

Local ethno-political polarization and election violence in majoritarian vs. proportional systems

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Abstract

How does local ethnic demography affect the conduct of majoritarian elections? Because legislative elections in majoritarian systems are contested locally, local ethno-political polarization increases the risk of pre-election violence. In districts that are polarized between politically competing ethnic groups, violence can be targeted with comparative ease at opposing voters, and can, if perpetrated collectively, mobilize the perpetrators' co-ethnics. I do not expect such dynamics in PR systems where political competition plays out at higher geographical levels. To test this argument, I combine new data on the ethnic composition of local populations in 22 African countries with monthly data on riots and survey data on campaign violence. Ethno-politically polarized districts in majoritarian and mixed electoral systems see substantively larger increases in the number of riots prior to legislative elections and more fear of pre-election violence among citizens than non-polarized districts in the same country and at the same time. I do not find these patterns in PR systems. The results enhance our understanding of how electoral systems interact with local ethnic demography in shaping pre-election violence.

Keywords

electoral violence, ethnic geography, majoritarian election

Introduction

Choices over the design of electoral systems in ethnically divided societies are most influential in determining the fate of democracy and peace in a polity. Addressing electoral violence as a vital threat to democracies around the globe, this article analyzes the impact of local ethnic demography on violence preceding legislative elections in Africa. In particular, I argue that local competition between politically mobilized ethnic groups increases the risk of violence before majoritarian but not proportional legislative elections.

The literature on the vices and virtues of majoritarian and PR systems in ethnically divided societies is extensive, beginning with the seminal contributions of Horowitz (1990, 1991, 1994), Lijphart (1985), and Lijphart & Aitkin (1994). It mostly focuses on the effects of electoral systems on political parties, post-conflict stability, and the risk of civil war in general.¹ Studying the

effects of electoral systems on electoral violence, Birch (2007) and Fjelde & Höglund (2016) present country-level evidence that majoritarian elections come with more misconduct and campaign violence than PR systems, in particular where ethnic groups are excluded from political power. However, despite Birch's (2007) theoretical insight that election violence in majoritarian systems is caused by local competition, prevailing country-level research does not shed empirical light on why campaigns turn violent in some constituencies but not in others (Birch, Daxecker & Höglund, 2020). Furthermore, not all types of electoral competition may lead to equal levels of violence. Focusing on competition along ethnic cleavages, this study addresses these issues with high-resolution spatio-temporal data that evidence the violent consequences of local competition between politically mobilized ethnic groups in majoritarian elections.

¹ On electoral systems and voting in ethnically diverse polities, see e.g. Neto & Cox (1997), Ordeshook & Shvetsova (1994), and Mozaffar, Scarritt & Galaich (2003); on post-conflict stability Bogaards (2013), and on civil wars Schneider & Wiesehomeier (2008).

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Drawing on the incentives set by the structure and geographic locus of competition in majoritarian legislative elections, I argue that local political competition between ethnic groups incentivizes violent campaigning. In ethno-politically polarized constituencies, violence can be effectively targeted and, especially when it comes in the form of a riot, serves the purpose of polarizing the electorate. In contrast, local ethno-political competition does not increase the risk of violence before PR elections, where legislative elections are contested at the regional or national level. This makes local ethnic polarization inconsequential for campaign strategies in PR systems.

With this focus on local ethno-political competition, the argument builds on and extends previous research that understands pre-election violence as intending to ‘influence the electoral process and in extension its outcome’ (Höglund, 2009: 417; Birch, Daxecker & Höglund, 2020). Pre-election violence can increase the odds of victory of its instigator through the polarization of the electorate (Dercon & Gutiérrez-Romero, 2012; Horowitz, 2001; Wilkinson, 2004) and the demobilization of his opponent’s voters by means of intimidation, displacement, and death (Bratton, 2008; Collier & Vicente, 2014; Klopp, 2001; Steele, 2011).² It not only affects nationwide official elections, but also intraparty contests (Goldring & Wahman, 2018; Bech Seeberg, Wahman & Skaaning, 2018; Reeder & Seeberg, 2018). In parallel to incentives to campaign peacefully, violence likely accompanies contested campaigns (Hafner-Burton, Hyde & Jablonski, 2013; Salehyan & Linebarger, 2015; Wilkinson, 2004), in particular those led by incumbents (Taylor, Pevehouse & Straus, 2017; Rauschenbach & Paula, 2019).

I test the argument that local ethno-political competition increases the risk of violence before majoritarian but not PR elections with new spatial data on the ethnic composition of local populations in 22 African countries between 1990 and 2013, mostly countries with unconsolidated democratic institutions and recurring electoral violence (Goldsmith, 2015). The main analysis studies the effect of local ethno-political competition on pre-election increases in rioting. Districts that are demographically polarized between politically mobilized ethnic groups experience steeper increases in rioting prior to majoritarian elections than non-polarized districts do. Consistent with the argument, this effect is absent in PR systems.

Rigid two-way fixed effects and controls for spatio-temporal autocorrelation restrict the potential of spurious results. The findings are robust to using different data on rioting and pre-election violence, and are not due to reverse causality affecting the timing of elections and local ethnic demography or endogenous district boundaries. In addition, I find that survey respondents’ fear and experience of pre-election violence increases with the level of local ethno-political polarization in majoritarian but not proportional electoral systems.

The consistent empirical evidence supports the theoretical argument and contributes to our understanding of the effects of ethnic geography on the conduct of majoritarian elections in Africa. It also supplies evidence on the local drivers of electoral violence to those who try to prevent it. Further discussed in the conclusion, the results add to the existing literature on drawbacks of majoritarian electoral systems in multi-ethnic and unconsolidated democracies. The findings also highlight the effect of the spatial design of electoral districts on the (violent) conduct of elections.

The geography of ethno-political competition and violence before legislative elections

It is often argued that campaign violence is ‘produced’ (Brass, 2011) by political elites and their henchmen trying to increase their chances at the ballot box (Collier & Vicente, 2011, 2014; Horowitz, 2001; Wilkinson, 2004). Particularly in ethnically divided constituencies, candidates might choose to deliberately incite ethno-nationalist discourses and plan interethnic violence. Such patterns have affected, for example, elections in India (Brass, 2011; Wilkinson, 2004) and the 1992 Kenyan legislative election (Throup & Hornsby, 1998). Here, incumbent MPs of the Kenya African National Union (KANU), traditionally associated with the Kalenjin, were involved in inciting riots against ethnic Kikuyu, Kisii, Luo, and Luhya, leading to the displacement of 300,000 and the death of 1,500 (Africa Watch, 1993; Klopp, 2001). However, violence did not break out everywhere in the country. Instead, closely contested precincts with non-Kalenjin swing-voters saw most rioting, which may have actually harmed the prospects of KANU candidates elsewhere (Klopp & Zuern, 2007; Throup & Hornsby, 1998).

In (cynical) parallel to monetary expenditures (Cox & Munger, 1989; Erikson & Palfrey, 2000; Pattie, Johnston & Fieldhouse, 1995), the likelihood of instrumental campaign violence increases with the probability that it turns an election to the benefit of its instigator. As the

² Electoral violence leads to mixed effects on turnout (Bekoe & Burchard, 2017).

Kenyan experience illustrates, campaigns are therefore most likely to come with substantial bloodshed where races are expected to be close (Hafner-Burton, Hyde & Jablonski, 2013; Klopp & Zuern, 2007; Salehyan & Linebarger, 2015; Wilkinson, 2004). Only then do the expected benefits of violence outweigh its costs, which consist in material payments for those who perpetrate the violence, the risks of alienating voters (e.g. Gutiérrez-Romero & LeBas, 2020), and potential judicial persecution.

In addition to influencing pivotal voters' turnout and choice, electoral violence can also aim at affecting election timing, either preventing a poll from happening or forcing one to be held. While this is an important dynamic, electoral violence of this type will be conducted differently, not targeting pivotal voters but aiming to pressure the executive, legislator, and/or electoral commission into changing the electoral timetable. Because of this difference in strategic goals, my theoretical argument here only concerns violence as a strategy used to maximize perpetrators' chances of winning scheduled and undelayed elections. I will, however, return to the effect of violence on the timing of elections as an empirical challenge.

For pre-election violence to be effective in maximizing instigators' chance of victory, it must be targeted at the voters of the perpetrator's opponent(s). In contrast to ideologically motivated electoral preferences, perpetrators of campaign violence can discern prospective vote choices that follow ethnic identities (Horowitz, 2001). Since many voters in multi-ethnic societies base their vote to a significant – but not exclusive³ – degree on ethnic attributes of candidates such as language, religion, or name (Adida, 2012; Basedau et al., 2011; Bratton, Bhavnani & Chen, 2012; Bratton & Kimenyi, 2008; Chandra, 2004), perpetrators can use the same characteristics to target their violence.⁴ But not only does the politicization of ethnicity facilitate the violent demobilization of electoral opponents – it also increases the mobilizing effect of violence on perpetrators' supporters, because it highlights ethnic differences and incites ethno-nationalist sentiments (Dercon & Gutiérrez-Romero, 2012; Horowitz, 2001; Wilkinson, 2004). The resulting ideological polarization of the electorate coincides with the increase in the salience of ethnic identities

caused by contested elections (Eifert, Miguel & Posner, 2010).

However, not all forms of violence suit the goals of the perpetrators of electoral violence in ethnicized polities. To achieve the first aim of demobilizing opposing voters, violence has to be ethnically targeted to such an extent as to induce sufficient fear among them and their co-ethnics. To pursue the second goal, raising the salience of ethnic identities among the voters of the violence-inducing candidate himself, the demographic basis of those who perpetrate the violence has to be equally broad. Only if a sufficient number of people participate in the violence can a public arousal of sentiment be achieved (Brass, 2011). With these two goals of pre-election violence in ethnicized polities in mind, the ethnic riot fits the incentives of the instigators of pre-election violence better than other forms of collective violence. This is because an ethnic riot, defined here as 'intense, sudden, though not necessarily wholly unplanned, lethal attack by civilian members of one ethnic group on civilian members of another ethnic group' (Horowitz, 2001: 1), combines popular mobilization with selective targeting of ordinary members of the ethnic 'other' (Wilkinson, 2004). Violence perpetrated by state or non-state organizations typically lacks the widespread mobilization of ethnic groups against each other.

In addition, rioting is a form of medium-scale violence with a relatively low risk of punishment. Given its broad demographic basis, even independent prosecutors may find it difficult to expose the planners behind riotous masses after the fact. In contrast, violence executed by organized structures such as the police, political parties, and militias leaves more traces for prosecution and punishment. The argument that riots are particularly 'effective' instruments of ethnic campaign violence, however, does not entail that electoral violence takes no other form.

The previous reasoning motivates the claim that political competition between ethnic groups increases the risk of pre-election violence, in particular of riots. Since the degree to which the competition for political power is ethnicized is strongly related to the electoral design of a multi-ethnic society,⁵ the electoral system likely also affects the extent to which one should expect violent legislative campaigns. The literature on electoral systems consists roughly of two camps. The first holds that PR leads to equal representation of all ethnic groups, facilitates power-sharing, prevents the political domination

³ See e.g. Ichino & Nathan (2013).

⁴ See Fearon (1999) on politicians' strategy to use the same markers to deliver 'pork' to their co-ethnics.

⁵ See Bogaards (2013) for a review.

of single groups, and fosters peace (Lijphart & Aitkin, 1994; Schneider & Wiesehomeier, 2008). Critics of this view hold that PR encourages ethnic mobilization and perpetuates divisions along main cleavages (Horowitz, 1991: 167–172). Instead, they argue that ethnically divided societies should conduct elections following plurality rules, in particular using the ‘single transferable’ or ‘alternative’ vote that encourage cross-ethnic alliances and intra-ethnic divisions (Horowitz, 1991, 1985). Empirically however, PR systems exhibit lower degrees of ethnicization of political preferences than majoritarian systems (Huber, 2012). This coincides with Fjelde & Höglund’s (2016) finding that majoritarian countries in Africa exhibit more electoral violence than proportional ones,⁶ especially where large ethnic groups are excluded from political power.

Notwithstanding its merits, many proponents of proportional vs. majoritarian voting do not sufficiently consider the importance of the geography of ethnic cleavages when assessing the (violent) consequences of both (cf. Barkan, Densham & Rushton, 2006; Wagner & Dreef, 2013).⁷ Because majoritarian elections are contested locally, the geography of political preferences is a key determinant of the degree of competition in a country’s electoral districts (Sartori, 1997).⁸ Consequently, the risk of pre-election riots under ethnicized voting in a majoritarian system is co-determined by the extent to which local constituencies are divided between ethnic groups. The risk of pre-election riots will be highest in an ethno-politically polarized constituency with two politically mobilized ethnic groups of equal size. The risk of campaign riots decreases as the number of groups in a constituency and/or their heterogeneity in size increases. Both factors reduce competition between them.

Hypothesis 1: Local polarization between politically mobilized ethnic groups increases pre-election rioting in majoritarian electoral systems.

The link between local political competition among ethnic groups and campaign riots is thus contingent on the nature of majoritarian systems and the locus of their

electoral contests. Fundamentally different geographical patterns of pre-election violence should therefore be observed in pure PR systems, which I analyze as a control group only. Under PR voting, competition takes place at supra-local level, mostly at the region or country level. Thus, regional or national characteristics will shape incentives for violent campaigning before elections. In contrast, the degree of *local* ethno-political polarization will not influence considerations about where to best incite riots before an election, since it does not strongly determine the share of votes won by parties. In a proportional contest, it is less ‘effective’ to target ethnically mixed areas than those homogeneously inhabited by one’s opponents – a strategy that South Africa’s ANC pursued in the first post-apartheid election in 1994 (Klopp & Zuern, 2007). In addition and as Birch (2007) points out, parties in PR systems pool the risks and benefits of electoral campaigning. They are thus less vulnerable to the collective action problems faced in majoritarian systems (Carey & Shugart, 1995) and have greater powers to maintain their credibility and avoid violence during electoral campaigns altogether. I thus expect the following contrast between violence before majoritarian and PR elections:

Hypothesis 2: Local polarization between politically mobilized ethnic groups increases pre-election rioting more in majoritarian than in proportional electoral systems.

Local ethno-political competition and pre-election riots

To test the arguments’ two main hypotheses, I combine data on the ethnic composition of African districts with monthly riot data to model local increases of the number of riots prior to legislative elections. The main empirical strategy models differences in the pre-election increase of the monthly number of riots as legislative elections approach in ethno-politically polarized and non-polarized districts (see also Harish & Little, 2017; Goldsmith, 2015). The focus on the pre-election *increase* in violence comes closer to the hypothesized causal mechanism than other models on the link between electoral competition and local-level violence. These either compare average levels of violence across units of analysis⁹ or restrict the sample to election periods only

⁶ For evidence from post-communist countries, see Birch (2007).

⁷ A similar disregard affects studies of the impact of ethnic heterogeneity on electoral parties (Neto & Cox, 1997; Ordeshook & Shvetsova, 1994). But see Mozaffar, Scarritt & Galaich (2003).

⁸ In extension, the geographic distribution of partisan preferences influences the complex translation of votes to assembly seats in majoritarian polities (Barkan, Densham & Rushton, 2006; Calvo & Rodden, 2015; Gudgin & Taylor, 2012; Rodden, 2010).

⁹ Most prominently, Wilkinson (2004) argues that party competition in Indian states increases the odds of Hindu–Muslim riots. He then models riots as a function of the additive effects of electoral proximity

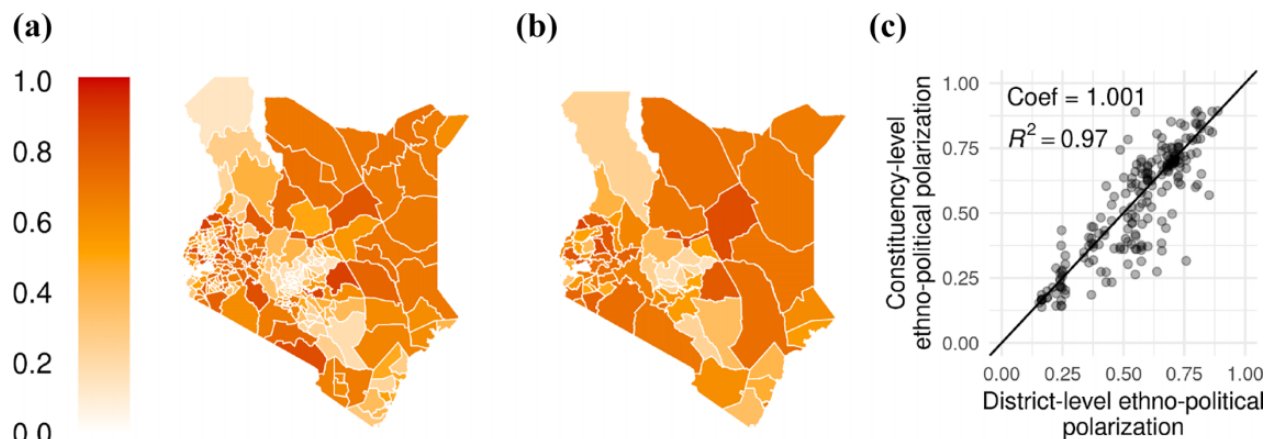


Figure 1. Ethno-political polarization in Kenya
(a) Constituency level (b) District level (c) Comparison

(e.g. Hafner-Burton, Hyde & Jablonski, 2013; Daxecker, Amicarelli & Jung, 2019). While the former strategy does not yield evidence on the electoral character of violence, the latter strategy lacks the crucial comparison of violence during months directly before an election with violence occurring at other points in time. It therefore risks confounding units that always experience violence in a manner unrelated to elections with those that are affected by violence only around elections.

The empirical analysis finds that ethno-politically polarized districts see an escalation of rioting before majoritarian legislative elections that is much more severe than the escalation observed in non-polarized districts or before legislative elections under proportional voting. This result is robust to various permutations of the baseline model. In addition, similar effects of local ethno-political polarization affect citizens' surveyed fear of pre-election violence in majoritarian systems. I do not extend the analysis to cover post-election violence, which does not have a direct effect on the outcome of the election itself and is therefore presumably motivated by a different logic than outlined above.

Data

The district-month in 22 African countries between 1990 and 2013 constitutes the fundamental unit of analysis. Yearly varying data on the spatial extent of districts, defined as the second administrative level in states, comes from FAO's (2014) GAUL database. Administrative units as units of analysis might seem inferior to using electoral districts where electoral competition takes

place. However, there is no comprehensive cross-national dataset on electoral districts available to date. More importantly, taking electoral districts as units of analysis would make a comparison between majoritarian and PR systems all but impossible, because electoral districts created for majoritarian elections do not exist in PR systems. Because electoral districts in majoritarian systems are typically nested within administrative units, measures for administrative districts are expected to be a reliable proxy for those on the level of majoritarian constituencies – real ones in majoritarian systems and 'counterfactual' constituencies in PR systems. Figure 1 illustrates this notion for Kenya in 2007. District-level ethno-political polarization explains 97% of the variation found at the constituency level.¹⁰

The main dependent variable is the monthly count of riots. These data come from the geo-coded Social Conflict in Africa Data (SCAD, 1990–2013; Salehyan et al., 2012), where riots are defined as '[d]istinct, continuous and violent action directed toward members of a distinct "other" group or government authorities' (Salehyan & Hendrix, 2017: 4). This definition roughly coincides, except for the ethnic modifier, with the definition of the 'ethnic riot' given above. Because of the difficulty of distinguishing ethnic from non-ethnic riots in newspaper sources without exacerbating reporting bias, I take the raw riot count as the best fitting measure of rioting. I furthermore discuss analyses of the subsets of spontaneous, ethnic, and election-related rioting.

and party competition. This leaves the interaction of the two variables, the center of the theoretical argument, unexplored.

¹⁰ Online appendix 2.6 compares district- with constituency-level results on pre-election rioting in Kenya.

Riot-events are spatio-temporally matched to district-polygons and aggregated to the monthly level.¹¹ To compare the robustness of the results with different conflict data (Hegre & Sambanis, 2006), I complement the analysis with counts of riots and riot-fatalities from the ACLED data (Raleigh et al., 2010) and the geocoded ECAV data on electoral violence (Daxecker, Amicarelli & Jung, 2019).¹² Throughout, I take the natural logarithm of the count of riots and riot fatalities with 1 added as the dependent variable to alleviate the variables' right-skew and to follow the intuition that the increase from 0 to 1 riot is larger than moving from 3 to 4 riots.

To model the increase of rioting prior to legislative elections, each district-month is associated with its temporal distance to the next legislative election. Data on the date of elections come from the National Elections across Democracies and Autocracies data (NELDA v4, 1989–2012; Hyde & Marinov, 2011).¹³ Because the 'effectiveness' of violence likely increases exponentially as elections come closer (Harish & Little, 2017), the variable time to election is calculated as the inverse of the distance to the next legislative election (after adding 1 so as not to divide by 0 in election months). The variable thus increases exponentially as an election comes closer. This is more realistic, more flexible, and does fit the data better than a simpler pre-election dummy (see Figure 3). A robustness check drops all elections that have not been held at their scheduled data, showing that the results are not driven by endogenous election timing.

To differentiate majoritarian elections from proportional voting, I rely on the World Bank Data on Political Institutions (Beck et al., 2001). The data encode whether legislators are elected using a first-past-the-post or winner-takes-all rule. This coding includes five mixed majoritarian and PR systems¹⁴ for which, according to the argument presented above, incentives for pre-election violence should be higher in ethno-politically polarized single-member-districts as well.¹⁵

I measure the degree of local ethno-political polarization by computing a polarization index with data on local ethnic demographics and the political relevance of ethnic groups. The first input consists of maps of the ethnic composition of local populations in Africa (Spatially Imputed Data on Ethnicity, SIDE; Müller-Crepon & Hunziker, 2018).¹⁶ The data are constructed by spatially imputing the ethnic composition of geo-coded survey-clusters enumerated in USAID's Demographic and Health Surveys (DHS, 2018). Using non-parametric modeling techniques, Müller-Crepon & Hunziker (2018) impute the survey data over a grid with a resolution of 8.3×10^{-3} degrees (~ 1 km). As an indication of its reliability, the SIDE dataset exhibits substantial overlap with local-level census data from Uganda and Senegal. Since the SIDE maps are available for different years, I take the most recent map available for every district-month. Where no past maps are available, the most proximate map from the following years is used (Online appendix Figure A1).

Based on the SIDE data, I construct the measure for local ethno-political polarization in four steps visualized in Figure 2. To move from ethnic compositions of local populations to their composition in terms of politically mobilized ethnic groups, I first match the SIDE data with the Ethnic Power Relations dataset (EPR; Vogt et al., 2015). This dataset provides a time-varying list of ethnic groups that are politically mobilized by at least one actor at the national level or politically discriminated against by the state. The coding of political mobilization is most often based on the existence of ethnically mobilizing parties or politicians. Because MPs are often part of larger ethnic coalitions,¹⁷ the data fit the proposed theoretical argument well. I match ethnic groups in SIDE with their EPR counterparts for every year between 1990 and 2013.¹⁸ Groups in SIDE without an equivalent in EPR are coded as being politically irrelevant.

In a second step, I weigh each grid-cell with its population in a given year.¹⁹ I then aggregate the resulting

¹¹ I drop events without coordinates and attribute the few multimonth riots to their first month.

¹² As highlighted above, this dataset does not allow for observing *increases* in violence as elections approach as it lacks data on violence in non-campaign periods.

¹³ I extend the data to December 2014 to make use of the full set of SCAD events. I drop all months further away from the next election than five years.

¹⁴ Cameroon, DRC Congo, Guinea, Niger, and Senegal; Online appendix Figure A1.

¹⁵ The dataset covers all years up to 2012 and has been extended to 2013. I ensure that codings for elections that follow changes of electoral rules (e.g. Togo, 2007) reflect the systemic incentives for electoral violence.

¹⁶ SIDE provides compositional, cross-national data on ethnic geographies, overcoming a lack of micro-level census data in many developing countries and the inadequacy of polygon-based data (such as GeoEPR; Wucherpfennig et al., 2011) on the matter.

¹⁷ For the case of Kenya, see e.g. Throup & Hornsby (1998).

¹⁸ The matching procedure is based on either (1) string matching, (2) a search on the Joshua Project's and Ethnologue's websites, or, lastly, (3) a Wikipedia search. I drop SIDE maps in which groups correspond to multiple EPR groups since they would mismeasure ethno-political polarization. This affects maps from Ghana after 2002, Cameroon after 2010, and the Côte d'Ivoire after 1993.

¹⁹ Population data for the years 1990, 1995, and 2000 come from CIESIN et al. (2011).

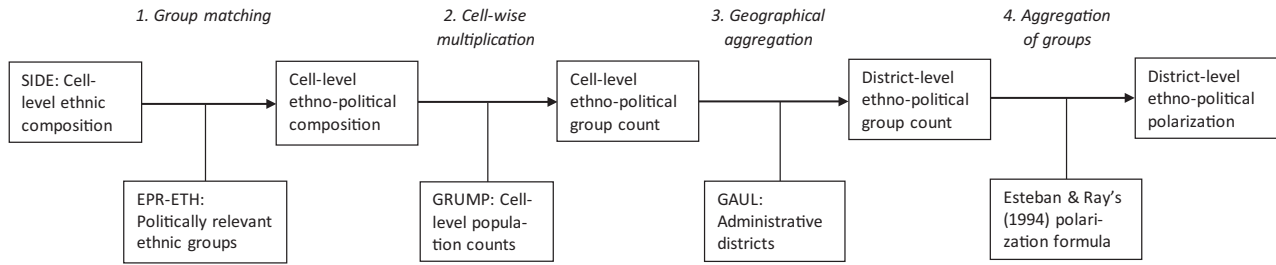


Figure 2. Flowchart of the construction of the measure of district-level ethno-political polarization

grid of head-counts of politically relevant ethnic groups to the district-year polygons introduced above (step 3). In the fourth step, I use the yearly ethno-political composition of districts to derive the measure for local ethno-political polarization (see Figure 1), applying the standard formula for polarization introduced by Esteban & Ray (1994).²⁰

Empirical strategy

Using the resulting dataset, I model the effect of ethno-political polarization on the increase in rioting prior to elections as a linear count model:

$$\begin{aligned} \text{riot}_{dcm} = & E_{dcm} + \beta_1 \text{time to election}_{mc} + \beta_2 \text{ethno} \\ & \text{-political polarization}_{dy} + \beta_3 \text{time to election}_{mc} \\ & \times \text{ethno-political polarization}_{dy} + \delta X_{dm} + \epsilon_d, \end{aligned}$$

where riot_{dcm} is the logged count of riots in district d and month m of year y which is associated with a time to the next election in its country c , with the level of ethno-political polarization, and, crucially, the interaction between the two. The coefficient of the interaction term tests Hypothesis 1, whether ethno-political polarization increases the pre-election rise in rioting. Since ethnic heterogeneity and polarization are expected to be higher in populated districts, which also experience more riots, districts' logged population and its interaction with time to election are controlled for (X_{dm}). To test Hypothesis 2, I interact these right-hand terms with the dummy for proportional systems. The coefficient of $\text{time to election}_{mc} \times \text{ethno-political polarization}_{dy} \times PR_{cy}$ captures the difference of the effect of polarization on the pre-election rise in riots between majoritarian and PR elections.

In comparison to count models such as the negative binomial model, the linear model allows for adding a flexible set of spatio-temporally defined fixed effects E_{dcm} . Narrowing the scope of these fixed effects, the fully specified model includes fixed effects for district-years and country-months. Note these fixed effects prohibit the identification of the constitutive terms $\text{time to election}_{mc}$ and $\text{ethno-political polarization}_{dy}$ because the respective variables do not vary within country-months and district-years, respectively. Importantly however, the interaction term of interest, $\text{time to election}_{mc} \times \text{ethno-political polarization}_{dy}$, remains identified.

The narrow fixed effects serve four purposes. First, as the Arab Spring and common adjournments of electoral contests evidence, elections might be caused or inhibited by violence preceding them. The country-month fixed effects effectively block this link by netting the data of all variation that is constant at the country-month level. Second, they account for omitted variables that are constant at this level and influence both the timing of elections and the occurrence of riots. These covariates include all national-level socio-economic factors. Third, the use of time-varying data on the spatial extent of districts and the related danger of boundary changes that are endogenous to elections or riots presents the 'modifiable areal unit problem' in its time-varying form. By using district-year fixed effects, the problem is alleviated insofar as for each district-year only one stable areal unit is observed and local causes of past changes are controlled for. Fourth, the district-year fixed effects reduce the impact of locally varying spatial and temporal auto-correlation. They account for the intermediate past of district-years and their yearly environment and thereby limit the bias spatio-temporal auto-correlation introduces.

To account for remaining temporal auto-correlation, I follow Carter & Signorino (2010) and approximate the decay of riot-risk after a riot as a cubic polynomial of the time since the last event in a district. To model spatial auto-correlation, I add the number of riots in neighboring districts at times $t - 1$, $t - 2$, and $t - 3$ as additional

²⁰ $\text{Ethno-political polarization}_{dy} = 4 * \sum_{i \in I_{dy}} (\text{size}_i^2 * (1 - \text{size}_i))$, with size_i being the size of ethnic group i relative to all politically relevant groups I populating a district d in a particular year y .

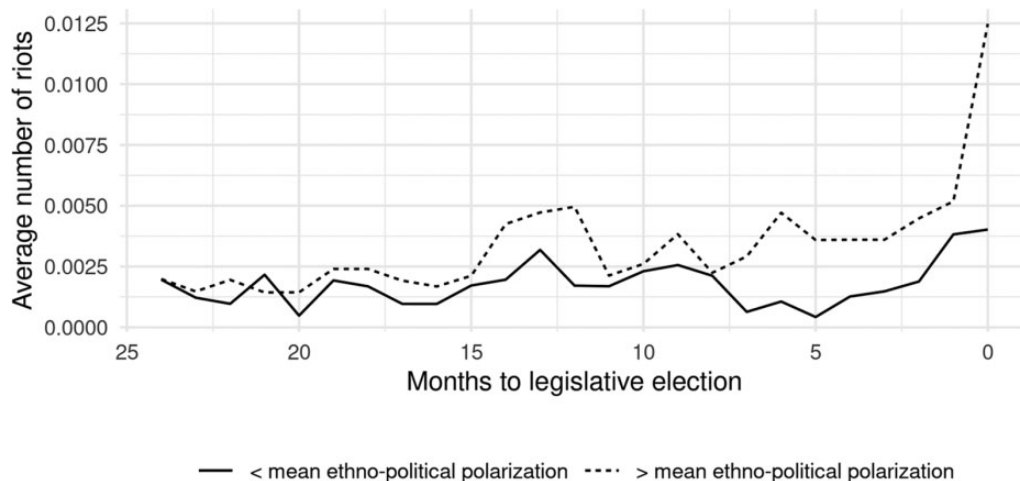


Figure 3. Mean number of riots in polarized and non-polarized districts over the 24 months prior to elections in majoritarian and mixed systems

controls to all models.²¹ In sum, the spatial lags in combination with the fixed effects successfully reduce the spatial correlation of residual from a Moran's I of the residuals of an empty model of .02 to $-.004$ (i.e. no spatial correlation of residuals) in the fully specified model.²² I cluster standard errors on the district level. Using different levels of clustering such as the region or the country-year, as well as non-parametric spatio-temporal clustering à la Bester, Conley & Hansen (2011), and Conley (1999), does not change the interpretation of the results (Online appendix A2.6).

Results

Figure 3 provides a first descriptive test of Hypothesis 1 that ethno-politically polarized districts experience steeper increases in the number of riots prior to majoritarian elections than their non-polarized counterparts. The figure shows that relatively polarized districts see slightly higher numbers of riots during non-election times and, crucially, experience a starker escalation of riots during electoral campaigns than districts with a low level of polarization. Table I reports the results of the statistical analysis of this pattern of pre-election violence. The table summarizes the association of pre-election increases in the number of riots with the level of local ethno-political polarization in majoritarian and mixed electoral systems. Models 2 and 3 iteratively introduce fixed effects on the country and district levels. Model 4 finally combines

country-month and district-year fixed effects for reasons outlined above. Note that with the full set of fixed effects, the constitutive terms of the main interaction term *time to election* \times *ethno-political polarization* are not identified.²³

The results not only indicate that ethno-politically polarized districts see more riots over the entire period,²⁴ but also, crucially, that they see a markedly higher increase of rioting preceding elections than non-polarized districts. As evidenced by Figure 4, the substantive effect of ethno-political polarization on pre-election increases in the number of riots is large and precisely estimated.²⁵ While Model 1 indicates that non-polarized districts see an increase of the average number of riots by a factor of 2.7 over the year preceding a legislative election, the number of riots in polarized districts increases almost twice as much, by a factor of 4.9.²⁶ Note that, although the average and predicted number of riots per district-month is low, these results imply substantive effects once we take into account the small spatio-temporal size of the units of analysis and aggregate the results at the country-month level. For example, reducing the ethno-political polarization of 775 Nigerian districts from their average of .38 to 0 decreases the number of riots predicted by

²¹ Spatial lags are calculated on the basis of past riot events in a district's and its neighbors' current area.

²² Moran's I is calculated using contiguous neighbors in the same country and month to construct the weights matrix.

²³ Districts have a constant value of ethno-political polarization within a year, and all districts within the same country and month have the same distance to the next election.

²⁴ See also Montalvo & Reynal-Querol (2005) on ethnic polarization and civil conflict.

²⁵ Unless otherwise noted, all results reported below are associated with p-values below .05.

²⁶ All covariates other than time to election and ethno-political polarization are set to their sample mean.

Table I. Local ethnic polarization and pre-election violence in majoritarian and mixed systems

	<i>Dependent variable:</i>			
	<i>Riots</i> (SCAD) (1)	<i>Riots</i> (SCAD) (2)	<i>Riots</i> (SCAD) (3)	<i>Riots</i> (SCAD) (4)
Constant	−0.0003 (0.0012)			
Time to election	−0.0386** (0.0109)	−0.0394** (0.0111)	−0.0375** (0.0117)	
Ethno-pol. polarization	0.0008* (0.0003)	0.0011** (0.0004)	−0.0011 (0.0010)	
Time to elec. × Ethno-pol. polar.	0.0079** (0.0022)	0.0078** (0.0022)	0.0072** (0.0023)	0.0076** (0.0029)
Population (log)	0.0007** (0.0001)	0.0010** (0.0002)	−0.0008* (0.0003)	
Time to elec. × Population	0.0034** (0.0009)	0.0035** (0.0009)	0.0033** (0.0010)	0.0045** (0.0015)
Sample Fixed effects	Maj. & Mix. —	Maj. & Mix. country	Maj. & Mix. district	Maj. & Mix. district-year & country-month
Spatial lag $t-1, t-2, t-3$:	yes	yes	yes	yes
Polynomial DV ^{1,2,3}	yes	yes	yes	yes
Mean DV	0.0014	0.0014	0.0014	0.0014
Observations	434,303	434,303	434,303	434,303
R ²	0.0054	0.0066	0.0418	0.2311

OLS linear models. Standard errors clustered on the district level in parentheses. Significance codes: * $p < 0.05$ and ** $p < 0.01$.

Model 1 during the legislative election month April 2007 from 4.3 to 1.6.

As a first indication of the robustness of the result, the difference in the local escalation of the number of riots prior to elections seen between polarized and non-polarized districts remains very stable once the country-month and district-year fixed effects are added to the model (Model 4, Table I). They control for unobserved heterogeneity that might influence the timing of elections and spatio-temporal auto-correlation not captured by the respective controls.

So far, the baseline results support the argument that, in majoritarian systems, local ethno-political polarization heightens the risk of pre-election increases in the number of riots. Following Hypothesis 2, this finding can only be attributed to the nature of majoritarian systems if no such effect is found in PR elections. To estimate the

difference in the effect of local polarization on pre-election increases in the number of riots, I interact all predictors in the baseline model with a PR dummy and extend the sample to all countries in the sample. Furthermore, I extend the range of outcomes with data on riots and riot fatalities retrieved from ACLED which are likely less affected by media bias but only cover the time since 1997 (Raleigh et al., 2010).

In its first three rows, Figure 5 plots the marginal effect of the interaction of *ethno-political polarization* × *time to elections* under majoritarian and PR rules as estimated in Table II. In the first column, the results closely mirror the baseline results on the effects of local ethno-political polarization in mixed and majoritarian systems, varying the data on riots between the SCAD and ACLED data. The second column shows that there is no electoral violence-inducing effect of local ethno-

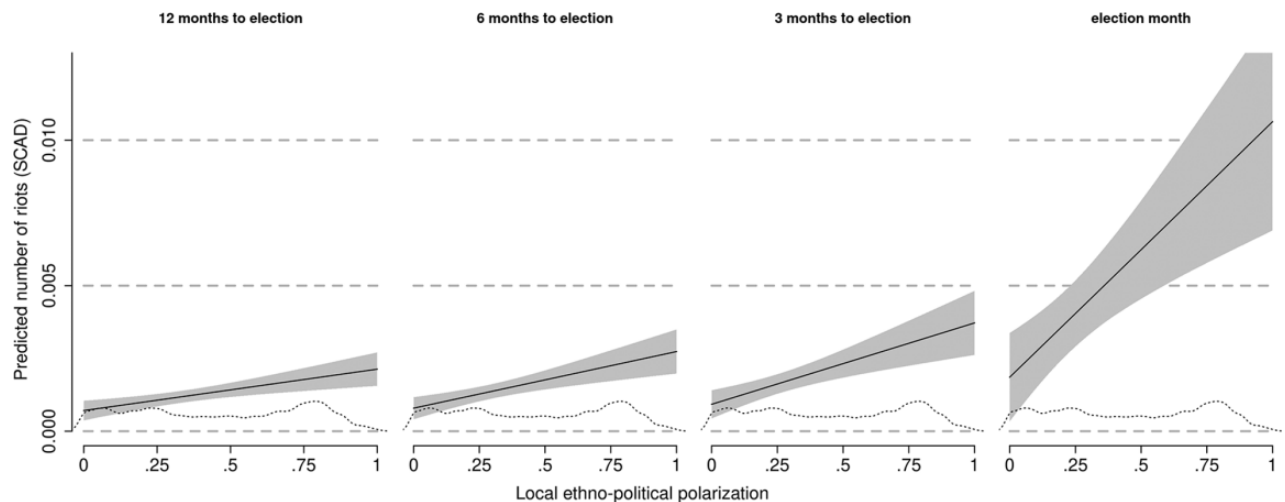


Figure 4. Prediction of the number of riots over the pre-election period in majoritarian polities, varying the degree of local ethno-political polarization

Based on Model 1 in Table I. All covariates are held at their sample mean. The dotted line indicates distribution of ethno-political polarization in the sample.

political polarization in PR systems. The respective coefficients are small, negative, and statistically insignificant. Finally, the last column in Figure 5 evidences that there is a marked and statistically significant difference in the effects of local ethno-political polarization between the two types of electoral systems.

In sum, these results suggest that the effects of local ethno-political polarization found in majoritarian and mixed systems are due to the nature of majoritarian as compared to PR elections. Local ethno-political competition does not increase the risk of pre-election violence in PR systems.

Robustness checks

In the following, I summarize the results of a number of robustness checks. Figure 5 summarizes the main findings. Online appendix A2 presents all analyses in further detail.

Direct measure of electoral violence. I first address the question of whether the results above indeed capture *electoral* violence. An analysis of the Electoral Contestation and Violence (ECAV) data collected by Daxecker, Amicarelli & Jung (2019) reveals that the number of instances and fatalities of electoral violence during the six months preceding an election significantly increases in ethno-political polarization in majoritarian, but not proportional systems. Note that the coverage of the ECAV data is limited to pre-election periods and therefore only allows for a cross-sectional research design.

Disaggregating riots. Disaggregating the SCAD data on rioting, I test whether the results are mainly driven by

riots with a clearly identifiable leadership or organization (e.g. political parties or unions) or without. Participants of riots with unidentified leadership or organization are oftentimes identified by ‘ethnic’ labels.²⁷ They likely have a broader popular participation and their anonymous perpetrators are harder to punish after the fact. In line with my theoretical argument, I therefore expect that riots coded by SCAD as ‘spontaneous’ drive the results. In addition, SCAD provides information on the conflict issues mentioned in news articles. Among the mutually non-exclusive issues, I expect ‘elections’ and ‘ethnic discrimination, ethnic issues’ to drive the results. The analysis shows that the effects mostly stem from ‘spontaneous’ riots, and riots reported to be related to electoral and ethnic, rather than all other issues. Lastly, I find no effects of ethno-political polarization of pre-election increases in the number of local demonstrations, strikes, and violent attacks by militias. Taken together, these results support the argument that ethnic riots are campaign weapons in ethno-politically polarized constituencies.

Reverse causality. Two types of reverse causality may explain the results. In the first, violence directly affects

²⁷ The SCAD dataset uses the label of ‘spontaneous’ riots for this type. Importantly, the fact that international media has no information on organizers and instigators does not mean that the respective riots have not been covertly planned and carried out for strategic reasons (e.g. Brass, 2011; Horowitz, 2001; Wilkinson, 2004).

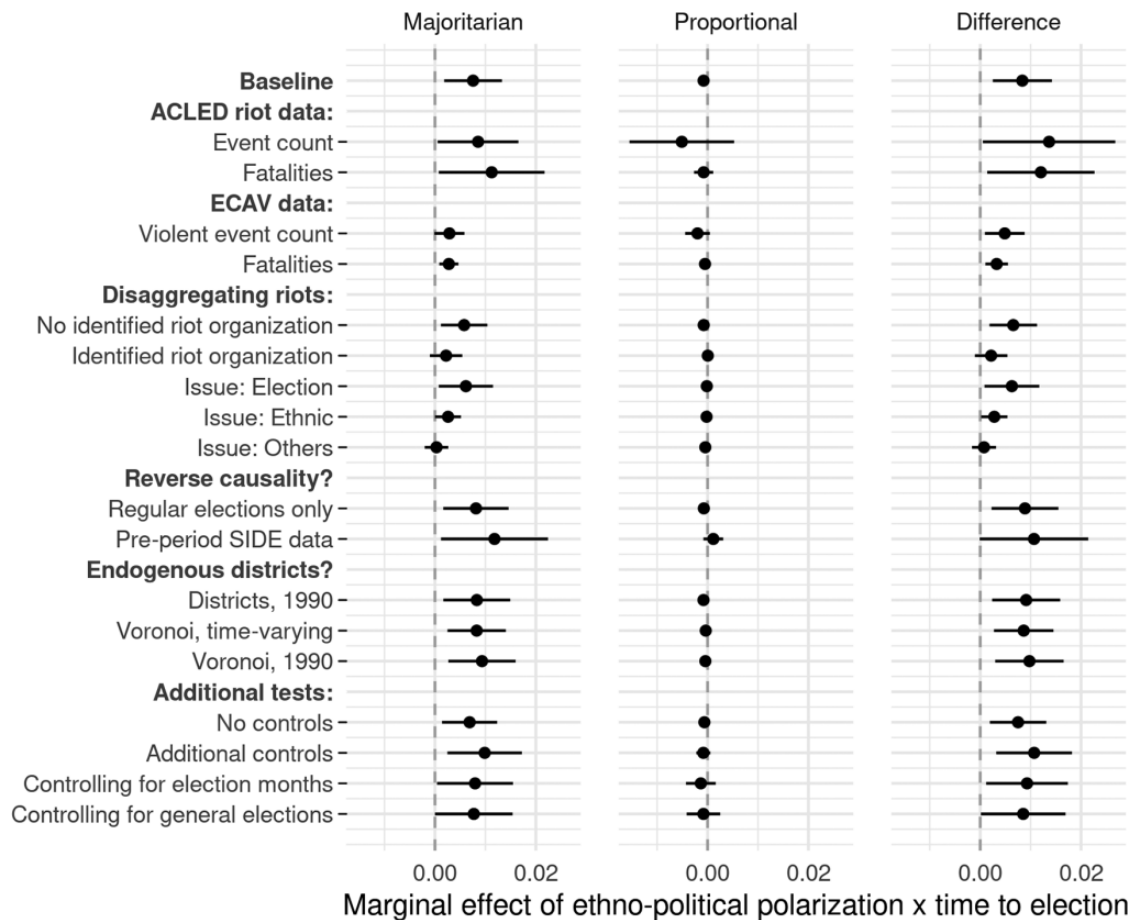


Figure 5. Robustness checks on Model 1 in Table II with 95% CIs

Note that the coefficients in the 'ECAV data' section reflect the cross-sectional estimate of the effect of ethno-political polarization. See Online appendix A2 for details.

the timing of an election, either causing an early poll or delaying it, thereby biasing the main results. To account for this possibility, I re-estimate the baseline model, using the time to the next *regular* election as coded by NELDA to capture the pre-election increase in rioting. By doing so, I drop all elections that have been held either early or late, thereby precluding them from affecting the estimates. The results on the subset of regular elections closely correspond to the main results. The second type of reverse causality may arise if pre-election riots substantively change the subsequent ethnic composition of a district. For 40% of the district-months in the main sample, no past or contemporaneous SIDE data are available. Dropping these observation to avoid potential reverse causality slightly *increases* the estimated effect of ethno-political polarization on pre-election rioting in majoritarian settings. However, if reverse causality would affect the results, the point estimate would drop towards zero.

Endogenous districts. Responding to past or expected violence, politicians might have adjusted district borders to foster peace or incite conflict. To account for such endogenous borders, I use (1) stable districts as observed in 1990 and (2) artificial districts based on Voronoi tessellations around districts' centroids as alternative units that are less biased by endogenous district designs. The respective results correspond to the baseline estimates.

Additional analyses. I further probe the robustness of the results in Online appendix A2.6. I first drop the control for population size, which might bias the results. Second, I add additional control variables interacted with time to election to account for potential omitted variable bias. In particular, I add districts' pure ethnic polarization, urban population, nightlight emissions, and the local shares of the ethnically included and irrelevant population as additional controls. The effects of ethno-

Table II. Local ethnic polarization and pre-election violence: Majoritarian vs. PR elections

	Dependent variable:		
	<i>Riots</i> (SCAD) (1)	<i>Riots</i> (ACLED) (2)	<i>Fatalities</i> (ACLED) (3)
Time to elec. \times Ethno-pol. polar.	0.0076** (0.0029)	0.0086* (0.0041)	0.0112* (0.0053)
Time to elec. \times Population	0.0045** (0.0015)	0.0081** (0.0026)	0.0083** (0.0030)
Time to elec. \times Ethno-pol. polar. \times PR	-0.0084** (0.0030)	-0.0137* (0.0067)	-0.0120* (0.0054)
Time to elec. \times Population \times PR	-0.0040* (0.0016)	-0.0011 (0.0050)	-0.0080** (0.0030)
Sample	all	all	all
Spatial lag $t-1, t-2, t-3$	yes	yes	yes
Polynomial DV $1, 2, 3$	yes	yes	yes
District-year FE:	yes	yes	yes
Country-month FE	yes	yes	yes
Mean DV	0.0012	0.0024	0.001
Observations	542,684	394,360	394,360
R ²	0.2323	0.2521	0.1670

OLS linear models. Standard errors clustered on the district level in parentheses. Significance codes: * $p < 0.05$ and ** $p < 0.01$.

political polarization in interaction with the time to majoritarian and PR elections remain stable. Third, the main results might be caused by election months in which I do not distinguish pre- from post-election riots. I therefore add an interaction of ethno-political polarization with a dummy for election months to the model. This does not change the result. Lastly, I disentangle the effects of upcoming presidential and legislative elections that are held concurrently and might therefore exhibit different patterns than ‘pure’ legislative elections (Wahman & Goldring, 2020). The results suggest statistically indistinguishable effects of ethno-political polarization before general and pure legislative elections.

The fear of pre-election victimization and local ethno-political polarization

As shown above, local ethno-political competition is robustly associated with district-level increases in the number of riots prior to majoritarian and mixed but not PR elections. In the following, I assess the effect of local ethno-political competition on individuals’ fear and experience of pre-election violence. This analysis avoids media

biases in the riot data (von Borzyskowski & Wahman, 2019; Weidmann, 2016) and provides evidence on the extent of individual-level pre-election victimization in polarized constituencies.

Building on Rauschenbach & Paula (2019), I draw on Afrobarometer (2018) surveys rounds 4–6 from 19 countries (Online appendix Figure A1), which asked individuals: ‘During election campaigns in this country, how much do you personally fear becoming a victim of political intimidation or violence?’ Additionally, I examine Afrobarometer pre-election surveys from Nigeria (2007) and Uganda (2010/11) that contain data on whether respondents or their community have been subject to recent campaign threats relating, inter alia, to their physical well-being. While available for only two elections, this is a more accurate measure of electoral violence than individuals’ fear of it. While other forms of campaign violence than riots can affect individuals’ reports and fear, I expect response patterns to coincide with the main results if pre-election rioting indeed intends to affect voters. Without knowing the immediate cause of individuals’ reports and fears, I cannot completely rule out that response patterns are driven by non-riot forms of political violence.

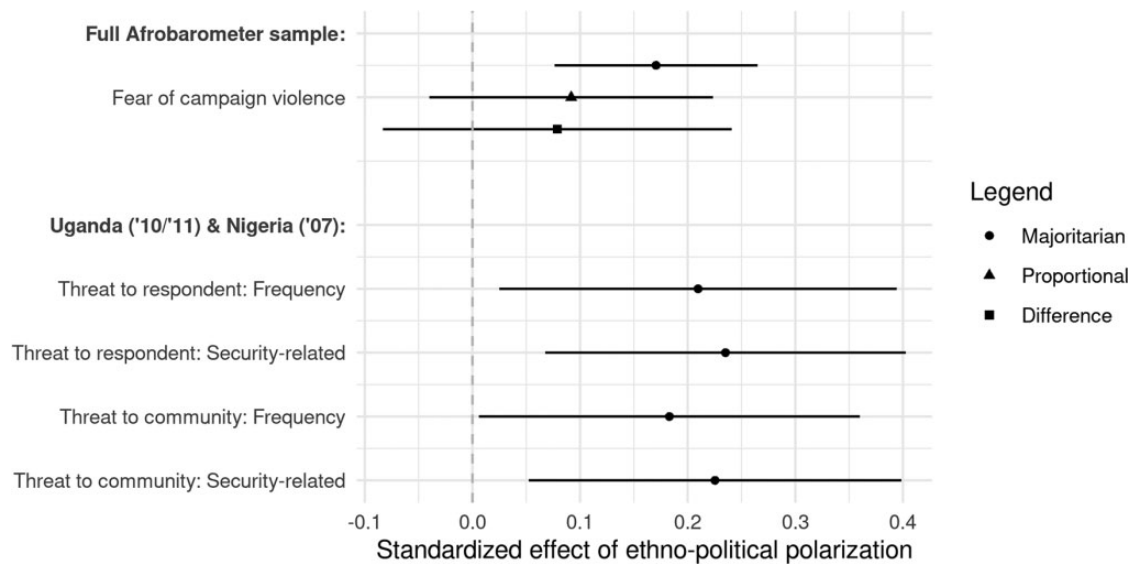


Figure 6. Estimated standardized effect of local ethno-political polarization on fear and experience of pre-election violence. Effects are measured in standard deviations of the respective outcome variables. The figure plots estimates from Model 3 in Table A12 and from Models 1–4 in Table A13. See Online appendix A.3.3 for further details.

I match the district-level measure of ethno-political polarization in the year prior to a survey²⁸ to Afrobarometer respondents via the geographic location of survey clusters (Ben Yishay et al., 2017).²⁹ The main analyses are conducted using the following OLS specification:³⁰

$$y_{ict} = \delta_{ct} + \beta_1 \text{ethno-political polarization}_{dt} + \delta X_{id} + \epsilon_{id},$$

where outcomes y of an individual i in district d of country c interviewed in year t are regressed on the district's level of ethno-political polarization. I only compare respondents interviewed in the same survey by adding survey fixed effects δ_{ct} . Control variables X_{id} consist of the size of districts' population, as well as respondents' sex, their age and its square, their level of education, and an urban dummy. To compare patterns between majoritarian and proportional systems, I interact all explanatory variables with a dummy for PR systems. Standard errors are clustered on the district level.³¹

Results

Figure 6 presents the estimates of the standardized effects of local ethno-political polarization on respondents' fear

and experience of campaign violence. In majoritarian systems, the fear of respondents is positively and significantly associated with the ethno-political polarization of their home district. The effect, plotted in the first row of the figure, amounts to a change in the reported level of fear by 0.17 standard deviations as one moves the polarization measure from 0 to 1. This effect of local ethno-political polarization is weaker in pure proportional systems, though not precisely estimated at zero. The difference between pure PR and majoritarian systems is not statistically significant ($p = .34$). This stems from the noisy estimate in the PR sample, which features only 352 districts as compared to 1,264 in the majoritarian sample. The results are robust to adding additional district-level controls, dropping observations with SIDE data collected after survey interviews, and accounting for factors that may lead to ethnically biased survey responses (Adida et al., 2016: Appendix A3.3).

Moving beyond subjective *perceptions* of fear, Figure 6 reports the estimated effects of ethno-political polarization on reports of electoral threats in Uganda and Nigeria. Respondents in polarized districts in both countries report that they and members of their community have been targeted significantly more often by campaign threats than those living in non-polarized areas. The estimated effect on security-related threats is similarly strong. Respondents who live in polarized areas are on average 5.1 percentage points or .24 standard deviations more likely to have received such a threat. Unsurprisingly, the effect on reports about security-related threats

²⁸ For surveys after 2013, I use the 2013 value. This does not affect the results (Online Table A16).

²⁹ For the additional rounds from Uganda and Nigeria, I geo-code respondents via the names of districts. See Online appendix A3.1.

³⁰ (Ordered) logistic regressions with country-round dummies lead to very similar results (Online Tables A17 to A19).

³¹ For different standard error clusterings, see Table A15 (Online).

being issued at community members is consistently estimated. In sum, these findings show that individuals in ethno-political polarized districts under majoritarian voting experience more electoral violence, thus bolstering the main theoretical argument.

Conclusion

Local political competition between ethnic groups can increase the odds of pre-election violence in majoritarian elections in Africa. By focusing on the nexus between local ethno-political cleavages, the electoral system, and campaign violence, the preceding analysis highlights the importance of sociopolitical geography for gauging the merits of majoritarian as compared to proportional electoral systems.

In particular, I argue that majoritarian elections turn violent where ethnic constituencies of similar size compete for legislative seats at the local level. Because competition in proportional systems occurs at higher geographical level, local ethno-political polarization has no effect on violence before PR elections. This argument is supported by results that show that the level of violence before majoritarian elections significantly increases with local ethno-political polarization. Similarly, citizens who live in polarized districts in majoritarian polities systematically report substantially higher levels of fear of pre-election violence than their co-nationals in non-polarized districts. These patterns of pre-election violence in ethno-politically polarized districts under majoritarian voting do not threaten electoral integrity in pure PR systems.

Echoing arguments made by Barkan, Densham & Rushton (2006) and Wagner & Dreef (2013), these results suggest that constitution writers are well advised to account for a state's ethnic geography when drafting electoral institutions. This is particularly important in unconsolidated democracies – in countries with more established norms of peaceful campaigning, local ethnic competition is less likely to lead to widespread violence. The results show that majoritarian elections can turn violent in areas where politically mobilized ethnic groups make up roughly equal shares of the population, thus increasing electoral competition along ethnic lines. The contrasting finding of an absence of this pattern in PR elections adds more detail to our understanding of the propensity for electoral violence in majoritarian elections (Birch, 2007; Fjelde & Höglund, 2016).

In addition to the contrast between majoritarian and PR elections, the findings suggest that electoral districts in majoritarian systems can be designed to reduce

district-level ethno-political polarization and electoral violence. However, the likely positive effects of such district designs must be discussed alongside their impact on the competitiveness of elections, the translation of votes to seats, and the representativeness of future electoral results. Furthermore, districts designed to achieve non-polarized ethnic compositions may well legitimize 'ethnic gerrymandering' more generally, further politicize ethnic identities, and ultimately foster ethnic conflict. While the immediate effect of district-level polarization on electoral violence shown in this article can inform such discussions, it should be only one of many concerns addressed by electoral designs. These must be ultimately geared towards serving citizens' preferences.

Replication data

The R-package and code for the empirical analysis in this article, along with the Online appendix, can be found at <http://www.prio.org/jpr/datasets>. All analyses were conducted using R 3.4.


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