Informative Pre-election Attacks and Post-Electoral Reprisals*

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Abstract

Why do political parties use violence against voters before elections? Beyond suppressing turnout among opposition supporters, pre-electoral violence can coerce participation in favor of the perpetrating party. It does so through two reinforcing mechanisms: 1) it signals the party's willingness and capacity to use further violence in response to unfavorable electoral outcomes, and 2) by depressing turnout in groups for which electoral results are available, it increases the importance of each remaining vote in determining whether such future punishments will occur. We formalize this logic in an incomplete information model in which voters are uncertain about parties' violent capabilities. The model rationalizes why violence is prevalent where voting occurs along ethnic lines; it describes how the granularity of electoral result reporting affects pre- and post-electoral violence, and explains why pre-electoral violence occurs even in areas that largely support the perpetrating party.

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Ballots have long been cast in the shadow of violence. Historical accounts describe clashes between gangs and voter intimidation during elections in the late Roman Republic (Troxler 2008), the American South (Kousser 1974), and Western Europe in the 19th and early 20th centuries (Hoppen 1994; Ihl 2010). More recently, between 1990 and 2008, over half of elections in sub-Saharan Africa involved violent incidents (Taylor, Pevehouse, and Straus 2017, p. 403), and from 1989 to 2017, more than 24,000 people were killed in election-related events worldwide (Fjelde and Höglund 2022, p. 174). While some of this violence reflects public unrest over alleged fraud, it is frequently a calculated tool used to influence voter behavior. Pre-election attacks on the population, whether carried out by state forces, armed groups, or others affiliated to political parties, are indicative of this rationale.[1] How do the perpetrators benefit from those attacks?

One possibility is that pre-election violence prevents turnout among opposition supporters (Chaturvedi 2005; Collier and Vicente 2012; Gonzalez-Ocantos et al. 2020). Mixed evidence on whether parties target low-support areas (e.g., Wahman 2024; Mares and Young 2016), however, suggests that the attacks can serve other purposes. A particularly understudied logic holds that fear of future reprisals induced by pre-election violence is a powerful force influencing not only turnout but also vote choice (Travaglianti 2014). An incident during Colombia's 2002 elections in the town of San Onofre illustrates the mechanism. Right-wing paramilitary leader Cadena forced hundreds of residents to attend a campaign rally for Muriel Benito, a candidate for the House of Representatives. According to witnesses, at the end of the event, Cadena threatened to kill two councilmen in attendance and others at random if Muriel failed to win. These threats were highly credible. Cadena's reputation for carrying out assassinations against those who opposed him was well established. Unsurprisingly, Muriel received unusually high vote totals in the region.[2]

In other contexts, the credibility of similar threats may be weaker, leading perpetrators to stage additional displays of violence before the election. For example, during Kenya's 1992 elections, Kalenjin and Maasai "Warrior" groups attacked Kikuyu migrants in the Rift Valley. These assaults

1. Data from Daxecker, Amicarelli, and Jung (2019) shows these types of attacks occurring in 76% of African countries, 68% of those in the Americas, and 70% of countries in Asia from 1990–2012.

2. *Así se desarrolló la oscura conexión entre paramilitares y políticos en Sucre* [This is how the dark link between paramilitaries and politicians was developed], El Tiempo, November 11, 2006.

were intended to *show* that multiparty democracy would bring harm to those who supported any party other than the Kenyan African Union (Burchard 2015, p. 60). While secret ballots were in place on these occasions, voters understood that local vote totals could trigger collective reprisals.

In this paper, we provide a theoretical framework to study terror induced by pre-electoral attacks. We examine how attacks raise voters' expectations of future punishments that are conditional on aggregated electoral outcomes. The model helps reconcile seemingly inconsistent findings about the relationship between political preferences and the geography of electoral violence, clarifies how the levels at which electoral results are published affect voters' safety, and accounts for the observed higher incidence of violence in elections where voting occurs along ethnic lines.

We consider an electoral environment in which a group of voters may face post-electoral reprisals when a candidate performs poorly in an upcoming election. The baseline model reflects a low-information environment in which voters' candidate preferences are private information, and voters do not know whether a campaign operative supporting the candidate has the capacity to carry out the post-election reprisal. Both voters and the campaign operative know the distribution of political preferences, and the operative observes the group's aggregate vote totals (but not individuals' choices). At the start of the game, the campaign operative decides whether to engage in pre-electoral violence, which reduces turnout at a cost. Operatives with the ability to impose post-electoral punishments face a lower cost of engaging in pre-election violence than those who lack that capacity. Before voting, voters use the information on whether a pre-election attack occurred to judge whether the candidate's poor performance will trigger punishment.

The model highlights two key benefits of pre-electoral violence for the attacker. First, in some equilibria, such violence increases voters' belief that the campaign operative is capable of carrying out post-electoral reprisals, prompting more opposition supporters to switch their votes out of fear. Second, because post-election punishment is based on group-level vote totals (due to ballot secrecy), reducing turnout through violence increases the pivotality of each remaining vote in determining whether punishment will be triggered. This heightened sense of individual responsibility further incentivizes opponents to vote for the attacker's candidate. In essence, pre-election violence

amplifies the perceived threat of post-election punishment by making each vote more consequential in smaller, targeted groups. Importantly, these two mechanisms are mutually reinforcing: the deterrent effect of increased vote pivotality is stronger when voters believe the operative is likely to follow through on threats. These dynamics operate alongside the more familiar mechanism by which pre-electoral violence simply suppresses opposition turnout.

Examining how the fear of post-election punishments shapes voting allows us to interpret existing empirical patterns and contribute to ongoing debates in the literature. A central point of contention concerns where pre-electoral violence is most likely to occur: in opposition strongholds or in swing areas. Some argue that pre-electoral violence is primarily used to demobilize opposition supporters, and thus should be concentrated in areas where the opposition is strong (Rauschenbach and Paula 2019). Others emphasize the strategic value of violence in swing regions, where the cost of losing due to nonviolent competition is high, and where violence may also serve as a mobilization tool (Robinson and Torvik 2009; Daxecker, Deglow, and Fjelde 2024). Furthermore, Wahman and Goldring (2020) and Wahman (2024) argue that violence can be targeted to uncompetitive areas that are strongholds of the perpetrating party or its competitor to enforce or challenge territoriality—the perception of invincibility and dominance of the party in the locality. Reviewing the literature, Mares and Young (2016) note that the empirical evidence remains inconclusive about whether violence systematically targets voters based on partisan preferences.

Our model rationalizes observed violence in strongholds of the perpetrator, opposition, and swing areas. According to our results, two factors determine how voters' preferences shape the targeting of pre-electoral violence: whether multiple parties are capable of harming voters, and the information parties have about voters' political leanings. When only one party has both the capacity and willingness to use violence in a given area, and voters show only weak support for the opposition, our model predicts a higher likelihood of pre-electoral victimization. However, when multiple parties are capable of violence, the logic changes: a party may attack swing areas or even its own strongholds to counteract the fear induced by rival groups. That is, when both sides can use violence, an operative can signal, through preelection attacks, that a poor electoral outcome

will trigger punishment for the group. This signal undermines the perceived security benefit of switching sides. In effect, putting supporters between a rock and a hard place, discourages them from voting for the opposition, as this would not help them avoid harm. As a result, these voters are more likely to remain loyal and vote in line with their original preferences.

When we allow the operative to observe individual preferences and not just its distribution, the benefits of pre-electoral violence increase: the operative can now selectively target opposition supporters, reducing their turnout while avoiding targeting her supporters. Because an opponent only has a positive probability of voting for the operative's candidate out of fear, while supporters vote for that candidate with certainty, observability of individual preferences makes it easier to sustain all equilibria in which such attacks occur. Importantly, it also makes pre-election violence possible even where the opposition no longer has weak attachments to their candidate, in contrast to what we find when only the distribution of preferences is known. This finding can rationalize the higher incidence of pre-electoral violence in contexts where voting follows ethnic lines (Kuhn 2015; Enamorado and Kosterina 2022; Müller-Crepon 2022; Travaglianti 2014). When voter preferences are strongly correlated with observable individual characteristics, such as race, language, or religious customs, party operatives can identify and selectively target opposition supporters, making pre-election violence a more attractive campaign tactic.

The model also illustrates a complementary mechanism that makes pre-election violence more prevalent where ballots are cast primarily for co-ethnics. In the baseline model, voters make decisions exclusively focused on the effects of post-election reprisals on their own safety. Relaxing this assumption, by allowing voters to care about the well-being of others who share their political preferences, also increases the likelihood of pre-election violence. In this way, voters' stronger willingness to protect co-ethnics amplifies the coercive power of pre-election violence: by voting for the attacker, individuals seek to minimize expected future harm not only to themselves but also to members of their ethnic group. This logic, along with the observability of preferences mechanisms, contrasts with explanations that emphasize the scarcity of persuadable swing voters (voters

who might otherwise be influenced by programmatic appeals or clientelism) as the reason why violent tactics are common in ethnically polarized settings (Kuhn 2015).

This paper contributes to a growing body of formal literature on political violence and elections. A key strand of this literature examines how elections affect overall levels of violence (e.g, Cox 2009; Fearon 2011; Little 2012; Luo and Rozenas 2018). In some models, elections reduce violence by serving as substitutes for armed conflict or by lowering uncertainty that might otherwise lead to bargaining failures. In others, elections increase the risk of violence by revealing information about the incumbent's vulnerability, potentially triggering coups or revolutionary uprisings.[3] The informational content of election results, particularly regarding the strength of incumbents, creates incentives for pre-election manipulation aimed at shaping public beliefs (e.g., Little 2012; Simpser 2013; Gehlbach and Simpser 2015). Our model aligns with this focus on the strategic use of electoral manipulation to influence beliefs, but with a distinct emphasis: we examine how pre-election violence, rather than shaping the post-manipulation distribution of incumbent strength, alters voters' expectations about the localized post-election consequences they will face that may be independent from the identity of the election winner.

Other formal work explores the mechanisms through which electoral violence influences election outcomes. Ellman and Wantchekon (2000) and Wantchekon (1999) examine how the threat of post-election disruption shapes campaign platforms and voter behavior. However, they do not address the strategic logic behind pre-electoral violence. Others, including Chaturvedi (2005), Robinson and Torvik (2009), and Collier and Vicente (2012), focus directly on pre-election violence as a campaign tool, yet they do not model how it affects voting behavior through voters' expectations. Notably, our model provides microfoundations for Collier and Vicente (2012)'s assumption that violence is targeted to weak opposition areas, but also shows that this logic is conditional: it weakens when multiple parties can deploy violence or when parties possess information about individual voter preferences. Similarly, Brancati and Penn (2022) and Hassan and O'Mealia (2018) focus on agency problems between government or party officials and lower-level operatives and the choice

3. Indeed, Hafner-Burton, Hyde, and Jablonski (2018) find that pre-electoral violence initiated by incumbents is often linked to post-electoral protests, some of which escalate into violence.

of electoral violence rather than agency relations between party operatives and voters, as we do here. Rundlett and Svolik (2016) also study principal-agent relationships between incumbents and political operatives, but highlight the role of collective action problems among operatives and the uncertainty about the incumbent's popularity to explain patterns of fraud.

Besides the work already cited, previous empirical studies have identified other factors that increase the likelihood of electoral violence. Studies here point to expectations of undesired electoral results (Hafner-Burton, Hyde, and Jablonski 2014), majoritarian electoral rules or institutional constraints (Fjelde and Höglund 2016; Müller-Crepon 2022; Daxecker and Rauschenbach 2023), and recent experiences with civil war (Ishiyama, Marshall, and Stewart 2022). Others note that the benefits and costs of using violence depend more on voter characteristics like socioeconomic status or prior experiences with violence (Bratton 2008; Gutiérrez-Romero and LeBas 2020). While most of these agree on the strategic nature of violence, the informational value of pre-election attacks, or how turnout reductions induce remaining voters to vote for the attacker are not explored.

Finally, our paper relates to a broader literature on how the allocation of rewards or punishments contingent on electoral outcomes is shaped by the level at which vote totals are reported or constituencies are defined (Gingerich and Medina 2013; Rueda 2015; Larreguy, Marshall, and Querubin 2016; Smith and Mesquita 2012; Rueda, Grossman, and Ge 2025). Prior work has shown that more disaggregated electoral results facilitate clientelism. This is achieved either by enabling parties to effectively monitor brokers' mobilization performance (Larreguy, Marshall, and Querubin 2016; Bowles, Larreguy, and Liu 2020), or by increasing the pivotality of individual votes in determining whether benefits continue (Rueda 2015; Smith and Mesquita 2012). Our paper builds on this latter mechanism, emphasizing how pre-electoral violence, by depressing turnout, increases the pivotality of remaining voters and thereby strengthens the incentive to switch support in order to avoid punishment. Importantly, our contribution extends this literature by highlighting the informational role of pre-election violence: we show how such violence can increase the credibility of pre-election threats and how that relationship is shaped by the size and composition of the monitored group.

A simple model

Consider a group of N voters in an election where two candidates, A and B, compete. Of these voters, N^A prefer candidate A, while the remaining $N - N^A$ prefer candidate B. Each voter i receives an expressive private utility of γ_i from voting for her preferred candidate. This utility captures how strongly voter i values voting for her preferred option. Although individual γ_i values are unobserved by others, they are commonly known to be independent realizations from a continuous distribution F with support on $[0, 1]$. The election is conducted with a secret ballot: individual votes are not observable, but the group's aggregate vote totals are. We should think of the group of voters as residents of a locality registered to vote at the same polling station (not the whole electorate) whose vote totals will be published.[4]

A campaign operative working for candidate A threatens the group of voters with post-electoral reprisals if A performs poorly in that locality. The operative may either have the capability to carry out this threat, denoted by $\overline{\omega}$, or lack such capability, denoted by $\underline{\omega}$. We refer to the former as *strong* and the latter as *weak*. Strong types possess the means, such as an organized group of thugs, to inflict significant physical harm on voters or their property, and are willing to do so. Weak types, by contrast, are either unable or unwilling to follow through on their threats. The operative's type is private information. However, all voters know that the fraction of strong types is $\mu \in (0, 1)$. This uncertainty reflects the idea that even when a party has a reputation for violence, due to a history of insurgency or recent patterns of repression (Ishiyama, Marshall, and Stewart 2022), voters may not know whether that capability will be deployed in their locality. We assume that candidate B's operatives do not engage in violence, an assumption we relax later.

After an election, the reprisal of a strong operative occurs with probability $\beta\left(1 - \frac{V^A}{\tilde{N}}\right)$. The parameter $\beta \in [0, 1]$ captures the probability that no external constraints, such as election monitors, international peacekeepers, or media scrutiny, interfere to prevent the attack. For instance, rural areas may be more difficult to monitor, making violence more feasible (a situation captured by

4. Because voters are non-pivotal in large electorates, expected payoffs from the election outcome are independent of individual actions (Dekel, Jackson, and Wolinsky 2008); accordingly, we follow the literature and abstract from instrumental considerations (e.g., Casas 2018).

a higher β). The term $1 - \frac{V^A}{\tilde{N}}$ is the probability that such an attack is initiated in the first place, where $\tilde{N} \leq N$ denotes the number of voters post-threat and V^A A's votes. Therefore, post-election punishments by A's strong operative are likelier when candidate A performs poorly.

Operatives know that N^A voters prefer candidate A, but do not know the preferred candidate of each voter. We use this conservative assumption to isolate a rationale for pre-electoral violence that is not linked to demobilizing opponents (the main rationale explored in the existing literature). Moreover, the assumption is consistent with voters' efforts not to reflect their voting intentions in violent campaigns. For example, supporters of the United Party for National Development (UPND) in Zambia 2016 often wore green campaign clothing from the Patriotic Front (PF) or abstained from using their party red; a so-called *watermelon strategy*, to avoid harassment from PF cadres (Wahman 2024, p. 91).[5]

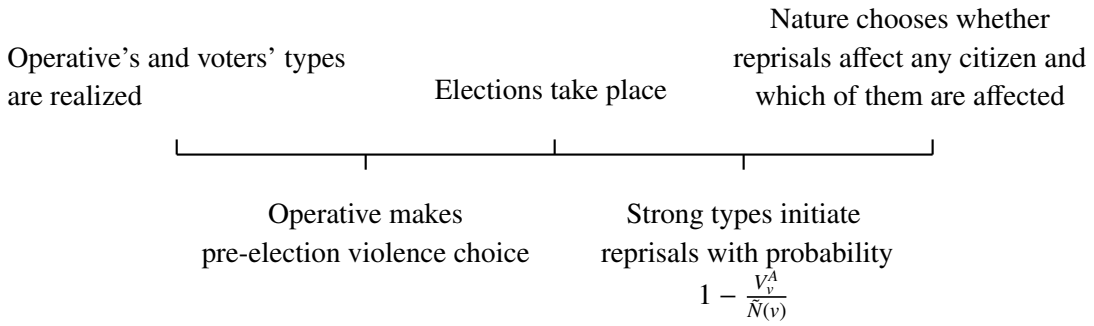
Post-election reprisals do not affect everyone in the group. Conditional on a post-electoral reprisals occurring, the probability that each voter is unaffected by it is $\delta \in [0, 1]$. This parameter captures the extent of the punishment, with larger values denoting less extensive reprisals. Note that while β represents the absence of outside factors that prevent a post-electoral attack by A, δ is linked to how widespread this attack is among the group of voters, if the attack does take place. Although β and δ capture substantively distinct concepts, they will affect strategic considerations similarly in the baseline model. However, keeping them separate will allow us to analyze two situations of interest later: one where overall election results (and not just local results) determine the possibility of post-electoral reprisals, and another where the intensity of the future reprisal is a function of the number of defectors.

In addition to caring about expressing their political preferences at the ballot, voters want to avoid post-electoral reprisals. At the beginning of the game, all voters have a utility unit. If a voter is affected during the reprisals, the voter loses it. Operatives, on the other hand, want to maximize the vote share of their candidate in this locality.[6]

5. Separating the distributions of preferences strengths from the one of preferred candidates will be later useful in our analysis of contexts where ethnic voting is common.

6. In the Appendix, we describe changes in the results when the operative maximizes the number of votes.

Figure 1. Timeline



Before the election, the operative can choose whether to engage in a violent action against the voters. This can represent a show of force that could enhance the credibility of the post-electoral reprisal threat. The cost of engaging in pre-electoral violence for the strong type is $c_{\overline{\omega}}$, and that of the weak type is $c_{\underline{\omega}}$ with $0 \leq c_{\overline{\omega}} < c_{\underline{\omega}}$. That is, it is easier for strong type operatives to exert pre-election violence than for weak types. If the operative chooses to engage in pre-electoral violence, the number of voters is reduced by $K \in \{1, ..., N-2\}$ voters,[7] with the voters that are eliminated chosen at random. K then captures the intensity of the pre-electoral attack. The random selection of eliminated voters is consistent with the assumption of no observability of preferences. This turnout reduction is in line with the observational and quasi-experimental studies that document demobilizing effects of pre-electoral violence (e.g., Bratton 2008; Condra et al. 2018; Collier and Vicente 2014). The reduction in turnout can be interpreted as the combined result of fear that election day might also be violent (von Borzyskowski, Daxecker, and Kuhn 2022), or backlash from voters (that may include some of A's supporters) against the use of violence as a campaign tactic (Rosenzweig 2023). After pre-electoral violence choices are made, all of those remaining in the group vote simultaneously, and nature decides whether there is a reprisal and who is affected by it. The timing is illustrated in Figure 1.

Table 1 summarizes the expected payoffs to a supporter of candidate B who chooses to vote for either A or B, conditional on the pre-electoral violence choice $v \in \{V, NV\}$, where V denotes violence and NV denotes no violence. Consider first the payoffs linked to voting for A described in

7. If $K = N - 1$ there will be certainty about the voting behavior of the remaining voter.

Table 1. B voter's expected payoffs after pre-electoral violence choice of v

Operative:	Strong $\overline{\omega}$		Weak $\underline{\omega}$
	Reprisal	No Reprisal	No Reprisal
Probability:	$1 - \frac{V_v^A}{\tilde{N}(v)}$	$\frac{V_v^A}{\tilde{N}(v)}$	1
A	$\beta\delta + (1-\beta)$	1	1
B	$\beta\delta + (1-\beta) + \gamma_i$	$1 + \gamma_i$	$1+\gamma_i$

the first row of the table. If the operative is strong, a reprisal is triggered with probability $1 - \frac{V_v^A}{\tilde{N}(v)}$. Here, the subindex in V_v^A stresses the fact that the number of votes for A is a function of the pre-election violence choice. If a reprisal is triggered, it is successfully carried out with probability β, and fails due to exogenous factors (e.g., election monitoring) with probability $1 - \beta$. In the event of a successful attack, the voter avoids harm with probability δ (and retains her safety utility of 1) or suffers harm with probability $1 - \delta$ (and loses that utility). If no reprisal occurs, either because A's vote share is sufficiently high, or because the operative is weak, the voter retains her utility unit. The same logic applies when the B supporter instead chooses to vote for B, with one key difference: in that case, the voter also receives γ_i after supporting her preferred candidate.

This is a dynamic game of incomplete information. An equilibrium in this game is a set of optimal strategies sustained by a belief system and such a belief system. A (pure) strategy for an operative is a function, $\chi : \{\underline{\omega}, \overline{\omega}\} \longrightarrow \{V, NV\}$, that maps the operative's type to a choice of pre-electoral violence. A strategy for a voter is function $\phi^j : [0,1] \times \{V, NV\} \longrightarrow \{A, B\}$, that maps the voter's type and observed operative's pre-electoral violent action to a voting choice for voters who support candidate $j \in \{A, B\}$. A belief system for voters is a probability distribution over the operatives' types, $\mu(.|v)$, derived via Bayes Rule given strategies when possible.

Analysis

Note that A supporters have no reason to vote against their preferences. By voting for A, they reduce the chances of a post-electoral punishment and gain the satisfaction of voting for their candidate. A voter i whose preferred candidate is B, on the other hand, will vote for A whenever

$$(1)\quad \mu_v\left(\beta\left(1-\frac{V^A_{-i,v}+1}{\tilde{N}(v)}\right)\delta+1-\beta\left(1-\frac{V^A_{-i,v}+1}{\tilde{N}(v)}\right)\right)\geq \mu_v\left(\beta\left(1-\frac{V^A_{-i,v}}{\tilde{N}(v)}\right)\delta+1-\beta\left(1-\frac{V^A_{-i,v}}{\tilde{N}(v)}\right)\right)+\gamma_i,$$

where $V^A_{-i,v}$ denotes (expected) others' votes for A and $\mu_v \equiv \mu(\overline{\omega}|v)$, the probability of facing a strong operative after observing pre-electoral violence choice v. From this expression, we can deduce that the net safety benefit for voting against one's preferences for B's supporters is

$$(2)\qquad \Psi_0(v) \equiv \mu_v\frac{\beta(1-\delta)}{\tilde{N}(v)}.$$

The following result characterizes equilibrium voting behavior in the subgames that occur after A's operative chooses whether to engage in pre-electoral violence. All proofs are in the appendix.

Proposition 1. *In all equilibria, the strategies of voters after pre-electoral violence choice, v, are:*

1. *Candidate B supporter i votes for candidate A whenever* $\gamma_i \leq \Psi_0(v)$, *and votes for her preferred candidate otherwise.*

2. *Candidate A supporters vote for candidate A.*

The first result implies that supporters of candidate B will vote for candidate A when their expressive attachment to B is weaker than the anticipated safety gain of supporting A. As expression 2 shows, this safety benefit increases with the likelihood of a successful reprisal (captured by the vulnerability parameter β) and with the expected severity of punishment, reflected in the risk of personal harm $(1-\delta)$. This helps explain why violent political actors often target poor and rural

areas, which typically face weaker protection from the government and receive less oversight from the media or observers (Mares and Young 2016; Gonzalez-Ocantos et al. 2020).[8]

The model further suggests that pre-electoral violence is more effective in populations where a greater share of opposition voters have weak attachments to their preferred candidate. That is, where the distribution F places more mass on lower values of γ_i. This highlights a mechanism through which extreme polarization, understood as a larger fraction of voters with strong attachments to their candidate, can reduce the effectiveness of coercive tactics. However, as we will show later, high polarization does not necessarily rule out the strategic use of pre-electoral violence under alternative assumptions about the information environment.

We also find that pre-electoral violence can increase the likelihood that B-supporters vote for A by reducing turnout from N to $N - K$ (Ψ_0 is decreasing in $\tilde{N}$). The intuition is straightforward: as turnout declines, each individual vote becomes more pivotal in determining whether a post-electoral reprisal will occur. In a smaller group, a voter can rely less on others to vote for A to secure group safety, thereby strengthening her own incentive to defect from her preferred candidate. While the existing literature has largely focused on turnout suppression among opposition supporters as the primary objective of pre-electoral violence (Chaturvedi 2005; Collier and Vicente 2012; Gonzalez-Ocantos et al. 2020), our model points to a distinct and underexplored mechanism: When voters fear post-election reprisals, a reduction in turnout can itself pressure those who do vote to support the aggressor, as their individual choice becomes more consequential in avoiding collective punishment. Crucially, this mechanism does not depend on the ability to selectively target opposition voters. Even when pre-electoral violence affects the electorate more broadly, a general decline in turnout can still yield electoral gains for the perpetrator. For the remainder of the paper, we refer to this logic as the *turnout mechanism*, the inducement to vote for an attacker created by shrinking the voting group through pre-electoral violence.

In addition to the turnout mechanism, Proposition 1 identifies a key complementary channel through which pre-electoral violence benefits the perpetrating party (captured by μ_v): such violence

8. Mares and Young (2016) find that in 7 out of 10 African countries studied, there is a significant positive relationship between poverty and fear of electoral violence.

can shift voters' beliefs, increasing the perceived likelihood that they are facing a strong operative who will follow through on the threat of post-electoral punishment (Ψ_0 is increasing in μ_v). When this belief increases, so too does the incentive for voters to support their attacker in order to avoid future reprisals. We refer to this channel as the *terror mechanism*. Crucially, the effectiveness of the turnout mechanism depends on the credibility of the threat. If voters do not believe they are dealing with a strong operative (i.e., if μ_v is close to zero), then the increased pivotality of their vote resulting from reduced turnout will have little effect on their behavior. This interdependence highlights the complementary nature of the turnout and terror mechanisms: pre-electoral violence is most effective when it reduces turnout and heightens the credibility of post-election reprisals.

Terror: learning from pre-election attacks

The terror mechanism is more clearly illustrated by a separating equilibrium in which the only type of operative engaging in pre-electoral violence is the strong type. The next proposition characterizes such equilibrium.

Proposition 2. *There is a separating equilibrium in which the strong operatives engage in pre-electoral violence, and the weak do not, whenever*

$$c_{\underline{\omega}} \geq \left(1 - \frac{N^A}{N}\right) F\left(\frac{\beta(1-\delta)}{N-K}\right) \geq c_{\overline{\omega}}.$$

Voters follow the strategies described in Proposition 1 and believe the operative is strong after observing pre-electoral violence and weak when they are not attacked before the election.

The proposition shows that the net benefits of engaging in pre-electoral violence must be larger than the cost for the strong types but not higher than the costs for the weak types to sustain a separating equilibrium. The net benefits of pre-electoral violence, the expression between the costs parameters, represent the fraction of B supporters voting for A after such an attack. That is, the share of voters that would not have voted for A in the absence of threats, $1 - \frac{N^A}{N}$, multiplied by the ex-ante probability of them voting against their preferences, $F\left(\frac{\beta(1-\delta)}{N-K}\right)$. In sum, the benefits of

pre-election attacks are the largest in areas where there are more *weak* supporters of the opposition. The finding can rationalize the observation that voters who live in opposition areas are often more fearful of violence than those living in areas where the incumbent has more support (Rauschenbach and Paula 2019; Wahman and Goldring 2020; Daxecker and Rauschenbach 2023). An important caveat, however, is that the benefits of pre-election violence could be low even in an area where 100% of votes would have voted for the opposition in the absence of threats. This could happen if all of those voters have a very strong attachment to their favorite candidate, making it harder for them to switch their votes regardless of the levels of protection for voters, β, or the intensity of pre and post attacks, K and $1-\delta$.

The previous discussion highlights a key empirical challenge that studies looking to establish whether electoral violence is targeted to opposition, swing, or strongholds face. It is important to consider not only the candidate that voters would have supported in the absence of undue pressures, but also the strengths of the voter's attachments to those candidates. Using stated candidate preferences in surveys or previous election results to define whether an area is swing or not might not capture the intensity of individual preferences, which is key to assess whether pre-electoral violence is profitable for a party in a given location. Putting aside these empirical considerations, we will see below that a party could also target pre-election violence to areas where most voters would have supported it in the absence of violence under alternative assumptions.

An important observation about Proposition 2 is that voters learn whether they are facing a strong type after observing the operative's choice of pre-electoral violence. If violence is observed, voters infer that they are dealing with a strong type. Conversely, if no violence occurs, they interpret any threats as coming from a weak operative and therefore view them as non-credible.

This is, however, not the only situation where the terror mechanism operates. When the costs of pre-electoral violence for the weak type are lower than $\left(1-\frac{N^A}{N}\right)F\left(\frac{\beta(1-\delta)}{N-K}\right)$, but not too low, there is a semi-separating equilibrium in which the weak operatives sometimes engages in pre-electoral violence while the strong continue choosing pre-election violence always. In this way, when voters observe pre-election violence, their assessment of the operative being strong will

increase,[9] but without achieving certainty. The last equilibrium where pre-electoral violence gives voters information about the type of operative they face is one where the strong type sometimes mimics a weak one by not attacking pre-election, and the weak one never attacks. Naturally, this situation will arise when the costs of pre-electoral violence for the strong are high enough but not too high. In this equilibrium, voters learn they are being threatened by a strong type after observing violence, but they are unsure when they are not attacked pre-election.

When the weak type's cost of engaging in pre-electoral violence are very low, weak operatives follow the strong types by engaging in pre-electoral violence always. When this happens, pre-electoral violence choices no longer reveals information about the type of operative voters face and violence is no longer useful to terrorize voters into believing worse outcomes will follow. This, however, does not mean pre-election violence will not be observed. Pre-election violence is still advantageous because the turnout mechanism is operating, and the cost of engaging in it for any type of operative is very low.

The equilibrium map in Figure 2 captures the previous discussion for cases when μ is relatively low.[10] As the costs of pre-election violence increase for both types, we move from equilibria where strong and weak types attack voters before the election and only the turnout mechanism operates (left south of the figure) to one where neither of them can engage in such attacks (right north). In the middle, we have situations where at least one type of operative victimizes citizens before the election with positive probability and where the fear of facing further reprisals later pushes voters to switch their votes. The appendix fully characterizes all the equilibria.

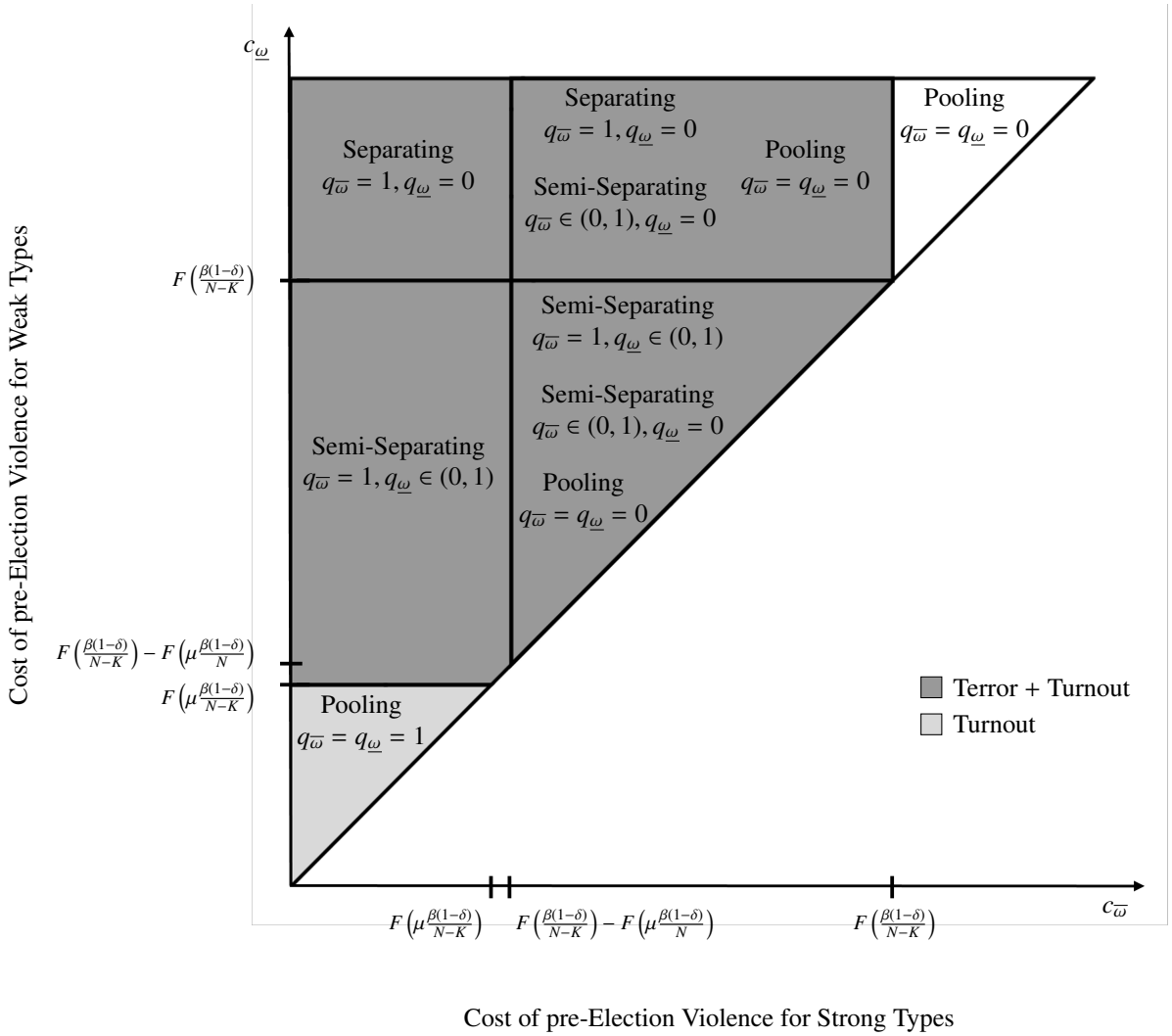
Examining the comparative statistics with respect to the vulnerability parameter, β, can further clarify the incentives at play. Consider the case where the strong type always engages in pre-electoral violence ($c_{\underline{\omega}} = 0$), illustrated in Figure 3.[11] When vulnerability is low ($\beta < \beta^*$), perhaps

9. The posterior probability of facing a strong operative after violence, μ_V, is $\frac{\mu}{\mu+(1-\mu)q_{\underline{\omega}}}$, where $q_{\underline{\omega}}$ is the probability of the weak operative attacking pre-election. This posterior is larger than μ when $q_{\underline{\omega}} < 1$.

10. If μ is low enough $F\left(\frac{\beta(1-\delta)}{N-K}\right) - F\left(\mu\frac{\beta(1-\delta)}{N}\right) \geq F\left(\mu\frac{\beta(1-\delta)}{N-K}\right)$

11. In Figure 3, the cutoffs β^* and β^{**} are $F^{-1}\left(\frac{c_{\underline{\omega}}}{\left(1-\frac{K^A}{N}\right)}\right)\frac{N-K}{1-\delta}$ and $\frac{\beta^*}{\mu}$, respectively, where we use the fact that F is invertible in the support of the distribution.

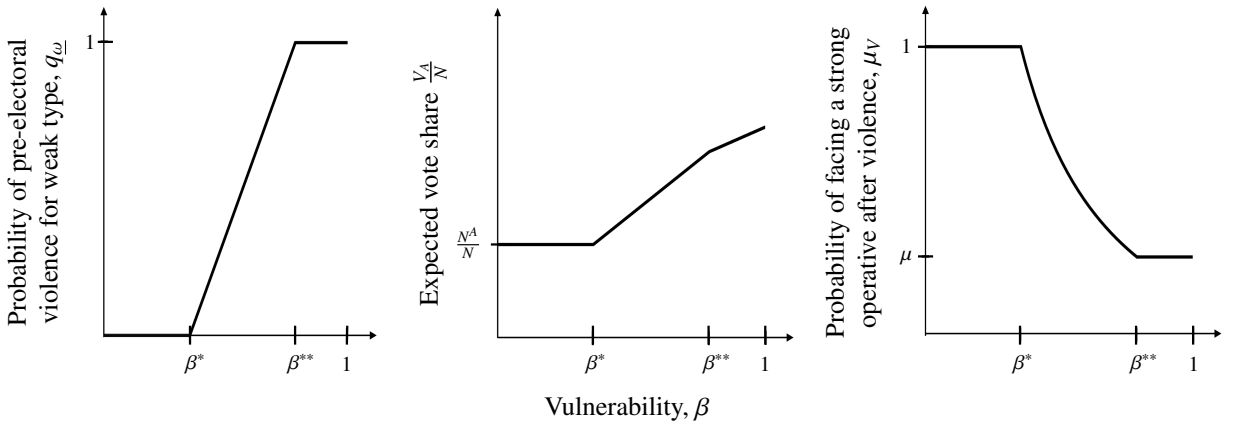
Figure 2. Equilibrium Map



Note: the scale in both axis has been normalized by the share of B supporters, $1 - \frac{N^A}{N}$.

because election monitors or other voter protection tools are effective, the benefits of pre-election attacks are too small relative to the costs and a weak operative will not attack pre-election. In this case, only A supporters will vote for A, and because voters do not observe violence, they immediately know they are dealing with a weak operative ($\mu_{NV} = 0$). As vulnerability increases and reaches an intermediate level ($\beta^* \leq \beta \leq \beta^{**}$), a weak operative now finds it profitable to sometimes mimic the strong by attacking voters pre-election and inducing terror by raising their assessment that they are dealing with a strong operative from $\mu_{NV} = 0$ to $\mu_V > 0$. The combination

Figure 3. Comparative statics, vulnerability, β ($c_{\underline{\omega}} = 0$).



of this fear and the turnout reduction mechanism increases the share of votes A receives beyond the share of voters that prefer A, $\frac{N^A}{N}$. In this section of the parameter space, voters know that weak operatives are copying strong types by attacking more frequently as vulnerability increases. Because of this, they reduce their assessment of facing a strong type after observing pre-election violence, as reflected by the downward-sloping section of the graph in the right panel of the figure. For large values of vulnerability ($\beta > \beta^{**}$), the weak operative will always attack pre-election, and the terror mechanism no longer operates, as the initial violence does not give information about the operative type to the voter anymore ($\mu_V = \mu$). Still, the vote share of A increases as vulnerability increases due to the turnout mechanism but at a slower pace, which explains the shallower slope in the vote share growth for $\beta > \beta^{**}$ (relative to the slope in $[\beta^*, \beta^{**}]$), illustrated in the middle panel.

A separate implication of the way pre-electoral violence affects the effectiveness of the threat of post-electoral violence is that the more intense the pre-electoral violence is (as captured by larger K), the smaller the chances of observing post-electoral violence. This is because if the reduction of turnout pre-election is large, the turnout mechanism will be stronger, making a larger share of B supporters switch their votes, which reduces the likelihood of a post-electoral reprisal.

Remark 1. *Conditional on observing pre-electoral violence in any equilibrium, the likelihood of observing post-electoral violence is weakly decreasing in the intensity of pre-electoral violence, K.*

Note that the result does not imply that places where we observe pre-electoral violence will have lower levels of post-electoral violence relative to those where there is no pre-election violence. To see this, consider a separating equilibrium where only strong types attack the population pre-election. In this case, not observing pre-electoral violence guarantees there will not be post-electoral violence, but observing pre-election violence may bring further reprisals.

This last result also suggests an alternative empirical test of whether pre-election violence influences vote choice, one that complements commonly seen empirical analyses of correlations between pre-election violence and party vote shares. If pre-election violence is effective at increasing the vote shares of a party, we should see in places with any pre-election attacks against voters a negative relationship between levels of violence pre- and post-election. Such a test would have to include only violent post-election events initiated by the party that engaged in the pre-election violence, not violence generated by other actors, like voters reacting to fraud allegations.

Visibility of preferences, group regarding preferences, and ethnic voting

The assumption in the baseline model that the operative does not know an individual voter's preferred candidate reflects conditions common in many developing democracies, where political parties are weak, partisan attachments are fluid, and voters may conceal their preferences due to the threat of electoral violence. However, this assumption may be less appropriate in contexts where political preferences are closely aligned with observable voter characteristics. In multi-ethnic societies, for example, religion, language, or other visible attributes often strongly correlate with vote choice. In such settings, it may be more realistic to assume that the operative can observe voters' candidate preferences. In this section, we modify the model accordingly, while preserving the assumption that the intensity of preferences remains private information. That is, parties and voters observe whether a given individual supports candidate A or B, but only the voter knows the strength of her preference.

When voter preferences are observable, the benefits of pre-electoral violence increase for the operative, since the attacks can be precisely targeted at those who would otherwise vote against the operative's candidate. Under this assumption, the share of A supporters voting increases, as none are mistakenly targeted. Meanwhile, the number of B supporters who could switch to voting for A decreases. However, the gain in votes from A supporters outweighs the loss of switched votes from B supporters, as A supporters vote for A with certainty, whereas B supporters only do so with probability $F\left(\mu_V \frac{\beta(1-\delta)}{N-K}\right)$. The observability of preferences thus makes any equilibrium involving pre-electoral violence easier to sustain and increases the likelihood of such violence. The following proposition summarizes these results.

Proposition 3. *In all equilibria, the benefits of engaging in pre-electoral violence when the operative observes each voter's preferred candidate are*

$$\frac{N^A}{N-K} + \frac{N - N^A - K}{N-K} F\left(\mu_V \frac{\beta(1-\delta)}{N-K}\right), \tag{3}$$

which are larger than those obtained when she does not.
Moreover, this observability premium increases with the share of A supporters, the intensity of the pre-electoral attack, and the share of B supporters with high expressive attachment to B.

The second statement in the proposition underscores how the observability of voters' preferred candidates makes pre-electoral violence particularly useful when the operative's candidate enjoys broad support. In such cases, if preferences were unobservable, the impact of violence and the fear it generates would be limited to a smaller subset of the group. Similarly, when the operative believes that B supporters are likely to vote according to their preferences despite intimidation (due to strong protections against coercion $(1-\beta)$, constraints in the technology of post-electoral punishment δ, or a limited number of swing voters as described by F), then knowing individual preferences becomes even more valuable. It allows the operative to selectively target and demobilize those opponents for whom threats of future punishments are least likely to succeed. Both of

these advantages, avoiding the targeting of allies and being able to suppress more resistant opponents, are increasing in the degree to which pre-electoral violence reduces turnout.

In addition to the possibility that operatives can identify individual voters' preferred candidates, a second feature of elections where ethnic identities are salient and correlated with political preferences is that voters within the same ethnic group may have interdependent utilities. That is, individuals care not only about their own outcomes but also about the safety and overall welfare of others in their group. This dynamic may also arise in communities with high levels of social capital and strong communal bonds among supporters of the same candidate or political party.

If we extend the baseline model to allow voters' utility functions to include the utility of others who share their preferred candidate weighted by $\zeta \in (0, 1)$, the likelihood of complying with A operative's instructions increases. This is regardless of whether they care about all supporters of their candidate or just those who voted after a pre-election attack; although in the latter case, we require the weight placed on others in the utility function, ζ, to be small.[12] Voters in this setting comply not only to avoid personal punishment, but also to protect fellow group members. Naturally, such collective concerns further strengthen the incentives to employ pre-electoral violence.

Proposition 4. *In all equilibria, the probability of voting against their preferred candidate when threatened with post-electoral punishments is higher when voters care about the welfare of others who prefer the same candidate than when they do not.*

Empirical research has shown that ethnic voting is less prevalent among ethnic minorities when there is a fear of intimidation (Enamorado and Kosterina 2022), suggesting that violence can be an effective tool for altering vote choices in such contexts. Furthermore, using various indicators of pre-electoral violence, Kuhn (2015) finds a robust positive correlation between these measures and ethnic voting in a sample of sub-Saharan African countries. The rationale offered is that when ethnic identity or group affiliation outweighs campaign appeals, candidates are less inclined to rely on persuasion and instead turn to coercive strategies.

12. In particular, $\zeta < \frac{1}{(N-N^A-1)\left(1-\frac{K}{N-1}\right)}$.

The model presented here gives an additional explanation for this empirical pattern. Ethnic voting increases the strategic appeal of pre-electoral violence because it reduces the risk of inadvertently targeting the operative's own supporters. At the same time, it enhances the effectiveness of threats by making it more likely that voters will choose to vote against their group's candidate in order to avoid reprisals that may harm other members of their ethnic group.

It is also possible that ethnic voting is associated with a strong expressive attachment to the preferred candidate (i.e., the probability that a voter has a low expressive utility for voting according to their preference is small, according to the distribution F). This would tend to diminish the effectiveness of pre-electoral violence, as for many voters the expected security benefit of voting insincerely may not outweigh the expressive cost of doing so. However, Proposition 3 shows that even in such cases, when strong attachments imply that few opponents are willing to switch (i.e., the second term in expression 3 is close to zero), pre-electoral violence can still be profitable. This is because the ability to target only opponents ensures that the first term in 3 remains positive, and increases with the number of eliminated opponents K. Thus, while the baseline model predicts that pre-electoral violence is more likely in areas with a large number of weak opponents, the presence of ethnic voting makes it more likely that violence will be used even in opposition areas where attachments to the popular candidate are strong.

Terror competition

Up to this point, we have considered a setting in which only one party possesses the capacity to punish voters for their electoral choices. The baseline model, in this sense, captures scenarios where the incumbent exercises exclusive control over coercive resources in a given region, or where opposition parties deliberately refrain from employing intimidation tactics. However, it is unfortunately common to observe contexts in which multiple parties are linked to armed organizations capable of threatening voters.

In this section, we extend the model to allow both candidates (through their respective operatives) to threaten post-electoral violence if electoral outcomes are unsatisfactory. Each operative

observes their own type—either *strong* or *weak*—but not the type of the opposing operative. As before, a weak operative is unable to carry out post-electoral punishment. Voters, in turn, do not observe the type of either party's operative. It is common knowledge, however, that the fraction of strong types in the population is μ.

A strong operative working for candidate A will initiate post-electoral reprisals with probability $\beta\left(1 - \frac{V^A_{v_A,v_B}}{\tilde{N}(v_A,v_B)}\right)$, while a strong operative working for candidate B will do so with probability $\beta\frac{V^A_{v_A,v_B}}{\tilde{N}(v_A,v_B)}$. Thus, if voters face strong operatives from both parties, a post-election punishment is certain to occur, but whether it is carried out by A or B depends on the local electoral outcome. Conditional on A's operative conducting a successful reprisal, the probability that a voter escapes harm is δ_A; if the reprisal comes from B's operative, that probability is δ_B. We assume, without loss of generality, that $\delta_B > \delta_A$, meaning that party A's strong operative is *advantaged* in the sense of being capable of carrying out more extensive post-election punishments.

We further assume that operatives decide whether to engage in pre-electoral violence without knowledge of the other party's decision. The pre-electoral violence implemented by party j's operative reduces turnout by K_j, where $N > K_A + K_B$. The costs associated with pre-electoral violence remain as in the baseline model for both operative types, and voters observe which party is responsible for the pre-electoral attack.

The following proposition characterizes a fully separating equilibrium in which only strong operatives from both parties engage in pre-electoral violence.

Proposition 5. *The following strategies and beliefs constitute a Perfect Bayesian Nash Equilibrium.*

1. *Advantaged party operative*

   Strong types engage in pre-electoral violence, and weak types do not whenever

$$c_{\underline{\omega}} \geq \mu\left(\frac{N^A}{N}F\left(\frac{\beta(1-\delta_B)}{N-K_B}\right) + \left(1-\frac{N^A}{N}\right)F\left(\frac{\beta(\delta_B-\delta_A)}{N-K_A-K_B}\right)\right) + (1-\mu)\left(1-\frac{N^A}{N}\right)F\left(\frac{\beta(1-\delta_A)}{N-K_A}\right) \geq c_{\overline{\omega}};$$

2. *Disadvantaged party operatives*

Strong operatives engage in pre-electoral violence and weak types do not whenever,

$$c_{\underline{\omega}} \geq \mu\left(1-\frac{N^A}{N}\right)\left(F\left(\frac{\beta(1-\delta_A)}{N-K_A}\right)-F\left(\frac{\beta(\delta_B-\delta_A)}{N-K_A-K_B}\right)\right)+(1-\mu)\frac{N^A}{N}F\left(\frac{\beta(1-\delta_B)}{N-K_B}\right)\geq c_{\overline{\omega}};$$

3. *Voters*

The benefit of a voter voting for their least preferred candidate j are given by

$$\Psi_0^j(v_j, v_{-j}) \equiv \begin{cases} \frac{\beta(1-\delta_j)}{N-K_j} & \text{if } v_j = V \text{ and } v_{-j} = NV, \\ \frac{\beta(\delta_{-j}-\delta_j)}{N-K_j-K_{-j}} & \text{if } v_j = v_{-j} = V, \\ 0 & \text{Otherwise.} \end{cases}$$

Therefore,

(a) *Voter i votes for her least preferred candidate j after j's operative is the only one engaging in pre-electoral violence whenever $\gamma_i \leq \Psi_0^j(V_j, NV_{-j})$ and votes for her preferred candidate otherwise. Supporters of party j, vote for party j.*

(b) *When both parties engage in pre-electoral violence, a supporter of party B i will vote for A whenever $\gamma_i \leq \Psi_0^A(V, V)$ and vote for B otherwise. Supporters of A vote for A.*

(c) *When there is no pre-electoral violence, all voters vote for their preferred candidate.*

4. *Beliefs*

Voters believe the operative is strong after observing pre-electoral violence. If they do not observe pre-electoral violence, they believe they face a weak operative.

The characterization of the operatives' strategies reveals that pre-electoral violence can now exert two distinct effects: 1) it induces voters who weakly support the opposing candidate to switch their vote in favor of the aggressor (as in the baseline model); and 2) it deters some voters from defecting to the opposing party out of fear of retaliation from their own party. We can see this by examining the disadvantage operative's benefit of pre-electoral violence term, which is bracketed by the costs terms in the above inequality. By engaging in pre-electoral violence, B's operative prevents $\left(F\left(\frac{\beta(1-\delta_A)}{N-K_A}\right) - F\left(\frac{\beta(\delta_B-\delta_A)}{N-K_A-K_B}\right)\right)$ of B supporters to defect to A. Crucially, this effect implies that an operative may find it optimal to employ pre-electoral violence even in areas where her candidate would have performed well in the absence of intimidation from both operatives. Specifically, if the perceived probability of facing a strong operative from candidate A is high, the disadvantaged strong operative working for B may use pre-electoral violence to prevent A from poaching supporters in B's stronghold.

While much of the existing literature has focused on whether electoral violence tends to occur in competitive areas or in party strongholds (e.g., Robinson and Torvik 2009; Hafner-Burton, Hyde, and Jablonski 2014), to our knowledge, no previous work has identified the mutual ability of multiple parties to carry out pre-electoral violence and its interaction with voters' preferences as a determinant of this choice. Wahman (2024) finds that competitive areas were less likely to experience pre electoral violence using qualitative and quantitative data from the 2016 elections in Zambia and the 2014 elections in Malawi. These were contexts in which the main competing parties, the PF and UNPD in Zambia and the Democratic Progressive party and the Peoples' Party in Malawi, used violence and intimidation as a campaign tactic. In those instances, he argues that parties used violence to deter the intrusion of the competition in their strongholds defending territoriality and contesting it when the violence was initiated by the weaker party in the locality. Our analysis complements this interpretation, by highlighting how parties use violence in their strongholds when they fear losing voters given intimidation tactics by their rivals.

Interestingly, terror competition may compel a strong but disadvantaged (low delta) operative working for party B to carry out a pre-electoral attack even when doing so risks pushing more of

its supporters to vote for candidate A. This outcome arises when voters expect that the opposing party, A, will also engage in pre-election violence. To see why, consider that a pre-electoral attack by B signals the presence of a strong operative. As a result, some of B's own supporters may become fearful of triggering a post-election punishment by their own party if B undeperforms, and thus refrain from voting for A. This effect is reflected by the shift in the numerator in Ψ_0^A, from $\beta(1-\delta_A)$ to $\beta(\delta_B-\delta_A)$, reducing the incentive to defect. At the same time, if both A and B launch pre-electoral attacks, turnout declines further than if only A's operative had attacked (i.e., the denominator of Ψ_0^A decreases). This raises the salience of each individual vote in determining the collective punishment that will be more extensively applied by A (since $\delta_B > \delta_A$), making voters more likely to vote for A. If the latter effects dominate the former, a B operative might push more B supporters to vote for A when attacking pre-election.[13]

When is this likely to happen in equilibrium? The proposition identifies conditions under which, despite the seemingly self-defeating effect of a pre-electoral attack, a disadvantaged strong operative will use it: If the fraction of A supporters is large and the likelihood of encountering a strong A operative is low, a strong B operative will try to take many A supporters by signaling its type, despite the (low) risk of pushing more of its supporters to vote for his opponent.

Endogenous intensity of post-election reprisals and voters' vulnerability

We now return to the case where only A threatens voters and study the implications of two assumptions of the baseline model: 1) the probability that an individual voter is harmed in a post-election reprisal, conditional on such reprisals occurring, is independent of how poorly candidate A performed; and 2) post-election reprisals depend solely on local election outcomes, not on who wins the election. For the first case, we now allow for the possibility that the severity of post-election punishment (not just its occurrence) is a function of the group's electoral support for candidate A. For instance, voters may anticipate that especially poor results for A could lead to harsher or more widespread reprisals. A natural way to formalize this idea is by replacing δ with $\frac{V_v^A}{\tilde{N}(v)}$, so that the

13. In this case, $\left(F\left(\frac{\beta(1-\delta_A)}{N-K_A}\right) - F\left(\frac{\beta(\delta_B-\delta_A)}{N-K_A-K_B}\right)\right) < 0$.

probability of remaining unharmed in a post-electoral reprisal increases with the share of votes that A receives from the group. If this is the case, a B supporter would vote for i whenever,

$$\mu_v\left(\beta\left(1-\frac{V^A_{-i,v}+1}{\tilde{N}(v)}\right)\frac{V^A_{-i,v}+1}{\tilde{N}(v)}+1-\beta\left(1-\frac{V^A_{-i,v}+1}{\tilde{N}(v)}\right)\right)\geq\mu_v\left(\beta\left(1-\frac{V^A_{-i,v}}{\tilde{N}(v)}\right)\frac{V^A_{-i,v}}{\tilde{N}(v)}+1-\beta\left(1-\frac{V^A_{-i,v}}{\tilde{N}(v)}\right)\right)+\gamma_i.$$

If q is the ex-ante probability that a B supporter votes for A, we can show that the expected net benefit for a B supporter of voting against its preferences after pre-election violence choice v is

$$\Psi_1(q;v)\equiv\frac{\mu_v\beta}{\tilde{N}(v)}\left(2\left(1-\frac{N^A}{N}-\frac{N-N^A-1}{N}q\right)-\frac{1}{\tilde{N}(v)}\right). \tag{4}$$

Note that, unlike in the baseline model, the expectations of a voter about how other B supporters will vote affect the perceived benefit of voting insincerely. That is, Ψ_1 is a function of q, while Ψ_0 is not. Because Ψ_1 is decreasing in q (assuming non-zero vulnerability or a positive probability of facing a strong type), higher expectations that other B voters will vote for A reduce the individual benefit of doing so. This version of the model captures an additional free-riding incentive: if enough other B supporters vote for A, thereby lowering both the likelihood and severity of reprisals, a given B supporter may feel sufficiently protected to vote according to her preferences. The equilibrium probability q^*_v satisfies the fixed-point equation $F(\Psi_1(q;v))=q$. The following proposition formalizes this result.

Proposition 6. *When the intensity of post-electoral reprisals decreases in the vote share of the attacker,*

1. *B supporters have less incentives to vote for A the more they expect other B supporters to vote for A.*

2. *There is a unique equilibrium in the voting subgame in which:*

(a) A B supporter i votes against her preferences whenever $\gamma_i \leq \Psi_1(q_v^*; v)$, where q_v^* is the solution to $F(\Psi_1(q; v)) = q$ after pre-electoral violence choice v, and

(b) A supporters vote for A.

3. *The equilibrium probability of B supporters voting for A is decreasing in the number of A supporters.*

The final observation from the proposition also highlights the possibility of free-riding on A sympathizers' votes, which shield a B voter from more severe post-election reprisals. The model thus clarifies a separate incentive to concentrate pre-electoral violence in opposition strongholds: in areas where support for the threatening party is low, opposition voters anticipate harsher reprisals (and a higher likelihood of the reprisal taking place), pushing them to vote for their attacker.

For the remainder of this section, we treat δ as exogenous as in the baseline model, but consider an alternative scenario in which post-election reprisals occur only if candidate A wins the election. That is, unlike in the baseline case, electoral choices outside the locality affect what happens there. This alternative assumption reflects the idea that a strong operative loyal to A may be unable to carry out reprisals if candidate B wins and mobilizes state forces to prevent such actions. Conversely, if A wins, she may encourage punitive actions against unsupportive localities as a way to influence future electoral behavior.

In this version of the model, we retain all baseline elements but introduce an external (outside the group of N) group of M voters. We can think of M as the size of the rest of the electorate. A fraction $\alpha \in [0, 1]$ of these M voters are assumed to vote for A. A post-election reprisal targeting the group of $\tilde{N}(v)$ voters occurs only if 1) candidate A wins the election, and 2) a strong operative initiates a reprisal in response to poor local support among the $\tilde{N}(v)$ voters. Thus, the probability of a post-election reprisal following a pre-election violence choice v is given by $\frac{\alpha M + V_v^A}{M + \tilde{N}(v)} \left(1 - \frac{V_v^A}{\tilde{N}(v)}\right)$.

As in the case where the intensity of post-election reprisals was endogenous, a B supporter's expectations about how others will vote continue to influence her decision. However, unlike in the endogenous δ case, here a B voter is *more* likely to vote for A if she believes others will do the

same. The reason is that greater support for A among B voters increases the likelihood that A wins the election, which would enable the operative to carry out reprisals if results are not favorable in that locality. In this setting, voting for the attacker reduces the chance of being targeted, as it is now more likely that the election will be won by someone who will allow a local punishment for poor results to take place.

Proposition 7. *When post-election reprisals materialize only when candidate A wins the election,*

1. *B supporters have more incentives to vote for A the more they expect other B supporters to vote for A*

2. *There is an equilibrium in the voting subgame in which:*

   (a) *A B supporter i votes against her preferences whenever $\gamma_i \leq \Psi_2(\tilde{q}_v; v)$, where $\tilde{q}_v$ is a solution to $F(\Psi_2(q; v)) = q$ after pre-electoral violence choice v, and*

$$\Psi_2(q; v) \equiv \frac{\mu_v(1-\delta)}{\tilde{N}(v) + M}\left(2\left(\frac{N^A}{N} + \frac{N - N^A - 1}{N}q\right) + \frac{\alpha M + 1}{\tilde{N}(v)} - 1\right),$$

   (b) *A supporters always vote for A.*

3. *For large electorates (as M approaches infinity), the equilibrium in the voting subgame is unique, and the equilibrium probability of a B supporter voting for A, $\tilde{q}_v$ is $F\left(\mu_v \frac{\alpha(1-\delta)}{\tilde{N}(v)}\right)$.*

Without imposing more restrictions on the distribution of the intensity of attachments to the candidates, equilibrium uniqueness is not guaranteed in the voting sub-game given the upward-sloping benefits-of-switching-function, Ψ_2. As the electorate becomes larger while holding the fraction of A supporters constant outside the locality, however, we return to the baseline model, as stated in the third observation in the proposition. In this case, the fraction of A supporters, α, replaces the vulnerability parameter, β. In sum, the baseline setting is a particular case of a model where we allow the election outcome to determine whether a group of voters in a given locality can be punished for their election behavior.

Conclusions

In this paper, we develop a theoretical framework to understand how pre-election violence can benefit parties electorally. Such attacks signal to voters that further reprisals will occur if the perpetrating party performs poorly at the polls. By depressing turnout in groups whose aggregate vote is monitored, violence increases the weight of each remaining ballot in shaping the likelihood of future punishment. This combination of heightened fear and the perception that a single vote is more consequential pushes voters toward supporting the perpetrating party. Importantly, these mechanisms operate even under secret ballot elections, where parties cannot directly observe individual voting choices, and do not rely solely on the demobilization of opponents.

The model helps explain why parties sometimes target swing areas, opposition strongholds, or their own bases with violence, as documented in the empirical literature. Whether parties resort to pre-election attacks depends not only on which candidate voters are expected to support in the absence of coercion, but also on the strength of those attachments. When voters favor the opposition but only weakly, the fear generated by pre-election violence can easily induce them to abandon their preferred candidate. Even when voters' preferences are strong, attacks may still occur in opposition areas if it is easy to identify individuals' preferences, because violence can suppress turnout with little risk to those who want to support the perpetrating party. The possibility that multiple parties can coerce voters further shapes targeting: attacking swing areas or strongholds may be optimal if the intimidation offsets rival parties' efforts. In short, our model highlights three key determinants of electoral violence targeting: (1) the intensity of voter preferences, (2) the degree of uncertainty surrounding those preferences, and (3) the ability of multiple parties to threaten voters. Future empirical work could systematically evaluate how these factors shape the link between voter preferences and pre-election violence.

Our framework centers on the decision of a party operative to use violence against a group of voters before an election. While our analysis focuses on the localized effects of violence, the attacks in one area may also influence voters elsewhere. For instance, intimidation and violence in one location could reveal information about a candidate's willingness to punish dissent in the

future, her propensity for corruption, or more generally disregard for formal rules. This will shape expectations and voting behavior in areas not directly impacted by the violence. Exploring how parties internalize such geographic spillovers when choosing to engage in electoral violence is an interesting avenue for future research.

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Online Appendix to "Informative Pre-election Attacks and Post-Electoral Reprisals"

(Not intended for publication)

Contents

A Proofs of propositions

A.1 Voting subgame equilibrium and learning from pre-election attacks

Proof of Proposition 1.

The cutoff strategy is obtained by solving for γ_i in inequality 1. □

Proof of Proposition 2.

In such a separating equilibrium, $\mu_V = 1$ and so, the probability of B supporters voting against their preferences after observing violence is $F\left(\frac{\beta(1-\delta)}{N-K}\right)$. This probability is zero if there is no pre-electoral violence.

After engaging in pre-electoral violence, the expected payoffs of a strong operative are

$$\frac{N^A}{N-K}\left(1-\frac{K}{N}\right)+\frac{N-N^A}{N-K}\left(1-\frac{K}{N}\right)F\left(\frac{\beta(1-\delta)}{N-K}\right)-c_{\overline{\omega}},$$

where we use the facts that all A supporters vote for A and that $N^A\frac{K}{N}$ and $(N-N^A)\frac{K}{N}$ are the expected number of A and B supporters that no longer vote after the pre-election attack. These payoffs have to be less than or equal to $\frac{N^A}{N}$, the payoff of deviating to not engaging in pre-electoral violence.

Similarly, the expected payoffs of deviating by engaging in electoral violence for a weak type are

$$\frac{N^A}{N-K}\left(1-\frac{K}{N}\right)+\frac{N-N^A}{N-K}\left(1-\frac{K}{N}\right)F\left(\frac{\beta(1-\delta)}{N-K}\right)-c_{\underline{\omega}},$$

we use the fact that voters would believe the operative to be strong after the deviation. The equilibrium payoffs, which must be greater or equal to the previous expression, are $\frac{N^A}{N}$.

The expression in the Proposition combines both of these restrictions. □

Proof of Remark 1.

Recall that the expected probability of triggering a post-electoral punishment once preelectoral violence is observed is

$$\mu_V\beta\left(1-\frac{V_V^A}{N-K}\right),$$

where

$$V_V^A = N^A \frac{N-K}{N} + (N - N^A)\frac{N-K}{N} F\left(\frac{\mu_V \beta(1-\delta)}{N-K}\right).$$

Therefore, in any equilibrium where pre-election violence was observed, the post-electoral threat is carried out with ex-ante probability

$$\mu_V \beta\left(1 - \frac{N^A}{N} - \frac{(N-N^A)}{N} F\left(\mu_V \frac{\beta(1-\delta)}{N-K}\right)\right).$$

This expression is weakly decreasing in K. For the cases, where the strong and weak pool, or the strong attack pre-election but the weak do not, μ_V is a constant and it can be easily verified that the expression is weakly decreasing in K. In the case where μ_V is a function of K, as in the semi-separating equilibrium where the weak types sometimes mimic the strong by attacking voters pre-election (see Proposition 10 below), the expression simplifies to

$$\frac{F^{-1}\left(\frac{c_{\underline{\omega}}}{1-\frac{N^A}{N}}\right)}{\frac{(1-\delta)}{N-K}}\left(1 - \frac{N^A}{N} - c_{\underline{\omega}}\right),$$

which is also weakly decreasing in K. □

A.2 Visibility of preferences, group regarding preferences, and ethnic voting

Proof of Proposition 3.

If the operative observes individuals' preferred candidates, the K voters who are prevented from voting with pre-electoral violence could be just concentrated among B supporters. Therefore, the benefits linked to pre-electoral violence in any equilibrium when preferred candidates are observed are:

$$\frac{N^A}{N-K} + \frac{N - N^A - K}{N-K} F\left(\mu_V \frac{\beta(1-\delta)}{N-K}\right).$$

On the other hand, the benefits linked to pre-electoral violence in any equilibrium when preferences are not observed are:

$$\frac{N^A}{N} + \frac{N - N^A}{N} F\left(\mu_V \frac{\beta(1-\delta)}{N-K}\right).$$

The difference between those two benefits is

$$\frac{N^A}{N} \frac{K}{N-K} \left(1 - F\left(\mu_V \frac{\beta(1-\delta)}{N-K}\right)\right),$$

which is positive.

□

Proof of Proposition 4.

A voter i who likes candidate B will vote against her preferences after pre-electoral violence whenever

$$\mu_v \left(\beta\left(1 - \tfrac{V^A_{-i,v}+1}{N-K}\right)\left(\delta + \zeta U^B_{-i,R}\right) + \left(1 - \beta\left(1 - \tfrac{V^A_{-i,v}+1}{N-K}\right)\right)\left(1 + \zeta U^B_{-i,NR}\right)\right) \geq$$
$$\mu_v \left(\beta\left(1 - \tfrac{V^A_{-i,v}}{N-K}\right)\left(\delta + \zeta U^B_{-i,R}\right) + 1 - \beta\left(1 - \tfrac{V^A_{-i,v}}{N-K}\right)\left(1 + \zeta U^B_{-i,NR}\right)\right) + \gamma_i,$$

where $U^B_{-i,R}$ and $U^B_{-i,NR}$ are the expected utilities of all other voters who prefer B when there is a post-electoral reprisal and when there is not, respectively. The parameter ζ captures the relative weight given to other voters' utility.

After some algebraic manipulations, this inequality can be simplified to

$$\mu_v \frac{\beta}{N-K}\left(1 - \delta + \zeta(U^B_{-i,NR} - U^B_{-i,R})\right) \geq \gamma_i,$$

which again indicates there is a cutoff that determines whether a B supporter, i, would vote against her preferences. For now, we will denote the equilibrium cutoff with θ^*.

We now compute the difference in the utility terms, $(U^B_{-i,NR} - U^B_{-i,R})$. First, note, as we have seen before, that the number of B supporters prevented from voting due to pre-electoral violence follows a hypergeometric distribution with population size $N-1$, number of successes $N-N^A-1$, and K number of draws. Let $\chi^K(k)$ denote the probability that out of K voters prevented from voting with the pre-electoral violence, k are B supporters. We have

$$U^B_{-i,R} = \sum_{k=0}^{K} \chi^K(k) \left(N - N^A - 1 - k\right) \Bigg[\int_0^{\theta^*} \left(\delta(1 + \zeta U^B_{-i,R}) + (1-\delta)\zeta U^B_{-i,R}\right) dF(\gamma) + \int_{\theta^*}^{1} \left(\delta(1 + \gamma + \zeta U^B_{-i,R}) + (1-\delta)\left(\gamma + \zeta U^B_{-i,R}\right)\right) dF(\gamma) \Bigg].$$

Similarly,

$$U^B_{-i,NR} = \sum_{k=0}^{K} \chi^K(k) \left(N - N^A - 1 - k\right) \Bigg[\int_0^{\theta^*} (1 + \zeta U^B_{-i,NR}) dF(\gamma) + \int_{\theta^*}^{1} (1 + \gamma + \zeta U^B_{-i,NR}) dF(\gamma) \Bigg].$$

One can now show that

$$U^B_{-i,NR} - U^B_{-i,R} = \frac{(1-\delta)(N - N^A - 1)(1 - \frac{K}{N-1})}{1 - \zeta(N - N^A - 1)(1 - \frac{K}{N-1})},$$

and therefore a B supporter, i will vote against her preferred candidate whenever

$$\mu_v \frac{\beta(1-\delta)}{N-K} \frac{1}{1 - \zeta(N - N^A - 1)(1 - \frac{K}{N-1})} \geq \gamma_i.$$

Since the cutoff for voting against her preferences in the baseline model was $\mu_v \frac{\beta(1-\delta)}{N-K}$, we conclude that the probability of doing so when voters care about others' welfare is larger or equal to that found in the baseline model.

We assumed in the proof above that the welfare of those B supporters prevented from voting does not enter the utility of those who voted. That aligns with an intuition that the non-voters directly exposed to the pre-election attack fled or disappeared. If voters care about the voters in their group and the ones who were prevented from voting are still around, the latter ones are also subject to a collective punishment where, if triggered, they survive with probability δ, then the cutoff for B voters voting against their preferences is $\mu_v \frac{\beta(1-\delta)}{N-K} \frac{1}{1-\zeta}$, which is also larger than the baseline model's cutoff.

□

A.3 Terror competition

Proof of Proposition 5.

We first derive the B voters' strategy after they observe both parties' operatives engaging in pre-electoral violence. Such voter would vote against her preferences whenever

$$\beta\left(1-\frac{V^A_{-i,V,V}+1}{N-K_A-K_B}\right)\delta_A+\beta\frac{V^A_{-i,V,V}+1}{N-K_A-K_B}\delta_B \geq \beta\left(1-\frac{V^A_{-i,V,V}}{N-K_A-K_B}\right)\delta_A+\beta\frac{V^A_{-i,V,V}}{N-K_A-K_B}\delta_B+\gamma_i,$$

where $V^A_{-i,V,V}$ denotes the expected number of votes for A among all voters other than i when A and B operatives engaged in pre-election violence. After some rearrangements, translates into

$$\gamma_i \leq \frac{\beta(\delta_B-\delta_A)}{N-K_A-K_B}.$$

An A supporter would always vote for A since,

$$\gamma_i \geq 0 > \frac{\beta(\delta_A-\delta_B)}{N-K_A-K_B}.$$

The derivation of the expressive utility cutoff for voters to vote for their least preferred party when only that party attacks them pre-election is the same as the one in the baseline model. Also,

if they observe no pre-election violence they know they are dealing with weak types and all voters will vote according to their preferences.

Engaging in pre-electoral violence gives a type $\omega \in \{\overline{\omega}, \underline{\omega}\}$ A's operative a payoff of

$$\mu\left[\frac{N^A}{N} + \left(1 - \frac{N^A}{N}\right) F\left(\frac{\beta(\delta_B - \delta_A)}{N - K_A - K_B}\right)\right] + (1-\mu)\left[\frac{N^A}{N} + \left(1 - \frac{N^A}{N}\right) F\left(\frac{\beta(1 - \delta_A)}{N - K_A}\right)\right] - c_\omega.$$

Not engaging in pre-electoral attack gives him, on the other hand,

$$\mu\left[\frac{N^A}{N}\left(1 - F\left(\frac{\beta(1-\delta_B)}{N - K_B}\right)\right)\right] + (1-\mu)\frac{N^A}{N}.$$

As for a B (disadvantaged) operative of type ω, the payoffs of attacking voters pre-election are

$$\mu\left[\left(1 - \frac{N^A}{N}\right)\left(1 - F\left(\frac{\beta(\delta_B - \delta_A)}{N - K_A - K_B}\right)\right)\right] + (1-\mu)\left[\left(1 - \frac{N^A}{N}\right) + \frac{N^A}{N} F\left(\frac{\beta(1-\delta_B)}{N - K_B}\right)\right] - c_\omega.$$

Not engaging in pre-electoral attacks gives

$$\mu\left[\left(1 - \frac{N^A}{N}\right)\left(1 - F\left(\frac{\beta(1-\delta_A)}{N - K_A}\right)\right)\right] + (1-\mu)\left(1 - \frac{N^A}{N}\right).$$

Setting the inequalities to guarantee no profitable deviations for both types of operatives for A and B give us the inequalitites included in the Proposition.

□

A.4 Endogenous intensity of post-election reprisals and voters' vulnerability

Proof of Proposition 6.

After rearranging terms in the inequality that precedes expression 4, we see that a B supporter, i, will vote for A whenever,

$$\frac{\mu_v \beta}{\tilde{N}(v)} \left(2 \left(1 - \frac{V^A_{-i,v}}{\tilde{N}(v)} \right) - \frac{1}{\tilde{N}(v)} \right) \geq \gamma_i.$$

Further note that $\frac{V^A_{-i,v}}{\tilde{N}(v)} = \frac{N^A}{N} + \frac{N - N^A - 1}{N} q$ for $v \in \{V, NV\}$.

The first statement of the proposition follows from the fact that Ψ_1 is strictly decreasing in q for positive β and μ_v.

To prove the second statement, first note that $F(\Psi_1(0; v)) \geq 0$ and $F(\Psi_1(1; v)) \leq 1$ by definition of a cumulative distribution function. Because $F(\Psi_1(q; v))$ is continuous and weakly decreasing in q, there is a unique solution of $F(\Psi_1(q; v)) = q$.

The third statement of the proposition follows from an application of the implicit function theorem. In particular,

$$\frac{\partial q^*}{\partial N^A} = \frac{-f(\Psi_1(q^*; v)) \frac{2\mu_v \beta}{\tilde{N}(v) N} (1 - q^*)}{f(\Psi_1(q^*; v)) \frac{2\mu_v \beta (N - N^A - 1)}{\tilde{N}(v) N} + 1},$$

which is less than or equal to zero. □

Proof of Proposition 7.

In this version of the model, a B supporter would vote for A whenever,

$$\mu_v \left(\frac{V^A_{-i,v} + 1 + \alpha M}{\tilde{N}(v) + M} \left(1 - \frac{V^A_{-i,v} + 1}{\tilde{N}(v)} \right) \delta + 1 - \frac{V^A_{-i,v} + 1 + \alpha M}{\tilde{N}(v) + M} \left(1 - \frac{V^A_{-i,v} + 1}{\tilde{N}(v)} \right) \right) \geq$$
$$\mu_v \left(\frac{V^A_{-i,v} + \alpha M}{\tilde{N}(v) + M} \left(1 - \frac{V^A_{-i,v}}{\tilde{N}(v)} \right) \delta + 1 - \frac{V^A_{-i,v} + \alpha M}{\tilde{N}(v) + M} \left(1 - \frac{V^A_{-i,v}}{\tilde{N}(v)} \right) \right) + \gamma_i,$$

which after rearranging some terms becomes

$$\gamma_i \leq \Psi_2(q; v).$$

A quick inspection of Ψ_2 reveals that it is weakly increasing in q, proving the first statement of the proposition.

Note that $F(\Psi_2(0;v)) \geq 0$ and $F(\Psi_2(0;v)) \leq 1$. Since $F(\Psi_2(q;v))$ is continuous, there is a solution to $F(\Psi_2(q;v)) = q$.

Finally, note that

$$\lim_{M\to\infty} F(\Psi_2(q;v)) = F\left(\lim_{M\to\infty} \Psi_2(q;v)\right) = F\left(\mu_v \frac{\alpha(1-\delta)}{\tilde{N}(v)}\right),$$

where we used continuity of F and the fact that q is bounded, and so, $\lim_{M\to\infty} \tilde{q}_v = F\left(\mu_v \frac{\alpha(1-\delta)}{\tilde{N}(v)}\right)$.

□

B Auxiliary results

B.1 Other equilibria

Proposition 8. *There is a pooling Perfect Bayesian Nash Equilibrium in which the strong and the weak types engage in pre-electoral violence whenever*

$$\left(1 - \frac{N^A}{N}\right) F\left(\mu \frac{\beta(1-\delta)}{N-K}\right) \geq c_{\underline{\omega}}.$$

In such an equilibrium, voters believe the operative is strong after observing pre-electoral violence with probability μ. If they do not observe pre-electoral violence, they believe they are facing a weak type.

Proof. After observing pre-electoral violence, voters will think they face a strong type with probability μ. If we fix off-the-path beliefs such that voters think that only weak types would deviate to no attacking pre-election, a weak type will prefer to attack voters pre-election whenever

$$\frac{N^A}{N} + \left(1 - \frac{N^A}{N}\right) F\left(\mu \frac{\beta(1-\delta)}{N-K}\right) - c_{\underline{\omega}} \geq \frac{N^A}{N}.$$

Since $c_{\underline{\omega}} > c_{\overline{\omega}}$ strong types will not have an incentive to deviate either. □

Proposition 9. *There is a pooling Perfect Bayesian Nash Equilibrium in which the strong and the weak types do not engage in pre-electoral violence whenever*

$$c_{\overline{\omega}} \geq \left(1 - \frac{N^A}{N}\right)\left(F\left(\frac{\beta(1-\delta)}{N-K}\right) - F\left(\mu\frac{\beta(1-\delta)}{N}\right)\right).$$

In such an equilibrium, voters believe the operative is strong after not observing pre-electoral violence with probability μ. If they observe pre-electoral violence, they believe they are facing a strong type.

Proof. After not observing pre-electoral violence, voters will think they are facing a strong type with probability μ. If we fix off-the-path beliefs such that voters think that only strong types would deviate to attacking pre-election, a strong type will prefer not to attack voters pre-election whenever

$$\frac{N^A}{N} + \left(1 - \frac{N^A}{N}\right)F\left(\mu\frac{\beta(1-\delta)}{N}\right) \geq \frac{N^A}{N} + \left(1 - \frac{N^A}{N}\right)F\left(\frac{\beta(1-\delta)}{N-K}\right) - c_{\overline{\omega}}.$$

Because $c_{\underline{\omega}} > c_{\overline{\omega}}$, weak types will not have an incentive to deviate either. □

Proposition 10. *There is a semi-separating Perfect Bayesian Nash Equilibrium in which a strong type always exerts pre-election violence and the weak types do so with probability, $q_{\underline{\omega}}$ with*

$$q_{\underline{\omega}} = \frac{\mu}{1-\mu}\left(\frac{\frac{\beta(1-\delta)}{N-K}}{F^{-1}\left(\frac{c_{\underline{\omega}}}{1-\frac{N^A}{N}}\right)} - 1\right),$$

whenever,

$$\left(1 - \frac{N^A}{N}\right)F\left(\mu\frac{\beta(1-\delta)}{N-K}\right) \leq c_{\underline{\omega}} \leq \left(1 - \frac{N^A}{N}\right)F\left(\frac{\beta(1-\delta)}{N-K}\right).$$

In such an equilibrium, voters believe the operative is strong after observing pre-electoral violence with probability $\frac{\mu}{\mu+(1-\mu)q_{\underline{\omega}}}$. If they do not observe pre-electoral violence, they believe they are facing a weak type.

Proof. The weak type must be indifferent between attacking or not pre-election and so

$$\left(1-\frac{N^A}{N}\right)F\left(\frac{\mu}{\mu+(1-\mu)q_{\underline{\omega}}}\frac{\beta(1-\delta)}{N-K}\right)=c_{\underline{\omega}}.$$

From this expression, we solve for $q_{\underline{\omega}}$ using the fact that F is invertible in its support. Note that $q_{\underline{\omega}}$ is strictly decreasing in $c_{\underline{\omega}}$ (with interior parameters μ,β and δ) and that $q_{\underline{\omega}}=1$ when $c_{\underline{\omega}}=\left(1-\frac{N^A}{N}\right)F\left(\mu\frac{\beta(1-\delta)}{N-K}\right)$ and $q_{\underline{\omega}}=0$ when $c_{\underline{\omega}}=\left(1-\frac{N^A}{N}\right)F\left(\frac{\beta(1-\delta)}{N-K}\right)$. □

Proposition 11. *There is a semi-separating Bayesian Nash Equilibrium in which a weak type never engages in pre-election violence and the strong types do so with probability, $q_{\overline{\omega}}$ with*

$$q_{\overline{\omega}}=1-\frac{1-\mu}{\mu}\frac{1}{\frac{\frac{\beta(1-\delta)}{N}}{F^{-1}\left(F\left(\frac{\beta(1-\delta)}{N-K}\right)-\frac{c_{\overline{\omega}}}{1-\frac{N^A}{N}}\right)}-1}$$

whenever,

$$\left(1-\frac{N^A}{N}\right)\left(F\left(\frac{\beta(1-\delta)}{N-K}\right)-F\left(\mu\frac{\beta(1-\delta)}{N}\right)\right)\leq c_{\overline{\omega}}\leq\left(1-\frac{N^A}{N}\right)F\left(\frac{\beta(1-\delta)}{N-K}\right).$$

In such an equilibrium, voters believe the operative is strong after observing pre-electoral violence. If they do not observe pre-electoral violence, they believe they are facing a strong type with probability $\frac{(1-q_{\overline{\omega}})\mu}{(1-q_{\overline{\omega}})\mu+(1-\mu)}$.

Proof. The strong type must be indifferent between attacking or not pre-election and so

$$\left(1-\frac{N^A}{N}\right)\left(F\left(\frac{\beta(1-\delta)}{N-K}\right)-F\left(\frac{\mu(1-q_{\overline{\omega}})}{\mu(1-q_{\overline{\omega}})+(1-\mu)}\frac{\beta(1-\delta)}{N}\right)\right)=c_{\overline{\omega}}.$$

From this expression, we solve for $q_{\overline{\omega}}$ using that F inverse exists in its support. Note that $q_{\overline{\omega}}$ is strictly increasing in $c_{\overline{\omega}}$ (with interior parameters μ,β and δ) and that $q_{\overline{\omega}}=0$ when $c_{\overline{\omega}}=\left(1-\frac{N^A}{N}\right)\left(F\left(\frac{\beta(1-\delta)}{N-K}\right)-F\left(\mu\frac{\beta(1-\delta)}{N}\right)\right)$ and $q_{\overline{\omega}}$ approaches 1 was $c_{\overline{\omega}}$ approaches $\left(1-\frac{N^A}{N}\right)F\left(\frac{\beta(1-\delta)}{N-K}\right)$. □

B.2 Maximizing votes

So far, we have assumed that the operative wants to maximize the vote share of the candidate he represents. Campaign operatives, however, could be evaluated on the basis of the number of votes in different localities they oversee. If the operative wanted to maximize votes for A in the locality (rather than the vote share), the benefits of pre-electoral manipulation might no longer be increasing in the reduction of turnout after the pre-electoral violence, K. This is because the gain in the probability of B supporters voting for A captured in Proposition 2, is offset by the fact that there will be fewer of them (and fewer A supporters). When F is the uniform distribution, for large K, even a strong operative with zero cost of engaging in pre-electoral violence will not want to engage in it. The next remark gives the benefits of pre-electoral violence when operatives want to maximize the number of votes and how they should compare to the costs of pre-electoral violence to sustain a separating equilibrium.

Proposition 12. *When the campaign operative maximizes votes for her candidate, there is a separating Bayesian Nash Equilibrium in which the strong type operatives engage in pre-electoral violence and weak types do not, whenever*

$$c_{\underline{\omega}} \geq \left(1 - \frac{N^A}{N}\right)(N-K)F\left(\frac{\beta(1-\delta)}{N-K}\right) - \frac{KN^A}{N} \geq c_{\overline{\omega}}.$$

Proof. In a separating equilibrium, a strong operative who maximizes votes for her candidate would not want to switch to no pre-electoral violence. Therefore

$$\frac{N^A}{N}(N-K) + \frac{N-N^A}{N}(N-K)F\left(\frac{\beta(1-\delta)}{N-K}\right) - c_{\overline{\omega}} \geq N^A.$$

In a similar way, a weak type should not want to engage in pre-electoral violence.

$$N^A \geq \frac{N^A}{N}(N-K) + \frac{N-N^A}{N}(N-K)F\left(\frac{\beta(1-\delta)}{N-K}\right) - c_{\underline{\omega}}.$$

□