Money Talks to Autocrats, Bullets Whistle to Democrats: Political Influence under Different Regimes

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Abstract

Pressure groups may use bribes, violence, or a combination of both to bend politics to their will, and the choice between these methods of influence can vary depending on the type of institutional regime. We empirically investigate the dynamics of bribes and violence around elections in democracies and autocracies using a novel measure of corruption based on the Panama Papers and other massive data leaks on offshore entities in tax havens, which are often used as vehicles for bribes, and data on attacks against politicians around the world between 1990 and 2015. Evidence from staggered difference-in-differences and regression discontinuity in time models shows that in democracies attacks against politicians escalate before elections, whereas in autocracies bribes increase after elections. These findings align with a theoretical framework in which pressure groups use political violence to sway democratic elections in favor of their preferred candidates, while resorting to bribes to influence the behavior of newly appointed bureaucrats and public officials in autocracies.

Keywords: Elections, Violence, Corruption, Pressure Groups

JEL classification: K42, D72

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1 Introduction

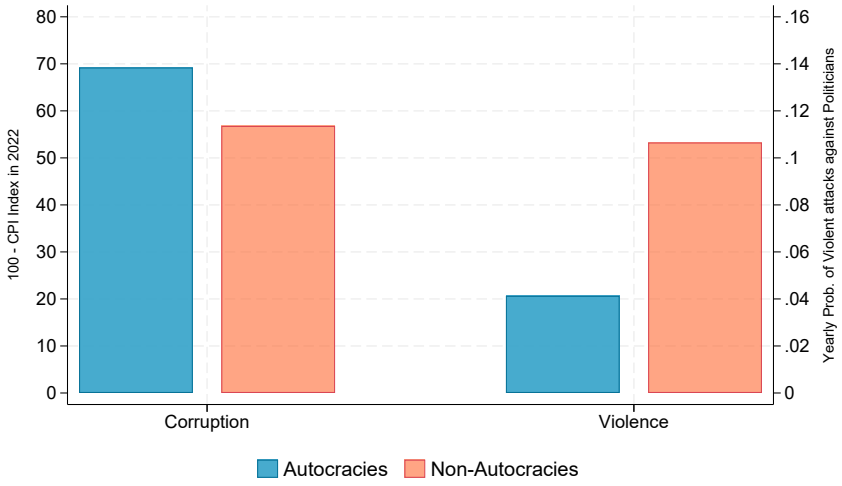
In most countries, *de jure* political institutions share *de facto* political power with various interest groups such as large business conglomerates, lobbies, and criminal organizations (Acemoglu and Robinson, 2006). These groups often attempt to coerce bureaucrats and politicians through the use of bribes, violence, or a combination of the two (Dal Bó et al., 2006). The extent of this influence and the tools used by interest groups can differ significantly across countries and historical periods depending on the formal institutions in place.

In particular, the repression apparatus available to autocratic regimes can suppress or discourage the use of violence. However, corruption may be more pervasive in such regimes due to lack of transparency and accountability. Conversely, independent media and greater political accountability may limit the extent of corruption in democracies, which, however, may be more vulnerable to terrorist attacks and other forms of political violence due to constitutional limits on state power concerning individual freedom rights. The preliminary evidence in Figure 1 is consistent with these conjectures: politicians in democracies face a higher risk of assassination compared to those in autocracies, while democracies are "perceived" as less corrupt than autocracies (according to Transparency International's Corruption Perception Index). Of course, this evidence is not conclusive but serves to motivate our analysis.

In this paper, we investigate how the use of bribes and violence as tools of political influence varies systematically between democracies and autocracies. We focus on the dynamics of corruption and political violence around national elections, which represent critical junctures in a country's political life. In democracies, elections allow for an ordered transfer of political power between parties and coalitions. Although this is not the case in autocracies, even these regimes can experience significant turnover in government ministries and bureaucracies following elections (Gandhi and Lust-Okar, 2009). Therefore, in both democracies and autocracies, interest groups may seek to control newly appointed politicians and public officials.

Our empirical investigation requires time-varying, high-frequency measures of corruption and political violence. However, comparing corruption across countries and over time is

Figure 1: Corruption and political violence, by regime type



Notes: This figure compares levels of perceived corruption (left axis) and political violence (right axis) between Autocracies and Non-Autocracies (Autocracies are countries with a Polity Index ≤ -6). Corruption is measured by 100-Corruption Perception Index in 2012 (source: Transparency International), because the index is decreasing in perceived corruption. Violence is measured by the yearly probability of observing an attack to a government member, averaged over the period 1990-2015 (source: Government Terrorism Database).

particularly challenging. Measures based on perceptions (e.g., the Corruption Perception Index) depend as much on the diffusion of corruption as on its acceptance in society and anti-corruption efforts. Therefore, they may ultimately underestimate corruption precisely where/when it is most rampant, and judicial statistics on corruption may suffer from similar biases. These concerns are particularly severe when comparing democracies and autocracies. In addition, perception-based measures are typically only available at yearly (or even lower) frequencies, while we ideally want to measure changes in corruption in the weeks or months around elections.

To overcome these limitations, we exploit data on the incorporation of companies in tax havens, sometimes referred to as "shell" companies, which are often used as vehicles for bribes (see, e.g. Findley and Nielson, 2014; O'Donovan et al., 2019). Individuals receiving bribes need to conceal both the illegal nature of the funds and their identities as beneficiaries. Tax havens, by enabling the incorporation of offshore entities with anonymous beneficiaries, allow the latter to deposit illicit funds and evade detection by enforcement authorities. We

therefore measure the dynamics of corruption in each country by the number of new companies with beneficiaries in that country that are incorporated in tax havens at a given point in time, as revealed by the Panama Papers and other massive data leaks – the so-called "Offshore Leaks Database". This approach builds on the same idea as Mironov and Zhuravskaya (2016), who estimate bribes paid by large Russian companies using leaked data on tunneling (that is, illegal transfers of cash from firms). Turning to political violence, we use information on violent attacks against government officials and politicians, as available from the Global Terrorism Database (GTD). These variables allow us to compare the dynamics of bribes and violence around elections (at monthly and even daily frequencies) between democracies and autocracies in a staggered difference-in-differences design.

Our estimates reveal the following patterns. The number of shell companies incorporated in tax havens with beneficiaries in autocratic countries increases markedly (+ 60% over the baseline: an increase of 0.06 shell companies per million inhabitants over a mean of 0.098) in the months after national elections take place in such countries. The spike occurs 3-5 months after the elections, which is typically the period in which new governments and the top-ranks of the public administration are sworn in office. This timing is thus consistent with pressure groups trying to capture newly appointed executives and bureaucrats, while it is inconsistent with an alternative explanation – namely, capital flight induced by fear of expropriation, which should occur immediately after elections. Using additional information on confiscations around the world, as available from the GDELT project (Leetaru and Schrodt, 2013), we further show that our results are unaffected when we control for confiscations.

The patterns just described are specific to autocracies, while the dynamics of shell companies incorporated in tax havens with beneficiaries in democratic countries is unrelated with the electoral cycle. On the other hand, democratic countries witness abnormal increases in political violence around elections. In particular, violent attacks against politicians more than double in the month before election (+0.84 attacks per month over a baseline of 0.39 attacks per month). Data at daily frequencies reveal that the increase in attacks is noticeable already in the second month before election, then increases up to 0.06 attacks per day immediately before elections and up to 0.17 attacks on election day. The weeks immediately after the elections are also characterized by a somewhat higher level of violence against politicians,

but on a much smaller scale than in the pre-electoral period. In fact, regression discontinuity estimates confirm that violence against politicians drops discontinuously immediately after the election.

Additional information available from the Global Terrorism Database on the identity of victims of attacks confirms that violence around (democratic) elections only targets politicians – as opposed to business people, police officers, soldiers, and other citizens. Moreover, the presence of armed groups entails a substitution away from post-election corruption and into pre-electoral violence as a means of political influence. This finding is consistent with the fact that armed groups, as a specific type of interest group, incur relatively low costs for engaging in violence.

We show that these results are most easily reconciled with a simple theoretical framework in which pressure groups may use violence or bribes before or after elections to obtain a private benefit, say a procurement contract, from a public official. Pressure groups differ in the cost of using violence, with "weak" groups facing a higher cost of using violence than "strong" groups, and the type is unknown to the public official. In turn, public officials vary in their degree of honesty, which is public information, and can engage in police activities to repress violence from interest groups (in addition to choosing over the award of the contract). The model predicts that pressure groups choose the optimal mix and timing of violence and bribes, given the level of honesty of the politician and the type of institutional regime (democracy vs. autocracy). Democracies are characterized by contested elections between different types of candidates, honest and corrupt, and they are limited in their ability to prevent violence. Under these conditions, "strong" pressure groups – notably terrorist and criminal organizations – implement violent attacks before elections to push honest politicians out of the electoral race and to signal their own type. Instead, elections in autocracies are pure window-dressing, only entailing the nomination of new officials but no real contest between different "types", and the ruler has strong repressive powers. Therefore, repression makes violence costly for the interest group and, in addition, there is no opportunity to influence the outcome of elections. Instead, bribes paid after elections to newly appointed officials can effectively influence the award of the procurement contract.

Our work contributes to the vast literature on pressure groups and the strategies they

adopt in influencing political power. The seminal work by Grossman and Helpman (1996) and Grossman and Helpman (2002) theorized how interest groups use campaign contributions to influence public policy. Most closely related to our paper, Dal Bó et al. (2006) first studied the strategic use of bribes and violence as means of political influence. Their model emphasizes the complementarity between bribes and violence within a given institutional context, while we focus on substitution between such instruments across different institutional regimes. In addition, we characterize the dynamics of influence around elections, uncovering "electoral cycles" in bribes and violence.

Previous empirical work has focused mainly on the influence of lobbies on political platforms (Figueiredo and Silverman, 2006; Blanes i Vidal et al., 2012; Bertrand, Bombardini, and Trebbi, 2014; Bertrand, Bombardini, Fisman, et al., 2020). Lobbies are ultimately a pressure group: they share a common interest, defined by the industry they belong to, and they aim at affecting political platforms through funding. However, much of this analysis focused on democracies (Le Moglie and Turati, 2019), given the difficulty in finding reliable measures of bribes and campaign contributions in regimes characterized by a lack of transparency and repression.

In parallel, a large literature focused on violence against politicians (Carvalho and Ventura, 2021), particularly around elections (Condra et al., 2018). Closely related to our study is the work of Alesina et al. (2018), which shows how criminal organizations increase violent attacks against politicians right before national elections in Italy. In a similar spirit, Daniele and Dipoppa (2017) show how organized crime groups target newly elected politicians in the aftermath of local elections in Italy. We extend this framework by focusing on national elections across countries and showing that violence and bribes may be substitutes for each other in autocracies vs. non-autocracies.

More generally, the main contribution of our paper is to assess the relative importance of alternative means of political influence in different types of regime – autocracies and democracies, respectively – using measures of corruption and violence that are comparable across countries and over time. In particular, our measure of corruption extends Mironov and Zhuravskaya (2016) to a cross-country setting. Using information from the Offshore Leaks Database to compare corruption across countries allows us to avoid issues of comparability

that may arise when using surveys of perceptions (such as the Corruption Perception Index). Furthermore, using funds in tax havens to measure corruption allows us to construct a better proxy for "grand corruption", while perception-based measures may be better suited at estimating "petty corruption". In this respect, our approach is close to Andersen et al. (2022), who study elite capture following the disbursement of international aid. In their main analysis, the authors use foreign deposits held in tax havens as measured by the Bank of International Settlements which, however, do not allow one to identify the country of the ultimate beneficiaries. This is more easily done in the Offshore Leaks Database, which originates directly from the registries of offshore service providers[1]

The remainder of the paper is organized as follows. The next section discusses anecdotal evidence on the use of political violence and corruption as means of political influence in a democratic and an autocratic country, respectively. Section 3 introduces the data that we employ for our cross-country investigation, including the new measure of corruption based on shell companies in tax havens. Sections 4 and 5 present the empirical strategy and results, respectively, and Section 6 lays down a theoretical model that is consistent with our findings. Section 7 concludes.

2 Anecdotal evidence

Jorge Huerta Cabrera was the Green Party candidate for a seat in the town of Izúcar de Matamoros, located in the Mexican state of Puebla, during the national elections held on June 2, 2024. Tragically, he was shot dead just two days before the elections, bringing the total number of candidates murdered ahead of the most recent Mexican elections to 37 – one more than the number of candidates killed before the 2021 midterm elections. Many more were threatened and subjected to non-lethal attacks during the 2024 campaign – 828 according to the public affairs consultancy Integralia.[2] However, the actual number may be much higher as many incidents are likely to go unreported due to fears of retaliation.

[1]The measure of corruption that we employ in this paper has been used in a parallel project by one of the authors of the present paper to study the impact of the awarding of oil licenses on corruption (Marcolongo and Zambiasi, 2024).

[2]https://www.reuters.com/world/americas/mexican-candidate-assassinations-hit-grim-record-ahead-sundays-election-2024-06-01/

In fact, attacks against candidates are just the tip of the iceberg of political violence targeting various actors in the electoral process, including public officials, campaign staff, and even political supporters. The independent organization Armed Conflict Location & Event Data (ACLED) recorded 102 political assassinations during the last campaign, along with numerous kidnappings, forced disappearances, and attacks on family members. According to another think tank, Laboratorio Electoral, 145 and 88 politically motivated murders were committed during the campaigns for the 2018 presidential elections and the 2021 midterm elections, respectively.[3]

Nearly all these attacks can be traced to drug cartels, which seek the compliance of politicians at both local and national levels to maintain their complex criminal enterprises, such as drug trafficking and money laundering, and have the military power necessary to enforce such compliance. Consequently, threats and attacks against politicians have become a consistent feature of Mexican political life, particularly during electoral campaigns. Political violence during these periods also has the potential to influence electoral outcomes, often favoring the candidates most aligned with the cartels. As Sandra Ley, the security program director at the think tank México Evalúa, explains to CNN, "[Electoral campaigns are] a crucial moment for organized crime to influence who is going to be in power, who is going to provide protection, information, resources."[4]

Importantly, political violence by drug cartels increased significantly when Mexico transitioned to a more competitive, multiparty political system. The turning point came in the 2000s, when the Partido Acción Nacional (PAN) launched a "War on Drugs" against the cartels after ending the political hegemony of the Partido Revolucionario Institucional (PRI), which had lasted since 1929. During the PRI's reign, the relationship between the party and the cartels was largely collusive rather than confrontational, and political violence was the exception rather than the rule. A similar pattern can be observed in Italy, where southern criminal organizations have traditionally used violence during electoral periods to influence outcomes both before and after the Fascist regime, but not during it (1922-1943). During Fascism, elections were merely plebiscites for the single party allowed to run, eliminating

[3]https://insightcrime.org/news/mexico-extreme-election-violence-explained/

[4]See https://edition.cnn.com/2024/04/11/americas/mexico-election-assassination-intl-latam/index.html.

the need to sway votes during campaigns (Alesina et al., 2018). In addition, autocratic regimes such as Fascism in Italy (and, to a lesser extent, hegemonic parties such as the PRI in Mexico) may be able to repress political violence in ways that are not viable in democratic regimes with fully competitive political systems.

Autocratic regimes, however, are not immune to the influence of interest groups; rather, such influence takes different routes than in democracies. Equatorial Guinea gained independence in 1968 and has experienced a series of dictatorships since then. It is described by The New York Times, as "a small African country nestled in the Gulf of Guinea whose cast includes a life-long dictator, a family clan that monopolizes power, and enormous oil wealth that gets funneled to secret bank accounts around the world", a country symbolizing "oil-fueled corruption".[5]

In 2012, Gabriel Nguema Obiang Mangue, the second son of Equatorial Guinea's dictator, was appointed Minister of Mines and Hydrocarbons. That same year, he signed a contract to award a construction project to the Portuguese company Armando Cunha. The project, which aimed to build the country's National Technological Institute of Hydrocarbons to train students from across Africa for jobs in the oil sector, was initially estimated at $81 million but ultimately cost $139.5 million.

The source of this cost discrepancy was revealed in 2021 by an investigation conducted by the Organized Crime and Corruption Reporting Project (OCCRP).[6] The investigation uncovered a network of shell companies linking the Portuguese construction company to Gabriel Obiang and his associates. Armando Cunha had used offshore companies in tax havens like Cape Verde, Liechtenstein, Cyprus, Belize, and the Netherlands to channel bribes and illegal commissions to Gabriel Obiang.

An ongoing investigation by the Spanish Tax Authority, which is probing Gabriel Obiang and his associates for money laundering, has led to the seizure of 11 properties worth $5.9 million in Mallorca, nine bank accounts holding more than $215,000, three vehicles worth more than $300,000, expensive watches, and a lifetime golf club membership valued at more than $100,000.

[5]https://archive.nytimes.com/green.blogs.nytimes.com/2009/07/09/oil-corruption-in-equatorial-guinea/.

[6]For additional details, see https://www.occrp.org/en/investigations/equatorial-guineas-oil-minister-allegedly-siphoned-off-millions-from-public-construction-project.

These examples illustrate a broader pattern that we document more systematically in the next sections: in autocracies, interest groups may use bribes to influence political decisions, whereas democracies are more vulnerable to political violence, particularly before elections.

3 Data

Our empirical investigation requires time-varying measures of corruption and political violence for both democracies and autocracies. We construct such measures for a panel of 141 countries during the period 1990-2015. The sample period ends in 2015 because the Panama Papers – the main ingredient of our measure of corruption – were leaked in 2016, so the information on shell companies in tax havens covers the previous period.

Corruption. Measuring corruption across countries is notoriously challenging. Perception-based measures (e.g., Transparency International's Corruption Perception Index) are readily available for virtually every country in the world, but may suffer from systematic misperceptions and, even, political biases (see, e.g., Andersson and Heywood, 2009). The Corruption Perception Index (CPI) captures bribery and misuse of power, but does not include illicit financial flows and private sector corruption in its definition (Transparency International, 2021). It is therefore best suited to measure petty corruption (officials abusing their power for a private interest), as opposed to grand corruption. The CPI ultimately relies on experts and businesspeople's perceptions: what they can experience and see. However, corruption also occurs through the unseen. Tax havens play a pivotal role in grand corruption by facilitating cross-border flows of illegal capitals and providing secrecy to their owners. When proceeds of corruption flow unseen toward tax havens, they are more likely to remain undetected and, as a consequence, less likely to be captured by people's perceptions. Relatedly, judicial statistics on corruption cases depend as much on the diffusion of the phenomenon as on anticorruption enforcement activities, so they may underestimate corruption precisely where and when it is more rampant. These limitations affect both comparisons across countries and over time. Last but not least, perception-based measures are typically only available at yearly (or even lower) frequencies, which undermines the opportunity to

estimate the response of corruption to events that occur throughout the year.

To overcome such limitations, some previous papers devised outcome-based measures of corruption, such as excessive expenditures for public projects (Golden and Picci, 2005; Olken, 2009), anomalous results in sport tournaments (Duggan and Levitt, 2002), and other statistical anomalies that suggest underlying corruption (see Zitzewitz, 2012, for a review). However, these clever approaches can hardly be generalized to different contexts.

We propose a novel measure of corruption that allows for meaningful comparisons across countries and over time while limiting non-classical measurement error from under-reporting or other types of bias. Specifically, we measure corruption using information on companies incorporated in offshore tax havens, which add layers of secrecy between the owners and their funds. In addition to tax evasion, they are often used to hide illicit proceeds from illegal businesses and corruption; see, e.g., the cases discussed in Findley and Nielson (2014) and Jancsics (2017). Our measure of corruption builds on the intuition of Mironov and Zhuravskaya (2016), who measure corruption in Russia using leaked data on financial flows to fly-by-night firms around regional elections. We generalize this approach across countries and over time by leveraging information from massive leaks of shell companies in tax havens assembled by the International Consortium of Investigative Journalists (ICIJ). Compared to other measures of corruption discussed before, information revealed by massive data leaks reflects neither (possibly biased) perceptions about corruption nor anti-corruption crackdowns enforced by specific countries.

In 2016 a secret source leaked to ICIJ the Panama Papers, a list of offshore entities incorporated by the law firm Mossack Fonseca between 1970 and 2015. Mossack Fonseca covered between 5 and 10 percent of the global shell company market in 2016, holding relationships with customers all over the world through more than 40 offices.[7] Another list of more than 100,000 offshore entities incorporated by Portcullis Trustnet and Commonwealth Trust Limited – two law firms based, respectively, in Singapore and in the British Virgin Islands – had been published in 2013, and a further leak from Bermuda's law firm Appleby was revealed in 2017. Similarly to Mossack Fonseca, the 700 employees located across more than 19 tax havens allowed Appleby to target a widely international market.

[7] "A torrential leak", The Economist, April 2016

ICIJ combined information from all these leaks into the Offshore Leaks Database, which reports information on a total of approximately 794,000 offshore entities; see Wagner and Zeume (2023) for a description of this database. Despite being active since the 1970s, Mossack Fonseca acquired a relevant position in the market only since the 1990s (ICIJ, 2017). Therefore, we focus our analysis on the period 1990-2015.

In about 53% of the cases reported in the database we can link entities to their beneficiaries, which is crucial for the purposes of our analysis. To each entity, we attribute the country of the beneficiary – about 746,000 in total, with some firms being linked to multiple beneficiaries. About 10% of the beneficiaries are "bearers" (pieces of paper entitling the holder dispose of the company reported on it), which limit our ability to infer their country of residence. For another 267,000 beneficiaries, we have no information on the country. Following Alstadsæter et al. (2018), we also exclude beneficiaries linked to more than ten entities as these are very likely to work as intermediaries rather than being the ultimate beneficiaries.[8] Following this criterion, we disregard about 77,600 observations. Similarly, we exclude beneficiaries that report a tax haven as their location, as they are also more likely to be nominees rather than the ultimate beneficiary. Finally, when the beneficiaries of an entity are linked to more than one country, we impute the entity to each country separately.

After these steps, we are left with approximately 124,000 entities linked to 213,000 beneficiaries. We compute the number of entities incorporated in each calendar month between January 1990 and December 2015, by the country of residence of beneficiaries, and divide it by the country population to make the measure more comparable across countries.

Figure 2 plots the geographic distribution of the beneficiaries of offshore entities across countries, whereas Table 1 provides summary statistics of such variables along with all other main variables at the country-month level over the period 1990-2015.[9] The number of monthly incorporations per million inhabitants is higher for democracies than for autocracies (0.25 and 0.10, respectively, because beneficiaries are concentrated the richest continents of the world – North America, Western Europe, and Australia, see Panel (a) of Figure 2.

[8]The median number of entities per beneficiary is 3, while the 75^{th} percentile is 1,630 and the 90^{th} percentile is 36,245

[9]Appendix Figures A1a-A1b also plot the dynamics over time of offshore entities and attacks against politicians – the two main outcome variables.

However, the picture changes dramatically when accounting for differences in income. After regressing the variable on GDP per capita, the residual number of incorporations per million inhabitants is very high in most African countries and in some Latin American countries (Panel b of Figure 2).

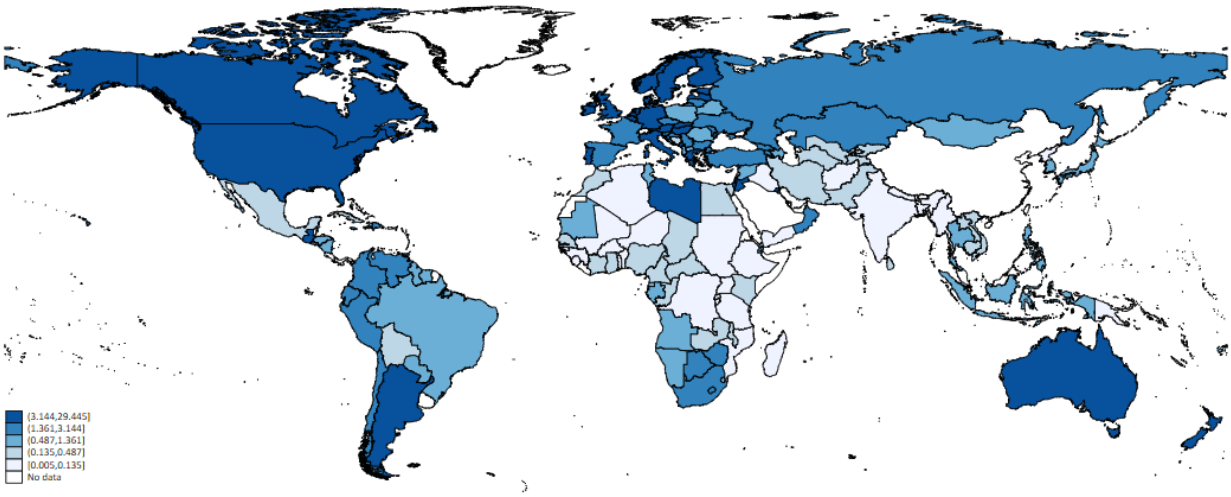
Table 1: Descriptive Statistics

	Mean	Std. Dev.	25^{th} perc.	Median	75^{th} perc.
		Panel A. Full Sample			
Monthly Incorporations	4.69	17.91	0.00	0.00	2.00
Monthly Incorporations per 1mil. Inhabitants	0.22	0.75	0.00	0.00	0.12
Monthly Attacks against Politicians	0.33	2.05	0.00	0.00	0.00
Yearly GDP p.c.	9,907	15,096	1,049	3,107	9,902
Yearly Population (millions)	35.86	103.36	4.56	10.38	31.66
Total Number of Elections	7.99	3.10	6.00	8.00	10.00
N	41,340				
		Panel B. Autocracies			
Monthly Incorporations	0.76	2.44	0.00	0.00	0.00
Monthly Incorporations per 1mil. Inhabitants	0.10	0.47	0.00	0.00	0.00
Monthly Attacks against Politicians	0.07	0.48	0.00	0.00	0.00
Yearly GDP p.c.	4,888	8,179	943	1,967	4,557
Yearly Population (millions)	22.10	33.30	3.80	9.90	24.79
Total Number of Elections	2.48	3.09	0.00	1.00	4.00
N	7,152				
		Panel C. Non-Autocracies			
Monthly Incorporations	5.51	19.57	0.00	0.00	3.00
Monthly Incorporations per 1mil. Inhabitants	0.25	0.79	0.00	0.00	0.18
Monthly Attacks against Politicians	0.38	2.24	0.00	0.00	0.00
Yearly GDP p.c.	10,911	15,941	1,092	3,469	11,764
Yearly Population (millions)	38.74	112.43	4.70	10.40	35.35
Total Number of Elections	7.31	3.32	5.00	7.00	9.00
N	34,188				

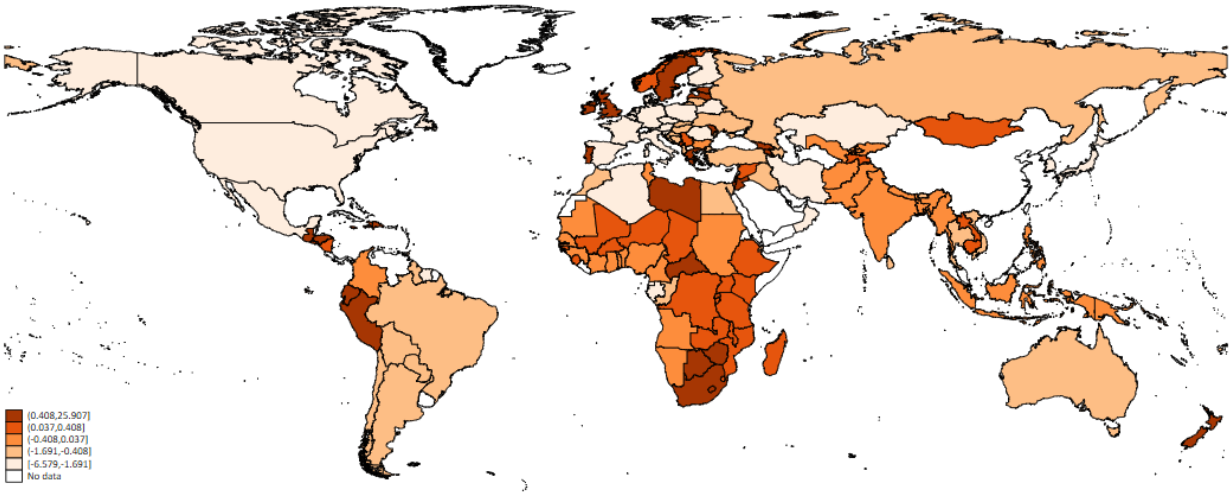
Notes: This table shows summary statistics for the main variables employed in our empirical analysis at the country-month data over the period 1990-2015.

Violence. We retrieve information on violent attacks against politicians from the Global Terrorism Database (GTD), which was compiled since 1970 by Pinkerton Global Intelligence

Figure 2: Spatial distribution of incorporation of offhsore companies per million inhabitants over the period 1990-2015.



(a) Incorporations of companies in tax havens, by residence of the beneficiaries



(b) Residuals of a regression of incorporations of companies in tax havens, by residence of the beneficiaries, on GDP per capita

Notes: This figure shows the quintiles of yearly incorporations of companies in tax havens, by residence of the beneficiaries, million inhabitants. Panel a shows the distribution of the raw data. Panel b plots the residuals of a regression of yearly incorporations on GDP per capita.

Service – a private security agency – and is currently maintained by the National Consortium for the Study of Terrorism and Responses to Terrorism at the University of Maryland (https://www.start.umd.edu/gtd/). The GTD reports occurrences of terrorist attacks across the world from media articles, news archives, books, and legal documents using both automatic and manual data collection strategies. The GTD includes incidences in which the perpetrator acted deliberately, used violence, and the action was "aimed at attaining a political, economic, religious or social goal through fear, coercion and intimidation". GTD reports precise details on the location and date of each attack. Most importantly, incidents are classified by type of victims. We can therefore distinguish attacks against politicians from other targets (private citizens, entrepreneurs, military, police and other).[10]

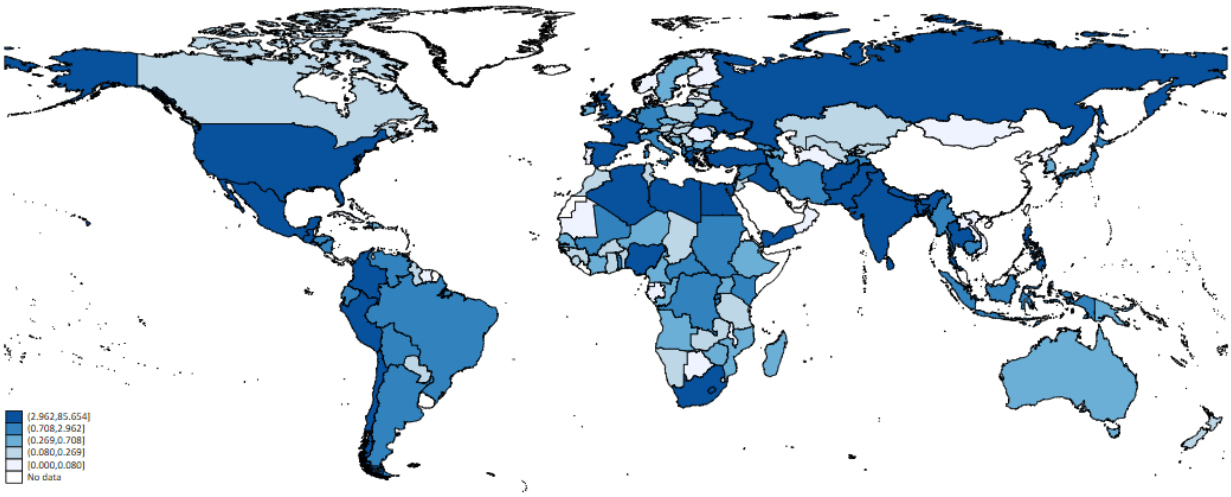
Figure 3 shows that attacks against politicians are quite evenly distributed across all areas of the world. Among the countries most severely affected by political violence we find, indeed, rich countries such as the United States, United Kingdom, France, and Spain, along with much poorer countries such as Mexico, India, Russia, and most countries in Northern Africa (panel a). This contrasts starkly with the patterns observed for other types of violence, notably homicides, which are much more frequent in poor countries (see, e.g. UNODC, 2023). Remarkably, the picture does not change significantly when controlling for GDP per capita: if anything, (residual) levels of political violence seem even higher in Western Europe (Panel b of Figure 3). In sum, politicians in non-autocracies face, on average, a much greater risk of being victim of an attack than politicians in autocracies (0.38 attacks vs. 0.07 attacks per month, respectively; see Table 1).

Elections and Institutional Regime. We collect information on national elections from the National Elections Database across Democracy and Autocracy, version 6, which includes all the dates of presidential and parliamentary elections (see Hyde and Marinov, 2012, for a description).[11] To distinguish between autocracies and non-autocracies, we rely on the Polity Index, which classifies each country in a given year on a scale from -10 to 10 based on "key qualities of executive recruitment, constraints on executive authority and political

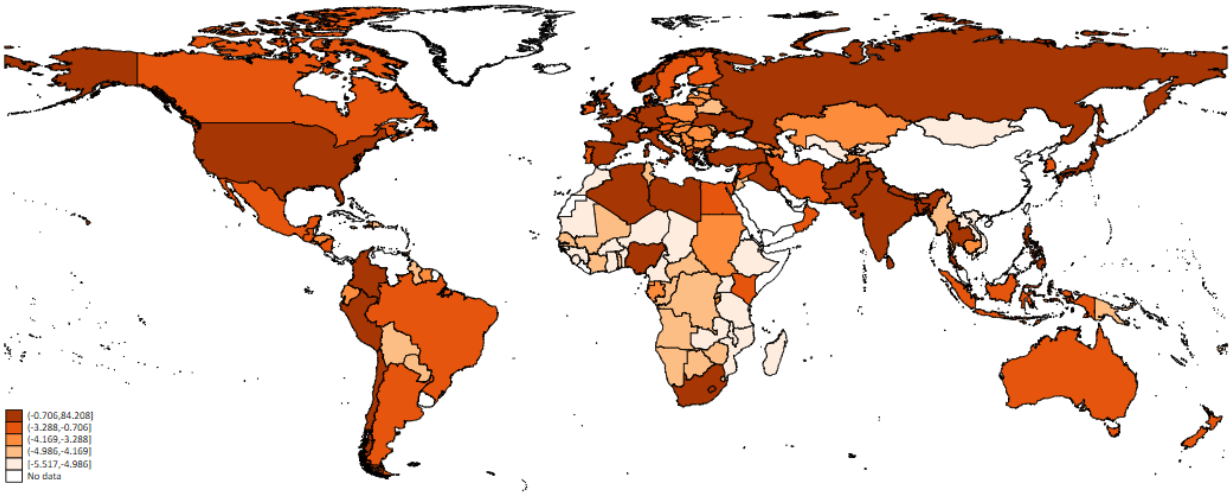
[10]The Armed Conflict Location & Event Data (ACLED, available at https://acleddata.com) also provide information on attacks against politicians and public officials. However, such data are available only since 2018, so there is no overlap with the data from the Panama Papers, which cover only the period before 2016.

[11]The dataset is available at https://nelda.co.

Figure 3: Spatial distribution of attacks against politicians over the period 1990-2015.



(a) Attack against politicians around the world.



(b) Residuals of attacks against politicians around the world.

Notes: This figure shows the quintiles of yearly attacks against politicians. Panel a shows the distribution of the raw data. Panel b plots the residuals of a regression of yearly attacks against politicians over GDP.

competition" (see Marshall et al., 2019, for a description). Countries with a score between -10 and -6 are classified as autocracies. For the years in which countries face "foreign interruption", "interregnum" or "transition" to a new regime, we follow the conversion suggested in the Polity2 manual to map countries on a scale between -10 and 10. While elections occur more frequently in non-autocracies than in autocracies, a non-negligible number of elections takes place also in autocracies (the average number of elections held during the sample period across autocratic countries is 2.5). Unsurprisingly, elections in autocracies entail significantly less turnover in government leaders: the probability that they remain in power after elections is 89%, compared to 53% in democracies, see Table 2.[12] However, the table also reveals that elections in autocracies result in considerable turnover within the executive cabinet. Specifically, 25% of cabinet positions are filled by new appointees following elections in autocracies, a figure not far from the 39% turnover observed in non-autocracies. Although we lack a comparable measure for bureaucratic turnover, it is reasonable to expect that changes in top government positions trigger a "spoils system" further down the ranks of public administration, where bureaucrats and public officials are likely targets for bribery and corruption.

Table 2: Characteristics of elections by regime type

	Autocracies N=149	Non-Autocracies N=909	Total N=1,058
N. unique persons in the cabinet	32.58 (9.9)	27.00 (9.1)	27.78 (9.4)
N. cabinet ministers	22.06 (6.8)	19.63 (6.7)	19.97 (6.7)
Leader is confirmed	0.89 (0.3)	0.53 (0.5)	0.58 (0.5)
Leader is confirmed (executive elections)	0.86 (0.4)	0.47 (0.5)	0.52 (0.5)
Share of ministers that retained position	0.75 (0.2)	0.61 (0.3)	0.63 (0.3)
Adj. share of minister that retained position	0.76 (0.2)	0.61 (0.3)	0.63 (0.3)

Notes: Characteristics of elections from the WhoGov dataset, version 3.0 (Nyrup and Bramwell, 2020). Means and, in parenthesis, standard deviations. N. unique persons in the cabinet differs from n. cabinet ministers as there may be more people in the cabinet than only the ministers. Leader is confirmed is a dummy = 1 if the leader observe in the year after the election was already in power before the election. Leader is confirmed (executive elections) restricts to presidential or executive elections. Share of ministers that retained position: share of ministers observed in the year of the election who were in power also in the previous year. Adjusted share of ministers is adjusted for an expansion of the size of the number of ministers, so the number of ministers stays constant and the retention rate is therefore not influenced by an expansion of the cabinet.

[12]Table 2 is based on data from the WhoGov dataset (Nyrup and Bramwell, 2020).

Additional data. We add data on annual GDP and population from the World Bank. The average GDP per capita is more than twice as high in non-autocracies than in autocracies; the former are also larger in terms of population (see Table 1). Although our longitudinal analysis will absorb these differences into country fixed effects, we nevertheless include the (log of) yearly GDP per capita and population as time-varying control variables in our estimating equation. Finally, we will also assess the sensitivity of results to the alternative classifications of institutional regimes proposed by Boix et al. (2018) and Acemoglu, Naidu, et al. (2019).

4 Empirical Strategy

Two way Fixed Effects. We examine how violence and corruption vary around elections in different institutional regimes using an event study approach. In particular, we estimate the following model:

$$y_{it} = \sum_{k=-11}^{k=12} \beta_k D(k\,months\,since\,election)_{it} + \alpha_i + month_t + \gamma' Z_{it-12} + u_{it}, \qquad (1)$$

where y_{it} is either the number of new shell companies standardized by population or the number of violent attacks against politicians, in country i and monthly date t. $D(k\,months\,since\,election)$ is a dummy that equals one $-k$ months (up to 11 months) before or k months (up to 12 months) after the election, so β_k captures the change in the average number of new incorporations of shell companies and violent attacks k months from the elections; we bin observations that are more than 12 months away from the elections and we take β_{-12} as reference. α_i and $month_t$ are, respectively, country and period fixed effects, which absorb country-specific and time-specific factors. Z_{it-12} are controls for log of real GDP and log population one year before. We estimate equation 1 separately on the sample of autocracies and non-autocracies. We cluster standard errors at the country level. To summarize the average treatment effect over the periods before and after elections, we also estimate the following specification:

$$y_{it} = \beta^{-} D(6monthsBefore)_{it} + \beta^{+} D(6monthsAfter)_{it} + \alpha_i + month_t + \gamma Z_{it-12} + \epsilon_{it}, \quad (2)$$

where $D(6monthsBefore)$ and $D(6monthsAfter)$ are dummy variables for the 6 months up to the election (including the month of the election) and for the 6 months after the election, respectively.

Stacked Difference-in-differences. Since countries undergo elections at different points in time, the analysis presented in the previous section has the flavor of a staggered difference-in-differences. As shown by a recent methodological literature (see, among others, Goodman-Bacon, 2021; Chaisemartin and D'Haultfœuille, 2020; Callaway and Sant'Anna, 2021; Borusyak et al., 2021), two-way fixed effects models may produce inconsistent estimates in this setting because countries treated at the beginning of the sample may enter as controls for countries that undergo an election toward the end of the sample. To address this potential concern, we perform an alternative "stacked difference-in-differences" analysis in the spirit of Cengiz et al. (2019) and Deshpande and Li (2019). The aim of this approach is to ensure that every country undergoing an election (*treated*) is compared only to "pure" controls, i.e. countries that are more than a year away from the elections.

Each election defines an *experiment*. A *treated cohort* is a group of countries that experience an election on the same date. For each cohort we construct 24 bins of 30 days around the date of the elections – 12 bins before and 12 bins after the election, respectively. For each treated cohort we construct a control group made of countries that are more than 12 months away from the election during the same calendar period and that share the same regime as the treated ones. By repeating this procedure for each *experiment*, we construct a minidataset with treated and control countries for each election date. We proceed stacking the different minidatasets on top of each other to estimate the following regression:

$$y_{ict} = \sum_{k=-11}^{k=12} \beta_k D(k\,months\,since\,election)_{ct} + \sum_{k=-11}^{k=12} \delta_k D(k\,months\,since\,election)_{ct} \times Treat_{ic} + \\ + \theta Treat_{ic} + \alpha_i + month_t + \gamma Z_{it-12} + \epsilon_{it} \tag{3}$$

where $Treat_{ic}$ is an indicator that identifies treated countries within the cohort with election date c, and the other variables are defined as in equation (2). In this specification, the

coefficients β_k's identify electoral cycles in the outcomes of interest – respectively, incorporation of offshore entities and attacks against politicians – for countries that do not face an election, while the coefficients δ_k's identify the differential evolution of the same outcomes for countries that undergo an election.

Each minidataset defines an experiment where treated units facing an election in the same period are matched to control units that do not face it. To take into account that different experiments host different numbers of treated and control countries, we weight each country in each minidataset by the inverse of the number of treated (if treated) and control (if control) countries. That is, the weights of both the treated and the control units sum up to one in each mini-experiment.

We also estimate a pre-post version of equation 3:

$$\begin{aligned} y_{ict} =& \beta^{-} D(6monthsBefore)_{ct} + \beta^{+} D(6monthsAfter)_{ct} + \delta^{-} D(6monthsBefore)_{ct} \times Treat_{ic} + \\ &+ \delta^{+} D(6monthsAfter)_{ct} \times Treat_{ic} + \theta Treat_{ic} + \alpha_i + month_t + \gamma Z_{it-12} + \epsilon_{it} \end{aligned} \tag{4}$$

where the coefficients δ^{-} and δ^{+} capture the differential evolution of the dependent variable in the semesters before and after the election relative to the periods away from the election and to the countries that do not undergo an election during the same period.

Regression Discontinuity in Time. In addition to the difference-in-differences models presented above, we also estimate a regression discontinuity (RD) in time to the election, measured at daily frequency. This approach allows us to zoom in on the days immediately before and after the elections. Specifically, we estimate the following RD equation for the number of attacks against politicians in country i and day s around the election date t:

$$Y_{ist} = \beta D_{ist} + \sum_{\ell=1}^{p} \gamma_\ell X_{ist}^{\ell} + \sum_{\ell=1}^{p} \delta_\ell (D_{ist} \times X_{ist}^{\ell}) + \alpha_{it} + \varepsilon_{ist}, \tag{5}$$

where the running variable X_{ist} is time (in days) between s and the election date t, and D_{ist} is a dummy equal to 1 for the period before elections, i.e. $D_{ist} \equiv \mathbb{1}(X_{ist} \leq 0)$. The coefficient of main interest, β, captures any discontinuity in attacks against politicians between the

days immediately before and immediately after the election date, controlling for all other confounding factors that may vary over this period through the p-th order polynomial in time, $\sum_{\ell=1}^{p} \gamma_\ell X_{ist}^\ell$, and its interaction with D_{ist}. Following standard practice in the RD literature (see, e.g. Lee and Lemieux, 2010), we will assess the sensitivity of results to varying the order of the polynomial orders, the bandwidth and the kernel around the cutoff. Since equation (5) stacks many regression discontinuity designs around each election t in country i, we include a full set of fixed effects α_{it}'s, which absorb omitted factor by country-election. We also cluster standard errors at the country level to account for serial correlation, which is a specific feature of RD in time designs (Hausman and Rapson, 2018),

5 Results

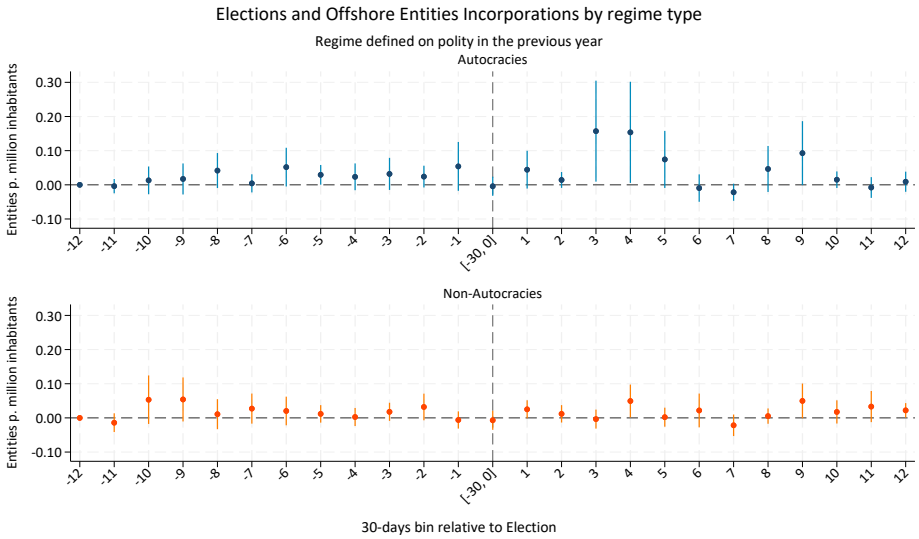
We first present the evidence based on event study and difference-in-differences models estimated over the entire sample period 1990-2015. We then zoom in on the period around elections through the regression discontinuity in time to the election date. We corroborate the results from these models by providing additional evidence on attacks against non-politicians, the role of armed groups, and expropriations as a potential alternative explanation for the increase in offshore entities after elections. Finally, we conclude with a battery of robustness tests.

5.1 Main results

Two Way Fixed Effects. Figures 4 and 5 report the estimates of equation (1) for the effect of elections on corruption (as measured by incorporation of offshore entities) and attacks against politicians, respectively, in autocracies (top panel) and non-autocracies (bottom panel). Incorporations of shell companies increase in autocracies in the months following the election, while no significant change is observed in the months leading to elections (Figure 4, top panel), nor are there any noticeable dynamics around elections in non-autocracies (bottom panel). This pattern is reversed when we focus on violent attacks against politicians. The bottom panel of Figure 5 shows that violent attacks increase in non-autocracies in the months immediately before and immediately after the election, peaking during the 30 days

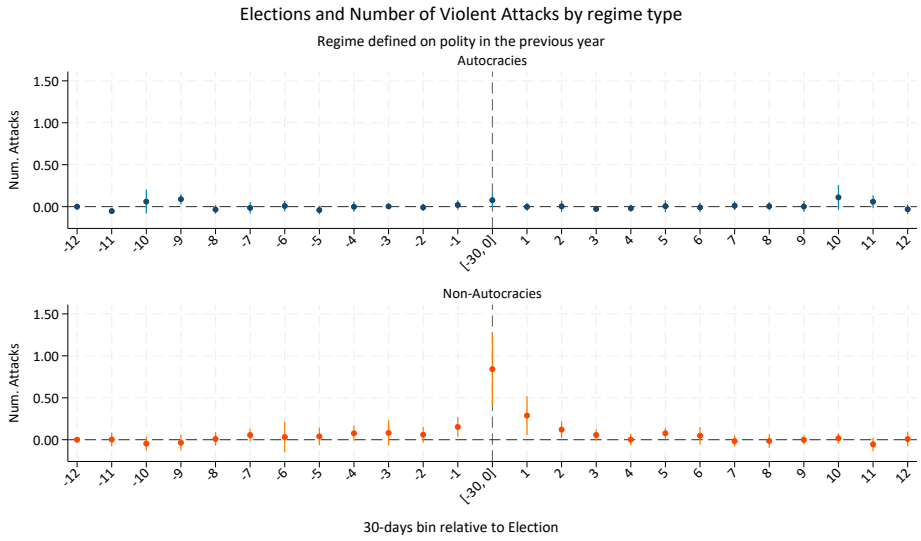
leading to the election (bin 0 on the x-axis). To the opposite, we do not observe a change in the number of attacks around elections for autocracies (top panel).

Figure 4: Incorporation of offshore entities around election, by regime type



Notes: This figure shows the effect of elections on incorporation of offshore companies in tax havens, as estimated from equation (1) in autocracies (top panel) and non-autocracies (bottom panel. Autocracies are countries with a Polity Index ≤ -6).

Figure 5: Attacks against politicians around election, by regime type



Notes: This figure shows the effect of elections on attacks against politicians, as estimated from equation (1) in autocracies (top panel) and non-autocracies (bottom panel). Autocracies are countries with a Polity Index ≤ -6).

Table 3: Incorporation of offshore entities and attacks against politicians around elections, by type of regime (two-way fixed effects)

Regime	*Autocracy*		*Non Autocracy*	
	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks
	(1)	(2)	(3)	(4)
6 months Before election	0.016*	0.015	-0.023	0.252***
	(0.009)	(0.014)	(0.014)	(0.074)
6 months After election	0.060**	0.001	-0.009	0.066**
	(0.025)	(0.013)	(0.011)	(0.030)
N. Obs	7,152	7,152	34,188	34,188
R^2	0.37	0.22	0.36	0.34
Mean DV	0.098	0.072	0.246	0.384
FEs: Country, Month	✓	✓	✓	✓
Log GDP$_{t-1}$, Log Pop.$_{t-1}$	✓	✓	✓	✓

Notes: Two-way fixed effects regressions for shell companies incorporation and attacks against politicians over the period 1990–2015. Autocracies are countries with a polity index below -5 in the previous calendar year. *6 months Before election* and *6 months After election* are two dummies respectively for the 6 months leading to the election (including the month of the election) and the 6 months following the elections. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level.*, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

Table 3 quantifies the magnitude of these effects by estimating equation (2). Column 1

shows a 60% increase in shell companies with beneficiaries in autocracies that are incorporated during the six months after elections (i.e., +0.06 new incorporations per million inhabitants, per month, over a baseline of 0.1). No similar pattern is present in non-autocracies (column 3). Instead, columns 2 and 4 show that attacks against politicians are more common in non-autocracies than in autocracies (0.384 vs. 0.072 attacks per month). Most importantly, attacks increase more in non-autocracies in the period before elections (+0.25 attacks, or +66% over the baseline, significant at the 1% level) compared autocracies (+0.015 attacks, or +33%, not statistically significant at conventional confidence levels).

Stacked difference-in-differences. Figures 6 and 7 show that the results are confirmed by the stacked difference-in-differences analysis. The solid lines in the graph represent the evolution of the dependent variables for the treated, and the dashed lines the evolution for the control countries. Similarly to the two-way fixed effects regressions, we observe an increase in the incorporation of offshore entities in the months following the elections, while the number of offshore entities does not react to the timing of the election for non-autocracies. The pattern is reversed when looking at the number of violent attacks: we do not observe any significant change in the level of violence around elections, while there is a sizable and significant spike in the number of attacks in non-autocracies. Violence peaks in the thirty days before election (bin 0) and gradually decreases after elections.

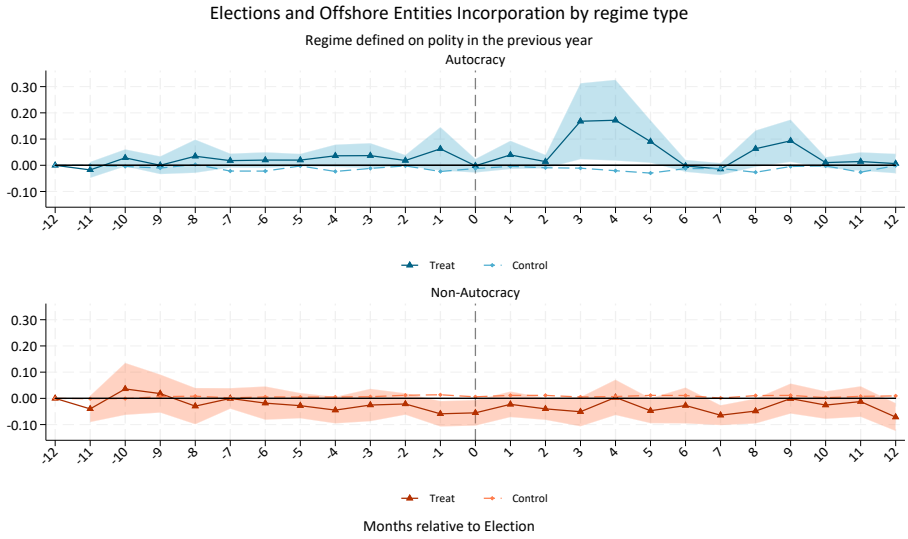
Table 4: Incorporation of offshore entities and attacks against politicians around elections, by type of regime (stacked difference-in-differences)

Regime :	*Autocracy*		*Non Autocracy*	
	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks
	(1)	(2)	(3)	(4)
Treat	0.024	0.028	0.069***	-0.044
	(0.016)	(0.022)	(0.019)	(0.029)
6 months Before	-0.002	-0.004	0.003**	-0.013**
	(0.003)	(0.005)	(0.001)	(0.006)
6 months After	-0.004	-0.002	0.005***	-0.014***
	(0.003)	(0.004)	(0.001)	(0.005)
6 months Before * Treat	0.008	-0.007	-0.019	0.256***
	(0.010)	(0.019)	(0.014)	(0.078)
6 months After * Treat	0.059**	-0.027	-0.010	0.122**
	(0.024)	(0.023)	(0.013)	(0.056)
N. Obs	63,962	63,860	1532201	1531853
R^2	0.26	0.21	0.31	0.28
Mean DV	0.081	0.070	0.188	0.401
FEs: Country, Month	✓	✓	✓	✓
Log GDP_{t-1}, Log $Pop._{t-1}$	✓	✓	✓	✓

Notes: Stacked diff-in-diffs regressions for shell companies incorporation and attacks against politicians over the period 1990-2015. Treat is a dummy equal to 1 if a country is facing an election over the 24 months of the minidataset it belongs to. In each minidaset, every treated country receives a weight proportional to the inverse of the number of treated country and similarly for countries in the control group. Autocracies are countries with a polity index below -5 in the previous calendar year. *6 months Before election* and *6 months After election* are two dummies respectively for the six 30-days bins leading to the election (including the 30-days bin of the election) and the six 30-days bins following the elections. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

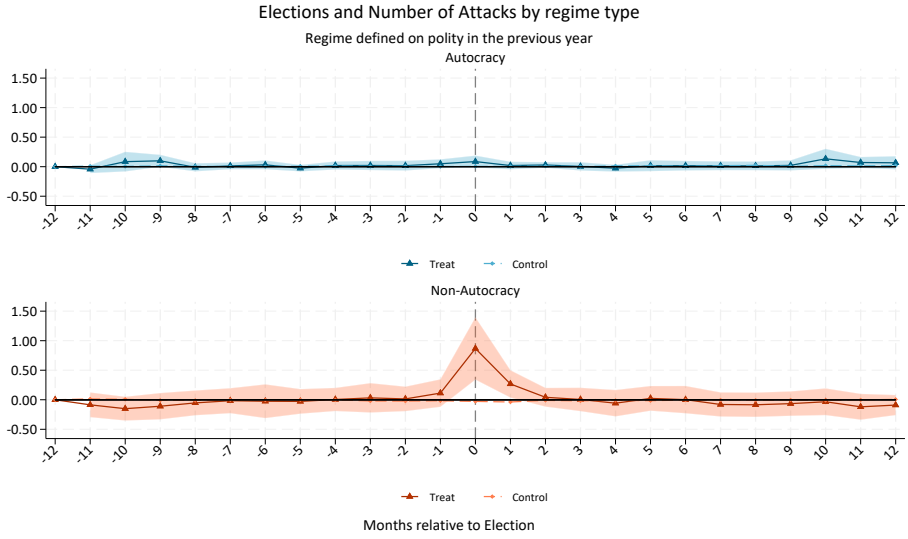
Table 4 summarizes the results of the stacked difference-in-differences. Column 1 confirms the increase in the incorporation of offshore entities in autocracies in the months following the election (coefficient *6 months After* $*$ *Treat*), while column 2 shows no change in the number of violent attacks, in the same countries, around elections (coefficients *6 months Before* $*$ *Treat* and *6 months After* $*$ *Treat*). Columns 3 and 4 show no differential changes in offshore entities in non-autocracies around elections, while the same countries undergo more violence before elections and, to a lesser extent, after elections.

Figure 6: Incorporation of offshore entities around election, by regime type (stacked difference-in-differences)



Notes: This figure shows the effect of elections on incorporations of offshore entities, as estimated from the stacked difference-in-differences equation (3) in autocracies (top panel) and non-autocracies (bottom panel). Autocracies are countries with a Polity Index ≤ -6).

Figure 7: Attacks against politicians around election, by regime type (stacked difference-in-differences)



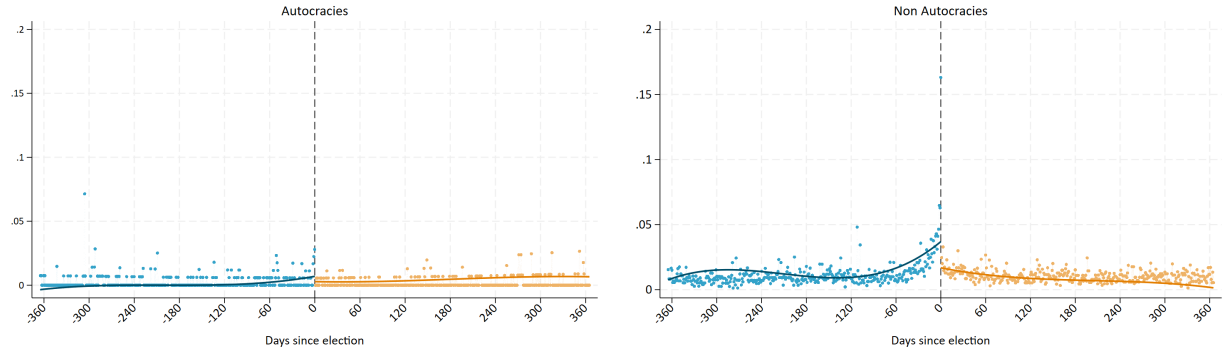
Notes: This figure shows the effect of elections on attacks against politicians, as estimated from the stacked difference in differences equation (3) in autocracies (top panel) and non-autocracies (bottom panel). Autocracies are countries with a Polity Index ≤ -6).

5.2 Additional evidence around the election date

The evidence presented so far is in line with the hypothesis that political influence takes different routes in autocracies and democracies. Autocracies can prevent and repress violence by interest groups, so the only chance to affect political power is through bribes. In addition, elections are merely "window dressing", as the ruler is most likely reconfirmed and there is only uncertainty regarding the nomination of bureaucrats and ministries. Therefore, the best time to use bribes is after elections, when ministries and bureaucrats are appointed. By contrast, in non-autocracies interest groups can take action before elections in order to tilt the vote in favor of their preferred candidate (for instance, by discouraging honest politicians from running, threatening voters, and so on). It follows that political violence should be highest immediately before elections and it should drop immediately after elections.

We test this prediction by estimating the RD in time to the elections in equation 5, separately for autocracies and non autocracies. Figure 8 shows the results when allowing for a third-order polynomial in time to election (i.e., $p = 3$ in equation 5), while Appendix Table A6 reports the estimates obtained for different polynomials and different kernels, and restricting the sample within the optimal bandwidth based on the criterion of Calonico et al., 2019. The results confirm that violence against politicians increases sharply in the days leading to the election in non-autocracies, and it drops discontinuously immediately after the election. Although a discontinuity is detected also in the case of autocracies, as Figure 8 shows, this is very small in size, especially when compared to the non-autocratic regimes.

Figure 8: Attacks against politicians around the election day, by regime type (regression discontinuity plot).



Notes: This figure shows the change in attacks against politicians around the election date in autocracies (left graph) and non-autocracies (right graph), as estimated from a regression discontinuity fitting a third degree polynomial in days since election.

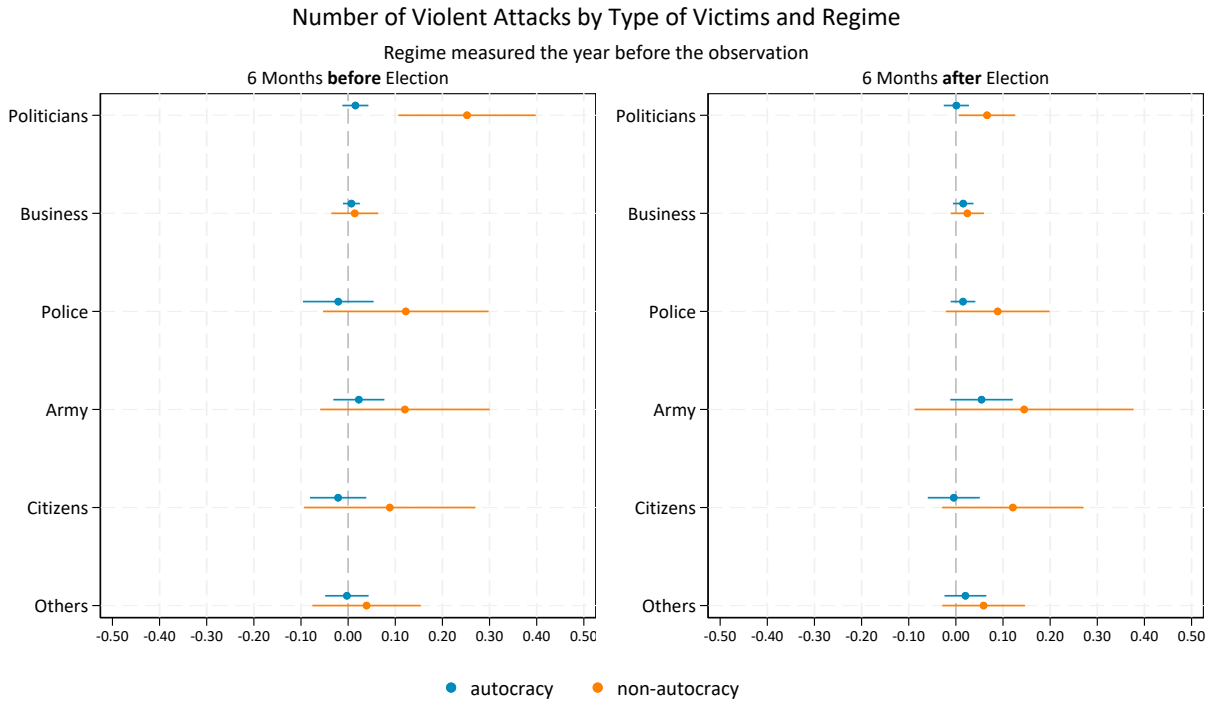
5.3 Other Types of Attacks

If pressure groups use violent attacks to discourage politicians from running for office, violent attacks against other targets should not display the same patterns around elections. We conduct this test exploiting information included in the Global Terrorism Database, which distinguishes between attacks against politicians, businesses, police forces, military units, private citizens (non-politicians), and other victims (e.g., journalists, religious figures, members of terrorist and non-state militias, tourists, and unknown targets). We thus estimate equation (2) on the number of violent attacks against each of these subcategories separately for autocracies and non-autocracies; Figure 9 plots the coefficients for the six months before and after the elections. Strikingly, only attacks against politicians in non-autocracies increase before elections (and, to a lesser extent, after elections), while there is no significant change in attacks against other targets.

5.4 Armed Groups

To the extent that (i) there is some substitutability between bribes and violence and (ii) violence is less costly for organized armed groups compared to other pressure groups, we expect substitution away from bribes and into political violence in countries where armed

Figure 9: Attacks against different types of targets around election, by regime type



Notes: This figure plots changes in attacks against different types of targets, indicated on the y-axis, before and after elections, as estimated from equation (2), in autocracies and non-autocracies. Autocracies are countries with a Polity Index ≤ -6).

groups are present. To test this prediction, we construct a measure of the presence of armed groups exploiting information from two sources: the Organized Crime Index by the Global Initiative of Transnational Organized Crime; and the Mapping Militants project by the Center for International Security and Cooperation (CISAC) at Stanford. The Organized Crime Index, first published in 2021, measures the diffusion of criminality in 193 countries and the resilience of countries to it (Global Initiative Against Transational Organized Crime, 2021)). The criminality score is made up of two subcomponents: the criminal market score, which assesses the value of 10 criminal markets; and the criminal actors score, which assesses the presence and reach of criminal groups within the country.[13] We focus on this second subcomponent to construct a dummy for countries with a high presence of armed criminal groups. The score ranges from 1 to 10, we classify as "high presence" of armed group countries whose 2021 score of the criminal actors index is above the median (5.38 in our sample). Turning to the second measure, CISAC provides information on terrorist groups, including the date in which they were created and the timing and location of their main attacks. We construct a dummy equal to 1 in the years following the creation of a terrorist group in those countries in which the terrorist group implemented a terrorist attack.

We interact either of the two dummy variables for the presence of armed groups with the dummies for the electoral cycle on the right-hand side of equation 2. Since the dummy for terrorist groups varies over time, we also include it in the regression along with the interaction, whereas the dummy for organized crime group does not vary over time (it is measured in 2021) and is thus absorbed by country fixed effects. Table 5 shows the results. Where armed groups are present, we observe in fact a substitution away from bribes and into violence before elections. In particular, the effect on bribes after elections disappears in autocracies (column 1 and 5), while electoral violence increases even more in non-autocracies (column 4 and 8).

[13]The criminal actors index aggregates, in turn, information along four dimensions: presence of mafia-style groups ("clearly defined organized criminal groups"), criminal networks ("loose network of criminal associates engaging in criminal actitivities"), state-embedded actors ("criminal actors that are embedded in, and act from within, the state's apparatus"), and foreign actors ("state and/or non-state criminal actors operating outside their home country").

Table 5: Incorporation of offshore entities and attacks against politicians around elections, by regime type and presence of armed groups

Armed Group Variable:	High Presence of Criminal Actors				Terrorist Groups			
Regime:	*Autocracy*		*Non Autocracy*		*Autocracy*		*Non Autocracy*	
	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
6 months Before election	0.030*	0.004	-0.017	0.112*	0.019	0.008	-0.013	0.126**
	(0.016)	(0.013)	(0.017)	(0.063)	(0.012)	(0.012)	(0.010)	(0.051)
6 months After election	0.093**	-0.001	-0.005	0.071*	0.085**	-0.001	-0.013	0.038
	(0.041)	(0.015)	(0.017)	(0.042)	(0.033)	(0.012)	(0.013)	(0.029)
Before election * Armed Group	-0.032*	0.027	-0.010	0.305**	-0.007	0.025	-0.051	0.651**
	(0.018)	(0.031)	(0.028)	(0.149)	(0.014)	(0.042)	(0.042)	(0.326)
After election * Armed Group	-0.076*	0.004	-0.007	-0.018	-0.080**	0.005	0.023	0.120
	(0.042)	(0.035)	(0.020)	(0.057)	(0.038)	(0.048)	(0.023)	(0.096)
Armed Group					-0.037	-0.016	-0.150	0.144
					(0.024)	(0.068)	(0.121)	(0.545)
N. Obs	7,152	7,152	33,912	33,912	7,152	7,152	34,188	34,188
R^2	0.37	0.22	0.36	0.34	0.37	0.22	0.36	0.34
Mean DV	0.098	0.072	0.247	0.387	0.098	0.072	0.246	0.384
FEs: Country, Month	✓	✓	✓	✓	✓	✓	✓	✓
Log GDP_{t-1}, Log $Pop._{t-1}$	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Two-way fixed effects regressions for shell companies incorporation and attacks against politicians over the period 1990–2015. Autocracies are countries with a polity index below -5 in the previous calendar year. In columns 1 to 4 Armed Group is a dummy equal to 1 if the 2021 Criminal Actors Index (which measures the presence of mafia-style groups, criminal networks, state-embedded actors, foreign actors) is above the median. In columns 5 to 8 Armed Group is a dummy equal to 1 following the birth of a terrorist group and in those countries in which the terrorist group carried out major attacks according to the CISAC project at Stanford. *6 months Before election* and *6 months After election* are two dummies respectively for the 6 months leading to the election (including the month of the election) and the 6 months following the elections. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

5.5 Expropriation

A possible alternative explanation of our findings is that the increase in offshore entities after elections reflects fear of being expropriated by the new executive, particularly in autocracies. To test this alternative explanation, we follow Bayer et al. (2020) and exploit the GDELT database to construct a measure of expropriation. The GDELT project collects news in more than 100 languages around the world since 1979, and classifies such news by topic using the CAMEO (Conflict and Mediation Event Observations) codes. In particular, code 1711 refers to news whose subject is labeled as "confiscate property". We focus on news with this code and sum their frequency over each month in different countries.

We construct a dummy equal to 1 for the months in which the number of news on confiscation is positive. In Table 6 we check whether the probability of news on confiscations increases around elections in the two types of regimes. The results suggest that the probability of confiscations either does not react or decreases slightly around the elections in both types of regimes. If anything, confiscations decrease relatively more in autocracies after the

elections (column 3). Therefore, changes in the risk of confiscation are unlikely to explain the increase in offshore shell companies with beneficiaries in non-autocracies after elections. The same conclusions hold in Appendix Table A1, in which we augment the baseline specification 2 with two dummies that capture whether there are news of expropriation in the same month or in the previous months. The inclusion of the dummies does not alter the magnitude nor significance of the main coefficients.

Table 6: Probability of expropriation around the elections, by regime type

	Autocracy	Non-Autocracy	Interaction
	(1)	(2)	(3)
6 months Before election	-0.004	-0.012*	-0.010
	(0.014)	(0.006)	(0.006)
6 months After election	-0.021*	-0.003	-0.001
	(0.011)	(0.006)	(0.006)
Autocracy * 6 months Before			0.004
			(0.015)
Autocracy * 6 months After			-0.024*
			(0.013)
Autocracy the year before			0.008
			(0.026)
N. Obs	7,152	34,188	41,340
R^2	0.34	0.39	0.37
Mean DV	0.174	0.244	0.232
FEs: Country, Month	✓	✓	✓
Log GDP$_{t-1}$, Log Pop.$_{t-1}$	✓	✓	✓

Notes: Two-way fixed effects regressions for probability of expropriation around elections. The dependent variable is a dummy equal to 1 for every month in which there are news on confiscation in a country as reported in the GDELT database. Autocracies are countries with a polity index below -5. *6 months Before election* and *6 months After election* are two dummies respectively for the 6 months leading to the election (including the month of the election) and the 6 months following the elections. In columns 1 and 2 we measure a country's regime based on the polity of the previous year. In columns 3 we interact the dummies for the regime types with dummies for the timing of the election. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

5.6 Robustness

Poisson Model. Both the number of offshore entities and the number of attacks against politicians are non-negative count variables with a wide dispersion. For this reason, we check the robustness of our results to estimating a Poisson model instead of a linear regression.

The Poisson model assumes the following conditional expectation for the dependent variable:

$$\mathbb{E}y_{it} = \alpha_i \delta_t \exp(\beta Before_{it} + \gamma After_{it} + Z_{it-12}), \tag{6}$$

where α_i is the municipality fixed effect and δ_t the month specific fixed effect. These parameters control, respectively, for country-invariant characteristics and for monthly shocks that are common to all countries. The results, presented in Appendix Table A2, are in line with those of our baseline specification.

Alternative Definitions of Autocracy and Non-Autocracy. Since heterogeneity between autocracies and non-autocracies is one of the main results of our analysis, we experiment with alternative definitions of regime types. We start by classifying countries in democracies vs. non-democracies based on Boix et al. (2018). Compared to our main specification, some countries that we previously classified as "non-autocracies" may now be included among "non-democracies". Appendix Table A3 shows that results are in line with those of our main specification. We also find very similar results when we use the alternative classification of democracies and non-democracies proposed by Acemoglu, Naidu, et al. (2019), which covers the period through year 2010 (we thus drop the last 5 years of our main sample). The results are reported in Appendix Table A4. Finally, in Appendix Table A5 we classify countries based on whether they have a negative (more autocratic) or positive (more democratic) Polity score. While more autocratic countries are more active in the incorporation of offshore entities in the months following the election, we also observe an increase in violence in some of the months before the election. However, the magnitude of the coefficient is smaller in both absolute and relative terms compared to the case of countries with a positive score.

Lethal Attacks. Electoral periods likely attracts a lot of attention from media, so the probability of reporting attacks against politicians could also be higher in those periods. However, differences in reporting rates should be lowest for the most violent episodes, particularly those involving murders. In Appendix Figure A2 we report estimates from the stacked difference-in-differences specification considering only lethal attacks against politi-

cians. Results are unaffected relative to our main specification. In Appendix Table A7, we replicate the two way fixed effects estimates using the number of lethal attacks against politicians as dependent variable (columns 1 for autocracies and column 3 for non-autocracies) along with the benchmark estimates from Table 3 (columns 2 and 4). The comparison between the adjacent columns shows that focusing on violent attacks that entailed a positive number of killings does not change the results.

6 A theory of bribes and violence around elections

Our empirical results show that political violence increases before elections in democracies, whereas corruption increases after elections in autocracies. To rationalize these findings, we propose a model in which violence and bribes are substitute means to influence policy makers. We borrow from Alesina et al. (2018) the use of violence as a signal of a pressure group's strength and from (Dal Bó et al., 2006) the pressure group's interaction with the government. We expand the model on two dimensions: characterizing the pressure group's influence with respect to I) the timing of the elections and II) the regime type (autocracy vs democracy). Some simplifying assumptions, namely linear costs (perfect substitutability), are made here. For a more general treatment, refer to Appendix B.

Consider a game with 3 players: a pressure group and two candidates in an election. Let the candidates be H (honest) and C (corrupt). The pressure group privately knows its own type $\theta \in \{s, w\}$, which denotes its military strength: strong (s) or weak (w). All other parameters, including candidates' preferences, are common knowledge.

The pressure group ultimately covets a lucrative procurement contract or other benefit. It may engage in pre-election violence to signal its type, and may also use bribes and violent punishment to coerce the elected official. Any violent attack is scaled by $\frac{\theta}{g}$, where g denotes the government's ability to repress violence. Thus, the effectiveness of violence depends on the relative strength of the pressure group versus the government.

The timeline is summarized as follows:

1. The pressure group engages in a violent attack v, which has an effect $\frac{\theta}{g}v$.

2. Candidate H observes $\frac{\theta}{g}v$, updates his belief about pressure group's type, then chooses effort level e that determines his win probability.

3. Election results are realized, and the elected candidate takes office.

4. The pressure group commits to incentives (bribes and punishment) equal to (b, p), which are perfectly observed by the elected official.

5. With probability γ, the official has discretion to award the contract. Given (b, p) and his belief about pressure group's type, the official decides whether to award contract to pressure group at cost ε.

6. If the contract is awarded to pressure group, bribe b is paid to official. Otherwise, pressure group inflicts the punishment, causing $\frac{\theta}{g}p$ damage to the official.

The timeline for an autocracy omits Step 2, as only one viable candidate runs for election and is guaranteed to win. We also assume that autocrats have a very high ability g to repress violent attacks.

We do not include the possibility that the pressure group may pay bribes before the election. This differs from other models (Grossman and Helpman, 1996, e.g.) involving campaign donations that may depend on publicly announced policy platforms. In our setting, the covert nature of the transaction and discretionary procurement contract allocation take away commitment power from politicians over their future actions, which limits the role of pre-election payments.

6.1 Democracy

6.1.1 Before the election

Candidate H believes that the pressure group is strong ($\theta = s$, where $s > w$) with probability $\beta \in (0, 1)$. The pressure group may signal its type by engaging in pre-election violence $v \geq 0$ at a linear cost $k(v) = v$. The types of pressure group differ by the effectiveness of their attacks.

Candidates observe the outcome of the attack, θv. Afterwards, H exerts effort $e \geq 0$ and wins the election with probability

$$h(\mu, e) = \mu + e$$

at a cost $\psi(e)$, where $\psi_e, \psi_{ee} > 0$. The parameter μ captures candidate H's popularity.

We are interested in perfect Bayesian separating equilibria where only a strong pressure group engages in pre-election violence. To show that such equilibria exist, we must examine players' expected payoffs after the election. We will show that pre-election violence, as a signal of strength, serves a dual purpose: first, to discourage H's effort to win the election because he anticipates lower utility from holding office, and second, after the election, to make threats of violence more effective in coercing elected officials.

6.1.2 After the election

Once the election results are realized, the elected official takes office, receiving wage W. The official has some discretion to award a contract that has a value of π to the pressure group. The pressure group chooses incentives (b, p), which consists of both a bribe and a threat of punishment. Conditional on being awarded the contract, the pressure group commits to paying a bribe b, and to inflict a violent punishment of size p (causing $\frac{\theta}{g}\, p$ damage) otherwise. As we are interested in separating equilibria, it will be useful to present this section as if the pressure group's type θ were known by H.

Assume that both bribes and punishment incur linear costs equal to $\Phi(b) = b$ and $\Psi(p) = p$ respectively. An official i receives marginal utility α_i from bribes. The parameter α_i measures how easily the official can be bribed, hence it is a measure of corruption. If $\alpha_i \leq 0$, the official is completely honest and will never accept a bribe. Thereafter, we assume $0 < \alpha_H < \alpha_C \leq 1$.

With some probability γ, the public official has the opportunity of awarding the contract at cost ε, thus receiving the bribe b. With probability $1 - \gamma$, the politician is instead not allowed to award the contract, thus receiving the punishment $\frac{\theta}{g}\, p$. We can interpret γ as the degree of discretion enjoyed by the politician.

Then the official will award the contract to the pressure group if

$$W + \alpha_i b - \varepsilon \geq W - \frac{\theta}{g} p$$

Therefore, a pressure group of known type θ chooses the cost-minimizing incentives $b^*(\theta)$ and $p^*(\theta)$ that solve

$$\max_{b,p} \gamma(\pi - b) - (1-\gamma) p \qquad \text{subject to} \qquad \alpha_i b + \frac{\theta}{g} p \geq \varepsilon$$

Since costs are linear, there is a corner solution. A pressure group of type θ will exclusively use bribes if $\frac{\alpha_i}{\theta} > \frac{\gamma}{(1-\gamma)g}$, and will exclusively use violent threats if the inequality is reversed.

We will focus on the interesting case where both pressure group types strictly prefer dealing with a corrupt politician and the honest politician strictly prefers dealing with the weak pressure group type. This occurs, in turn, when the following assumptions hold:

Assumption 1: $$\frac{\alpha_C}{s}, \frac{\alpha_H}{w} > \frac{\gamma}{(1-\gamma)g} > \frac{\alpha_H}{s}$$

Under Assumption 1, the incentives offered by the pressure group (of known type) are summarized in Table 1.

	Honest official H	Corrupt official C
Strong pressure group, $\theta = s$	Violent threat $p = \frac{g}{s}\varepsilon$	Small bribe $b = \frac{\varepsilon}{\alpha_C}$
Weak pressure group, $\theta = w$	Large bribe $b = \frac{\varepsilon}{\alpha_H}$	Small bribe $b = \frac{\varepsilon}{\alpha_C}$

Table 7: Incentives offered by pressure group types.

A cursory glance will satisfy the reader that H strictly prefers dealing with a weak pressure group, who bribes but does not punish, than with a strong pressure group, who punishes instead. So H's effort e in the election is decreasing in his belief about θ. Candidate C, on the other hand, is equally happy dealing with either pressure group.

6.1.3 Separating equilibrium

We will describe separating equilibria where the strong pressure group chooses some pre-election violence $v_s > 0$, whereas the weak pressure group does not: $v_w = 0$. Under As-

sumption 1, such equilibria always exist. We focus on the least costly equilibrium (with the lowest v_s):

$$v_s \quad = \quad \frac{w}{s}\ \Big[\ (e_w - e_s)\big(\frac{\gamma\varepsilon}{\alpha_H} - \frac{\gamma\varepsilon}{\alpha_C}\big)\ +\ (\mu + e_s)\big(\frac{\gamma\varepsilon}{\alpha_H} - (1-\gamma)\frac{\varepsilon g}{s}\big)\ \Big]$$

where e_w and e_s denote H's election effort if he believes the pressure group is weak or strong respectively. Note that $e_w > e_s$.

In this equilibrium, after observing a pre-election attack of $\frac{s}{g}v_s$ or more, candidate H believes that the pressure group is strong for sure. He then exerts low effort e_s and is less likely to be elected. Even if elected, the threat of punishment is effective, so that a relatively small threat $\frac{g}{s}\varepsilon$ is sufficient to coerce him.

If the damage is any less than $\frac{s}{g}v_s$, however, H knows the pressure group is weak. He then exerts high effort $e_w > e_s$, increasing his chances of being elected. Once in office, a larger threat $\frac{g}{w}\varepsilon$ is needed to coerce him, making punishment more expensive. In that case, the pressure group will use bribes instead.

In the above equation for v_s, the expression within the square brackets denotes a pressure group's benefit from signaling strength through pre-election violence. This is composed of 2 effects, both positive: the first is to discourage H from exerting election efforts, and the second is to make subsequent coercive threats more effective, thus reducing the cost of dealing with the public official after the election.

Suppose the weak type were to imitate the strong type, incurring a pre-election cost of $\frac{s}{w}v_s$. Thereafter, the weak type receives the same payoff as a strong type. We need only that v_s be high enough to make this deviation unprofitable. Thus, v_s is chosen so that the cost $\frac{s}{w}v_s$ equals the payoff difference from deviating.

6.2 Autocracy

Under an autocratic government, we assume that there is only one candidate for office (i.e. elections are window-dressing), therefore the pressure group cannot influence the choice of public officials. Furthermore, the state has strong military power relative to any pressure groups. This means that the $g \to \infty$, such that any threat of violence against officials is

immediately eliminated. Then, the pressure group always chooses $p^* = 0$.

The only means of influence available to a pressure group is through bribes. The bribe offered does not depend on the pressure group's type and is equal to

$$b^* = \frac{\varepsilon}{\alpha_i}$$

This is weakly larger than any bribe offered when punishment is available.

An interesting prediction is that the largest bribes may be received by relatively honest officials in autocracies (although they are still at their reservation utility). The pressure group will be willing to offer this bribe as long as $\pi \geq \frac{\varepsilon}{\alpha_i}$, i.e if the official's cost of awarding the contract, ε, is small relative to the the pressure group's gain π. We may expect ε to be small under an autocracy, due to the absence of accountability or re-election incentives. Furthermore, π should be large if there is an abundance of discretionary spending or procurement contracts awarded by public officials. In those cases, bribes will be a common occurrence.

6.3 Predictions

We conclude this section by summarizing the main model predictions:

1. *In democracies, pressure groups use violence*
   - (a) *before elections, to signal strength and to favor the victory of corrupt candidates who are easier to bribe;*
   - (b) *after elections (to a lesser extent), to coerce officials into corrupt activities.*
2. *In autocracies, pressure groups use bribes after elections to influence the decisions of appointed public officials. Bribes are larger and more frequent than in democracies.*

The empirical results presented in the previous sections are consistent with these predictions.

7 Conclusion

Pressure groups affect the political platforms of politicians by means of violence or bribes. In autocracies, where the ruler concentrates strong repressive power in his hands, violent attacks against politicians are therefore too costly and ineffective. In this setting, pressure groups choose to use bribes. They do so after elections, when uncertainty on the public officials they need to corrupt is dissipated. In democracies, pressure groups exploit violent attacks to scare unwanted politicians and push them out of the electoral race before elections take place.

In this paper, we proposed a novel, detailed measure of corruption that is comparable across countries. Avenues for future work may include alternative, unconventional measures of election violence, such as hate messages, negative social media campaigning and the use of bots. The advent of social media as well as widespread internet connectivity offer new grounds for transparency but also new weapons to implement violent attacks against politicians, with vast consequences for the electoral outcomes and, with them, the future of a country. Understanding the incentives behind pressure groups, the tools they use as well as monitoring their efficacy is essential to the study of elections today.

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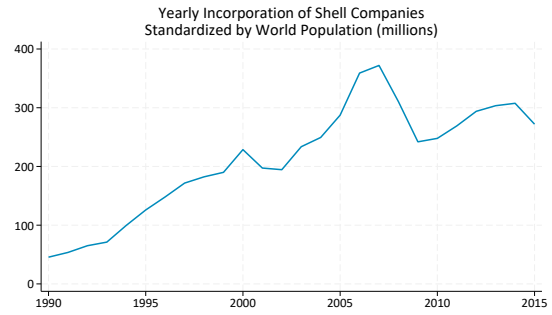
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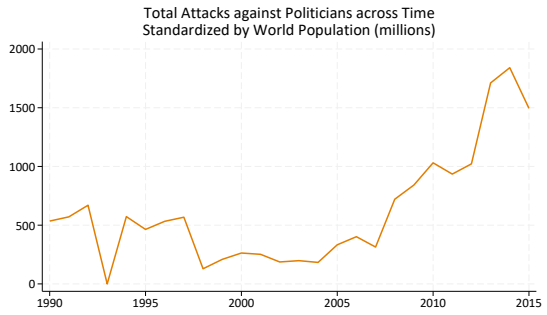
Appendix

A Additional figures and tables

Figure A1: Time series of incorporation of companies in tax havens and attacks against politicians over the period 1990-2015.



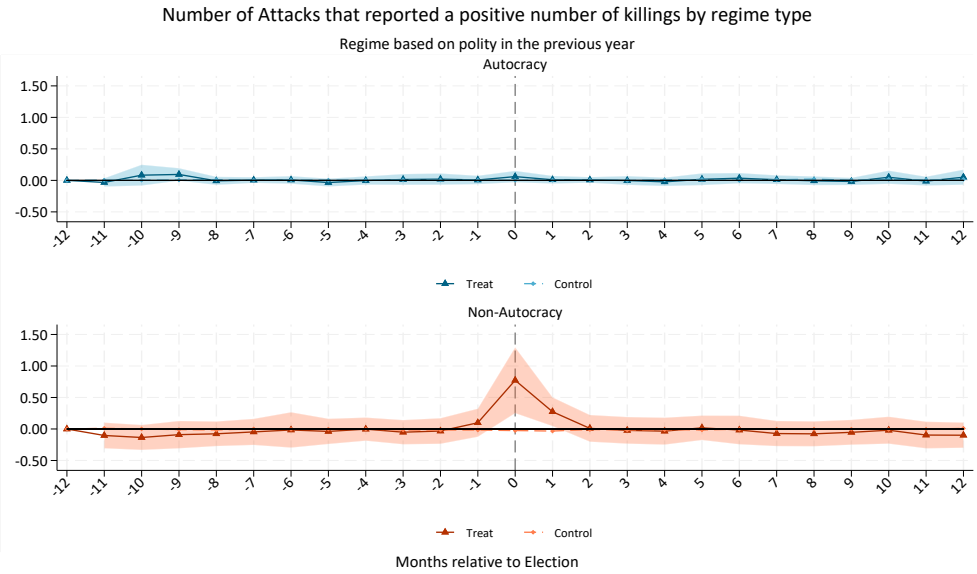
(a) Incorporation of companies in tax havens



(b) Attacks against politicians

Notes: This figure shows temporal dynamic of the main dependent variable used in the analysis: the total number of companies incorporated in tax havens standardized by total sample population (panel a), and the number of attacks against politicians (panel b).

Figure A2: Attacks against politicians involving at least one killing, by regime type (stacked difference-in-differences)



Notes: This figure shows the effect of elections on attacks against politicians that involved at least one killing, as estimated from the stacked difference in differences equation (3) in autocracies (top panel) and non-autocracies (bottom panel). Autocracies are countries with a Polity Index ≤ -6).

Table A1: Incorporation of offshore entities and attacks against politicians around elections, controlling for expropriation in the same or preceding month

Regime	*Autocracy*		*Non Autocracy*	
	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks
	(1)	(2)	(3)	(4)
6 months Before election	0.016*	0.017	-0.023	0.255***
	(0.009)	(0.014)	(0.014)	(0.075)
6 months After election	0.061**	0.001	-0.009	0.070**
	(0.025)	(0.014)	(0.011)	(0.031)
Dummy Expropration	0.018	0.013	-0.003	0.215***
	(0.012)	(0.025)	(0.013)	(0.077)
Dummy Expropration, t-1	-0.001	0.013	0.007	0.189**
	(0.016)	(0.026)	(0.017)	(0.082)
Dummy Expropration, t-2	-0.019	0.036	0.015	0.194***
	(0.012)	(0.035)	(0.015)	(0.069)
N. Obs	7,058	7,058	34,068	34,068
R^2	0.37	0.22	0.36	0.34
Mean DV	0.099	0.072	0.246	0.383
FEs: Country, Month	✓	✓	✓	✓
Log GDP_{t-1}, Log $Pop._{t-1}$	✓	✓	✓	✓

Notes: Two-way fixed effects regressions for shell companies incorporation and attacks against politicians over the period 1990–2015. Autocracies are countries with a polity index below -5 in the previous calendar year. *6 months Before election* and *6 months After election* are two dummies respectively for the 6 months leading to the election (including the month of the election) and the 6 months following the elections. The dummies *Expropriation* and *Expropriation, t-1* are equal to 1 if there were news of confiscation in the same or the preceding month. Confiscation is measured from the GDELT database. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

Table A2: Incorporation of offshore entities and attacks against politicians around elections, by regime type (Poisson regression)

Regime	*Autocracy*		*Non Autocracy*	
	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks
	(1)	(2)	(3)	(4)
6 months Before election	0.245*	0.248	-0.087*	0.571***
	(0.142)	(0.158)	(0.049)	(0.077)
6 months After election	0.578***	-0.303	-0.043	0.149*
	(0.172)	(0.248)	(0.046)	(0.079)
N. Obs	6,047	3,091	34,152	31,080
$Pseudo - R^2$	0.46	0.44	0.41	0.59
Mean DV	0.116	0.167	0.246	0.423
FEs: Country, Month	✓	✓	✓	✓
Log GDP$_{t-1}$, Log Pop.$_{t-1}$	✓	✓	✓	✓

Notes: Two-way fixed effects regressions for shell companies incorporations and attacks against politicians over the period 1990–2015. Autocracies are countries with a polity index below -5 in the previous calendar year. *6 months Before election* and *6 months After election* are two dummies respectively for the 6 months leading to the election (including the month of the election) and the 6 months following the elections. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

Table A3: Incorporation of offshore entities and attacks against politicians around elections, by regime type (alternative classification of regimes by Boix et al., 2018)

Regime	*Non Democracies*		*Democracies*	
	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks
	(1)	(2)	(3)	(4)
6 months Before election	0.009	0.140*	-0.025*	0.294***
	(0.006)	(0.072)	(0.014)	(0.092)
6 months After election	0.039*	0.025	-0.015	0.106***
	(0.022)	(0.042)	(0.014)	(0.039)
N. Obs	18,720	18,720	22,668	22,668
R^2	0.27	0.34	0.34	0.26
Mean DV	0.086	0.295	0.331	0.382
FEs: Country, Month	✓	✓	✓	✓
Log GDP$_{t-1}$, Log Pop.$_{t-1}$	✓	✓	✓	✓

Notes: Two-way fixed effects regressions for shell companies incorporations and attacks against politicians over the period 1990–2014. Countries are classified in democracies (columns 3 and 4) or non democracies, columns (1 and 2) following the classification proposed by Boix et al. (2018). The year of reference for the classification is the calendar year before the observation. *6 months Before election* and *6 months After election* are two dummies respectively for the 6 months leading to the election (including the month of the election) and the 6 months following the elections. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

Table A4: Incorporation of offshore entities and attacks against politicians around elections, by regime type (alternative classification of regimes by Acemoglu, Naidu, et al., 2019)

Regime	*Non Democracies*		*Democracies*	
	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks
	(1)	(2)	(3)	(4)
6 months Before election	0.003	0.052*	-0.020*	0.179***
	(0.004)	(0.028)	(0.011)	(0.061)
6 months After election	0.018*	0.033	-0.017	0.075*
	(0.011)	(0.050)	(0.011)	(0.041)
N. Obs	13,140	13,140	20,100	20,100
R^2	0.33	0.18	0.29	0.23
Mean DV	0.064	0.137	0.252	0.287
FEs: Country, Month	✓	✓	✓	✓
Log GDP$_{t-1}$, Log Pop.$_{t-1}$	✓	✓	✓	✓

Notes: Two-way fixed effects regressions for shell companies incorporations and attacks against politicians over the period 1990–2010. Countries are classified in democracies (columns 3 and 4) or non democracies, columns (1 and 2) following the classification proposed by Acemoglu, Naidu, et al. (2019). The classification is available until 2010. The year of reference for the classification is the calendar year before the observation. *6 months Before election* and *6 months After election* are two dummies respectively for the 6 months leading to the election (including the month of the election) and the 6 months following the elections. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

Table A5: Incorporation of offshore entities and attacks against politicians around elections, by regime type (alternative classification of regime type by positive/negative Polity score)

Regime	*Negative Polity*		*Positive Polity*	
	$\frac{N.Entities}{Population}$	N. Attacks	$\frac{N.Entities}{Population}$	N. Attacks
	(1)	(2)	(3)	(4)
6 months Before election	0.001	0.035**	-0.028	0.297***
	(0.005)	(0.014)	(0.017)	(0.085)
6 months After election	0.028**	-0.011	-0.015	0.080**
	(0.014)	(0.015)	(0.013)	(0.037)
N. Obs	13,452	13,452	27,888	27,888
R^2	0.32	0.53	0.34	0.35
Mean DV	0.076	0.111	0.290	0.436
FEs: Country, Month	✓	✓	✓	✓
Log GDP_{t-1}, Log $Pop._{t-1}$	✓	✓	✓	✓

Notes: Two-way fixed effects regressions for shell companies incorporations and attacks against politicians over the period 1990–2015. In columns 1 and 2 we consider countries with a polity score below zero in the preceding year. In columns 3 and 4 we consider countries with a polity score equal or above zero in the preceding year. *6 months Before election* and *6 months After election* are two dummies respectively for the 6 months leading to the election (including the month of the election) and the 6 months following the elections. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

Table A6: Attacks against politicians around the election day, by regime type (regression discontinuity estimates)

	Non Autocracies					
	Triangular Kernel			*Uniform Kernel*		
Polynomial Order	1	2	3	1	2	3
	(1)	(2)	(3)	(4)	(5)	(6)
RD Estimate	0.037***	0.043***	0.048***	0.032***	0.039***	0.045***
	(0.012)	(0.014)	(0.017)	(0.011)	(0.014)	(0.017)
Robust 95% CI	[.016 ; .067]	[.016 ; .078]	[.016 ; .088]	[.012 ; .06]	[.013 ; .073]	[.013 ; .085]
Observations	664173	664173	664173	664173	664173	664173
Effective Obs.	111120	181830	241105	101298	168689	219016
Conventional Std. Error	0.012	0.014	0.017	0.011	0.014	0.017
Conventional p-value	0.001	0.003	0.004	0.004	0.005	0.006
Robust p-value	0.001	0.003	0.005	0.003	0.005	0.007
Order Bias (q)	2.000	3.000	4.000	2.000	3.000	4.000
BW Loc. Poly. (h)	54.996	91.181	123.790	49.393	84.835	111.797
BW Bias (b)	108.555	125.744	148.407	100.869	120.046	135.787
Mean DV	0.020	0.016	0.015	0.021	0.017	0.015
	Autocracies					
	Triangular Kernel			*Uniform Kernel*		
Polynomial Order	1	2	3	1	2	3
	(1)	(2)	(3)	(4)	(5)	(6)
RD Estimate	0.004**	0.006**	0.007**	0.003*	0.005**	0.007**
	[0.002]	[0.003]	[0.003]	[0.002]	[0.003]	[0.003]
Robust 95% CI	[0 ; .009]	[.001 ; .013]	[.001 ; .016]	[-.001 ; .007]	[0 ; .011]	[.001 ; .015]
Observations	110144	110144	110144	110144	110144	110144
Effective Obs.	30285	35485	49341	30897	35485	43395
Conventional Std. Error	0.002	0.003	0.003	0.002	0.003	0.003
Conventional p-value	0.027	0.024	0.025	0.061	0.045	0.042
Robust p-value	0.036	0.022	0.023	0.100	0.039	0.034
Order Bias (q)	2.000	3.000	4.000	2.000	3.000	4.000
BW Loc. Poly. (h)	94.429	111.553	157.509	96.682	111.904	137.287
BW Bias (b)	165.198	174.560	216.697	177.912	168.361	194.454
Mean DV	0.003	0.003	0.003	0.003	0.003	0.003

Notes: Regression Discontinuity Estimates for attacks against politicians over the period 1990–2015, as estimated from equation (5) In columns 1 to 3 we use a triangular kernel, in columns 4 to 6 we use a uniform kernel, and the polynomial order is reported on top of each column. The bandwidths considered to compute the point estimates and confidence intervals, reported in the table, are selected based on the criterion of Calonico et al., 2019. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

Table A7: Attacks against politicians involving at least one killing, by regime type

Regime	*Autocracy*		*Non Autocracy*	
	Any Attacks w/ killings	Attacks	Any Attacks w/ kilings	N. Attacks
	(1)	(2)	(3)	(4)
6 months Before election	0.007	0.015	0.215***	0.252***
	(0.011)	(0.014)	(0.072)	(0.074)
6 months After election	0.001	0.001	0.060**	0.066**
	(0.012)	(0.013)	(0.025)	(0.030)
N. Obs	7,152	7,152	34,188	34,188
R^2	0.22	0.22	0.34	0.34
Mean DV	0.050	0.072	0.302	0.384
FEs: Country, Month	✓	✓	✓	✓
Log GDP$_{t-1}$, Log Pop.$_{t-1}$	✓	✓	✓	✓

Notes: Two-way fixed effects regressions for attacks against politicians over the period 1990–2015. In columns 1 and 3 we report the baseline estimates as in Table 2. In columns 2 and 4 we consider the attacks against politicians that reported also a positive number of killings. *6 months Before election* and *6 months After election* are two dummies respectively for the 6 months leading to the election (including the month of the election) and the 6 months following the elections. Regressions include one year lag of log of GDP and of log of population as controls. Standard errors clustered at the country level. *, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

B Theoretical framework: Additional results

This Appendix expands on the model in Section 2. We extend the theoretical framework in two directions: (i) assuming the pressure group has convex (rather than linear) cost functions and (ii) allowing the elected official to choose his effort level in serving the pressure group's interests. We show that the main results described in Section 2.5 still hold.

B.1 Convex cost of bribes and punishment

Suppose that the pressure group's cost functions for bribes, $\Phi(b)$, and punishment, $\Psi(p)$, are strictly convex, so that they are not perfectly substitutable. Assuming $\Phi'(0) = \Psi'(0) = 0$ ensures that the pressure group will always use some combination of bribes and punishment.

Then a pressure group of known type θ chooses the cost-minimizing incentives $b^*(\theta)$ and $p^*(\theta)$ that solve

$$\max_{b,p} \gamma\left(\pi - \Phi(b)\right) - (1-\gamma)\,\Psi(p) \qquad \text{subject to} \qquad \alpha_i b + \frac{\theta}{g} p \geq \varepsilon$$

The first-order conditions give

$$\frac{\Psi'(p)}{\Phi'(b)} = \frac{\gamma}{(1-\gamma)g}\,\frac{\theta}{\alpha_i}$$

Lemma 1 *Everything else constant, the pressure group receives a strictly higher expected payoff if it is believed to be stronger (θ larger) or if faced with a more corrupt official (α_i larger).*

Proof: An increase in θ or α_i relaxes the pressure group's constraint. The lemma follows directly.

Proposition 1 *Compared to the weak pressure group, the strong pressure group offers a smaller bribe b and inflicts a larger effective punishment $\frac{\theta}{g}p$.*

Proof: Suppose the strong pressure group led to a weakly smaller $\frac{\theta}{g}p$. Then, to satisfy the constraint, b must weakly increase. Furthermore, with larger $\frac{\theta}{g}$ and smaller $\frac{\theta}{g}p$, we must have a strict decrease in p. This contradicts the first-order conditions which require $\frac{\Psi'(p)}{\Phi'(b)}$ to

strictly increase.

Corollary 1 *An official receives a strictly lower expected utility under a strong pressure group than under a weak pressure group.*

The rest is the same as the main model. Corollary 1 implies that the honest candidate's effort in the election is strictly decreasing in his belief about θ, as the expected utility from winning is lower under a strong pressure group. Thus, in the pre-election period, there exist separating equilibria where the strong pressure group will signal their type using pre-election violence $v_s > 0$. In the least-costly equilibrium,

$$v_s \quad = \quad \frac{w}{s}\Big[\ (e_w - e_s)\big(U_{sC} - U_{wH}\big)\ +\ (\mu + e_s)\big(U_{sH} - U_{wH}\big)\ +\ (1 - \mu - e_w)\big(U_{sC} - U_{wC}\big)\ \Big]$$

where $U_{\theta i}$ denotes the pressure group's payoff when faced with elected official i under belief θ.

As before, the expression within the square brackets denotes a pressure group's benefit from signaling strength through pre-election violence. This is composed of 2 effects, both positive. The first term within the square brackets denotes the deterrence effect resulting in a decrease in the honest candidate's win probability. The next two expressions denote the increase in the effectiveness of the pressure group's threats when imitating the strong type, even with the election outcome unchanged.

The results under autocracy are the same as in the main model. Therefore, the predictions in Section 2.5 carry forward without assuming linear costs.

B.2 Public official's effort in corrupt activities

Hitherto, we assumed an exogenous probability of success γ for the elected official to confer the benefit π on the pressure group. In actuality, this success probably depends on endogenous efforts made by the official. Consider the linear model presented in Section 2 and let the official's probability of success be equal to his effort z, which incurs a convex cost $C(z)$. Assume $C', C'', C''' > 0$ and $C(z) \to \infty$ as $z \to 1$, so that there is always a non-zero

probability of failure.

The timeline is modified as follows:

1. Pressure group engages in a violent attack v, which has an effect $\frac{\theta}{g}\,v$.
2. Candidate H observes $\frac{\theta}{g}\,v$, updates his belief about pressure group's type, then chooses effort level e which determines his win probability.
3. Election results are realized. The elected candidate takes office.
4. Pressure group commits to incentives (bribes and punishment) equal to (b, p) which are perfectly observed by the elected official.
5. **The official decides how much effort z to exert in awarding the contract to the pressure group, given (b, p) and his belief about pressure group's type θ.**
6. If the contract is awarded to pressure group, bribe b is paid to official. Otherwise, pressure group inflicts the punishment, causing $\frac{\theta}{g}\,p$ damage to the official.

The pressure group chooses incentives (b, p), which consists of a bribe and a threat of punishment. Given b, p and θ, the official will choose z^* that solves

$$\max_{z,x} \qquad W + z\alpha_i b - (1-z)\,(\frac{\theta}{g}\,p) - C(z)$$

The first-order condition gives

$$C'(z) = \alpha_i b + \frac{\theta}{g}\,p, \tag{7}$$

implying the optimal effort z^* is strictly increasing in both b and p.

Therefore, a pressure group of known type θ chooses the cost-minimizing incentives that solve

$$\max_{b,p,z} \qquad z\,(\pi - b) \;-\; (1-z)\,p \qquad \text{subject to} \quad C'(z) = \alpha_i b + \frac{\theta}{g}\,p$$

It is helpful to break down to maximization problem into two steps. First, fixing z, the pressure group chooses the minimum-cost combination of b and p to induce z. Then, given the cost, the pressure group chooses the optimal level of z.

Fixing z, the pressure group will use either bribe or punishment, which are perfect substitutes. An analogous condition to the main model is easily obtained, where the pressure group will exclusively use bribes if $\frac{\alpha_i}{\theta} > \frac{z}{(1-z)g}$, and will exclusively use violent threats if the inequality is reversed. In other words, for a low target z, bribes are relatively cheap as they are paid only in the unlikely event of success, so the pressure group will exclusively use bribes. On the other hand, a high target z causes bribes to be paid with high probability, so threats will be used instead.

Let $z_{\theta i}$, $b_{\theta i}$ and $p_{\theta i}$ denote respectively the optimal effort, bribe and threat chosen by a pressure group (believed to be) of type θ when faced with elected official i.

Proposition 2

(i) *Everything else constant, the strong pressure group induces weakly higher effort z than the weak pressure group.*

(ii) *If the weak pressure group uses threats $p_{wi} > 0$, then the strong pressure group uses a larger threat $p_{si} > p_{wi} > 0$. If strong pressure group offers a bribe $b_{si} > 0$, then the weak pressure group uses the same bribe $b_{wi} = b_{si} > 0$.*

Compared to a weak pressure group, a strong type has a lower marginal cost of inducing z with violent threats, leading to a higher z. Combined with the condition above, it follows that the strong pressure group is more likely to exclusively use threats, while the weak pressure group is more likely to exclusively use bribes. If both use bribes, the marginal costs are equal and they will choose the same amount to induce the same level of effort.

Proposition 3

(i) *Everything else constant, the pressure group always weakly prefers dealing with the corrupt candidate C than with the honest candidate H.*

(ii) *Everything else constant, a candidate always weakly prefers dealing with the weak pressure group $\theta = w$ than with the strong pressure group $\theta = s$.*

The following assumption, analogous to Assumption 1, is sufficient to ensure that the both pressure group types strictly prefer dealing with a corrupt politician and the honest politician strictly prefers dealing with the weak pressure group type,[14] thus guaranteeing the existence of separating equilibria.

$$\textbf{Assumption 1a:} \quad \frac{\alpha_C}{s} > \frac{z_{sC}}{(1-z_{sC})g} > \frac{z_{sH}}{(1-z_{sH})g} > \frac{\alpha_H}{s}$$

The following incentives are offered:

	Honest official H	Corrupt official C
Strong pressure group $\theta = s$	Violent threat Medium effort	Bribe High effort
Weak pressure group $\theta = w$	Bribe or small threat Low effort	Bribe High effort

Table A8: Incentives offered by pressure group types and elected official's effort in corrupt activities under Assumption 1a.

Then the strong pressure group will signal their type using pre-election violence $v_s > 0$. As previously stated, the least-costly equilibrium involves

$$v_s \quad = \quad \frac{w}{s}\Big[\ (e_w - e_s)\big(U_{sC} - U_{wH}\big)\ +\ (\mu + e_s)\big(U_{sH} - U_{wH}\big)\ +\ (1-\mu-e_w)\big(U_{sC} - U_{wC}\big)\ \Big]$$

where $U_{\theta i}$ denotes the payoff for a pressure group of known type θ when faced with elected official i.

[14] This is always true weakly, as stated by Proposition 3.