this hypothesis, I use two measures of electoral law. The first one is for electoral formula, being either majoritarian/plurality or PR. The other measure is mean district magnitude, where more seats per district is an inherent feature of PR-systems. I find ambiguous results for this hypothesis. Overall, majoritarian formulas appear to increase the risk of electoral violence, both by pro-government actors and opposition actors, before and after elections. This suggests that majoritarian formula increase the risk of actors of both camps employing election violence throughout the election cycle. However, the coefficients are not always significant and sometimes the effect is actually negative. Results for the mean district magnitude is even more inconclusive. The variable is mostly insignificant, and more often than not it shows a positive effect on election violence, rather than having the expected violence-reducing effect on the risk of violence. It was hypothesised that more seats per district would decrease the risk of electoral violence, by lowering the stakes of elections through reducing the barrier for representation and allowing more opportunities for victory (Fjelde and Höglund 2014b, 310). Therefore, the effect of majoritarian electoral systems on election violence overall cannot be confirmed. However, by just looking and the effect of majoritarian formula on election violence initiated by pro-government actors in the post-election period, the results appear more robust, with positive and significant trends in three out of four models. The same is true for opposition-violence after elections, where majoritarian formulas in three out of four models have a positive and significant effect. This is in line with the hypothesis that stakes and the cost of losing the election are increased under winner-takes-all systems. Since these findings are not consistent across the bar, one should be careful with the interpretation, but it suggests an interesting tendency. In sum, I regard the hypothesis is partially supported.

It is unclear whether the contradicting findings between my analysis and the one of Fjelde and Höglund (2016b) are due to the broadening of the analysis from elections in Sub-Saharan Africa to all election in unconsolidated regimes world-wide. Perhaps the relationships cannot be generalised to a global dataset. Another explanation could be that the disaggregation between pre- and post-election violence diffuses the relationship found earlier. Recall that the original study by Fjelde and Höglund (2014) do not empirically nor theoretically differentiate between the pre- or post-election period. I have sought to do just so in this thesis.

Hypothesis 2: The risk of electoral violence under majoritarian electoral systems will increase with the size of the largest excluded ethno-political group.

For this hypothesis, the results yield mostly inconclusive results, as the coefficients are not always in the expected direction, and all but one is insignificant. However, I do find a significant and negative interaction effect between mean district magnitude and size of largest excluded ethno-political group on opposition-initiated violence before elections. Moreover, it is interesting to note that the results show that ethno-political exclusion by itself consistently has a negative effect on pro-government violence.

Hypothesis 3: The risk of electoral violence under majoritarian electoral systems will increase with higher levels of economic inequality.

This hypothesis is partly confirmed by the analysis. Economic inequality consistently has a positive effect on election violence when majoritarian formulas are used. For pre-election opposition-initiated violence, this finding is also significant. The interaction with economic inequality and mean district magnitude is consistently negative, as hypothesised, meaning that more seats per electoral district mitigate the use of violence even with heightened stakes of the elections due to greater economic inequality. This finding is significant for opposition violence before elections and pro-government violence after elections. Moreover, when it comes to opposition violence, economic inequality by itself have a positive and significant effect in three out of four models.

Recall that the expected effect of majoritarian electoral system on electoral violence, both by itself and the interactions, is based on the existence of informal patron-client relationships in the country. These informal institutions are expected to work alongside the more formal institutions of "winner-takes-all" systems which increases the stakes of elections, which in turn

may increase the risk of actors using violence as a tactic to influence the election outcome in their favour. Such patron-client relationships were unfortunately not included in the analysis in this thesis. Studies examining regions such as Latin America, post-communist Eurasia, Africa and Asia indicate that informal "rules of the game" often shape political life. Perhaps the ambiguous results of the analysis could be because the assumed presence of such informal institutions has a different dynamic than those found in the African context. More research is needed to examine whether this effect of majoritarian systems in fact go through the expected mechanism of patron-client relationships working alongside these formal institutions to increase the stakes of elections.

Hypothesis 4: An incumbent who is uncertain about winning the election and does not face significant institutional constraints is more likely to use electoral violence.

For testing this hypothesis, I use two different measures which indicates the popularity of the incumbent and thus also its chances of winning in the upcoming election. The first measure is polling unfavourable, measuring whether reliable polls existed before elections and whether they were in favour of the incumbent or not. The other measure was victory uncertain which measures whether the incumbent is confident in winning the upcoming election, either by explicitly stating so, having been dominant for years and is expected an overwhelming victory, or if the opposition virtually have no chance of winning. Executive constraints are hypothesised to mitigate the use of violence even in instances where the incumbent risk losing. I partly find support for this hypothesis. Both interaction effects are negative, and the latter measure is also significant (although at the 90 per cent confidence interval). This suggests that when incumbents are constrained by institutions and risk being held accountable for the use of violence, either when they are in office or after, can mitigate the incentive to use such tactics, even when the risk of losing the election appears possible.

Hypothesis 5: facing protests, an incumbent who lacks significant institutional constraints is more likely to use violence in the post-election period.

This hypothesis could not be confirmed by the analysis. The interaction effect with institutional constraints and post-election protest is very weak and also insignificant. However, there are some interesting findings. The coefficients by themselves, for executive constraints and post-election protests are all significant in both models. Executive constraints have a negative effect on post-election violence. This indicates that governments are reluctant to use violence when they face more institutionalised constraints on their decision-making powers. Post-election

protests show a positive effect on government-initiated violence after elections. That being said, the results of the analysis show a correlation between the two but cannot determine whether the protest led to increased government violence or increased government violence spurred protests. Cause-and-effect relationships can be difficult to infer in the social sciences. The measure for violence is the sum of all violent events perpetrated by the government after elections, while the measure for protest is a simple dummy variable of whether at least one protest took place after elections. Hence, reversed causality cannot be ruled out.

Weaknesses of study

There are admittingly several shortcomings of this thesis. Firstly, I do not account for the possibility that the electoral system is endogenous to electoral violence. Secondly, there is a chance that other, unobserved factors, affect the causes of electoral violence. Thirdly, I do not include weights in the regression models. Fourthly, the dataset, ECAV, contains many events where the initiator of the violence could not be established, or the established initiator was recorded as an "unknown" actor. Overall, this reduces the amount of data, and might lead to underreporting of violent events. Recall the example from Kazakhstan in 2005, where the opposition leader was found dead in his home, without any *solid* evidence of who the perpetrator of the violence was (Cheeseman and Klaas 2018, 49), leaving the actor coded as "unknown" in the dataset (Daxecker, Amicarelli and Jung 2018). Moreover, as previously mentioned, the mechanism of majoritarian systems through patron-client relationships should be examined explicitly

7. Concluding remarks

The discipline of comparative politics has for long been interested in electoral politics, only recently have scholars started to explicitly define and conceptualise electoral violence as a distinct sub-category of political violence which spoils election in many unconsolidated regimes. As previous research on causes of electoral violence have primarily been limited to Africa or Sub-Saharan Africa, this thesis is a contribution to the literature on studying the phenomenon on a global scale. The research question which I have examined in this thesis is:

What are the causes of electoral violence in unconsolidated regimes?

Hence, I have studied the phenomenon of electoral violence in election rounds for all unconsolidated regimes between 1990 and 2012. This was made possible using a new dataset on electoral violence, namely the Electoral Contention and Violence (ECAV) dataset, provided by Daxecker, Amicarelli and Jung (2019). This thesis is somewhat a replication study, with a focus on the theories provided by Fjelde and Höglund (2016b) regarding electoral institutions, economic inequality, and ethno-political exclusion with evidence from Africa. The second study is by Hafner-Burton, Hyde and Jablonski (2014) with regards to executive constraints and when governments are more likely to use violence ahead of elections when the outcome is uncertain, or after election, facing protests. While they also studied the phenomenon on a global scale, their dataset used arguably flawed measures of pre- and post-election violence. In table 15, the specific the hypotheses tested in this thesis are presented once more, together with an evaluation of whether I find support for the hypothesis in the analysis or not based on the discussion in the previous chapter. As can be seen, some support is found for several of the hypotheses, but none are outright supported.

Table 15. Evaluation of hypotheses

Hypothesis	Evaluation based on analysis
H1: The risk of electoral violence is higher in countries with a majoritarian electoral system than in those with a PR system.	Partially supported
H2: The risk of electoral violence under majoritarian electoral systems will increase with the size of the largest excluded ethno-political group.	Mostly inconclusive
H3: The risk of electoral violence under majoritarian systems will increase with higher levels of economic inequality.	Partially supported
H4: An incumbent who is uncertain about winning the election and does not face significant institutional constraints is more likely to use electoral violence.	Partially supported
H5: facing protests, an incumbent who lacks significant institutional constraints is more likely to use violence in the post-election period.	Weakened

This thesis is a contribution to the quantitative literature on electoral violence using more fine-grained data. I have sought to semi-replicate two previous studies in the field, namely that of Fjelde and Höglund (2016b) and Hafner-Burton, Hyde and Jablonski (2014) examining causes of government, pro-government and opposition-initiated violence in both the pre- and post-election period for a few explanatory variables. With the recent availability of several high-quality datasets on electoral violence, this literature will surely expand in the years to come. Further research in the field of electoral violence should not be done simply because of academic curiosity. It should also be motivated by the desire to prevent attacks on humans, physical property and democratic institutions. Other institutions and features of the electoral system and could be investigated in further research.

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Appendix

## Appendix 1: Visualisation of the interaction effects

The graphs show the average marginal effects on predicted number of events, when random effects are assumed to be zero. For the margin plots, the 95 per cent confidence intervals are also displayed, while not for the two-way contours. The numbers for the tables and models are the same as for those in the text.

Figure A. Pre-election pro-government violence, majoritarian rules and ethno-political exclusion
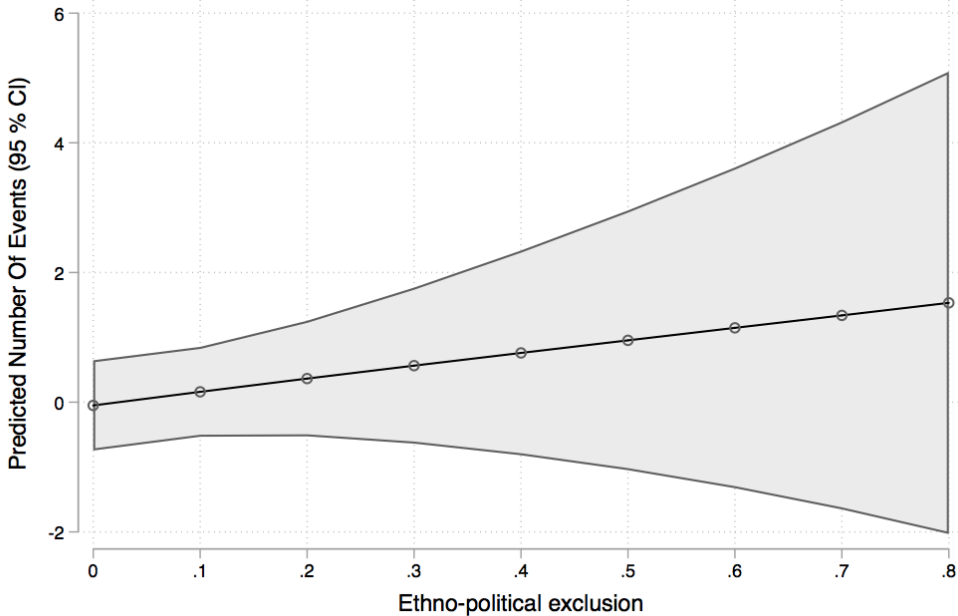
Note: This is the interaction in Table 8, Model 1. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

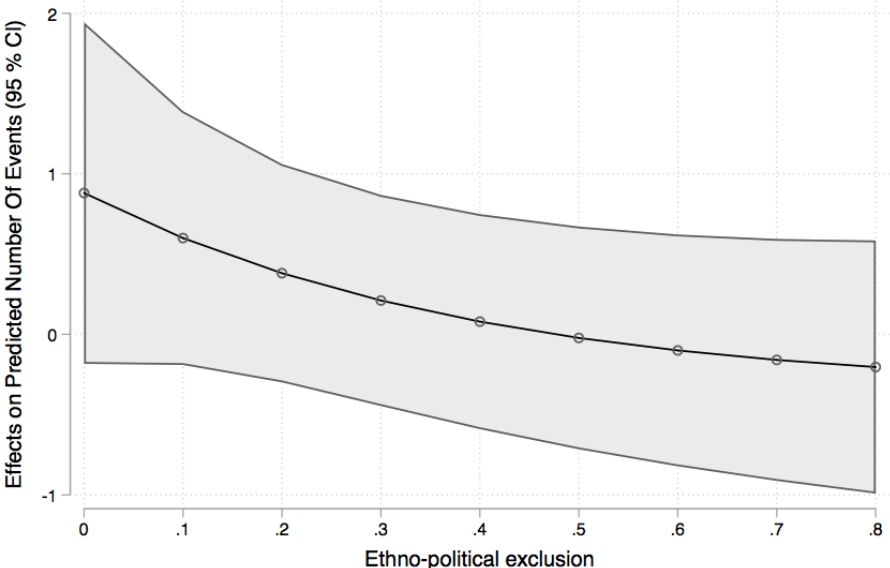**Figure B. Pre-election pro-government violence, mean district magnitude and ethno-political exclusion**
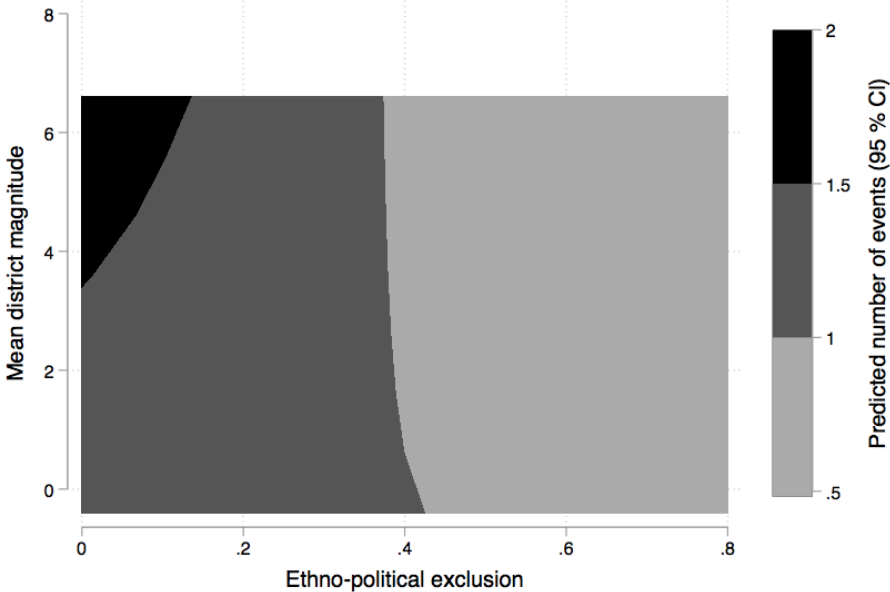
Note: This is the interaction in Table 8, Model 2. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

Figure C. Post-election pro-government violence, majoritarian rules and ethno-political exclusion

Note: This is the interaction in Table 8, Model 3. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

Figure D. Post-election pro-government violence, mean district magnitude and ethno-political exclusion
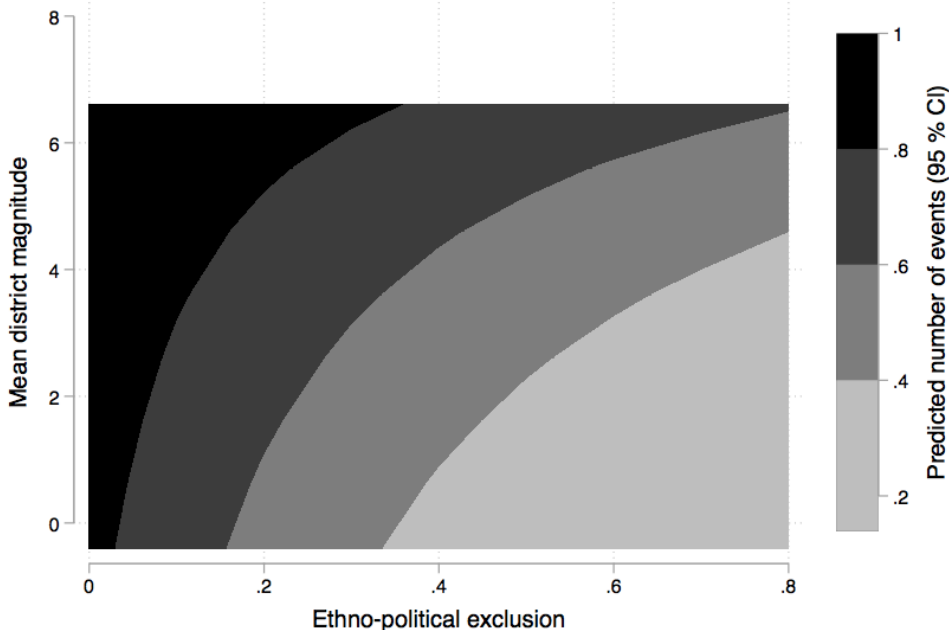

Note: This is the interaction in Table 8, Model 4. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

Figure E. Pre-election pro-government violence, majoritarian rules and economic inequality
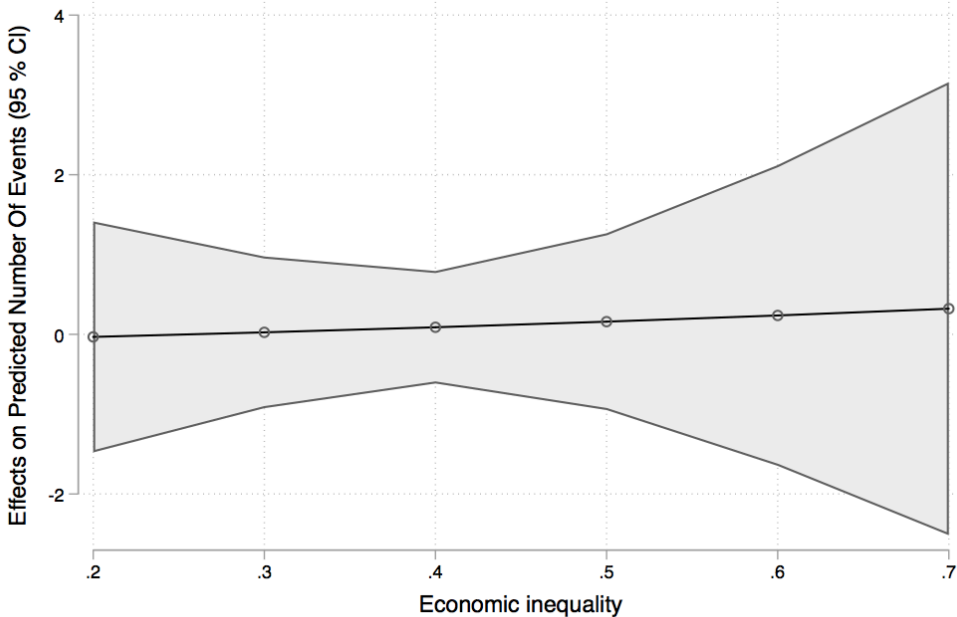

Note: This is the interaction in Table 9, Model 1. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Figure F. Pre-election pro-government violence, mean district magnitude and economic inequality

Note: This is the interaction in Table 9, Model 2. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Figure G. Post-election pro-government violence, majoritarian rules and economic inequality
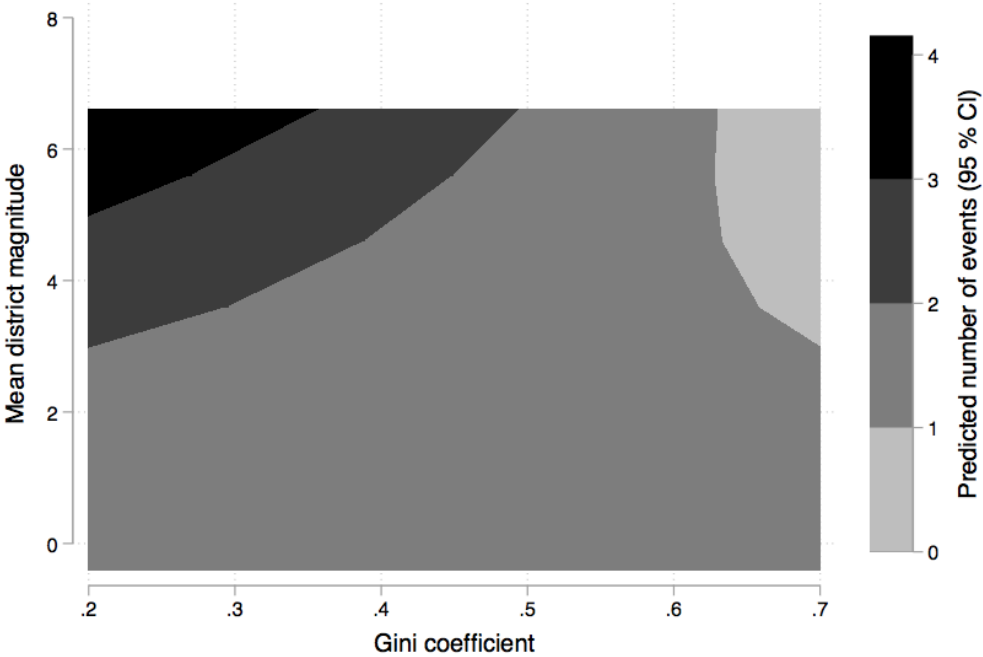

Note: This is the interaction in Table 9, Model 3. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Figure H. Pre-election opposition violence, majoritarian rules and ethno-political exclusion
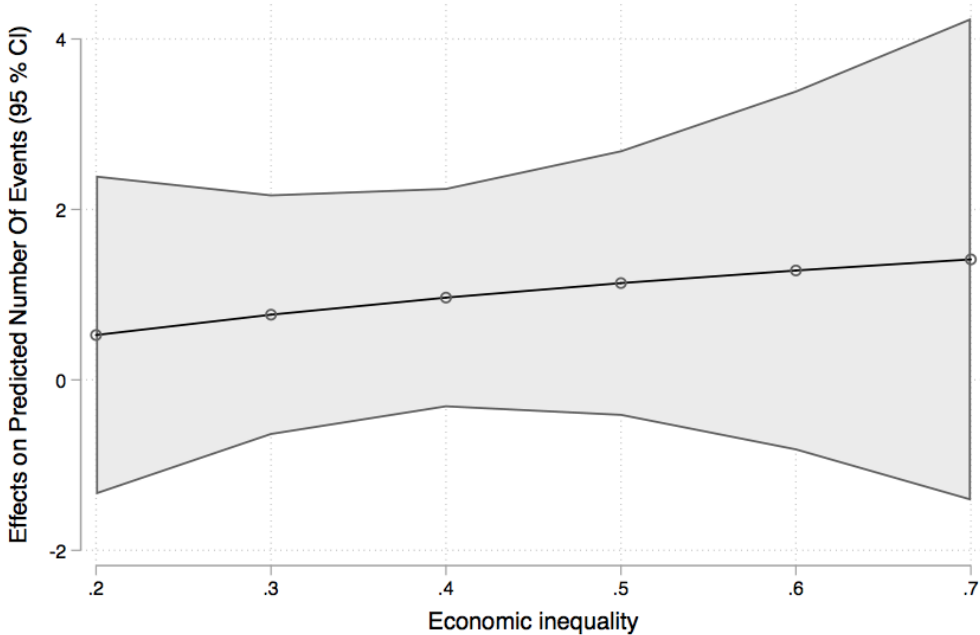

Note: This is the interaction in Table 12, Model 1. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

Figure I. Post-election opposition violence, majoritarian rules and ethno-political exclusion
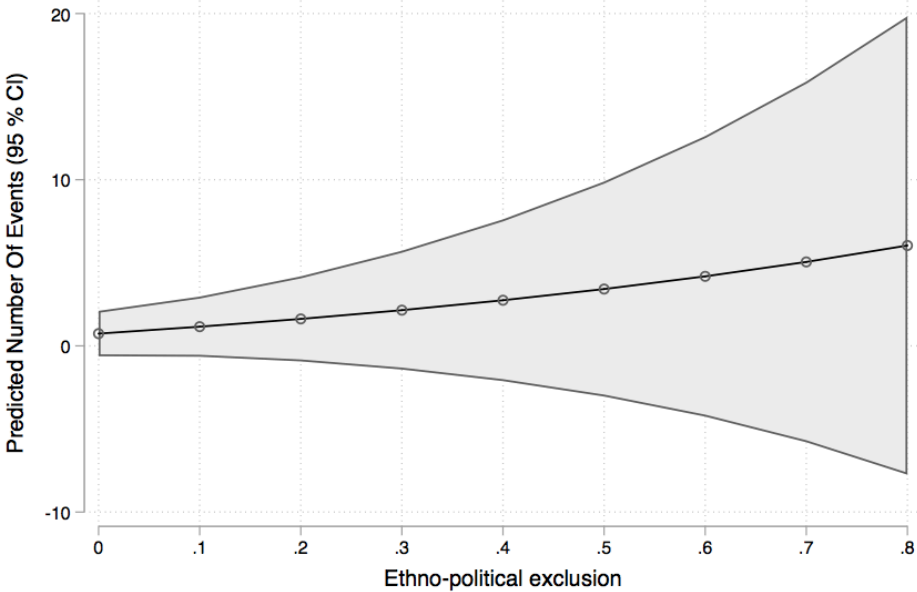

Note: This is the interaction in Table 12, Model 3. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

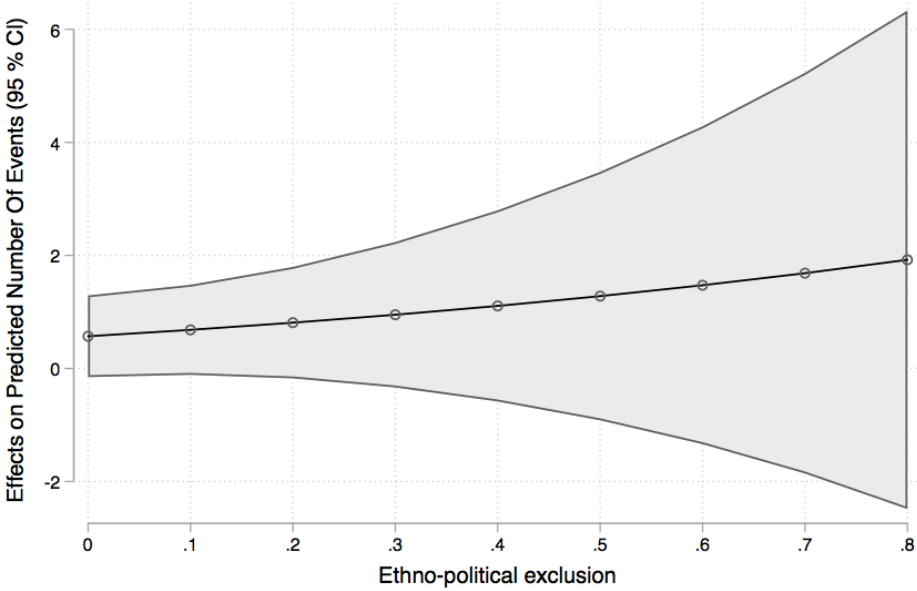**Figure J. Post-election opposition violence, mean district magnitude and ethno-political exclusion**

Note: This is the interaction in Table 12, Model 4. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

Figure K. Post-election opposition violence, majoritarian rules and economic inequality

Note: This is the interaction in Table 13, Model 3. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Figure L. Post-election opposition violence, mean district magnitude and economic inequality
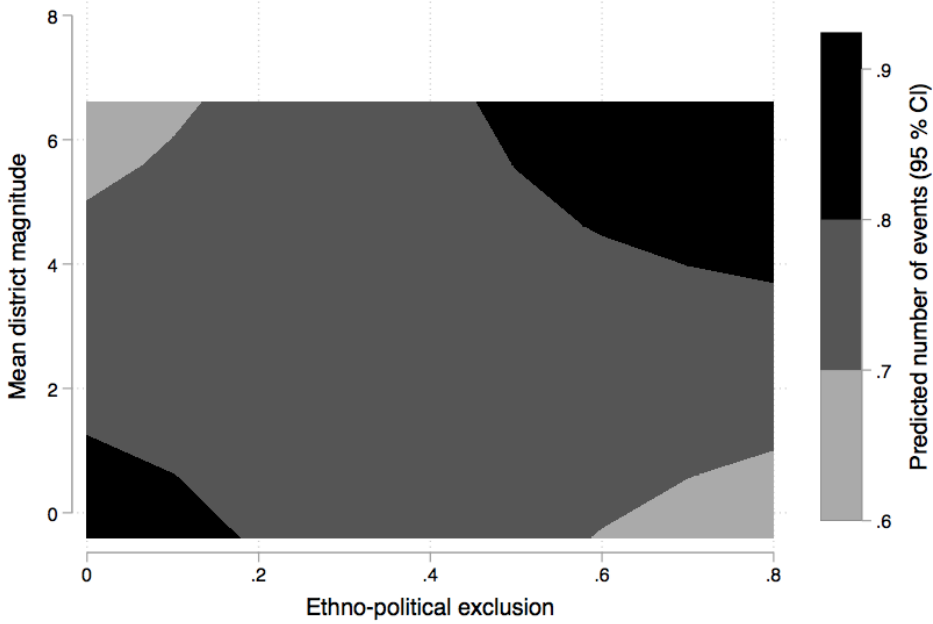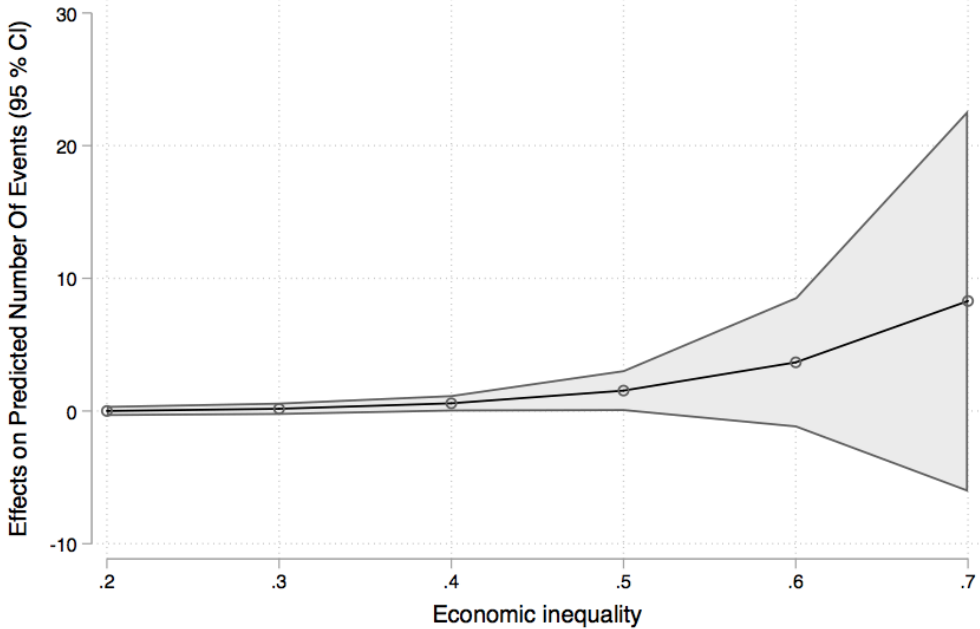

Note: This is the interaction in Table 13, Model 4. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Figure M. Government violence in the pre-election period, executive constraints and polling unfavourable.
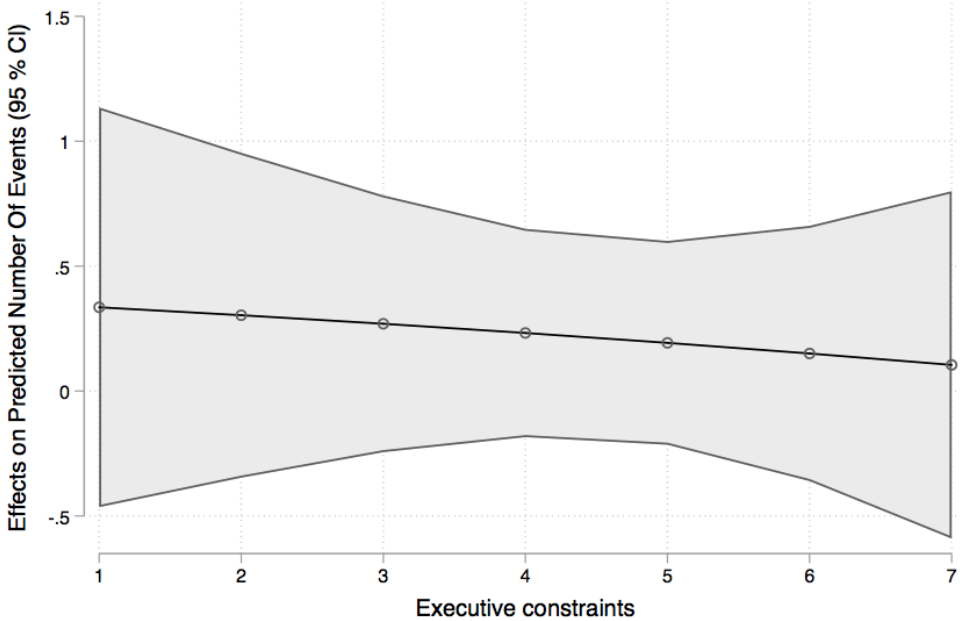
Note: This is the interaction variable in Table 14, Model 2. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Marshall, Gurr and Jaggers (2019); Cruz, Keefer and Scartascini (2018); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

Figure N. Government violence in the post-election period, executive constraints and post-election protests
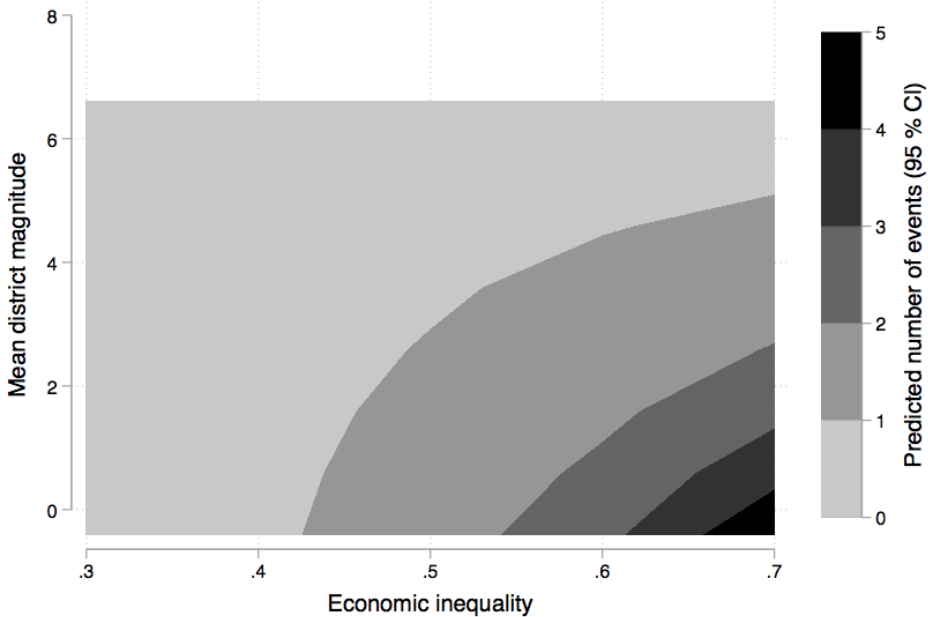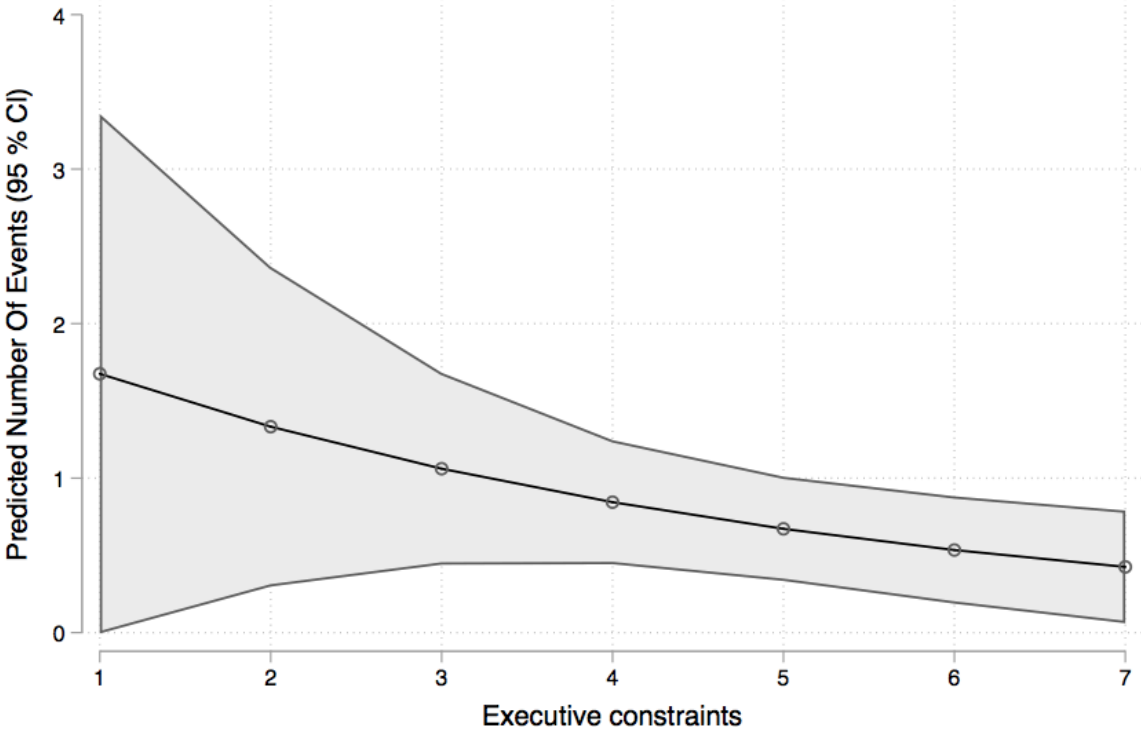

Note: This is the interaction variable in Table 14, Model 6. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Marshall, Gurr and Jaggers (2019); Cruz, Keefer and Scartascini (2018); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

Appendix 2: Fixed Effects Models

Note that the lagged dependent variable has been dropped for these models. The fixed effects models drop all countries with only one election round. Countries without any election violence are also dropped. This is reflected in the number of observations of each model.

Table A. Pro-government violence, electoral system, fixed effects

	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	.276		.404	.182*
	(.276)		(.416)	(.101)
Mean district magnitude (MDM), $_{log}$		.072 (.071)		
Polity score, $_{lag}$	-.014	-.027	.016	-.003
	(.017)	(.019)	(.023)	(.027)
Polity score sq, $_{lag}$	-.010***	-.008***	-.006	-.001
	(.003)	(.004)	(.004)	(.005)
Population, $_{log\ lag}$	.154*	.208**	.317***	.301**
	(.091)	(.099)	(.121)	(.130)
GDP pc, $_{log\ lag}$	.055	-.030	-.130	-.201
	(.125)	(.134)	(.167)	(.185)
Mixed system	.292		.626	
	(.277)		(.450)	
Civil war	.516***	.325	.160	.276
	(.189)	(.205)	(.243)	(.265)
Constant	-1.984*	-1.314	-1.891	-.962
	(1.018)	(1.054)	(1.388)	(1.411)
N	783	679	610	497

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

Table B. Pro-government violence, electoral system and ethno-political exclusion, fixed effects

	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	.144		.631	
	(.299)		(.458)	
Mean district magnitude, $_{log}$		.087		.139
		(.072)		(.103)
Ethnic political exclusion	-.566	-.150	-.141	-1.861
	(.907)	(1.268)	(1.160)	(1.327)
Maj*Exclusion	1.772		-2.705	
	(1.356)		(1.777)	
MDM*Exclusion		-.285		831
		(.526)		(.572)
Polity score, $_{lag}$	-.013	-.029	.012	-.004
	(.017)	(.019)	(.023)	(.027)
Polity score sq, $_{lag}$	-.011***	-.008**	-.007	-.002
	(.003)	(.004)	(.004)	(.005)
Population, $_{log\ lag}$	.156*	.192*	.273**	.278**
	(.092)	(.101)	(.124)	(.131)
GDP pc, $_{log\ lag}$	.055	-.034	-.127	-.204
	(.125)	(.138)	(.168)	(.184)
Mixed system	.220		.731	
	(.287)		(.467)	
Civil war	.514***	.322	.140	.255
	(.189)	(.205)	(.244)	(.266)
Constant	-1.899*	-1.219	-1.820	-.731
	(1.040)	(1.090)	(1.434)	(1.419)
N	783	679	610	497

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

Table C. Pro-government violence, electoral system and economic inequality, fixed effects

	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	-.077		.398	
	(1.314)		(1.811)	
Mean district magnitude, log		.498		1.139**
		(.350)		(.534)
Economic inequality	-.293	.196	-1.939	1.400
	(2.341)	(2.664)	(3.990)	(3.177)
Maj*Inequality	.866		.966	
	(3.278)		(4.377)	
MDM*Inequality		-1.151		-2.821*
		(.973)		(1.445)
Polity score, lag	-.019	-.032	.016	.012
	(.019)	(.021)	(.024)	(.029)
Polity score sq, lag	-.009**	-.006	-.007	-.003
	(.004)	(.004)	(.005)	(.005)
Population, log lag	.137	.136	.238*	.205
	(.101)	(.106)	(.138)	(.144)
GDP pc, log lag	.094	.043	-.051	-.104
	(.141)	(.147)	(.190)	(.212)
Mixed system	.276		.762	
	(.303)		(.526)	
Civil war	.585***	.456**	.214	.483*
	(.204)	(.222)	(.269)	(.293)
Constant	-2.200	-1.777	-1.705	-1.867
	(1.570)	(1.724)	(2.342)	(2.147)
N	689	604	490	430

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Table D. Opposition violence, electoral system, fixed effects

	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	.233		.571	
	(.261)		(.350)	
Mean district magnitude (MDM), $_{log}$		-.052		.068
		(.078)		(.105)
Polity score, $_{lag}$	.018	.011	.053**	.049*
	(.018)	(.021)	(.024)	(.028)
Polity score sq, $_{lag}$	-.000	-.002	-.007	-.003
	(.003)	(.003)	(.004)	(.005)
Population, $_{log\ lag}$	.141*	.131	.177	.166
	(.079)	(.091)	(.111)	(.125)
GDP pc, $_{log\ lag}$	-.163	-.107	-.283	-.418**
	(.127)	(.137)	(.170)	(.192)
Mixed system	.150		.514	
	(.252)		(.387)	
Civil war	1.006***	.825***	.702***	.666***
	(.174)	(.189)	(.227)	(.249)
Constant	-.700	-.770	-.285	1.203
	(1.102)	(1.111)	(1.463)	(1.539)
N	759	621	599	490

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

Table E. Opposition violence, electoral system and ethno-political exclusion, fixed effects

	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	.208		.707*	
	(.274)		(.388)	
Mean district magnitude, $_{log}$		-.048		.014
		(.080)		(.105)
Ethnic political exclusion	1.004	1.936	.603	-1.921
	(1.091)	(1.306)	(1.203)	(1.387)
Maj*Exclusion	1.329		-1.338	
	(1.458)		(1.613)	
MDM*Exclusion		-.068		1.821***
		(.508)		(.688)
Polity score, $_{lag}$	.022	.010	.051**	.048*
	(.018)	(.021)	(.024)	(.028)
Polity score sq, $_{lag}$	-.000	-.001	-.007	-.004
	(.003)	(.004)	(.004)	(.005)
Population, $_{log\ lag}$	.167**	.165*	.170	.185
	(.080)	(.092)	(.114)	(.127)
GDP pc, $_{log\ lag}$	-.152	-.087	-.268	-.505***
	(.127)	(.140)	(.171)	(.195)
Mixed system	.182		.582	
	(.259)		(.398)	
Civil war	1.009***	.815***	.700***	.601**
	(.175)	(.191)	(.227)	(.252)
Constant	-.935	-1.143	-.469	2.033
	(1.114)	(1.153)	(1.521)	(1.600)
N	759	621	599	490

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Vogt, Bormann, Rüegger, Cederman, Hunziker and Girardin (2015).

Table F. Opposition violence, electoral system and economic inequality, fixed effects

	Pre-election violence		Post-election violence	
	Model 1	Model 2	Model 3	Model 4
Majoritarian system	-5.667***		.235	
	(1.515)		(1.975)	
Mean district magnitude, $_{log}$		.827**		.603
		(.409)		(.603)
Economic inequality	-.367	5.959**	4.564	6.668*
	(2.105)	(2.611)	(3.536)	(3.568)
Maj*Inequality	14.486***		.702	
	(3.437)		(4.452)	
MDM*Inequality		-2.164**		-1.411
		(1.026)		(1.461)
Polity score, $_{lag}$	.029	.014	.040	.047
	(.020)	(.023)	(.025)	(.030)
Polity score sq, $_{lag}$	-.002	-.002	-.005	-.000
	(.003)	(.004)	(.004)	(.005)
Population, $_{log\ lag}$	.204**	.199**	.284**	.271*
	(.097)	(.101)	(.136)	(.144)
GDP pc, $_{log\ lag}$	-.227	-.121	-.354*	-.501**
	(.151)	(.162)	(.192)	(.215)
Mixed system	.028		.374	
	(.279)		(.431)	
Civil war	1.074***	.910***	.793***	.813***
	(.191)	(.204)	(.252)	(.272)
Constant	-.120	-3.378**	-1.950	-1.337
	(1.643)	(1.707)	(2.239)	(2.113)
N	652	557	495	433

Note: *p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Wig, Hegre and Regan (2015); Cruz, Keefer and Scartascini (2018); Marshall, Gurr and Jaggers (2019); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019); Solt (2019).

Table G. Government violence, executive constraints and uncertainty of popularity

	Pre-election violence				Post-election violence	
	Without interaction (Model 1)	With interaction (Model 2)	Without interaction (Model 3)	With interaction (Model 4)	Without interaction (Model 5)	With interaction (Model 6)
Executive constraints	-.042	-.039	-.196	-.098	-.205	-.206
	(.117)	(.155)	(.125)	(.142)	(.126)	(.135)
Polling unfavourable	.347	.368				
	(.254)	(.711)				
Victory uncertain			.057	.956		
			(.234)	(.667)		
Executive constraints*polling unfavourable		-.004				
		(.144)				
Executive constraints*victory uncertain				-.197		
				(.138)		
Protest					1.439***	1.427**
					(.220)	(.613)
Executive constraints*protest						.003
						(.155)
Electoral fraud	.091	.090	.235	.248	-.093	-.094
	(.277)	(.278)	(.271)	(.271)	(.275)	(.276)
Polity score, $_{lag}$	-.028	-.028	-.006	-.010	.044	.044
	(.034)	(.034)	(.035)	(.035)	(.034)	(.035)
Polity score sq, $_{lag}$	-.000	-.000	.002	.003	.001	.001
	(.005)	(.005)	(.005)	(.005)	(.006)	(.006)
Population, $_{log\ lag}$	.207	.206	.103	.062	.280**	.279*
	(.145)	(.146)	(.137)	(.141)	(.137)	(.146)
GDP per capita, $_{log\ lag}$	-.395*	-.395*	-.285	-.259	-.128	-.127
	(.212)	(.213)	(.193)	(.192)	(.207)	(.210)
Civil war	.784**	.785**	1.022***	1.055***	-.196	-.196
	(.360)	(.361)	(.348)	(.349)	(.298)	(.300)
Constant	1.376	1.369	1.379	.868	-1.182	-1.180
	(1.885)	(1.901)	(1.704)	(1.711)	(1.758)	(1.759)
N	269	269	286	286	545	545

Note: * p<0.1; **p<0.05; ***p<0.01. Standard errors are in brackets. Standard errors are in brackets. Model 1-4 are limited to elections where the incumbent office is contested. Sources: Daxecker, Amicarelli and Jung (2018); Hyde and Marinov (2012); Marshall, Gurr and Jaggers (2019); Cruz, Keefer and Scartascini (2018); Feenstra, Inklaar and Timmer (2015); Gleditsch, Wallensteen, Eriksson, Sollenberg and Strand 2002; Pettersson, Högbladh and Öberg (2019).

Appendix 3: Countries included in the study

Special cases

Kosovo: Events in Kosovo are coded as Serbia prior to the partially recognised independence in 2008.

Sudan: Events related to Sudanese elections occurring in South Sudan are only coded prior to the state's independence in 2011 (ECAV appendix, 26).

Czechoslovakia: Even though NELDA records two election for Czechoslovakia within the relevant time period, the country is not mentioned anywhere in ECAV, the codebook, the appendix or the introductory article. Therefore, this this country is dropped from the analysis.

List of countries included in the study

Afghanistan	Democratic Republic of	Kenya
Albania	the Congo	Kuwait
Algeria	Djibouti	Kyrgyzstan
Angola	Dominican Republic	Laos
Argentina	Ecuador	Latvia
Armenia	Egypt	Lebanon
Azerbaijan	El Salvador	Lesotho
Bahrain	Equatorial Guinea	Liberia
Bangladesh	Estonia	Libya
Belarus	Ethiopia	Lithuania
Benin	Fiji	Macedonia
Bhutan	Gabon	Madagascar
Bolivia	Gambia	Malawi
Bosnia and Herzegovina	Georgia	Malaysia
Botswana	Ghana	Mali
Brazil	Guatemala	Mauritania
Bulgaria	Guinea	Mauritius
Burkina Faso	Guinea-Bissau	Mexico
Burundi	Guyana	Moldova
Cambodia	Haiti	Mongolia
Cameroon	Honduras	Montenegro
Cape Verde	Hungary	Morocco
Central African Republic	India	Mozambique
Chad	Indonesia	Myanmar
Chile	Iran	Namibia
Colombia	Iraq	Nepal
Comoros	Israel	Nicaragua
Costa Rica	Ivory Coast	Niger
Croatia	Jamaica	Nigeria
Cuba	Jordan	North Korea
Czech Republic	Kazakhstan	Oman

Pakistan
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Republic of Congo
Romania
Russia
Rwanda
Senegal
Serbia
Sierra Leone
Singapore

Slovakia
Slovenia
Solomon Islands
South Africa
South Korea (Republic of Korea)
Sri Lanka
Sudan
Suriname
Swaziland
Syria
Taiwan
Tajikistan
Tanzania
Thailand

Timor-Leste
Togo
Trinidad and Tobago
Tunisia
Turkey
Turkmenistan
Uganda
Ukraine
Uruguay
Uzbekistan
Venezuela
Vietnam
Yemen
Zambia
Zimbabwe