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Bribes and Bombs: The Effect of Corruption on Terrorism*

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Abstract

We leverage plausibly exogenous variation in regional exposure to corruption to provide causal estimates of the impact of local political corruption on local terrorist activity for a sample of 174 countries between 1970 and 2018. We find that higher levels of corruption lead to more terrorism. This result is robust to a variety of empirical modifications, including various ways in which we probe the validity of our instrumental-variable approach. We also show that corruption magnifies economic grievances and undermines counter-terrorism capacity. Thus, we argue that our empirical findings are consistent with predictions from a rational-choice model of terrorism, where terrorism becomes more likely as alternative to violence become less attractive and the costs to organize and carry out terrorist attacks decrease.

Keywords: political corruption; terrorism; instrumental variables

JEL classification: C33, C36, D73, D74, F52, F68

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1 Introduction

Political corruption is “the use of public office for private gains” (Bardhan 1997, p.1321). In other words, political corruption involves activities in which public officials, legislators and politicians “use powers delegated to them by the public to further their own economic interests at the expense of the common good” (Jain 2001, p.73). Usually, these activities are illegal or — when permissible — entail strong public disapproval; for instance, they include the taking of bribes and kickbacks, engaging in embezzlement and the looting of public coffers as well as resorting to various forms of nepotism, cronyism and patronage (e.g., by securing government employment or contracts for oneself, friends, family or political supporters).

Corruption is an ancient phenomenon. It was already described in various religious texts, such as the Bible or the Quran, and discussed by political philosophers throughout history (including by Plato, Aristotle, Machiavelli and Montesquieu; e.g., Bardhan 1997; Jain 2001; Miller 2018). Consequently, there is considerable scholarly interest in assessing the social, political, and economic causes and consequences of corruption (e.g., Nye 1967; Bardhan 1997; Jain 2001; Svensson 2005; Rothstein 2011; Fisman and Golden 2016; Rose-Ackerman and Palifka 2016).

We add to the discussion on the consequences of political corruption by studying its effect on *terrorism*. Here, terrorism is defined as “the premeditated use or threat to use violence by individuals or subnational groups against noncombatants in order to obtain a political or social objective through the intimidation of a large audience beyond that of the immediate victims” (Enders et al. 2011, p.321). Indeed, terrorist organizations often justify their activities as a response to rampant corruption. For instance, in their 1996 “Declaration of War against the Americans Occupying the Land of the Two Holy Places”, Usama bin Laden and al-Qa‘ida motivate their violence against the the United States and the Saudi Arabian government as follows:¹

“Injustice had affected the people of the industry and agriculture. It affected

1. This “declaration of war” can be found here: <https://ctc.usma.edu/harmony-program/declaration-of-jihad-against-the-americans-occupying-the-land-of-the-two-holiest-sites-original-language-2/>

the people of the rural and urban areas. [...] The situation at the land of the two Holy places [Saudi Arabia] became like a huge volcano at the verge of eruption that would destroy the Kufr [unbelievers] and the corruption and its sources. The explosion at Riyadh and Al-Khobar [which killed 19 U.S. Air Force personnel and wounded almost 500 individuals] is a warning of this volcanic eruption [...].”

In this paper, we study the relationship between political corruption and terrorism for a sample of 175 countries between 1970 and 2018. We hypothesize that corruption makes terrorism more likely by (1) amplifying economic grievances, primarily by exacerbating economic inequality, (2) facilitating political dissatisfaction and (3) undermining counter-terrorism capabilities. Both the theoretical prediction that corruption ought to fuel terrorism and the transmission channels underlying this effect are derived from a *rational-choice perspective on terrorism*, where economic agents resort to terrorism when it maximizes their utility such as when terrorism’s opportunity costs (e.g., as economic inequality and political dissatisfaction grow) or its direct costs (e.g., as the state’s counter-terrorism capacity deteriorates) decline.

By empirically investigating the corruption–terrorism nexus, we add to the literature in several ways. First, we contribute to the broader literature on the role of corruption in conflict (e.g., Le Billon 2003; Fjelde 2009; Hudson 2011; Neudorfer and Theuerkauf 2014; Farzanegan and Witthuhn 2017). Here, existing research focuses on the impact of corruption on large-scale forms of political instability and violence such as ethnic wars, insurgencies and civil wars, neglecting the corruption–terrorism relationship. Yet, studying the effect of corruption on terrorism is important for two reasons. In contrast to large-scale political violence, terrorism (1) also affects richer economies located in, e.g., Northern America and Western Europe and (2) often has an international dimension, e.g., as terrorist groups cross borders to attack in other countries or as terrorist violence in one part of the world inspires radicalization and extremism in others (e.g., Gaibulloev and Sandler 2019).

Second, as there are no existing empirical studies on the effect of corruption on terrorism, our study also adds to the broader literature on the determinants of terrorism

(e.g., Abadie 2006; Burgoon 2006; Piazza 2006; Lai 2007; Campos and Gassebner 2013; Jetter and Stadelmann 2019; Auer and Meierrieks 2021; for overviews of this literature, see Krieger and Meierrieks 2011; Schneider et al. 2015; Sandler 2018 and Gaibullov and Sandler 2019). In particular, we add to this literature by providing *causal estimates* of corruption on terrorism via an *instrumental variables approach*. This approach is warranted given the potential for endogeneity, especially due to concerns about feedback and reverse causation. That is, while — as we hypothesize — corruption may promote terrorism, terrorists may also have both the incentives and financial means (raised from various criminal activities) to use corruption to pursue their goals, pointing to feedback between terrorism and corruption. For instance, the terrorists’ use of political corruption may involve bribing government officials to gain access to government counter-terrorism information, smuggle materiel and operatives across borders or influence judicial and legislative decisions that could affect the terrorists’ goals (e.g., Hudson 2011; Shelley 2014).

To account for these endogeneity concerns, we instrument corruption in the country of interest by its exposure to corruption in geographically proximate and economically similar countries. In so doing, we build on earlier evidence that corruption in proximate countries has predictive power in explaining local corruption (e.g., Becker et al. 2009; Correa et al. 2016; Borsky and Kalkschmied 2019), thus ensuring instrument relevance. We probe the strength of our instrumental variable in various ways, e.g., by using randomization to construct placebo instrumental variables. In addition to instrument strength, our instrumental-variable estimates also rest on the assumption of instrument exogeneity (e.g., Murray 2006). Here, the most important threat to our identification strategy comes from economic, political, demographic or other factors that are correlated within regions and might simultaneously affect local corruption and terrorism, which may invalidate the exclusion restriction. For instance, there may be a correlation between corruption and economic downturns in countries that are geographically and economically proximate to the country of interest, given the adverse relationship between corruption and economic growth (e.g. Mauro 1995; Mo 2001; Fisman and Golden 2016). At the same time, proximate economic downturns may spill-over to the country of interest, incentivizing terrorist activity by making alternatives to terrorist violence

comparatively less attractive. Acknowledging concerns about instrument exogeneity, we probe the robustness of our instrumental-variable approach in a number of ways, e.g., by accounting for time-variant economic, politico-institutional and demographic factors at the regional level and resorting to the plausibly exogenous framework of Conley et al. (2012) and Kippersluis and Rietveld (2018) that allows us to investigate and relax the exclusion restriction.

Leveraging plausibly exogenous variation in the exposure to corruption in geographically and economically proximate countries to provide causal estimates of the effect of corruption on terrorist activity, we show that political corruption leads to more terrorist activity in the country of interest. This finding is robust to various challenges to our instrumental-variable approach as well as to other empirical modifications. Our main empirical result is consistent with predictions from a rational-economic model of terrorism. By further investigating likely transmission channels, we provide evidence that corruption fuels economic inequality and undermines local military capacity; inequality and a weak military, in turn, correlate with increased terrorist activity. In contrast, we find no evidence that corruption contributes to political dissatisfaction and non-violent political protest. This suggests that political corruption primarily encourages terrorism by lowering terrorism's economic opportunity costs (given that high levels of inequality make participation in the ordinary economic life less attractive) and its direct material costs (e.g., given that low levels of military capacity facilitate the organization of terrorism). Consequently, the results of our study imply that anti-corruption measures could also have pacifying effects.

2 Theoretical Framework

2.1 The Rational-Economic Model of Terrorism

To assess how corruption may affect terrorism, we draw on the *rational-economic model of terrorism*. This approach to modelling terrorist behavior is rooted in a number of seminal contributions to the economic analysis of terrorism, including Landes (1978),

Sandler et al. (1983), and Enders and Sandler (1993); more recent discussions of rational choice models of terrorism can be found in, e.g., Sandler and Enders (2004), Caplan (2006) and Schneider et al. (2015). This model assumes that terrorists are *rational actors* who ponder the costs and “utility” of violence. Terrorist rationality thus implies an *economic calculus* governing the behavior of potential terrorists. Individuals consider non-violence and violence and choose between both options in a way that “maximize[s] expected utility or net payoffs subject to constraints”, as argued by Sandler and Enders (2004, p.311). Utility maximization, in turn, is determined by the costs (i.e., constraints), opportunity costs and benefits associated with non-violence and terrorism. This implies that — *ceteris paribus* — terrorist activity will (1) decrease as the *material costs of terrorism* increase, (2) increase as the *benefits from terrorism* increase and (3) increase as the *opportunity costs of terrorism* decrease, i.e., as alternative to terrorism become less attractive.

Below, we apply the rational-choice representations of terrorism to the role of corruption in terrorism, discussing how political corruption may influence the (opportunity) costs and benefits of terrorism through several transmission channels.

2.2 Corruption and Terrorism

2.2.1 Economic Grievances

As shown by a number of empirical studies, corruption is associated with higher levels of economic inequality (e.g., Gupta et al. 2002; Gyimah-Brempong 2002; Chong and Gradstein 2007; Apergis et al. 2010; Dincer and Gunalp 2012; Wong 2017; Dimant and Tosato 2018). For one, the poor usually cannot afford corruption, while the rich can benefit from it. For instance, corruption allows the rich to wield outsized political influence, enabling them to push for policies (e.g., trade protection) that promote their own interests (e.g., Chong and Gradstein 2007). This is expected to perpetuate and further aggravate the unequal distribution of wealth and income. Furthermore, corruption creates inefficiencies (e.g., by distorting investment decisions) that, in turn, adversely affect economic activity (e.g., Mauro 1995; Mo 2001; Aidt 2009; Croix and Delavallade

2009; Gründler and Potrafke 2019; for further overviews, see also Bardhan 1997, Jain 2001 and Ugur 2014). This means that fewer resources are available to finance public spending (e.g., on health and education) that could otherwise ameliorate economic inequality. Finally, corruption incentivizes politicians and public officials to favor those types of public spending (e.g., large infrastructure projects) that facilitate rent-seeking (e.g., Croix and Delavallade 2009). Again, this means that public spending for which rent-seeking is difficult and cannot be easily concealed (e.g., on public education) is not prioritized, which could further exacerbate economic inequality.

Through its adverse distributional effects, corruption is consequently expected to increase economic grievances and, eventually, promote terrorist activity. For one, corruption makes it less likely that substantial parts of the population receive their “fair share” from participating in the ordinary economic life. Applying the rational-choice model of terrorism, this means that the opportunity costs of terrorism (which are associated with non-violent economic activity) are lower when corruption abounds. For another, high levels of inequality due to corruption may mean that the prize of terrorist success – a redistribution of wealth – can be especially appealing. Here, the existence of lucrative rents due to corruption may further motivate terrorist activity to capture (some of) these rents (e.g., Le Billon 2003). Thus, greed for resources and rents may further motivate terrorism by increasing its benefits (e.g., the pay-off in case of government concessions).

The argument that inequality and economic discrimination fuel terrorism finds some support in the literature (e.g., Burgoon 2006; Piazza 2011; Ezcurra and Palacios 2016; Krieger and Meierrieks 2019). This, in turn, makes it plausible that corruption encourages terrorist activity by fostering this very inequality.

2.2.2 Political Dissatisfaction

Apart from economic determinants, a number of empirical contributions stress that political grievances may also be relevant to terrorism (e.g., Abadie 2006; Piazza 2006; Krieger and Meierrieks 2011; Gaibullov and Sandler 2019). Importantly, corruption

may also affect political conditions in ways that make terrorism more likely.

In detail, corruption is expected to contribute to political dissatisfaction and undermine the functioning of a country's political system. There is considerable empirical evidence that corruption curtails political participation and reduces public trust in and the legitimacy of political institutions (e.g., Anderson and Tverdova 2003; Chang and Chu 2006; Clausen et al. 2011; Stockemer et al. 2013; Dimant and Tosato 2018). For instance, such effects are the consequence of corruption contributing to the failure of sound governance, e.g., by adversely affecting government accountability, transparency and the fair and equal administration of the law (e.g., Anderson and Tverdova 2003).

As a consequence, the unfavorable political ramifications of corruption reduce the attractiveness of participation in the political life to achieve political change. Applying the rational-economic model of terrorism, the political fallout of corruption lowers the political opportunity costs of terrorism, rendering potential alternatives to political engagement to effect political change – including terrorism and political violence – comparatively more attractive. Indeed, this argument speaks to earlier contributions linking political dissatisfaction, protest and low levels of political legitimization to higher levels of terrorist activity (e.g. Sprinzak 1991; Masters and Hoen 2012; Campos and Gassebner 2013).

2.2.3 Counter-Terrorism Capacity

Finally, it is plausible that corruption affects a country's counter-terrorism capacity. As argued above, corruption can reduce economic activity. This, in turn, is expected to reduce the government's tax income. What is more, corruption is expected to facilitate tax evasion, e.g., as tax officials are bribed. This means that fewer public resources are available to finance counter-terrorism measures. Furthermore, there is the possibility that corruption directly reduces counter-terrorism effectiveness. For instance, as discussed in Thachuk (2005), Rotberg (2009) and Shelley (2014), corruption may facilitate the cross-border transfer of materiel (arms, explosives etc.) and terrorist operatives (e.g., by paying off border guards), make it easier for terrorist groups to engage

in counter-intelligence measures (e.g., by bribing officials in the intelligence community), reduce legal punishment for terrorist offences (e.g., by paying off judges) or aid the escape of captured terrorists from prison (e.g., by bribing prison guards).

Referring to the rational-economic model of terrorism, corruption may thus lead to more terrorist activity by lowering the direct costs of terrorism that are related to the financing and organization of terrorism as well as the risk of capture and punishment. This, in turn, speaks to the empirical evidence that weak states (i.e., countries with low levels of counter-terrorism capacity) are more likely to face terrorist activity within their borders (e.g., Lai 2007; Piazza 2008; George 2018).

2.3 Main Hypothesis

Consistent with a rational-economic model of terrorism, we argue that corruption affects terrorism’s costs (by undermining counter-terrorism capacity), benefits (by making redistribution more attractive) and opportunity costs (by disincentivizing economic and political participation as alternatives to violence) in ways that make — *ceteris paribus* — terrorism a more attractive option. These arguments are also visualized in Figure 1. Thus, our main hypothesis is as follows: **Higher levels of corruption lead to more terrorist activity.**

Figure 1: THE CORRUPTION–TERRORISM RELATIONSHIP



Figure 1 also alludes to two further points. First, an argument can be made that corruption may actually mitigate terrorist activity. We discuss this issue in Section 2.4 below. Second, potentially there is feedback between terrorism and political corruption, which may complicate empirical analyses of the effect of corruption on terrorism. We

discuss this issue and its empirical ramifications in Section 3.4.

2.4 Counter-Arguments

While there are number of pathways that may explain why corruption could fuel terrorism, there is also the possibility that corruption could actually discourage conflict. According to this “corruption buys peace” hypothesis (Le Billon 2003), the government uses corruption to buy off the potentially violent opposition, thus securing the peace.

To explain this reasoning, we assume that both the government and potential terrorists follow a rational-economic calculus, comparing the costs and benefits of conflict and non-conflict, where non-conflict would involve sharing the spoils of corruption (government) and accepting these spoils in an effort to satisfy greed and accommodate grievances (potential terrorists). Under such circumstances, it may be cost-efficient for both sides to choose non-violence. Indeed, Le Billon (2003) argues that many developing countries in Africa and Asia used corruption to buy internal peace after having gained independence (see also Fjelde 2009). However, Le Billon (2003) also stresses that such arrangements did not prove to be stable in the long run. Consequently, corruption may also not be able to buy off terrorist opposition. For instance, the economic costs of terrorism tend to be rather small (e.g., Gaibulloev and Sandler 2019), which makes it less likely that the government will share the spoils of corruption to prevent conflict.

Overall, arguments exist why corruption may deter terrorism. For our subsequent empirical analysis concerning the role of corruption in terrorism, this means that — in contrast to our main hypothesis — this analysis could either (1) produce a null-result or (2) even point to a terror-detering effect of corruption on terrorism when corruption and terrorism indeed act as substitutes.

3 Data and Empirical Approach

We test our hypothesis for a sample of 175 countries between 1970 and 2018. A list of countries and the summary statistics are provided in Appendix A (Tables A.1 and A.2, respectively).

3.1 Measuring Terrorism

Our main dependent variable is the *number of terrorist attacks* per country–year observation. We apply the inverse hyperbolic sine transformation to this variable to accommodate for the influence of outliers; importantly, and in contrast to the log transformation, the inverse hyperbolic sine transformation is also defined for country–year observations with no terrorist activity (e.g., Burbidge et al. 1988).²

The terrorism data are drawn from the *Global Terrorism Database (GTD)* described in LaFree and Dugan (2007).³ The GTD collects information on terrorist activity from reputable media outlets. For a terrorist event to be recorded in the GTD, it must be documented by at least one high-quality media source. To be considered a terrorist event, it must also meet the following three criteria: It must (1) be intentional, (2) entail some level of violence or threat of violence and (3) be committed by non-state actors, meaning that violence by state actors is excluded (LaFree and Dugan 2007). Furthermore, it must meet at least two of the following three criteria: (1) the incident must be carried out to achieve a political, economic, religious or social goal, (2) there must be evidence of an intention to coerce, intimidate or convey some other message to a larger audience than the immediate victims and/or (3) the incident must be outside the context of conventional warfare (LaFree and Dugan 2007).

2. Note that as part of our robustness checks, we also consider alternative ways to operationalize terrorist activity.

3. Note that the original GTD data for the year 1993 is incomplete (LaFree and Dugan 2007, p.186). We therefore follow the cross-checked imputation approach of Enders et al. (2011) to recover the missing values for 1993.

3.2 Measuring Corruption

Our measure of corruption is the *political corruption index* from the *Varieties of Democracy Dataset* (VDEM; Coppedge et al. 2019). Higher values of this index correspond to higher levels of political corruption in the country of interest. This political corruption index is the arithmetic mean of four variables measuring corruption in the (1) executive, (2) legislature, (3) judiciary, and (4) public sector. That is, it covers corruption in the various branches of government and at various levels of government (e.g., by differentiating between corruption in the executive and the public sector).⁴ Furthermore, the corruption index accounts for corruption aimed at influencing policy- and law-making as well as the implementation of these policies and laws. Finally, it covers different forms of corruption, mainly by differentiating between “passive” corruption such as taking bribes and “active” corruption, e.g., in the form of embezzlement of public resources by public officials, legislators and politicians (Coppedge et al. 2019).

VDEM relies on country- and subject-based expert opinion. For instance, to evaluate the extent of legislative corruption, experts are asked to assess to what extent members of the legislature abuse their position for financial gain (e.g., by accepting bribes, stealing money from the state for personal use or helping to obtain employment or government contracts for supporters of the legislator). To arrive at representative values of political corruption per country–year observation that can also be compared between countries, VDEM then applies item response theory and subjects the individual expert opinion data to other forms of statistical scrutiny to minimize uncertainty and bias (Coppedge et al. 2019).⁵

3.3 Empirical Model

To examine the effect of corruption on terrorist activity, we consider the following model:

$$terrorism_{i,t} = \beta * corruption_{i,t-1} + \delta \mathbf{X}_{i,t-1} + \alpha_i + \tau_t + \varepsilon_{i,t}, \quad (1)$$

4. Note that below we also examine how terrorism responds to the individual components of the corruption index.

5. See Coppedge et al. (2019) for detailed explanations of VDEM’s methodology.

where the (inverse hyperbolic sine transformed) number of terrorist incidents (*terrorism*) in country i and year t is a function of the country’s political corruption (*corruption*) in the previous year ($t - 1$), a set of country-level controls $\mathbf{X}_{i,t-1}$ as well as country- and year-fixed effects (α and τ , respectively) to account for time-invariant factors (e.g., culture and norms that affect corruption and/or terrorism) and global time trends.

The choice of controls follows the literature on the determinants of terrorism (e.g., Krieger and Meierrieks 2011, Gaibullov and Sandler 2019). In detail, we control for a country’s *population size*, expecting that more populous countries see more terrorism due to scale effects (i.e., due to a greater availability of victims and potential terrorist operatives). Furthermore, we consider the impact of (inflation-adjusted) *per capita income*. We remain agnostic about the expected effect of economic development on terrorism, given that low levels of economic development may both encourage terrorism (due to low opportunity costs of terrorism) but also invite more promising forms of political violence (e.g., large-scale civil wars) that substitute for terrorism (e.g., Enders et al. 2016). Data on population size and per capita income comes from the *World Development Indicators* (WDI; World Bank 2019); both variables are also inverse hyperbolic sine transformed to account for skewness. Additionally, we control for a *democracy* indicator, using data from Krieger and Gründler (2016).⁶ Again, we are agnostic about the democracy-terrorism relationship. As argued by Gaibullov et al. (2017), democracy may both encourage terrorism (by facilitating terrorist operations due to a commitment to freedom of movement and the protection of civil liberties that curtails counter-terrorism activities) or discourage it (by providing opportunities to achieve political change non-violently). Finally, we control for *state failure*, using an index from the *Political Instability Task Force* (PITF 2019) that indicates the extent of large-scale civil warfare and other forms of political instability (e.g., coup d’états). Large-scale political instability may encourage terrorism, e.g., by undermining counter-terrorism capacity (e.g., Piazza 2008, Campos and Gassebner 2013).

6. Krieger and Gründler (2016) use machine learning techniques for pattern recognition to construct a democracy index that is less susceptible to methodological issues that plague alternative democracy measures available in the literature.

3.4 Instrumental Variable Approach

However, the estimates from Equation 1 might be biased. Potential sources of endogeneity are measurement error in the corruption variable, the omission of relevant variables in our empirical model as well as feedback/reverse causation. Concerning the latter, it is possible that corruption does not only influence terrorism — as we have hypothesized — but that terrorism also affects political corruption. Terrorists clearly have incentives to use corruption to pursue their own goals. For instance, terrorists may use corruption to gain access to government counter-terrorism information, infiltrate prisons that house terrorist operatives, influence judicial decisions concerning terrorist offenders and sympathizers or smuggle weaponry and operatives across the border (e.g., Shelley 2014). At the same time, terrorist groups can raise large amounts of money from various illegal activities (e.g., kidnapping, smuggling, drug trafficking and extortion), meaning that they also have access to the financial means to engage in corruption in the first place (e.g., Freeman 2011).

To address these endogeneity concerns, we leverage a two-stage least squares (2SLS) instrumental variable model of the following form:

$$corruption_{i,t} = \beta_1 * regcorruption_{i,t} + \delta_1 * \mathbf{X}_{i,t} + \alpha_{1,i} + \tau_{1,t} + \varepsilon_{1,i,t} \quad (2)$$

$$terror_{i,t} = \beta_2 * \widehat{corruption}_{i,t-1} + \delta_2 * \mathbf{X}_{i,t-1} + \alpha_{2,i} + \tau_{2,t} + \varepsilon_{2,i,t} \quad (3)$$

where the first-stage regression (Equation 2) predicts potentially endogenous country-year *corruption* levels using our instrumental variable, *regcorruption*. The predicted country-specific corruption levels are then used in the second stage to explain terrorism (Equation 3).

3.4.1 Construction of Instrument

The instrument *regcorruption* measures a country's *exposure to regional corruption*. It is defined as the mean-level of political corruption (using the VDEM political corruption index introduced above) in countries that are geographically and economi-

cally proximate to the country of interest $prox_i$: $regcorruption_{i,t} = \frac{1}{n} \sum_{prox=1}^n prox_i = \frac{prox_1 + prox_2 + \dots + prox_n}{n}$.

Geographical proximity involves those countries that are located in the same world region as the country of interest. We use the following six United Nations world regions: the Americas; East Asia and the Pacific; Europe and Central Asia; the Middle East and Northern Africa; South Asia; and Sub-Saharan Africa.⁷ Furthermore, *economic proximity* means that only those countries within a specific world region are considered for our instrumental variable that are also in the same income group as the country of interest. We differentiate between low-, middle- and high-income countries based on WDI.

To give a concrete example, France is a high-income country located in the UN world region Europe and Central Asia. We thus consider the mean-level of political corruption in all countries in Europe and Central Asia that are also high-income economies. For instance, this includes Germany and Spain but excludes the United States (a high-income country outside Europe and Central Asia) or Bulgaria (which is located in Europe and Central Asia but is not a high-income country).

3.4.2 Instrument Relevance

For our instrumental variable to be valid, it should be sufficiently strong. In our case, this means that regional exposure to corruption should predict political corruption. Indeed, there exists considerable empirical evidence that corruption in proximate countries has predictive power in explaining local corruption (e.g., Becker et al. 2009; Correa et al. 2016; López-Valcárcel et al. 2017; Dimant and Tosato 2018; Sui et al. 2018; Borsky and Kalkschmied 2019).

There are two main reasons why corruption levels ought to correlate across space. First, governments compete for internationally mobile factors of production (i.e., physical and human capital). Given that capital and talent are attracted to low levels of corruption

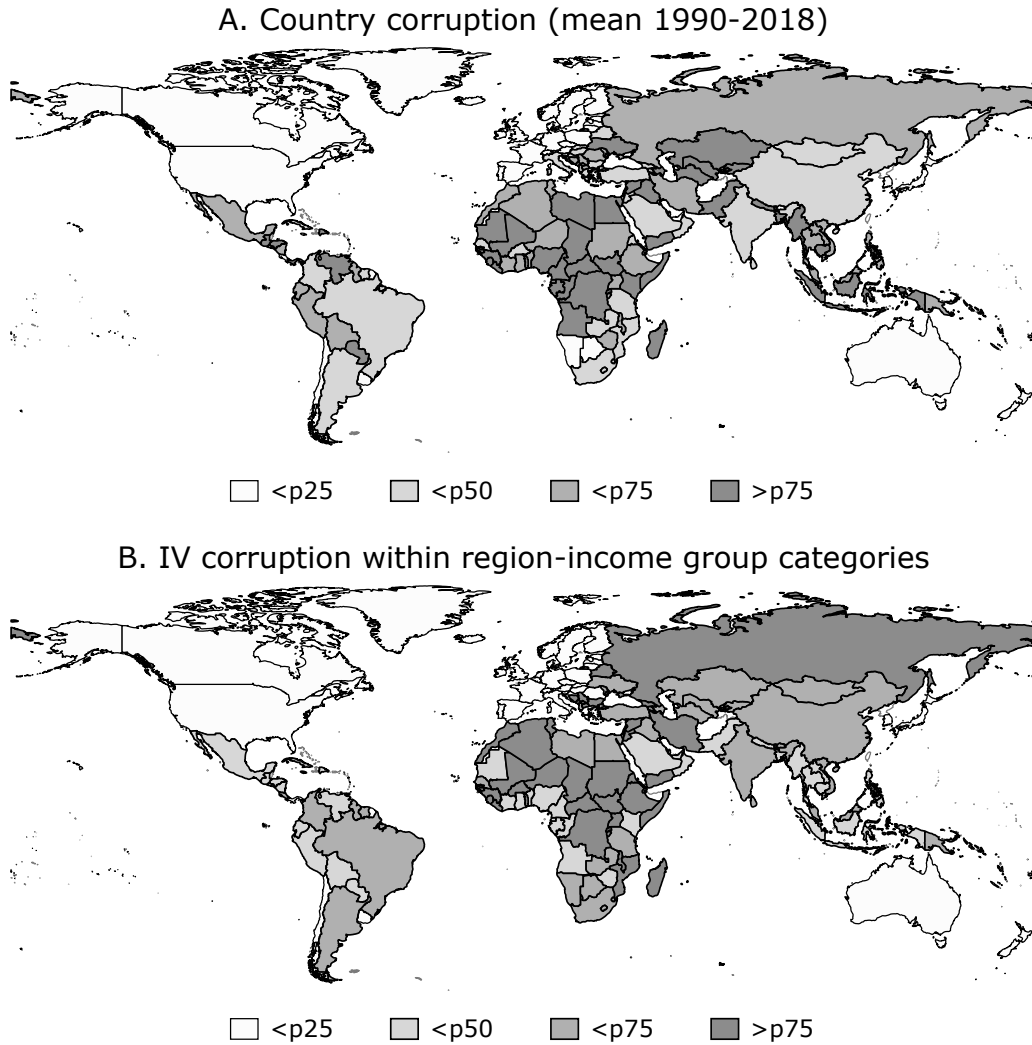
7. Note that we combine North and South America to the Americas due to North America only consisting of two countries.

(e.g., Wei 2000; Busse and Hefeker 2007; Dimant et al. 2013; Poprawe 2015), there are economic incentives for governments to imitate corruption-control policies of other countries, consistent with the empirical evidence that economic reforms — which often include measures to combat corruption — are contagious (e.g., Simmons and Elkins 2004; Pitlik 2007; Gassebner et al. 2011). Second, corruption may cross borders due to economic exchange (e.g., trade, migration and capital flows). For instance, several studies examine how poor origin country institutions (e.g., high levels of corruption) may “travel” with international migrations to their respective destination countries (for a survey, see Baudassé et al. 2018).

Our instrumental variable (the mean-level of political corruption in geographically and economically proximate countries) is in line with this discussion for two reasons. First, the geographical component of the instrument (two countries being located in the same world region) is expected to reduce information and transaction costs. Lower costs, in turn, are expected to facilitate policy imitation and cross-border exchange. Second, the economic component of our instrument (two countries sharing the same level of per capita income) reflects similarities in production and preferences between countries. These similarities are expected to promote international trade, as shown by a number of contributions (e.g., Linder 1961; Thursby and Thursby 1987; Choi 2002; Hallak 2010). Trade and other forms of international exchange encouraged by economic similarities (e.g., international labor migration due to similar demand for skilled labor between countries) may, in turn, foster the cross-border diffusion of corruption.

Figure 2 shows that the levels of corruption across countries are not independent of each other (Panel A). For instance, corruption tends to be much higher in Sub-Saharan Africa as compared to Western Europe. As expected, this interdependence is also reflected in the instrumental variable we construct (Panel B). What is more, comparing both parts of Figure 2 strongly suggests that exposure to regional corruption ought to be predictive of local corruption levels. Indeed, the simple pairwise correlation between both corruption variables is $r = 0.70$ ($p < 0.01$) for the largest possible sample (see Figure B.1 in the Appendix).

Figure 2: CORRUPTION ACROSS COUNTRIES AND EXPOSURE TO CORRUPTION AS INSTRUMENT



Note: *Map A.* shows the 1970–2018 average level of regime corruption per country, categorized into quartiles. *Map B.* shows the respective countries’ regional exposure in quartiles, i.e. the average level of corruption in economically and geographically proximate countries, our main instrument.

In sum, we expect our instrumental variable (the mean-level of corruption in geographically and economically proximate countries) to positively predict local corruption. We assess the strength of our IV by means of the first-stage F-statistic. Here, the usual rule of thumb is for this F-statistic to be larger than 10 to indicate instrument strength. However, this rule has received some criticism for being anti-conservative, meaning that instruments may be weak even if $F > 10$ (Lee et al. 2021). Thus, we also report results for the Anderson-Rubin test that is robust to arbitrarily weak instruments (Anderson and Rubin 1949; Lee et al. 2021). A rejection of the Anderson-Rubin test null hypothesis indicates that the coefficient of the endogenous regressor in the structural equation equals zero, which would support the IV-estimates. We also report the Anderson-Rubin

confidence set (which invert the Anderson-Rubin test) to further illustrate the trustworthiness of our IV-approach in terms of statistical and economic significance (see Stock et al. 2002 for a discussion of these issues).

3.4.3 Instrument Exogeneity

For our instrumental-variable approach to be valid and produce causal estimates of corruption on terrorism, the instrument should only affect terrorism via its effect on local corruption (exclusion restriction).

There are two major threats to our identification strategy. First, it is possible that there are other changes over time that are spuriously correlated with both the instrument and terrorism. We account for this possibility by including year fixed-effects in all specifications. Second, there may be economic, political, demographic or other factors that are correlated within regions and might simultaneously affect local corruption and terrorism. This may invalidate the exclusion restriction. For instance, corruption may deter economic activity. Consequently, economic downturns in countries that are geographically and economically proximate to the country of interest are expected to correlate with regional levels of corruption (our instrumental variable). At the same time, such downturns could spill-over to the country of interest, affecting both local corruption and terrorism, e.g., by influencing the opportunity costs of non-corrupt and non-violent economic activities.

While the exclusion restriction cannot be tested directly (e.g., Murray 2006), we can implement a number of robustness checks to strengthen confidence in the soundness of our instrumental-variable strategy. We report these checks below. For one, we control for a series of observable time-varying shocks which are correlated across countries that are both geographically close and economically similar. For instance, this includes regional levels of economic growth, political instability and institutional quality. Finding that corruption (instrumented by regional exposure to corruption) affects terrorism even after accounting for factors that might correlate with our instrumental variable (and thus potentially account for further transmission channels from our instrumental

variable to local terrorist activity) would provide evidence in favor of instrument exogeneity. Second, we rely on the plausibly exogenous framework of Conley et al. (2012) and Kippersluis and Rietveld (2018). This method allows us to directly examine how plausible violations of the exclusion restriction — determined by the data — matter to causal inference. Again, allowing for violations of the exclusion restriction and still finding that corruption matters to terrorism would raise confidence in our instrumental-variable approach.

4 Empirical Results

4.1 Main Results

We estimate Equation (1) using OLS, reporting standard errors that are clustered at the country-level to account for the presence of heteroskedasticity and serial correlation in the residuals. The main empirical results presented in Table 1 can be summarized as follows. First, for the largest possible sample — where we only control for country- and year-fixed effects — we find that political corruption is associated with more terrorism in both, the OLS- and IV-setting, where the effect of corruption on terrorism is more pronounced in the latter. Here, the impact of regional exposure on corruption in the first stage has the expected effect on local corruption and is sufficiently strong, as indicated by the first-stage F-statistic. The additional IV-diagnostics are also sound.

Second, introducing the baseline controls to the model does not affect our main empirical conclusion that political corruption encourages terrorism. Concerning these controls, the results are as expected. For one, terrorism is more likely in more populous countries plagued by state failure. This points to the roles of scale effects and large-scale political instability in terrorism, as previously found by, e.g., Piazza (2008), Krieger and Meierrieks (2011), Campos and Gassebner (2013) and Gaibulloev and Sandler (2019). Higher levels of economic development also positively predict terrorism. This may indicate that violent political actors resort to terrorism especially in rich countries, while they use other forms of political violence (e.g., civil wars) that involve territorial control in poorer

ones (e.g., Enders et al. 2016). Finally, democracy also positively correlates with terrorism. This may be due to the fact that civil liberties and political freedoms associated with democratic rule (freedom of movement, freedom from unwarranted searches, judicial review of government surveillance etc.) facilitate terrorism in comparison to more autocratic regimes.

Table 1: Effect of corruption on terror attacks

	Largest sample		OLS (3)	OLS (4)	Main sample		
	OLS (1)	2SLS (2)			2SLS (5)	2SLS (6)	2SLS (7)
Political corruption	1.061* (0.445)	8.076** (2.466)	1.227* (0.511)	0.907† (0.474)	8.935** (2.455)	6.878** (2.318)	6.878** (0.746)
Population				1.943** (0.393)		1.471** (0.434)	1.471** (0.165)
GDP per capita				0.408† (0.220)		0.744** (0.283)	0.744** (0.100)
Democracy				0.376† (0.196)		0.832* (0.345)	0.832** (0.141)
State failure				0.325** (0.050)		0.323** (0.052)	0.323** (0.031)
First stage							
Regional exposure		0.553** (0.161)			0.549** (0.143)	0.520** (0.148)	0.520** (0.038)
Population						0.053 (0.043)	0.053** (0.009)
GDP per capita						-0.050* (0.022)	-0.050** (0.006)
Democracy						-0.085** (0.027)	-0.085** (0.016)
State failure						-0.001 (0.003)	-0.001 (0.001)
Effective F-statistic		11.811			14.702	12.413	184.996
AR p-value		0.000			0.000	0.001	0.000
AR Ci		[4.90,19.3]			[5.45,18.2]	[3.81,18.2]	[5.45,8.72]
Observations	7383	7383	6726	6726	6726	6726	6726
Country FE	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓

Notes: Table presents main specification results (OLS and 2SLS) of the effect of (exposure to regional) corruption on terrorist attacks in the subsequent year. Robust SE clustered at country level in parentheses (Driscoll–Kraay SE in Model 7). † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

There may be concerns about the presence of cross-sectional dependence in the regression residuals. If not accounted for in panel data, it may lead to correlation in the residuals that affects the validity of statistical inference (e.g., Sarafidis and Wansbeek 2012). Indeed, our identification strategy explicitly necessitates substantial cross-border diffusion of corruption, suggesting that cross-sectional dependence may be influential. Therefore, we also run a variant of our baseline model using standard errors proposed by Driscoll and Kraay (1998) which are robust to heteroskedasticity and autocorrela-

tion, but also to general forms of cross-sectional dependence. As shown in Table 1, specification (7), accounting for residual cross-sectional dependence in this manner produces even smaller standard error estimates. This suggests that our choice of standard errors (i.e., cluster-robust standard errors) produces rather conservative standard error estimates, so that type I errors are less likely to occur.

4.2 Robustness of Instrumental-Variable Approach

Below, we consider various ways to probe the robustness of our IV-results, especially focusing on (1) instrument construction and (2) potential violations of the exclusion restriction.

4.2.1 Alternative Instrument Construction

We consider alternative ways to construct our instrumental variable to address concerns that our results are only due to construction idiosyncrasies. First, instead of relying on six world regions, we consider eighteen UN world regions to construct the instrumental variable.⁸ Second, instead of considering three income levels (low-, middle-, and high-income economies), we rely on WDI information to differentiate between low-, lower-middle-, upper-middle- and high-income status. Third, there may be concerns that our income classifications are endogenous to terrorism or corruption. While we believe these concerns to be small, given that our income classifications are very broad and that the economic effects of terrorism tend to be small (e.g., Sandler 2018; Gaibullov and Sandler 2019), we still address this concern by fixing the country-specific income status at 1995-levels.⁹ Finally, we only consider geographical proximity (based on the six baseline UN world regions) but not economic proximity when constructing our instrumental variable to assess whether geographical proximity alone provides enough

8. These world regions are the Caribbean; Central Asia; Eastern Africa; Eastern Asia; Eastern Europe; Melanesia; Middle Africa; Northern Africa; Northern America; Northern Europe; South America; South-Eastern Asia; Southern Africa; Southern Asia; Southern Europe; Western Africa; Western Asia; and Western Europe.

9. The WDI only reports consistent income classifications from 1990 onward. For this robustness check, we choose the 1995-WDI income classifications because this allows us to also consider countries that have only recently become independent, thus maximizing the number of observations.

information to confidently identify the causal effect of political corruption on terrorism.

Table 2 shows that alternative constructions of the instrumental variable which account for both geographical and economic proximity yield comparable findings that are comparable to our baseline estimates reported in Table 1. The associated IV-diagnostics are always sound. However, disregarding economic proximity to construct our regional corruption measure yields coefficients that are far less precise and convincing, even though the sign of the estimated effect is as expected. This suggests that we need to consider both geographical and economic proximity for a sound instrument.

4.2.2 Placebo Instruments

Next, we consider whether the use of placebo instrumental variables affects our estimates (e.g., Christian and Barrett 2017). First, we randomly assign the values of our baseline instrument to other countries. For instance, this could mean that the values of the instrument associated with the United States for the 1970–2018 period are assigned to Egypt. Second, we perform the same randomization separately for each year. For instance, the values of the baseline instrument associated with the United States for 1970 could be assigned to Nigeria, the values for 1971 to France, and so on.

For both placebo IVs, the idea is to undo the geographical and economic ties between regional and local corruption that we argue are essential to the relevance and validity of our baseline instrumental-variable approach. Hence, they should — by construction — share no association with local corruption and thus neither be relevant nor helpful in identifying the impact of local corruption on terrorism. By contrast, finding that the association between regional and local corruption survives the randomization may indicate that this association is spurious, e.g., driven by (non-linear) background trends (e.g., Christian and Barrett 2017). As shown in Table 2, the placebo instruments are unable to identify the effect of corruption on terrorism and the associated IV-diagnostics point to weak instruments. This raises confidence that our initial identification strategy is sound and that previously reported estimates of local corruption on terrorism are not spurious.

Table 2: Alternative IV specifications and approaches

	Alternative IV construction				Placebo IVs	
	(1)	(2)	(3)	(4)	(5)	(6)
Political corruption	13.747** (4.620)	7.561** (2.333)	9.820** (3.307)	13.242 (10.809)	-7.297 (26.388)	2.418 (21.754)
Population	0.713 (0.656)	1.420** (0.436)	1.158* (0.474)	0.938 (1.070)	2.591 (2.110)	1.829 (1.737)
GDP per capita	1.131** (0.430)	0.783** (0.282)	0.977** (0.347)	1.099† (0.657)	-0.027 (1.490)	0.494 (1.249)
Democracy	1.560* (0.640)	0.882* (0.372)	1.175** (0.437)	1.317 (1.063)	-0.259 (2.029)	0.484 (1.679)
State failure	0.346** (0.059)	0.323** (0.053)	0.333** (0.056)	0.320** (0.058)	0.325** (0.053)	0.328** (0.050)
First stage						
Regional exposure	0.235** (0.072)	0.447** (0.115)	0.445** (0.109)	0.141 (0.112)	-0.002 (0.005)	-0.002 (0.004)
Effective F-statistic	10.556	15.187	16.708	1.584	0.268	0.257
AR p-value	0.000	0.000	0.000	0.097	0.752	0.358
AR CI	[7.37,34.8]	[4.36,17.4]	[4.63,20.1]	[full grid]	[full grid]	[full grid]
Observations	6609	6703	6703	6837	6837	6628
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Country X	✓	✓	✓	✓	✓	✓

Notes: *Model 1* uses 18 more detailed instead of 6 UN geographical regions. *Model 2* uses WDI income levels and *Model 3* fixes the income level at 1995 WDI values. *Model 4* constructs the instrument only with geographical proximity (6 UN regions). Two placebo tests are shown in *Model 5* (random assignment of an IV value to another country) and *Model 6* (random assignment of an IV value to another country within a given year). OLS, robust SE clustered at country level in parentheses. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

4.2.3 Plausibly Exogenous Framework

In addition to studying instrument relevance, we also probe the assumption of instrument exogeneity. Here, we rely on the *plausibly exogenous method* of Conley et al. (2012) and further developed by Kippersluis and Rietveld (2018). This method relaxes the assumption of perfect instrument exogeneity, instead allowing for violations of the exclusion restriction. These violations, in turn, are derived from the data. We discuss the methodology and its application to our case in much more detail in Appendix B.1. Employing the plausible exogenous method, we find that even after allowing for plausible amounts of instrument endogeneity, there is still robust support for our main empirical conclusion that political corruption leads to more terrorist activity.

4.2.4 Regional Shocks

Finally, our exclusion restriction may also be violated by the influence of shocks that are correlated within regions and might simultaneously affect local corruption and terrorism. For example, political corruption in geographically and economically proximate countries may encourage terrorism in these countries, which, in turn, could spill-over to the country of interest and promote terrorism in this country as well.¹⁰ To address such concerns, we control for a series of time-varying variables that ought to capture the role of regionally correlated economic, political, institutional and demographic shocks. Their construction is discussed in Appendix B.2. As also shown in Appendix B.2, controlling for these regional shocks does not affect our main empirical conclusion, which raises further confidence in our assumption that the exclusion restriction is valid.

4.3 Further Robustness Checks

Having provided evidence that our IV-approach is sound, we also consider further ways to probe the robustness of our empirical findings in Appendix C. In detail, we show that our findings are also robust to (1) changes to our baseline model, e.g., in terms of the operationalization of the baseline controls (Appendix C.1), (2) the inclusion of additional control variables (Appendix C.2), (3) alternative measurements of the dependent variable, e.g., by measuring terrorism in per capita terms (Appendix C.3) or (4) by looking at different types of terrorism, e.g., by comparing domestic and international terrorism (Appendix C.4) and (5) the dropping of potentially influential cases such as countries which exceptionally high levels of terrorist activity or political corruption (Appendix C.5).

Finally, in Appendix D, we investigate the role of specific sub-types of corruption in terrorism. We find that corruption in the executive, legislative and judicial branches encourages more terrorist activity, which tends to point to a generalized relationship between political corruption and terrorism. However, the effect of public sector cor-

10. Empirical evidence concerning this contagion effect of terrorism is provided by, e.g., Cliff and First (2013) and discussed in Krieger and Meierrieks (2011).

ruption on terrorism — while having the expected sign — is not estimated precisely enough to fully support this notion. For this case, our IV-diagnostics suggest that our instrumental variable is too weak to allow for proper identification.

4.4 Exploration of Mechanisms

We conclude our empirical efforts by exploring the potential mechanisms through which political corruption may translate into increased terrorist activity. Above, we discussed three transmission channels: (1) increased economic grievances, mainly associated with higher levels of economic inequality, (2) stronger political dissatisfaction and (3) reduced counter-terrorism capacity. We provide empirical evidence concerning the role of these transmission channels by considering the following 2SLS system:

$$corruption_{i,t} = \beta_1 * regcorruption_{i,t} + \delta_1 * \mathbf{X}_{i,t} + \alpha_{1,i} + \tau_{1,t} + \varepsilon_{1,i,t} \quad (4)$$

$$mv_{j,i,t} = \beta_2 * \widehat{corruption}_{i,t-1} + \delta_2 * \mathbf{X}_{i,t-1} + \alpha_{2,i} + \tau_{2,t} + \varepsilon_{2,i,t} \quad (5)$$

Employing our usual IV-approach and including the baseline set of controls and fixed effects, we investigate the effect of political corruption on one of six mediator variables (mv). In addition to estimating the causal effect of corruption on these mediators, we also study the correlation between these variables and terrorism. This is to provide further evidence that a link from corruption to the various mediator variables may indeed ultimately also affect terrorist activity.¹¹

In detail, we consider two variables that each account for one of the three possible transmission channels from corruption to terrorism.¹² First, the variables *health inequality* and *education equality* are from VDEM. They measure access to high-quality basic health-care and education, respectively. These variables thus measure socioeconomic inequality, especially related to the provision of public goods. Here, we expect (1) corruption to reduce health and education equality and (2) lower levels of equality

11. However, as we only report OLS-estimates, the link from the various mediator variables to local terrorism should not be interpreted causally.

12. The summary statistics of all six transmission variables are reported in Table A.1.

to correlate with higher levels of terrorist activity.

Second, the indicators *accountability* and *political protest* are drawn from VDEM and the *Cross-National Time-Series Data Archive* (Banks and Wilson 2013), respectively. The former variable refers to the extent that citizens, civil society organization and an independent media can hold the government accountable (Coppedge et al. 2019), while the latter measures the number of non-violent or unorganized political protests (i.e., general strikes, riots and anti-government demonstrations) per country–year observations. We expect (1) corruption to contribute to political dissatisfaction, i.e., to adversely affect government accountability and lead to more political protest and (2) low levels of accountability and high levels of political protest to breed terrorism.

Finally, we employ the indicators *military capacity* and *territorial control* using data from the *National Material Capabilities Dataset* updated from Singer (1988) and VDEM, respectively. The former variable is a composite measure of military capacity that accounts — via principal component analysis — for a country’s level of total military spending, number of military personnel and per capita military spending.¹³ The latter variable indicates the percentage of territory a state has effective control over, where such control may be disputed by, e.g., criminals, warlords or insurgents. Both variables are thus related to a country’s counter-terrorism capacity, meaning that we anticipate (1) corruption to lower this capacity and (2) lower levels of capacity to correlate with increased terrorist activity.

The empirical results reported in Table 3 can be summarized as follows.¹⁴ First, we find that political corruption reduces both health and education equality (Panel A). This is consistent with the idea that corruption undermines (e.g., by reducing tax income or distorting public investment) the provision of public goods that could ameliorate socioeconomic inequality. We also find that higher levels of socioeconomic inequality correlate with more terrorism (Panel B), which is in line with earlier contribution that also stress the role of inequality in fueling terrorist violence (e.g., Ezcurra and Palacios 2016; Krieger and Meierrieks 2019). It is consistent with predictions from

13. This approach to measure military capacity follows Auer and Meierrieks (2021).

14. Note that for some mediators, the number of observations is smaller due to transmission variables not being available for the whole observation period and/or all countries.

a rational-economic model of terrorism, where terrorism becomes more likely as non-violent economic participation is constrained and redistribution through the use of violence becomes more attractive. Second, we find no evidence that corruption contributes to political grievances indicated by political accountability and protest. We also do not find that a lack of accountability correlates with more terrorism. In line with Campos and Gassebner (2013), there is, however, evidence that more political protest is associated with more terrorist activity. In sum, though, our analysis provides no convincing evidence that corruption encourages terrorism by fostering political dissatisfaction. Third, we show that political corruption reduces both military capacity and the state's control over its territory. What is more, for both variables we find that they negatively correlate with terrorist activity, which speaks to earlier empirical analyses of the unfavorable relationship between state weakness and terrorism (e.g., Lai 2007). In summary, we thus also provide evidence that corruption encourages terrorism by lowering the direct costs of terrorism.

Table 3: Potential Mechanisms

Panel A.: Potential mechanisms (2SLS)						
	Economic grievances		Political grievances		Counter-terrorism capacity	
	Health equ. (1)	Educ. equ. (2)	Accountability (3)	Protest (4)	Military (5)	State control (6)
Political corruption	-2.748*	-2.177*	0.261	0.278	-3.026 [†]	-12.679 [†]
	(1.138)	(0.934)	(0.750)	(0.564)	(1.559)	(7.179)
Population	0.304	0.472*	0.048	0.587**	-0.353	1.364
	(0.220)	(0.206)	(0.101)	(0.162)	(0.218)	(1.709)
GDP per capita	0.056	-0.003	-0.074	0.011	-0.218	-0.329
	(0.131)	(0.086)	(0.074)	(0.106)	(0.155)	(0.882)
Democracy	0.066	0.031	1.552**	-0.050	-0.448*	-1.094
	(0.140)	(0.120)	(0.101)	(0.096)	(0.202)	(1.179)
State failure	-0.021 [†]	-0.014	-0.014	0.007	0.008	-1.767**
	(0.012)	(0.012)	(0.012)	(0.016)	(0.009)	(0.276)
First stage						
Regional exposure	0.520**	0.520**	0.520**	0.492**	0.511**	0.520**
	(0.148)	(0.148)	(0.148)	(0.166)	(0.169)	(0.148)
Effective F-statistic	12.413	12.413	12.413	8.816	9.114	12.417
AR p-value	0.021	0.020	0.744	0.636	0.034	0.103
AR CI	[-6.96,-0.90]	[-4.54,-0.30]	[-1.51,1.51]	[-0.90,1.51]	[-9.39,-0.90]	[-40.9,-0.90]
Observations	6726	6726	6726	5056	5372	6719
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓

Panel B.: Effect of Potential Transmission Variables on Terrorism (OLS)

	Health equ. (7)	Educ. equ. (8)	Accountability (9)	Protest (10)	Military (11)	State control (12)
Transmission variable	-0.302**	-0.229*	0.071	0.223**	-0.197**	-0.064**
	(0.110)	(0.108)	(0.167)	(0.038)	(0.051)	(0.015)
Population	2.037**	2.076**	2.012**	1.673**	1.943**	2.053**
	(0.374)	(0.385)	(0.408)	(0.388)	(0.395)	(0.396)
GDP per capita	0.421 [†]	0.383 [†]	0.363	0.355 [†]	0.475*	0.398 [†]
	(0.230)	(0.222)	(0.228)	(0.202)	(0.240)	(0.220)
Democracy	0.389 [†]	0.351 [†]	0.192	0.249	0.287	0.302
	(0.203)	(0.203)	(0.282)	(0.179)	(0.196)	(0.194)
State failure	0.319**	0.322**	0.327**	0.255**	0.284**	0.204**
	(0.049)	(0.050)	(0.050)	(0.050)	(0.051)	(0.055)
Observations	6726	6726	6726	5219	5515	6716
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓

Notes: Table explores potential mechanisms by replacing the main outcome (terrorist attacks) with key determinants of economic grievances (*Models 1 and 2*), political grievances (*Models 3 and 4*), and counter-terrorism capacity (*Models 5 and 6*). OLS, robust SE clustered at country level in parentheses. [†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

5 Conclusion

Does corruption affect terrorism? To answer this question, we study a sample of 175 countries between 1970 and 2018. To provide causal estimates of the effect of political corruption on terrorism, we leverage plausibly exogenous variation in exposure to cor-

ruption in countries that are geographically and economically proximate to the country of interest. As our main empirical finding, we show that higher levels of corruption lead to more terrorist activity. We assess the robustness of this finding in various ways, especially by probing our instrument's strength and the validity of the exclusion restriction. Our main finding survives these robustness checks as well as other empirical modifications.

Exploring potential transmission channels from corruption to terrorism, we also find that corruption fuels economic inequality (related to health and education) and undermines military capacity. Inequality and low counter-terrorism capacity, in turn, are associated with more terrorism. Consistent with predictions from a rational-choice model of terrorism, our results thus suggest that political corruption primarily encourages terrorism by lowering terrorism's economic opportunity costs (as inequality makes participation in the ordinary economic life less attractive) and by lowering its direct costs, e.g., as low levels of counter-terrorism capacity make it less likely that terrorist plots are foiled or that terrorist offenders are apprehended.

Counter-corruption measures (e.g., the creation of anti-corruption agencies and the introduction of transparency laws concerning lobbying) are often implemented by governments to attract foreign investors and stimulate economic growth. The results of our empirical analysis imply that such counter-corruption actions may also reduce terrorist activity. Furthermore, there is evidence that foreign aid reduces corruption (e.g., Tavares 2003; Okada and Samreth 2012). In light of our findings, providing foreign aid may thus ultimately also deter terrorism in aid-receiving countries through its favorable effect on local corruption. This may be especially interesting to donor countries due to the international dimension of terrorism, where terrorism in one part of the world can easily motivate radicalization and extremism in others.

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Supplementary information for Bribes and Bombs: The Effect of Corruption on Terrorism

A Additional Data Information

Table A.1: Summary statistics

	mean	sd	min	max
Terrorist attacks (GTD)	1.400	1.844	0.000	8.971
Domestic terrorist attacks (GTD)	13.424	86.887	0.000	3098.000
Transnational terrorist attacks (GTD)	2.155	8.459	0.000	223.000
Attacks against government (GTD)	9.872	51.656	0.000	1775.000
Attacks not against government (GTD)	14.598	79.546	0.000	2633.000
Political corruption (VDEM)	0.485	0.299	0.002	0.967
Executive corruption index (VDEM)	0.475	0.309	0.004	0.981
Legislature corrupt activities (VDEM)	0.012	1.382	-3.781	3.347
Judicial corruption decision (VDEM)	-0.220	1.498	-3.643	2.954
Public sector corrupt exchanges (VDEM)	0.017	1.491	-4.104	3.099
Population (WDI)	2.869	1.561	0.060	7.928
GDP per capita (WDI)	2.160	1.354	0.161	5.449
Democracy (KG)	0.573	0.402	0.000	1.000
State failure (PITF)	0.497	1.470	0.000	20.000
Infant mortality rate (WDI)	67.206	69.039	1.800	372.400
Electoral democracy index (VDEM)	48.401	28.563	1.400	94.800
Civil warfare (MPEV)	0.175	0.828	0.000	6.000
International war (MPEV)	0.053	0.508	0.000	7.000
GDP growth (WDI)	3.855	6.366	-64.047	149.973
Women political empowerment (VDEM)	0.652	0.212	0.105	0.967
Males 15-24 share (WDI)	31.419	7.508	10.235	51.171
Population growth (WDI)	1.733	1.494	-9.081	17.511
Muslim Population Share (WRD)	23.909	35.174	0.000	98.533
Oil rents (WDI)	3.924	9.910	0.000	88.866
Net ODA received (WDI)	4.610	8.159	-0.675	94.946
Left-wing government (VDEM)	0.244	0.304	0.000	1.000
General government expenditure (WDI)	16.002	6.764	0.000	135.809
Health equality (VDEM)	0.494	1.485	-3.271	3.689
Educational equality (VDEM)	0.447	1.462	-3.102	3.634
Political accountability (VDEM)	0.499	0.980	-1.979	2.090
Protest (CNTS)	0.474	0.861	0.000	4.585
Military expenditures (NMC)	5.391	31.170	0.000	693.600
Military personnel (NMC)	142.666	372.364	0.000	4750.000
Territorial authority (VDEM)	91.955	9.395	39.857	100.000
Observations	6726			

Notes: Detailed information on variable definitions can be found at the following sources: **CNTS:** cntsdata.com; **GTD:** start.umd.edu/gtd; **KG:** sites.google.com/view/klaus-gruendler/democracy-dataset; **MPEV:** systemicpeace.org/inscrdata.html; **NMC:** correlatesofwar.org/data-sets/national-material-capabilities; **PITF:** scip.gmu.edu/political-instability-task-force; **VDEM:** v-dem.net; **WDI:** databank.worldbank.org/source/world-development-indicators; **WRD:** worldreligiondatabase.org.

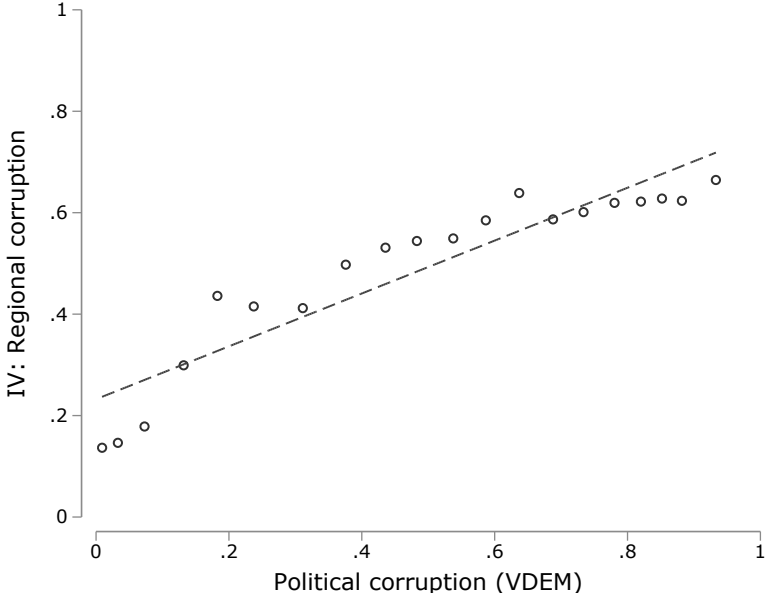
Table A.2: Country list

Americas		Czech Republic	CZE	H	South Asia		
Argentina	ARG	M Denmark	DNK	H	Afghanistan	AFG	L
Barbados	BRB	H Estonia	EST	H	Bangladesh	BGD	M
Bolivia	BOL	M Finland	FIN	H	Bhutan	BTN	M
Brazil	BRA	M France	FRA	H	India	IND	M
Canada	CAN	H Georgia	GEO	M	Maldives	MDV	M
Chile	CHL	H Germany	DEU	H	Nepal	NPL	M
Colombia	COL	M Greece	GRC	H	Pakistan	PAK	M
Costa Rica	CRI	M Hungary	HUN	H	Sri Lanka	LKA	M
Cuba	CUB	M Iceland	ISL	H	Sub-Saharan Africa		
Dominican Republic	DOM	M Ireland	IRL	H	Angola	AGO	M
Ecuador	ECU	M Italy	ITA	H	Benin	BEN	M
El Salvador	SLV	M Kazakhstan	KAZ	M	Botswana	BWA	M
Guatemala	GTM	M Kosovo	XKX	M	Burkina Faso	BFA	L
Guyana	GUY	M Kyrgyz Republic	KGZ	M	Burundi	BDI	L
Haiti	HTI	L Latvia	LVA	H	Cabo Verde	CPV	M
Honduras	HND	M Lithuania	LTU	H	Cameroon	CMR	M
Jamaica	JAM	M Luxembourg	LUX	H	Central African Republic	CAF	L
Mexico	MEX	M Moldova	MDA	M	Chad	TCD	L
Nicaragua	NIC	M Montenegro	MNE	M	Comoros	COM	M
Panama	PAN	H Netherlands	NLD	H	Congo, Dem. Rep.	COD	L
Paraguay	PRY	M North Macedonia	MKD	M	Congo, Rep.	COG	M
Peru	PER	M Norway	NOR	H	Cote d'Ivoire	CIV	M
Suriname	SUR	M Poland	POL	H	Equatorial Guinea	GNQ	M
Trinidad and Tobago	TTO	H Portugal	PRT	H	Eritrea	ERI	L
United States	USA	H Romania	ROU	H	Eswatini	SWZ	M
Uruguay	URY	H Russian Federation	RUS	M	Ethiopia	ETH	L
Venezuela, RB	VEN	M Serbia	SRB	M	Gabon	GAB	M
East Asia and the Pacific		Slovakia	SVK	H	Gambia, The	GMB	L
Australia	AUS	H Slovenia	SVN	H	Ghana	GHA	M
Cambodia	KHM	M Spain	ESP	H	Guinea	GIN	L
China	CHN	M Sweden	SWE	H	Guinea-Bissau	GNB	L
Fiji	FJI	M Switzerland	CHE	H	Kenya	KEN	M
Hong Kong SAR	HKG	H Tajikistan	TJK	L	Lesotho	LSO	M
Indonesia	IDN	M Turkey	TUR	M	Liberia	LBR	L
Japan	JPN	H Turkmenistan	TKM	M	Madagascar	MDG	L
North Korea	PRK	L Ukraine	UKR	M	Malawi	MWI	L
Korea, Rep.	KOR	H United Kingdom	GBR	H	Mali	MLI	L
Lao PDR	LAO	M Uzbekistan	UZB	M	Mauritania	MRT	M
Malaysia	MYS	M Middle East and North Africa			Mauritius	MUS	H
Mongolia	MNG	M Algeria	DZA	M	Mozambique	MOZ	L
Myanmar	MMR	M Bahrain	BHR	H	Namibia	NAM	M
New Zealand	NZL	H Djibouti	DJI	M	Niger	NER	L
Papua New Guinea	PNG	M Egypt, Arab Rep.	EGY	M	Nigeria	NGA	M
Philippines	PHL	M Iran, Islamic Rep.	IRN	M	Rwanda	RWA	L
Singapore	SGP	H Iraq	IRQ	M	Sao Tome and Principe	STP	M
Solomon Islands	SLB	M Israel	ISR	H	Senegal	SEN	M
Thailand	THA	M Jordan	JOR	M	Seychelles	SYC	H
Timor-Leste	TLS	M Kuwait	KWT	H	Sierra Leone	SLE	L
Vanuatu	VUT	M Lebanon	LBN	M	Somalia	SOM	L
Vietnam	VNM	M Libya	LYB	M	South Africa	ZAF	M
Europe and Central Asia		Malta	MLT	H	South Sudan	SSD	L
Albania	ALB	M Morocco	MAR	M	Sudan	SDN	L
Armenia	ARM	M Oman	OMN	H	Tanzania	TZA	M
Austria	AUT	H Qatar	QAT	H	Togo	TGO	L
Azerbaijan	AZE	M Saudi Arabia	SAU	H	Uganda	UGA	L
Belarus	BLR	M Syria	SYR	L	Zambia	ZMB	M
Belgium	BEL	H Tunisia	TUN	M	Zimbabwe	ZWE	M
Bosnia and Herzegovina	BIH	M United Arab Emirates	ARE	H			
Bulgaria	BGR	M West Bank and Gaza	PSE	M			
Croatia	HRV	H Yemen, Rep.	YEM	L			
Cyprus	CYP	H					

Notes: Country list covered in the main estimation sample. Income groups Low, Middle, High indicated.

B Robustness of Instrumental-Variable Approach

Figure B.1: CORRELATION BETWEEN POLITICAL CORRUPTION AND EXPOSURE TO REGIONAL CORRUPTION



Note: Figure plots the level of corruption (pooled to bins) against the level of exposure to corruption through geographically and economically proximate countries, the main instrument (1970–2018 average).

B.1 Plausibly Exogenous Framework

The main idea of the plausibly exogenous method of Conley et al. (2012) and further developed by Kippersluis and Rietveld (2018) is to relax the assumption of perfect instrument exogeneity. It involves the following 2SLS model:

$$corruption_{i,t} = \beta_1 * regcorruption_{i,t} + \delta_1 * \mathbf{X}_{i,t} + \alpha_{1,i} + \tau_{1,t} + \varepsilon_{1,i,t} \quad (6)$$

$$terror_{i,t} = \beta_2 * \widehat{corruption}_{i,t-1} + \gamma * regcorruption_{i,t-1} + \delta_2 * \mathbf{X}_{i,t-1} + \alpha_{2,i} + \tau_{2,t} + \varepsilon_{2,i,t} \quad (7)$$

Here, we now our instrument to enter the second-stage regression with a coefficient γ . That is, regional exposure to corruption can now directly affect terrorism in the country of interest i , meaning that the exclusion restriction is violated. By contrast, in case of perfect instrument exogeneity, γ would be equal to zero and the exclusion restriction would hold. By considering various values of γ , we can investigate how violations of the exclusion restriction matter to our IV-estimates (Conley et al. 2012). To determine reasonable values for γ , we would, ideally, would consider the so-called “zero-first-stage”, i.e., a sub-sample of countries for which there is no effect of regional on local corruption because local corruption does not change over time (Kippersluis and Rietveld 2018). Consequently, for this zero-first-stage case, in the reduced-form regression the estimated effect of regional corruption on terrorism would be equal to γ . To understand this, consider that the reduced-form relationship between regional exposure to corruption and terrorism captures both γ and β_2 , i.e., the effect of regional corruption on terrorism via local corruption. However, as there is no effect of regional corruption on terrorism via local corruption in the zero-first-stage case, the associated reduced-form estimate only captures γ . Unfortunately, for our sample there are no country-cases which saw no changes in corruption over the 1970-2018 period. Following Kippersluis and Rietveld (2018), we thus construct a “quasi zero-first-stage group” of countries. These are countries for which the *mean-change in local corruption* over the observation period is closest to zero. For instance, this may include countries with sound domestic institutions that could insulate them against regional corruption or countries that are rather self-sufficient and thus less susceptible to the risk of corruption that international economic exchange (trade, migration etc.) carries. For our analysis, we consider three quasi zero-first-stage country groups that include 12, 26 and 32 countries that experienced the least change in local corruption over time; we report results for three zero-first-stage country samples to reduce concerns about spurious results due to idiosyncrasies related to a specific quasi zero-first-stage country group. As a counterfactual, we also consider another country group that includes the 20 countries that saw the strongest change in corruption over the period of observation. We always compare the reduced-form and first-stage regression results for the quasi zero-first-stage country groups with the remaining sample. We expect (1) that the effect of regional corruption on local terrorism (reduced form) ought to be weaker in the quasi zero-first-stage sample compared to the full sample and (2) that the effect of regional on local corruption (first stage) to be similarly weaker. Also, the reduced-form estimates for the quasi zero-first-stage country groups give us values for γ that we can use to investigate how violations of the exclusion restriction affect our 2SLS estimates in the plausibly exogenous framework (e.g., Conley et al. 2012; Kippersluis and Rietveld 2018).

We report our empirical results in Table B.1. Concerning the reduced-form regressions that explore the effect of regional corruption on terrorism (Panel A), we find that there is no statistically significant effect of regional corruption exposure on terrorism for the three quasi zero-first-stage country groups. By contrast, for the counter-factual sample of quasi zero-first-stage countries and the remaining country samples, regional exposure to corruption always predicts terrorist activity in the country of interest. We also find that the effect of regional on local corruption (first stage) is much weaker for the quasi zero-first-stage countries (Panel B). In sum, this speaks to the idea that direct effect of regional exposure to corruption on terrorism is negligible. Indeed, if we use the reduced-form estimates (Panel A) to specify γ in the plausibly exogenous regressions, we find that the implied violations of the exclusion restrictions do not result in the inclusion of zero in the 95% confidence interval associated with β_2 . As expected, however, this is not the case for the counter-factual of countries whose corruption levels are strongly affected by regional exposure to corruption. In sum, the results of Table B.1 thus suggest that allowing for plausible amounts of instrument endogeneity still supports our main empirical conclusion that political corruption leads to more terrorist activity.

Table B.1: Plausibly exogenous regression

	(1)	(2)	(3)	(4)
Countries in quasi zero-first-stage group (N)	12 (N×T=551)	26 (N×T=1092)	32 (N×T=1375)	20 (N×T=689)
Countries in remaining sample (N)	155 (N×T=6175)	141 (N×T=5634)	135 (N×T=5351)	147 (N×T=6037)
Panel A: Reduced form: Effect of regional corruption on local terrorism				
Full Sample	3.575** (1.061)	3.575** (1.061)	3.575** (1.061)	3.575** (1.061)
Quasi zero-first-stage group	0.039 (1.949)	-0.312 (1.617)	0.253 (1.595)	4.698* (2.272)
Remaining sample	3.738*** (1.117)	3.727** (1.160)	3.766** (1.225)	3.420** (1.142)
Panel B: First-Stage effect of regional corruption on local corruption				
Full Sample	0.520** (0.148)	0.520** (0.148)	0.520** (0.148)	0.520** (0.148)
Effective F-statistic	12.413	12.413	12.413	12.413
AR p-value	0.00	0.00	0.00	0.00
Quasi zero-first-stage group	0.160** (0.057)	0.360 (0.198)	0.268 (0.156)	1.628** (0.458)
Effective F-statistic	7.78	3.31	2.96	12.65
AR p-value	0.99	0.86	0.88	0.03
Remaining sample	0.537** (0.154)	0.530** (0.158)	0.536** (0.168)	0.394** (0.071)
Effective F-statistic	12.21	11.20	10.15	30.72
AR p-value	0.00	0.00	0.00	0.00
Panel C: Effect of local corruption on local terrorism (95% CI reported)				
2SLS regression	[2.23;11.4]	[2.23;11.4]	[2.23;11.4]	[2.23;11.4]
Plausibly exogenous regression	[2.28;11.4]	[2.33;12.2]	[1.97;11.4]	[-6.67;11.4]
Value of γ for plausibly exogenous regression	0.039	-0.312	0.253	4.698
Country X	✓	✓	✓	✓
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓

Notes: Full sample refers to the baseline sample with 167 countries; baseline results reported for comparison. OLS, robust SE clustered at country level in parentheses. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

B.2 Regional Shocks

Our exclusion restriction may be invalidated by the influence of shocks that are correlated within regions and might simultaneously affect local corruption and terrorism. To address such concerns, we control for a series of time-varying variables that ought to capture the role of regionally correlated economic, political, institutional, and demographic shocks. In detail, these shocks are defined as the yearly average level of population size, per capita income, democracy, state failure terrorism, economic growth, human rights, globalization, freedom of religion, property rights and quality of bureaucracy for countries that are geographically and economically proximate to the country of interest . Additional information on variable operationalization and data sources is provided in Table A.1. As reported in Table B.2, adjusting for these regional shocks does not affect our main empirical conclusion: higher levels of political corruption lead to more terrorist activity. The estimated effects and associated IV-diagnostics are sound and comparable to our baseline estimates even when we control for *all* regional shocks at the same time.

Table B.2: Influence of Regional Shocks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Political corruption	6.947** (2.235)	9.701** (3.137)	6.933** (2.312)	6.822** (2.315)	3.902* (1.732)	7.105** (2.413)	6.891** (2.324)	7.367** (2.443)	9.215** (2.929)	8.414** (2.885)	4.417* (1.780)	5.473* (2.778)
Population	0.215 (0.480)											-0.293 (0.427)
GDP p.c.		1.165* (0.457)										0.704 [†] (0.366)
Democracy			-0.543 (0.592)									0.329 (0.669)
State failure				0.076 (0.156)								-0.169 (0.120)
Terrorism					0.540** (0.091)							0.427** (0.110)
Economic growth						0.005 (0.012)						-0.012 (0.011)
Human rights							-0.001 (0.003)					0.001 (0.003)
Globalization								0.059 [†] (0.030)				0.030 (0.026)
Freedom of Religion									-0.708** (0.249)			-0.618* (0.291)
Property Rights										-2.020 (1.499)		1.866 (1.963)
Bureaucracy											-0.596** (0.192)	-0.372 (0.255)
First stage												
Regional exposure	0.518** (0.141)	0.532** (0.149)	0.513** (0.152)	0.520** (0.148)	0.474** (0.151)	0.527** (0.154)	0.516** (0.148)	0.509** (0.142)	0.517** (0.141)	0.527** (0.147)	0.546** (0.165)	0.509** (0.153)
Effective F-statistic	13.427	12.699	11.422	12.414	9.800	11.790	12.169	12.838	13.428	12.901	10.964	11.114
AR p-value	0.001	0.000	0.002	0.001	0.029	0.000	0.001	0.001	0.000	0.000	0.013	0.014
AR CI	[3.81,16.6]	[5.45,24.5]	[3.81,17.1]	[3.81,18.0]	[1.36,13.0]	[3.81,19.6]	[3.81,17.7]	[4.09,19.3]	[4.90,20.4]	[4.36,20.4]	[1.71,12.6]	[1.01,16.2]
Observations	6726	6716	6726	6726	6726	6648	6726	6702	6726	6726	6726	6624
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Table presents results of the main specification while additionally adjusting for the mean value of specific shocks of countries within a region. OLS, robust SE clustered at country level in parentheses. [†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

C Additional Robustness Checks

C.1 Changes to Baseline Model

To investigate whether changes to our baseline model matter to our empirical conclusions, we proceed as follows. First, we replace the GDP per capita variable with a country’s infant mortality (WDI data) as an alternative indicator of economic development, replace our democracy measure with an electoral democracy index as an alternative measure of democratic development (VDEM data) and replace the state failure measure with a variable accounting for the extent of civil warfare within a country from Marshall (2019). Second, we consider whether a country’s level of economic or political development share a non-linear relationship with terrorism by amending our baseline model with quadratic terms of both variables. For instance, earlier contributions by Enders et al. (2016) and Gaibulloev et al. (2017) point to such non-linearities. Third, we run a model without the state failure variable, given that this variable may constitute a “bad control”. Finally, we run a model where we amend our baseline model with the lag of the dependent variable and region-specific trends (operationalized as interactions between the year-fixed effects and region-fixed effects for the six UN world regions we use to construct our instrumental variable). These latter robustness checks help to assess whether dynamics in terrorism or at the regional level matter to our empirical findings. The findings of Table C.1 indicate that our main empirical results are not due to idiosyncratic choices related to the specification of our baseline model. We continue to find that political corruption leads to more terrorist activity, regardless of which variant of the baseline model we run. For instance, we find that employing alternative indicators for economic and political development as well as state failure is of little consequence to our findings. Additionally, there is no convincing evidence that economic development or democracy are non-linearly related to terrorism. Finally, the inclusion of a lagged dependent variable induces a downward bias in all explanatory variables, which is expected (e.g., Keele and Kelly 2006). Still, there continues to be a substantial negative effect of political corruption on terrorism even after accounting for terrorism dynamics.

Table C.1: Changes to Baseline Model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Political corruption	7.704** (2.454)	6.697** (2.599)	6.379** (2.224)	7.447** (2.540)	6.593** (2.376)	7.629** (2.494)	2.445* (1.031)
Population	1.242* (0.485)	0.990* (0.491)	1.203** (0.446)	1.475** (0.451)	1.392** (0.400)	1.450** (0.477)	0.183 (0.171)
Democracy	0.737* (0.371)	0.768* (0.378)	0.743* (0.335)		2.190* (0.959)	0.788* (0.375)	0.307* (0.140)
GDP per capita	0.580* (0.284)		1.298** (0.422)	0.750** (0.289)	0.772** (0.277)	0.745* (0.303)	0.166 [†] (0.096)
State failure		0.308** (0.053)	0.328** (0.051)	0.327** (0.053)	0.321** (0.051)		0.094** (0.016)
Infant mortality		-0.000 (0.004)					
GDP per capita ²			-0.143 [†] (0.076)				
Electoral democracy				0.016* (0.007)			
Democracy ²					-1.459 (1.110)		
Civil war						0.381** (0.130)	
Attacks							0.649** (0.021)
First stage							
Regional exposure	0.519** (0.147)	0.466** (0.155)	0.502** (0.143)	0.491** (0.147)	0.498** (0.146)	0.516** (0.149)	0.456** (0.160)
Effective F-statistic	12.418	8.993	12.282	11.212	11.589	12.029	8.158
AR p-value	0.000	0.004	0.002	0.001	0.002	0.000	0.003
AR CI	[4.36,19.6]	[3.27,22.9]	[3.27,17.4]	[4.09,22.0]	[3.27,19.0]	[4.36,20.1]	[1.21,10.9]
Observations	6726	6666	6726	6726	6726	6452	6726
Country FE	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Year × region FE							✓

Notes: Table present results when changing the baseline specification. *Model 1* excludes state failure variable; *Model 2* replaces GDP per capita with infant mortality; *Model 3* add a squared term for GDP per capita; *Model 4* replaces the democracy dummy with the continuous electoral democracy index; *Model 5* adds a squared term for the binary democracy indicator; *Model 6* replaces state failure with a civil war indicator; *Model 7* adds the number of terrorist attacks (t) and year-by-region fixed effects. OLS, robust SE clustered at country level in parentheses. [†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

C.2 Additional Control Variables

To examine whether our results are robust to the inclusion of further covariates, we amend our baseline model with (1) further politico-institutional variables (the political empowerment of women, left-wing incumbency and involvement in international wars), (2) further demographic variables in the form of the male youth burden (i.e., males aged 15-29 as a share of males between the ages of 15 and 64), population growth and the Muslim population share and (3) additional socioeconomic controls (economic growth, oil rents, foreign development assistance and government size). The choice of these controls follows the literature on the determinants of terrorism and corruption (e.g., Krieger and Meierrieks 2011; Dimant and Tosato 2018). Information on operationalization and sources of these additional controls is provided in Table A.1). We show in Table C.2 that our main empirical conclusion — that corruption fuels terrorism — is not likely to be due to our choice of controls. With respect to the additional controls, we only find a statistically significant and positive association between terrorism and a country’s Muslim population share. Potentially, this finding reflects the rise of Islamist terrorism especially after the end of the Cold War (e.g., Gaibulloev and Sandler 2019).

Table C.2: Additional controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Political corruption	6.720** (2.248)	6.953** (2.551)	7.078** (2.393)	7.934* (3.291)	6.986** (2.430)	6.878** (2.318)	7.788** (2.443)	6.855** (2.318)	6.951** (2.476)	5.891** (1.998)	7.376* (3.291)
GDP growth	0.003 (0.004)										-0.003 (0.006)
Women political empowerment		-0.474 (1.150)									-1.448 (1.134)
International war			-0.044 (0.061)								-0.082 (0.063)
Male population 15–24				-0.035 (0.034)							-0.001 (0.033)
Population growth					-0.083 (0.061)						-0.042 (0.052)
Muslim Population						0.028** (0.010)					0.031 [†] (0.019)
Oil rents							0.000 (0.010)				0.018 (0.011)
Net ODA received								0.010 [†] (0.006)			0.013 [†] (0.007)
Left-wing government									0.098 (0.357)		0.251 (0.396)
Government consumption										0.019 (0.012)	0.025 (0.017)
First stage											
Regional exposure	0.513** (0.144)	0.492** (0.154)	0.517** (0.149)	0.453** (0.154)	0.517** (0.150)	0.520** (0.148)	0.483** (0.124)	0.520** (0.148)	0.489** (0.141)	0.544** (0.155)	0.395** (0.124)
Effective F-statistic	12.668	10.229	12.027	8.699	11.933	12.413	15.168	12.430	12.095	12.328	10.086
AR p-value	0.002	0.002	0.001	0.004	0.001	0.001	0.002	0.001	0.002	0.003	0.025
AR CI	[3.54,17.1]	[3.54,21.5]	[3.81,19.0]	[3.67,35.4]	[3.81,19.6]	[3.81,18.2]	[4.36,18.0]	[3.81,18.2]	[3.54,19.3]	[3.13,15.5]	[2.77,27.8]
Observations	6671	6655	6452	6716	6724	6726	6392	6726	6726	6109	5547
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Table presents the main specification while adding additional control variables. OLS, robust SE clustered at country level in parentheses. [†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

C.3 Alternative Measurement of Terrorism

Different operationalizations of terrorism may also affect our empirical conclusions. For instance, Jetter and Stadelmann (2019) suggest that there can be substantial differences between the determinants of total and per capita terrorism. We consider the following alternative measurements of terrorism. First, we use a binary terrorism variable that is equal to unity when there is at least one terrorist incident per country–year observation and zero otherwise. Potentially, this variable is less susceptible to outliers in terrorism. Second, we employ the number of terrorist attacks per capita; as above, this variable is transformed using the inverse hyperbolic sine transformation. Third, instead of the number of terrorist attacks we use the number of terrorism victims (i.e., individuals wounded or killed in terrorist attacks). We use the total number of victims (hyperbolic sine transformed), a binary measure and the per capita number of terrorism victims (hyperbolic sine transformed). These variables reflect the ferocity rather than frequency of terrorism and may therefore be especially relevant for counter-terrorism policy. Finally, we follow Eckstein and Tsiddon (2004) and construct a terrorism index that is equal to the (hyperbolic sine transformed) sum of terrorist attacks and victims per country–year or the (hyperbolic sine transformed) per capita sum of attacks and victims, respectively. These two variables are thus composite indices simultaneously reflecting the frequency and ferocity of terrorism. As shown in Table C.3, regardless of which dependent variable we employ, more political corruption always leads to more terrorist activity. The associated first-stage regression results and IV-diagnostics are also always sound. Thus suggest that our main empirical conclusion is not due to the choice of a specific dependent variable.

Table C.3: Alternative terror measures

	Attacks		IHS (3)	Victims		Attacks + victims	
	binary (1)	per capita (2)		binary (4)	per capita (5)	index (6)	per capita (7)
Political corruption	1.837** (0.631)	2.042** (0.626)	8.075** (2.738)	1.614** (0.587)	6.267** (2.127)	8.522** (2.824)	6.828** (2.239)
Population	0.179† (0.106)	0.181† (0.107)	2.001** (0.531)	0.234* (0.099)	1.503** (0.435)	1.909** (0.536)	1.440** (0.445)
GDP per capita	0.106 (0.070)	0.144* (0.069)	0.745* (0.340)	0.079 (0.067)	0.576* (0.260)	0.777* (0.345)	0.612* (0.268)
Democracy	0.230* (0.089)	0.232* (0.094)	0.930* (0.418)	0.216** (0.081)	0.725* (0.328)	0.989* (0.429)	0.790* (0.344)
State failure	0.043** (0.009)	0.074** (0.013)	0.470** (0.065)	0.049** (0.010)	0.413** (0.057)	0.457** (0.064)	0.405** (0.057)
First stage							
Regional exposure	0.520** (0.148)	0.520** (0.148)	0.520** (0.148)	0.520** (0.148)	0.520** (0.148)	0.520** (0.148)	0.520** (0.148)
Effective F-statistic	12.413	12.404	12.413	12.413	12.404	12.413	12.404
AR p-value	0.004	0.001	0.001	0.007	0.001	0.001	0.000
AR CI	[1.21,4.84]	[1.21,5.15]	[4.24,21.2]	[0.90,4.24]	[3.33,16.0]	[4.54,22.1]	[3.63,17.5]
Observations	6726	6725	6726	6726	6725	6726	6725
Country FE	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
Mean DV	0.491	0.374	1.579	0.401	1.152	1.769	1.278

Notes: Table presents alternative operationalizations of terrorism attacks, victims, and indices. *Index* is defined as attacks plus victims. *Per capita* values divide the main DV by the population in a given year. *Binary* indicators equal 1 if attacks/victims in a given year are not 0. *IHS* indicates Inverse Hyperbolic Sine Transformation. OLS, robust SE clustered at country level in parentheses. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

C.4 Different Types of Terrorism

In addition to employing different measurements of terrorism, we can also consider the role of corruption in different types of terrorism. First, we differentiate between domestic and transnational terrorism. The former only concerns one country, so that the origin country of perpetrator and victim as well as the venue country of the attack are the same, while the latter concerns more than one country, e.g., because perpetrators and victims of an attack do not have the same nationality (Enders et al. 2011, p.321). Second, we differentiate between terrorist attacks against government and civilian targets. The former includes attacks against the military, police and government institutions, while the latter primarily refers to attacks against private citizens and business interests. Data on terrorism is from the GTD as well as Enders et al. (2011) and Gaibullov and Sandler (2019). In theory, different types of terrorism may respond differently to political corruption. For instance, domestic terrorism may be more responsive to domestic grievances associated with political corruption (e.g., inequality), while transnational terrorism may be less affected by corruption but more strongly rooted in international political factors such as international migration and international rivalries (e.g., Savun and Phillips 2009; Helbling and Meierrieks 2020). We show in Table C.4, however, that there is little evidence for systematic differences in the adverse impact of corruption on internal peace. We find that political corruption leads to more domestic as well as transnational terrorist activity. Also, corruption encourages both anti-government and anti-civilian terrorism to similar extents. In sum, these results point to a generalized and positive relationship between political corruption and terrorist activity.

Table C.4: Types of terrorism

	Domestic		Transnational		Targets	
	Attacks (1)	Victims (2)	Attacks (3)	Victims (4)	Gov. (5)	Civilian (6)
Political corruption	5.411** (1.835)	6.617** (2.236)	3.348* (1.345)	3.430** (1.265)	5.156** (1.765)	6.063** (2.085)
Population	1.073** (0.393)	1.638** (0.473)	0.834** (0.235)	1.153** (0.295)	1.407** (0.363)	1.218** (0.398)
GDP per capita	0.685** (0.248)	0.777* (0.304)	0.401** (0.150)	0.428* (0.175)	0.636** (0.229)	0.694** (0.261)
Democracy	0.618* (0.272)	0.732* (0.334)	0.463* (0.181)	0.395* (0.200)	0.718** (0.269)	0.663* (0.309)
State failure	0.265** (0.048)	0.386** (0.061)	0.168** (0.029)	0.205** (0.037)	0.275** (0.048)	0.302** (0.049)
First stage						
Regional exposure	0.515** (0.152)	0.515** (0.152)	0.515** (0.152)	0.515** (0.152)	0.520** (0.148)	0.520** (0.148)
Effective F-statistic	11.537	11.537	11.537	11.537	12.427	12.427
AR p-value	0.001	0.000	0.018	0.000	0.001	0.001
AR CI	[2.77,13.7]	[3.27,16.6]	[1.71,9.49]	[1.71,8.78]	[2.77,13.3]	[3.27,16.0]
Observations	6389	6389	6389	6389	6711	6711
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Mean DV	0.915	1.080	0.568	0.555	0.922	1.089

Notes: Table presents results for different types of terrorism attacks and victims from respective attacks (domestic vs. transnational) and distinguishes between governmental and civilian targets. OLS, robust SE clustered at country level in parentheses. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

C.5 Sub-Sample Analysis

To investigate whether our main findings are driven by specific sub-sets of countries that, we drop from our full sample (1) all countries that were OECD members before 1990 (OECD countries tend to have low levels of political corruption), (2) all countries located in Sub-Saharan Africa (which tend to be comparatively more corrupt) as well as (3) all countries in South America or the Middle East and Northern Africa, respectively (both sets of countries tend to be strongly affected by both corruption and terrorism). Furthermore, to reduce the potential impact of outliers, we drop from our sample those countries that see the highest levels of terrorism or corruption, respectively (i.e., countries with the top 10% mean-levels of terrorism or corruption). For instance, this refers to countries such as Colombia, Pakistan and France (for terrorism) and Haiti, Indonesia and Nigeria (for political corruption). Finally, we winsorize the terrorism or corruption variable, replacing the largest values of both variables by the respective values at the 90th percentile of their distribution. This is another way to examine the influence of outliers on our estimates. As reported in Table C.5, regardless of which sub-sample we consider, we always find that political corruption promotes terrorist activity. Both in terms of statistical significance and economic substantiveness, the various estimates of the effect of corruption on terrorism mirror our baseline estimates of Table 1. This suggests that our main empirical finding is not driven by specific sub-sets of countries.

Table C.5: Sub-sample analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political corruption	7.834** (2.820)	7.664* (3.453)	5.942** (2.116)	8.727** (3.182)	6.128** (2.082)	7.179** (2.488)	6.960** (2.512)	6.141** (1.985)
Population	1.336** (0.508)	1.651** (0.486)	1.495** (0.445)	1.267 [†] (0.680)	1.604** (0.413)	1.500** (0.436)	1.279** (0.443)	1.026** (0.339)
GDP per capita	0.805* (0.330)	0.876* (0.366)	0.623* (0.263)	0.882* (0.361)	0.953** (0.314)	0.737* (0.288)	0.728* (0.298)	0.548* (0.231)
Democracy	0.813* (0.412)	1.155* (0.508)	0.681* (0.323)	0.827 [†] (0.463)	0.624* (0.310)	0.785* (0.340)	0.816* (0.371)	0.703* (0.303)
State failure	0.325** (0.053)	0.409** (0.091)	0.319** (0.052)	0.278** (0.057)	0.347** (0.057)	0.324** (0.052)	0.347** (0.052)	0.227** (0.041)
First stage								
Regional exposure	0.617** (0.184)	0.485** (0.173)	0.524** (0.152)	0.487** (0.166)	0.526** (0.153)	0.498** (0.144)	0.611** (0.178)	0.520** (0.148)
Effective F-statistic	11.191	7.913	11.938	8.585	11.849	11.918	11.736	12.413
AR p-value	0.000	0.012	0.004	0.001	0.002	0.001	0.000	0.001
AR Ci	[5.05,24.2]	[4.04,51.5]	[3.03,15.1]	[5.05,37.3]	[4.04,16.1]	[4.04,20.2]	[4.04,21.2]	[4.04,16.1]
Observations	5574	4770	6155	6003	6210	6726	6316	6726
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Table presents results of the main specification while excluding certain country groups one-by-one. *Model 1:* excludes OECD countries; *Model 2:* excludes SSA countries; *Model 3:* excludes South American countries; *Model 4:* excludes MENA countries; *Model 5:* excludes top 10% most corrupt countries; *Model 6:* winsorized extreme corruption (90%); *Model 7:* excludes top 10% terror-affected countries; *Model 8:* winsorized extreme terrorism (90%). OLS, robust SE clustered at country level in parentheses. [†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.

D Types of Corruption

Our main independent variable — political corruption — is a composite measure that accounts for corruption in the executive, legislature and judiciary as well as in the public sector. In this robustness check, we examine whether terrorist activity responds differently to different kinds of corruption. For example, executive corruption may be more visible and noticeable to the the public compared to corruption by the judiciary or in the public sector. As a consequence, “personalized” executive corruption may trigger a stronger terrorist response than more anonymous judicial or public sector corruption. To investigate whether different types of corruption share different relationships with terrorism, we exchange the political corruption index with the four individual corruption indices for executive, legislative, judicial and public sector corruption from VDEM (Coppedge et al. 2019). All variables are scaled so that higher levels of the respective corruption measure correspond to higher corruption levels. As shown in Table D.1, we find that corruption in the executive, legislative and judicial branches encourages more terrorist activity, where the associated IV-diagnostics are always sound. Overall, this tends to point to a generalized relationship between political corruption and terrorism. However, the effect of public sector corruption on terrorism — while having the expected sign — is not estimated precisely enough to fully support this notion. Most likely, this is due to the fact that in this case our usual instrumental variable is too weak to allow for a proper identification of associated causal effects.

Table D.1: Types of corruption

	Executive (1)	Legislative (2)	Judicial (3)	Public sector (4)
Corruption type	6.948* (2.733)	6.601** (2.391)	10.935** (3.867)	24.947 (21.161)
Population	1.435** (0.503)	1.685** (0.350)	1.828** (0.406)	0.105 (2.028)
GDP per capita	0.764* (0.330)	0.630** (0.237)	0.640* (0.279)	1.197 (0.830)
Democracy	1.352* (0.573)	0.522 [†] (0.301)	0.686* (0.300)	1.455 (1.302)
State failure	0.320** (0.055)	0.368** (0.051)	0.299** (0.053)	0.382** (0.089)
First stage				
Regional exposure	0.515** (0.161)	0.450** (0.139)	0.327** (0.092)	0.143 (0.135)
Effective F-statistic	10.199	10.499	12.563	1.130
AR p-value	0.001	0.007	0.001	0.001
AR CI	[3.54,27.2]	[3.27,19.9]	[5.90,34.0]	[10.9,...]
Observations	6726	6172	6726	6726
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Country \mathbf{X}	✓	✓	✓	✓

Notes: Table distinguishes between four main types of corruption: executive, legislative, judicial, and public sector. OLS, robust SE clustered at country level in parentheses. [†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.