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## On the heterogeneity of terror

Krisztina Kis-Katos<sup>a</sup>, Helge Liebert<sup>b</sup>, Günther G. Schulze<sup>c,\*</sup><sup>a</sup> University of Freiburg, Germany<sup>b</sup> University of Sankt Gallen, Switzerland<sup>c</sup> Institute for Economic Research, Department of International Economic Policy, University of Freiburg, Platz der Alten Synagoge, 79085 Freiburg i.Br., Germany

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## ABSTRACT

Most of the existing literature on the determinants of terrorism treats terror as a uniform phenomenon and does not distinguish between different types of terror. We argue that terror of different ideological types should have different determinants as the terror groups cater to different grievances, engage in compromise to different degrees and have different organizational constraints. We explicitly address the heterogeneity of terror by classifying groups according to their ideologies and, using the *Global Terrorism Database*, show that the determinants of terror differ strongly between terror types.

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## 1. Introduction

Terrorism yields terrible consequences, first and foremost, the loss of life, and of physical and psychological integrity. Second, terrorism disrupts economic activity, it slows economic growth (Blomberg et al., 2004; Tavares, 2004), reduces foreign direct investment (Abadie and Gardeazabal, 2008), disrupts trade (Nitsch and Schumacher, 2004), hurts tourism (Neumayer, 2004), and affects stock markets (Arin et al., 2008; Chen and Siems, 2004). Third, terror affects the political system by influencing voting behavior (Berrebi and Klor, 2008), reelection probabilities (Gassebner et al., 2008), and cabinet duration (Gassebner et al., 2011); moreover, through states' reactions to terror it may also limit civil liberties (Dreher et al., 2010). In short, terrorism is very costly for the affected societies.

To design an effective counter-terrorism strategy, it is necessary to understand the root causes of terrorism and to empirically validate them. The question, whether terrorism is rooted in poverty and lacking education, lacking political freedom, or instable or failing states, has been at the center of the scientific debate. A small literature has analyzed micro-data on deceased terrorists and found that they are better educated and better off than the pool from which they were drawn (Krueger and Malečkova, 2003; Berrebi, 2007; Krueger, 2008a, 2008b, all for Islamist terrorists). Kis-Katos et al. (2011b) show a countercyclical and a core-periphery pattern of PKK recruitment; Benmelech et al. (2012) find that the education and experience of Palestinian suicide terrorists are positively correlated with local unemployment rates. Yet, as there are not sufficient data on individual terrorists, these micro-empirical studies are sparse and their results are limited to the specific context they study.

\* Corresponding author.

E-mail address: [guenther.schulze@vwl.uni-freiburg.de](mailto:guenther.schulze@vwl.uni-freiburg.de) (G.G. Schulze).

A second, macro-empirical approach seeks to explain the number of terror incidents originating from (or targeting) a specific country in a given year by relevant country characteristics in that year. As extensive data sources on terror incidents have become available, a large number of studies have appeared. Yet, these studies disagree on all major determinants for terror, i.e., the role of poverty, democracy and state stability for the occurrence of terror.<sup>1</sup> Part of the large divergence in results may be explained by the use of different databases.<sup>2</sup> In particular, many studies analyze international terror only, even though domestic terror is the most frequent form of terror.<sup>3</sup> However, since the determinants of domestic and international terror are relatively similar on average (Kis-Katos et al., 2011a), the difference between these two concepts will not be able to explain the dimension of divergence.

We argue that a major reason for the diverging results in the literature is that studies on terrorism treat all terror acts equally, independent of the type of terror group, and thus do not take the heterogeneity of terrorism into account. If terror groups with different ideologies behave differently, the determinants of terror so derived are only determinants of the “average” terror and do not explain the behavior of actual terror groups. If the composition of terror changes significantly over time, the “average” determinants depend strongly on the time frame used. In this paper we show both to be true; we thus provide evidence for a strong heterogeneity of terrorism.

Essentially, terrorism describes a strategy, not a specific belief system.<sup>4</sup> We argue that ideologically different terrorist groups are likely to have different determinants for the use of this strategy; thus, treating terror as a homogeneous phenomenon yields uninformative results. Terror occurs if potential terror groups are willing and able to carry out attacks; that is they must react to existing specific grievances, they must regard terror as an appropriate strategy, and they must not be persuaded to pursue their goals through non-violent means or be appeased by concessions. Different types of terror groups may cater to different grievances and they may differ in their organizational ability, which depends on the support base of people sharing these grievances and on strategies to enforce commitment and to prevent defection. This may be especially different for religious and non-religious groups (Berman and Laitin, 2008; Berman, 2009). Moreover, terror groups may respond very differently to counter-terrorism measures and may differ in their willingness to compromise. Bernholz (2004, 2006) and Wintrobe (2006) argue that terrorists who adhere to “supreme value ideologies” will not be responsive to incentives provided by a carrot-stick counter-terrorism strategy as in their understanding they are following divine orders—deterrence and political compromise may thus not work for these groups, but may work for others.<sup>5</sup>

This calls for a disaggregate approach to the empirical analysis of terrorism. Yet, while the distinguishing features of different types of terrorism have frequently been noted (Shughart, 2006; Post, 2008; Zimmermann, 2009), very few macro-empirical analyses have made an attempt to classify terror incidents by the type of terror group. Freytag et al. (2011) run separate regressions for different world regions, and find marked differences in results by region. Meierrieks and Gries (2013) explore variations in the causal relationship between economic growth and terrorism across time periods (before and after the Cold War) and across different regions. Enders et al. (2013) show that the (nonlinear) income-terror relationship has changed significantly over time. Given that the composition of terror differs across regions and time, the results of these studies point to different behavior of different types of terror groups. Yet, they do not address the role of the ideology for the determinants of terror. Feldman and Ruffle (2008) distinguish nationalist, communist, and religious terror and regress the number of domestic terror attacks (or victims) per group per geographical base. Their analysis covers 91 areas, 460 groups and 609 observations in the period 1998–2007. In contrast, we base our estimates on a much more extensive database and compare global patterns of terror. We employ data from 1258 terror groups responsible for more than 40,000 attacks or 80% of all attacks in the Global Terrorism Database (GTD) with known perpetrators, covering 160 countries and 4730 observations over the period of 1975–2008. We find indeed that terror groups with different ideologies have systematically different determinants for their terror activities, which can be explained by their different ideologies.

The paper is organized as follows. Section 2 introduces our reasoning on why different terror types are likely to have empirically distinguishable determinants. Section 3 explains our encoding procedure and describes the trends in overall terror and its composition. Section 4 presents our empirical models and the explanatory variables. Section 5 presents the results on terror, disaggregated by ideology type, and addresses the robustness of our data encoding procedure. Section 6 characterizes the different terror types on the basis of our findings. Section 7 concludes.

<sup>1</sup> For critical surveys of the literature cf. de Mesquita (2008), Schneider et al. (2010, Chapter 3), Gassebner and Luechinger (2011), and Kis-Katos et al. (2011a, Appendix A).

<sup>2</sup> Available datasets include the *International Terrorism: Attributes of Terrorist Events* (ITERATE), covering international terror only since 1968, *National Memorial Institute for the Prevention of Terrorism* (MIPT) coding international terror events since 1968 and also domestic terror events since 1998, *Terrorism in Western Europe: Event Data* (TWEED) recording internal attacks for 18 West European countries for 1950–2004, and the *Global Terrorism Database* (GTD) covering domestic and international terror events since 1970, the most comprehensive data base to date.

<sup>3</sup> Domestic terror is defined as terror, in which the nationality of perpetrators and victims and the location country coincide, all other terrors are international.

<sup>4</sup> The US State Department defines terrorism as “premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents, usually intended to influence an audience” (Title 22 of the United States Code, Section 2656f(d)).

<sup>5</sup> A supreme value is “an aim or a bundle of aims preferred to all other aims. (...) everything and everybody has to be sacrificed if this is necessary to reach them [the goals of the supreme value]” (Bernholz, 2006, p. 224). Such supreme values are obviously an important characteristic of religious terror, but may also exist as justification for communist or Nazi terror groups (Bernholz, 2006). Even though, it is much easier and straightforward to deduce supreme values from divine order than from secular ideologies.

## 2. The occurrence of terror

As we argue that terror is likely to exhibit different patterns depending on the ideology that the terror group subscribes to, we differentiate terror attacks by group ideology. We distinguish four different types: (1) Left-wing terror groups striving for a socialist/communist system, (2) right-wing terror groups advocating racial and/or national supremacy, violently opposing immigration, or having a clearly anti-leftist agenda, (3) ethnic-separatist terror groups fighting for the dominance of the own ethnicity over others, or seeking to establish an independent state or far-reaching autonomy of a region defined by the ethnicity of its population, and (4) religious terror groups fighting for the supremacy or the exclusive existence of their religion and, possibly, a theocracy. The latter category can be further differentiated by religion; due to the relatively low number of incidents and the high geographical concentration for other religions, in our regression analysis we focus on Islamist terror only. To be sure, there is a large variation of ideologies within these categories, which we disregard; for instance, right-wing terror may be broken down further into social-revolutionary and reactionary right-wing terror. In this sense, our approach is still limited. However, our aim is to show that systematic variations across major terror types exist, which, if corroborated by our empirical analysis, suggests that there will be differences in terror patterns also within these broad terror categories.<sup>6</sup>

For terror attacks to occur, potential terror groups need to be willing and able to carry out these attacks. More specifically, four conditions need to be met. First, there need to be circumstances which potential members of the terror group are strongly opposed to and want to change (*grievance*). If these grievances are shared by larger parts of the population, terror groups will find it easier to organize a support system (logistics, transport, safe houses, etc.), which will make them more effective. Moreover, terrorists will regard themselves as fighters for a common cause; therefore, common grievances shared by a large part of the group they feel attached to will make it easier for terrorists to justify their violence.<sup>7</sup> Second, they must regard terror as the preferred instrument to change the conditions that cause the grievance. In particular, they must view non-violent means as less effective and less desirable (*appropriateness of violence*). Third, the grievances must not be mitigated by other factors so that the opportunity costs of participating in terror activities become prohibitive (*non-mitigation*). Fourth, potential members of the terror group must be able to organize themselves in groups and to prepare and execute terror attacks (*organizational ability*). That requires that the anti-terror policies of the countries in which the terror attacks are planned and those in which they are carried out (which may be the same) are not perfectly effective. The more these conditions are met, the more attacks (and the more successful attacks) we expect to see.

These four conditions are met for the different terror types under different circumstances; thus, a certain situation may be more conducive to some type of terror than to others. The grievances that give rise to terror differ between terror types, in part fundamentally. Left-wing terror draws its justification (by its own standards) from an inequitable distribution of wealth, income, and economic opportunities and advocates a non-democratic socialist system of some kind. Such a message will resonate the more, the more unequal the income distribution in a country is. Thus, we expect left-wing terror to increase with inequality. Socialism, propagating egalitarianism, may be regarded as a vehicle not only to correct inequities between different income groups (or classes in Marxist terms), but also to correct inequities suffered by disadvantaged groups in society. Therefore, left-wing terror may increase in societies that oppress certain minorities. Since left-wing terror ideology propagates internationalism (of workers), it will not easily appeal to ethnic groups that are in conflict with other ethnic groups and strive for dominance or independence; therefore, we do not expect highly ethnically fragmented countries to have more left-wing terror than others. Such grievances would rather be picked up by ethnic-separatist terror.<sup>8</sup> The extreme left may also be infuriated by a pro-Western foreign policy stance of its own government. Especially the political alignment with the United States may be regarded as submission to US imperialism and capitalism.

Right-wing terror is typically carried out by members of the majority group in a country striving for national dominance and “ethnic purity” and combining xenophobia with a contempt for democratic institutions. In contrast to left-wing terror, we do not expect right-wing terror to be higher in countries with a repressed minority (as this is in line with what the extreme right would like to see) but to increase with the share of ethnic foreigners (as measured by ethno-linguistic fragmentation) as they pose a threat to “ethnic purity”. As there is evidence that the extreme right is often less educated and poorer than the average (Lubbers et al., 2002; Rydgren, 2007), we might expect right-wing terror to be more prevalent in poorer and less educated countries. The modernization losers-hypothesis states that supporters of the extreme right are those that lose from economic and social transformation of the society bringing about structural change, growing autonomy of the individual, and social differentiation (Betz, 1994; Minkenberg, 2003). Empirical research supports this hypothesis showing that among the supporters of the extreme right, the old middle class and workers are clearly overrepresented (Lubbers et al., 2002; Norris, 2005; Rydgren, 2007). The intensity of transition processes that create such modernization

<sup>6</sup> Moreover, the empirical analysis does not allow further differentiation as sample sizes in the subcategories would become too small to carry out meaningful negative binomial regression analyses.

<sup>7</sup> While terrorists accept violence against their perceived enemies and often against innocent people not involved in the conflict, they often feel altruism towards their defined reference group (Stern, 2003). Thus, support of this group is important not only logistically but also psychologically. Azam (2005) models suicide terrorism as intergenerational investment motivated by altruism towards future generations of their own dynasty. Berman and Laitin (2008) show that religious terror groups provide local public goods to their members and their members' families.

<sup>8</sup> Yet, ethnic-separatist ideologies may be amalgamated with a socialist rhetoric as in the case of the Kurdistan Worker's Party (PKK) that has a Stalinist organization and rhetoric and an ethnic-separatist program.

losers can be approximated by the economy-wide growth rate. Thus, we expect right-wing terror to increase with economic growth, while we expect all other terror types to decline with economic growth, if at all.

The grievance that sparks ethnic-separatist terror is ethnic conflict. Members of an ethnic minority that seeks independence may resort to terror, in particular, if they feel oppressed by the majority ethnicity. We thus expect ethnic-separatist terror to be more likely to prevail where discriminated minorities exist. Unlike right-wing terror, ethnic-separatist terror is not expected to increase with ethno-linguistic fragmentation. If ethnic fragmentation increases, a potential dominance of one ethnicity over another is expected to decrease; ethnic tensions may be less concentrated and thus may cause less grievances (Montalvo and Reynal-Querol, 2005). In contrast, we expect ethnic-separatist terror to increase with ethno-linguistic polarization. The more ethnically polarized the society, the graver the tension between the ethnicities and thus the higher the number of terror attacks.

Religious terror seeks to establish “divine order” and thus fights against a secular organization of the state. It especially opposes other religious belief systems as these are perceived as a threat to the religious group’s identity. Religious terror targets different denominations within the own religion (such as Shiites and Sunnites or Protestants and Catholics) or different religions (Muslims against Hindus as in Kashmir or Muslims against Jews). We thus expect religious terror to increase with religious polarization, within or between religions. These religious conflicts often have an ethnic dimension as different ethnicities often have different religions or different denominations within a religion.<sup>9</sup> Islamist terror in particular is targeted against the intrusion of post-Enlightenment Western values into traditional Muslim societies (Stern, 2003).<sup>10</sup> We thus expect Islamist terror to be more prevalent in Muslim societies that are more exposed to Western influence, which we proxy by trade openness. We do not expect trade openness to have similar effects for other types of terror. Exposure to Western values may also be reflected by foreign policy variables like the country’s alignment with the US government or the presence of US troops in the country.

A conflict that could give rise to terror may be mitigated (condition 3) either because peaceful conflict resolution may open a satisfying avenue for compromise or because the grievances are lessened by other favorable circumstances. Democracies allow for the formulation of divergent political positions that can be fed into the political process and should thus reduce the need to resort to terror or facilitate the termination of terror (appropriateness of terror condition). A case in point is the Good Friday agreement in Northern Ireland that paved the way to *Sinn Féin*, the political wing of the IRA, joining a coalition government with its former enemies and discontinuing its terror. Yet, most of the ideologies supporting terror are inherently antidemocratic and target the democratic principle as such, which leaves democratic states little room for compromise. Especially in the case of religious terror, which derives its justification from supreme—divine—values, the scope for compromise is extremely limited (Bernholz, 2004, 2006; Stern, 2003). For these types of terror, a democratic organization of the state may not be a mitigating factor. Moreover, democratic governments, bound by the rule of law, may not be as effective in their fight against terror. Therefore, the effect of democracy on (the different types of) terror is not a priori clear.

Grievances could in principle be alleviated by material well-being, making richer countries less prone to terror than poorer ones (non-mitigation condition). Higher incomes may prevent individuals from engaging in terror as the opportunity costs of terror rise (de Mesquita, 2005); at the same time, if wealthier individuals care more about their families’ future welfare, they may be more likely to engage in terror (Azam, 2005). The bulk of the existing evidence points into the latter direction, showing that terrorists are better off than the pool from which they were drawn and do not predominantly stem from very poor countries (e.g., Berrebi, 2007; Krueger and Malečková, 2003; Kis-Katos et al., 2011a). As far as it constitutes another dimension of welfare, education of the population may also either mitigate or promote terror. In accordance with the results on wealth, micro-econometric studies also document a positive relationship between Islamist terror and education (Berrebi, 2007; Krueger and Malečková, 2003). Yet, a perceived *change* in economic well-being, proxied by the growth rate of GDP per capita, may be more effective in deterring potential terrorists from engaging in terror than an existing higher *level* of material well-being: Engaging in terror may be regarded as an investment in future welfare, but abstention from terror could also be seen as an investment by not disrupting favorable economic development.

Organizational ability (condition 4) depends on the one hand on the support base that terror groups enjoy. Support for terror in the relevant population (with the same religion, ethnicity, or political Weltanschauung) is a function of the intensity of grievances that may give rise to terror as well as of the size of the relevant population. On the other hand, it depends on the ability of the state to conduct an effective counter-terrorism policy, which does not alienate disenfranchised groups further (Siqueira and Sandler, 2006). More stable regimes are in a better position to defend their citizens than short-lived regimes. Weak states, defined as those that are in transition between regime types or that are occupied, or states engaged in internal or external conflicts are expected to have a lower ability to prevent terror groups from carrying out attacks. Consequently, we expect those states to experience more terror. These factors are expected to affect all terror types similarly with one exception: External conflict may fuel Islamist terror even more than other terror types if this conflict leads to a stronger exposure to the Western culture, for instance, through the presence of foreign troops. Moreover, religious terror groups may have organizational advantages over secular terror groups due to their system of sacrifices preceding their terror activities, which signal commitment and prevent defection (Berman and Laitin, 2008; Berman, 2009).

<sup>9</sup> Examples for such overlapping dimensions are the terror in the Northern Ireland conflict (Catholic Irish and Protestant British) or in Sri Lanka (Hindu Tamils vs. the Buddhist Sinhalese).

<sup>10</sup> Ayman Zawahiri, the former second-in-command of Al Qaeda accused the “new crusaders” of disseminating “immorality” in the guise of Western values of individual liberties, liberation and progressiveness; Ayman al-Zawahiri, Knights under the Prophet’s Banner, quoted from Stern (2003), Introduction, fn. 10.

**Table 1**  
Distribution of terror incidents by identified groups.

| Distribution of incidents                   | All events (%) | Ident. defined (%) | Left wing (%) | Right wing (%) | Ethnic/sep. (%) | Islamist (%) | Other relig. |
|---|----------------|--------------------|---------------|----------------|-----------------|--------------|--------------|
| <b>Type</b>                                 |                |                    |               |                |                 |              |              |
| Domestic terrorism                          | 85.9           | 86.4               | 88.5          | 86.1           | 81.5            | 70.5         | 91.1         |
| Intl. terrorism                             | 14.1           | 13.6               | 11.5          | 13.9           | 18.5            | 29.5         | 8.9          |
| Homeland terrorism                          | 95.2           | 93.2               | 94.9          | 91.5           | 87.5            | 84.5         | 95.1         |
| Intl. terrorism, cross-border               | 4.8            | 6.8                | 5.1           | 8.5            | 12.5            | 15.5         | 4.9          |
| <b>Damage</b>                               |                |                    |               |                |                 |              |              |
| No fatalities                               | 55.3           | 55.0               | 60.8          | 51.3           | 52.1            | 38.1         | 49.6         |
| At least one                                | 44.7           | 45.0               | 39.2          | 48.7           | 47.9            | 61.9         | 50.4         |
| No fatalities or injuries                   | 42.9           | 44.8               | 51.1          | 43.9           | 39.9            | 24.8         | 38.7         |
| At least one                                | 57.1           | 55.2               | 48.9          | 56.1           | 60.1            | 75.2         | 61.3         |
| <b>Decade</b>                               |                |                    |               |                |                 |              |              |
| 1970–1979                                   | 11.2           | 13.6               | 13.4          | 11.5           | 18.9            | 2.4          | 28.2         |
| 1980–1989                                   | 35.5           | 43.8               | 53.3          | 61.3           | 33.4            | 8.7          | 34.5         |
| 1990–1999                                   | 32.7           | 28.2               | 26.6          | 22.1           | 31.3            | 27.6         | 31.1         |
| 2000–2008                                   | 20.5           | 14.4               | 6.8           | 5.1            | 16.4            | 61.3         | 6.1          |
| <b>Region</b>                               |                |                    |               |                |                 |              |              |
| SE Asia, East Asia & Pacific                | 6.7            | 6.2                | 5.9           | 0.4            | 5.4             | 17.4         | 0.7          |
| Europe & Central Asia                       | 24.0           | 25.9               | 22.7          | 5.8            | 56.3            | 3.1          | 66.3         |
| Latin America & Caribbean                   | 32.5           | 42.7               | 60.6          | 61.3           | 3.0             | 0.0          | 23.9         |
| Middle East & North Africa                  | 13.1           | 6.9                | 2.1           | 0.9            | 6.4             | 47.1         | 0.8          |
| North America                               | 2.3            | 1.7                | 1.6           | 8.0            | 0.7             | 0.2          | 2.5          |
| South Asia                                  | 14.9           | 11.5               | 3.9           | 2.1            | 19.5            | 30.1         | 6.1          |
| Sub-Saharan Africa                          | 6.6            | 5.2                | 3.3           | 21.4           | 8.7             | 1.9          | 2.3          |
| Total percent                               | 100.0          | 100.0              | 100.0         | 100.0          | 100.0           | 100.0        | 100.0        |
| Total no. incidents                         | 87 708         | 41 807             | 25 979        | 3001           | 15 301          | 4821         | 5282         |
| Share in total incidents (%)                | 100.0          | 46.7               | 29.6          | 3.4            | 17.4            | 5.5          | 6.0          |
| Share in incidents by identified groups (%) |                | 100.0              | 62.1          | 7.2            | 36.6            | 11.5         | 12.6         |

Notes: This table presents the distribution of terror incidents by ideology across type, severity, decade and geographical region (origin-based). Each horizontal block shows the distribution of incidents among mutually exclusive categories, whereas ideological categories (vertical blocks) can also overlap. Data exclude the few attacks by Al-Qaeda International, but not of local branches of Al-Qaeda.

Terror types may differ systematically in the kind of grievances that give rise to terror; terrorists of different ideologies may be differently prepared to resort to non-violent means instead of using terror as their willingness to engage in compromise may differ substantially. Moreover, they may react to mitigating factors in different ways. This suggests that the determinants of terror will differ by terror type. Whether patterns of terror indeed differ significantly across different types is essentially an empirical question. Before we turn to the empirical investigation, however, we note that one type of terror may crowd out other types, as grievances that give rise to different terror types may overlap. For instance, while most of the Palestinian terror was secular prior to the first Intifada (with Fatah and the Popular Front for the Liberation of Palestine (PFLP) as dominant players), the Intifada witnessed the emergence of the Islamist terror ( Hamas, Palestinian Islamic Jihad) and a declining importance of secular, left-wing terror (cf. Post, 2008). Religious terror capitalized on grievances that secular terror had fed on previously. In other words, if we find significant differences in the determinants for terror between terror types, it may be despite the tendency of terror groups to cater also to those parts of the population which, from an ideological perspective, may be more inclined to support a different type of terror.

### 3. Terrorism data

#### 3.1. Classification of terror types

Our data on terrorism are taken from the *Global Terrorism Database* (GTD), provided by the National Consortium for the Study of Terrorism and Responses to Terrorism (START, 2011). GTD reports terror incidents and terror fatalities from 1970 onwards and includes domestic and international terror, which makes it the most comprehensive public database on terror. Our data cover the period 1970–2008, listing a total of 87 708 terror incidents (cf. Table 1).<sup>11</sup> Only this vast coverage of the GTD enables us to conduct a meaningful analysis of the heterogeneity of terrorist events.<sup>12</sup> Due to the computation of past averages for some control variables, in the regression analysis we focus on the time period from 1975 to 2008.

<sup>11</sup> See url: <http://www.start.umd.edu/gtd/> and LaFree and Dugan (2007).

<sup>12</sup> Enders et al. (2011) point out that the international terror events recorded in the GTD potentially suffer from underreporting in the 1970s and overreporting in the 1990s as compared to the ITERATE dataset. Despite such differences, we prefer the use of the GTD since it allows us to also consider



The Pinkerton Global Intelligence Services (PGIS), whose work provided the basis for the GTD, define terrorism as “the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation” (LaFree and Dugan, 2007, p. 184). For an event to be included in the GTD, it has to fulfill two of the following three criteria (START, 2011): (1) The violent act was aimed at attaining a political, economic, religious, or social goal; (2) The violent act included evidence of an intention to coerce, intimidate, or convey some other message to a larger audience (or audiences) other than the immediate victims; and (3) The violent act was outside the precepts of International Humanitarian Law.

As we inquire into a possible heterogeneity of the determinants for terror, we classify terror groups by their ideology. We distinguish political extremist terror (extreme left and extreme right), ethnic/separatist terror, and Islamist terror. Our major sources for classifying terror groups include Kushner (2003), the Terrorism Organization Profile database provided by START, the websites of (1) Terrorism Research and Analysis Consortium, (2) US National Counterterrorism Center, (3) GlobalSecurity.org, (4) The Institute for the Study of Violent Groups, (5) Federation of American Scientists, and (6) South Asia Terrorism Portal, Wikipedia, and numerous other online sources.<sup>13</sup>

We focus on terror attacks perpetrated by identified terror groups, even though some unidentifiable groups of perpetrators might be classified according to their ideology (such as “communists”). The reason for this is that identifiable terror groups pose a much larger threat to the state and its population than for instance spontaneous groups of protesters that used violent means to voice their opposition. Identifiable groups are much more likely to be organized and thus more effective in the medium term than unidentifiable groups. The classification of identifiable groups can also be made with greater certainty. For instance, we do not consider “Palestinians” as a separate terror “group”, although they are one of the largest “groups” of perpetrators with 1108 incidents. While we could safely assume that they have an ethnic-separatist motivation, they could also subscribe to both Islamist and leftist ideology, and hence are hard to identify in ideological terms. Overall, the number of terror attacks by vaguely circumscribed and not clearly identifiable (but not “unknown”) terror groups is relatively small (about 10% of the total).

For the set of identifiable groups, we used a very comprehensive coding protocol: We tried to classify all groups with more than one terror act or, if they committed one terror act only, with at least two fatalities. Using this coding rule, we are able to identify and classify the perpetrators of almost half of all terror events (cf. Table 1) and of somewhat more than half of all reported fatalities. About 40% of all events are not identifiable because perpetrators are listed as “unknown” or “other”; further 10% are committed by not identifiable and 2% by very small organizations. In total we classify 1258 distinct groups into at least one ideological category.<sup>14</sup>

For the classification itself, we used the following set of criteria: To qualify as a left-wing organization, a group must have a socialist, communist, or anarchist ideology. We also include organizations with anti-globalization, anti-nuclear-war, green, or animal, civil and gay rights agenda; this extension however affected the results only marginally. Major left-wing organizations include Latin American revolutionary groups like the Shining Path in Peru, the Farabundo Marti National Liberation Front in El Salvador, or the National Liberation Army of Colombia (ELN), but also ethnic-separatist organizations like the Kurdistan Workers' Party (PKK) or left-wing terrorist cells from Western Europe.

Right-wing terror groups include organizations or individuals with national-socialist or fascist ideologies, who actively promote racial or national supremacy, hatred, or xenophobic ideas. Moreover, we also classify anti-revolutionary groups as right-wing if they fight left-wing regimes. Major right/or anti-left groups include among others the Nicaraguan Democratic Force (FDN) and Nicaraguan Resistance (NR), the National Union for the Total Independence of Angola (UNITA), or the Jewish Defence League (JDL).

For an organization to be categorized as ethnic-separatist, it must have a clearly defined ethnic base of supporters and members or engage in separatist struggle. We also include violent anti-separatist groups in this category, since they are involved as counterparts in an ethnic-separatist struggle. Overall, the number of incidents by anti-separatist groups is small (580 out of a total of 15 308 events) and is strongly dominated by incidents in the Northern Ireland conflict (perpetrated by the Ulster Freedom Fighters and the Ulster Volunteer Force).

A terror group qualifies as religious if it has a declared religious identity, the majority of its supporters and members adhere to that religion (Christianity, Hinduism, Islam, Judaism, etc.), and they have religious goals (such as the introduction of the Sharia, the establishment of a theocracy, or extended rights/dominance for the members of their religion). Due to the

(footnote continued)

domestic terror events which are much more frequent and differently distributed from international events. In order to absorb potential average shifts in reporting style over time, all our empirical models include a full set of time dummies as additional controls.

<sup>13</sup> National Consortium for the Study of Terrorism and Responses to Terrorism (START): [www.start.umd.edu](http://www.start.umd.edu), (1): [trackingterrorism.org](http://trackingterrorism.org), (2): [www.nctc.gov](http://www.nctc.gov), (3): [www.globalsecurity.org](http://www.globalsecurity.org), (4): [vkb.isvg.org](http://vkb.isvg.org), (5): [www.fas.org](http://www.fas.org), and (6): [www.satp.org](http://www.satp.org). Wherever available, we used multiple sources on each group to check the consistency of our classification. The code for classifying terror groups is available from the authors' homepage.

<sup>14</sup> 324 “groups” that fulfill our cut-off rule of more than one incident or fatality cannot be classified; these include (1) general groups of population without clear ideological orientation, such as “Palestinians”, “students”, “protesters”, “villagers” or “taxi drivers”, (2) unidentified armed individuals described as “snipers”, “gunmen”, “mercenaries”, or “terrorists”, (3) purely criminal organizations like the Medellin Drug Cartel, the 14 K Triad, or the Condor Plan Criminals, and (4) some remaining groups without any clear ideology. (5) About 15 further groups remain unclassified because we could not unambiguously identify them based on available information; to name a few examples, these include the Forces of the Struggling Ranks, The Great Serpent, SYS, or Revolutionary Force 26. We pursue a conservative approach that excludes all groups from our regressions that cannot be clearly identified and classified.

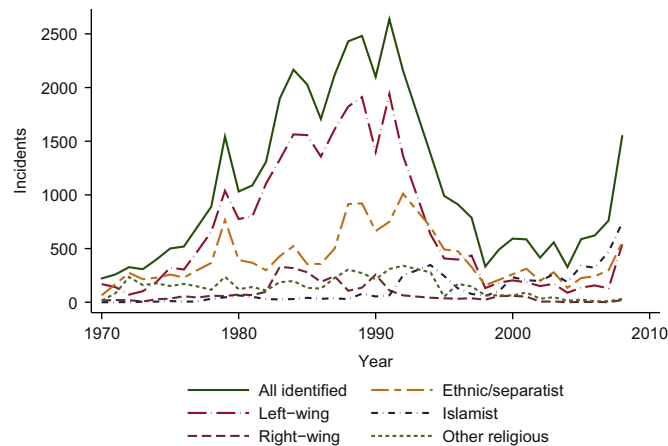


Fig. 1. Total number of terror events by identified groups by ideology from 1970 to 2008. Note: Missing values for 1993 have been smoothed.

number of incidents and the relatively large regional concentration of other religious terror, we run regressions only for Islamist terror. With the exception of left- and right-wing terror, these categories are not mutually exclusive—groups may be classified in more than one category, for instance, they may be left-wing and ethnic separatist as in the case of PKK or Islamist and separatist as in the case of Hamas. To account for the possibly different importance of ideologies, we defined a primary ideological orientation of each classified terror group: For instance, PKK is classified as predominantly separatist, whereas Hamas is predominantly Islamist. In other cases, the identification of a primary ideological orientation is much more difficult. The Moro Islamic Liberation Front operating in Mindanao (Southern Philippines), for example, is clearly Islamist and fights to establish an independent state for the Moro people in Mindanao. Since the ethnic and religious delineations coincide, it is very hard to establish which motivation dominates the other; we coded this group as primarily Islamist. Either way, we may encounter inevitable mistakes: To classify terror groups with more than one ideological orientation equally in both categories may neglect their different importance; to classify them only according to the perceived primary ideological orientation may disregard other—also important—ideological roots. To address this problem, we run separate regressions for multiple categorizations and for primary ideology only and present the latter in the Online Appendix. Overall, the results are quite similar, indicating that potential mistakes are small.

We are aware that ideological profiles may change over time and that classifications of this kind are always subject to a certain degree of ambiguity. In the case of the PKK, for instance, which was founded as an ethnic Kurdish organization with a clear Marxist agenda, the Marxist ideology has arguably lost some of its relevance today. However, the strategy of setting a date at which an organization stopped adhering to a certain ideology is even more ambiguous. In questionable cases of ideological stance we also looked into the timing of terrorist activities. To give an example, the People's Liberation Front (JVP) of Sri Lanka started off as a far-left, Marxist party. In the 1987/1989 insurrection, however, it took up the Sinhalese cause and organized its terror attacks (the ones recorded in the [START \(2011\)](#) database) along ethnic-chauvinist lines. Hence, we code its primary orientation as left-wing but record ethnic-separatist as its secondary motivation.

The origin country for each incident was assigned on the basis of the national identity of the responsible perpetrators as GTD does not list the origin country. This was mostly straightforward for identified groups. Only independent countries qualify as valid origins, e.g., Northern Ireland is part of the UK, Corsica belongs to France, etc. As an exception to this rule, the Palestinian territories are registered as an independent country, separate from Israel, for the time after 1993. Truly international terror networks like Al-Qaeda pose a problem for this strategy, but such groups are rare and most of their attacks can be assigned clearly to the respective regional branches. The remaining incidents from Al-Qaeda, for which we could not identify the country of origin, are excluded from our analysis (84 incidents in total).

The assignment of origin countries for groups operating from areas that stretch across borders remains debatable in principle; in practice it turned out not to be very problematic. In all cases, we assign the group to the principal originating country or the country where the main base of operation of the group lies. For instance, we assign the PKK in all cases to Turkey, the Basque ETA to Spain but the Basque Rectitudes to France, the Hizbul Mujahideen in the Kashmiri conflict to India but the Jammu and Kashmir Liberation Front to Pakistan. Excluding not clearly identified groups from our analysis also reduces the problem of assigning an origin country, which would have been more problematic in the case of vaguely described ethnic groups like “Basque terrorists”, “Kashmiri militants”, “Muslim militants” or “Kurdish separatists”.

### 3.2. Descriptive evidence on terrorism

The descriptive evidence on terror incidents shows a large heterogeneity between terror groups with different ideologies (cf. [Table 1](#)). For example, 55% of all attacks involve no fatalities, 43% neither fatalities nor injuries. These figures, however, hide widely different patterns for the individual terror types. Left-wing terror creates fewer fatalities (and injuries) per

attack; the most deadly form of terror is Islamist terror: in 62% of the attacks at least one person is killed, in 75% at least one person is killed or injured.

Also the geographical distribution of terror is different for the ideologies: About 43% of all incidents by terror organizations originate in Latin America and the Caribbean, followed by Europe and Central Asia (26%), and South Asia (12%). Organized left-wing terror is concentrated in Latin America and the Caribbean (61%) and in Europe and Central Asia (23%), right-wing terror originates predominantly in Latin America and Sub-Saharan Africa, while ethnic-separatist terror originates mainly from Europe and Central Asia (56%) and South Asia (20%). Islamist terror is concentrated in the Middle East and North Africa (47%) and South Asia (30%) and, to a lesser extent, Southeast Asia (17%).

The most striking difference between the types of terror, however, is the frequency of the events. The largest part of the classified terror incidents, almost 26 000 attacks, are perpetrated by left-wing terrorist groups, followed by ethnic-separatist attacks (15 301 attacks). Religious terror takes the third place with about 10 000 attacks, for half of which Islamist terrorists are responsible. Right-wing terror is the least frequent form of terror.

Total numbers reveal little about the dynamics in magnitude and composition of terror. The overall figures (cf. Fig. 1) show that terrorism steadily increased after 1970, peaked in the early 1990s and sharply declined afterwards. The years 2003–2008, however, saw again a steep increase. Beginning in 2003, terror levels increased each year up to 4668 incidents in 2008.<sup>15</sup> Hidden behind this aggregate trend is a major shift in the composition of terror (cf. Table 1). The increase in aggregate terror starting in the mid 1970s and peaking in the early 1990s is attributable mainly to an increase in left-wing and ethnic-separatist terror. Religious terror started to gain importance in the mid 1980s, Islamist terror only in the early 1990s. Right-wing terror remained of lesser significance at low levels and declined in the 2000s. The end of the Cold War led to a sharp decline in left-wing terror. Religious terrorism other than Islamist terror virtually disappeared towards the end of the 1990s with the advancement of the peace process in Northern Ireland. Similarly, ethnic-separatist events declined towards the year 2000, reflecting among others the ceasefire agreements by IRA and ETA and the capture of PKK leader Abdullah Öcalan in 1999.<sup>16</sup>

In sharp contrast is the surge in Islamist terror—89% of all incidents took place after 1990. Islamist terror has become increasingly deadly as well, with an upwards trend in fatalities (not shown here). Several historical developments illustrate this trend. For instance, Palestinian resistance shifted strongly from secular to Islamist ideologies (cf. Section 2). In Afghanistan, the Taliban first appeared on the political stage around 1994, some time after the retreat of the Soviet forces, and almost all of their attacks occurred during the American-led occupation starting in 2002. Likewise, over 80% of the Lebanese Hezbollah's attacks took place in the last two decades. Lastly, Islamist terror in Iraq took off only after the fall of Saddam Hussein's regime and the occupation by the US-led coalition forces following the Iraq war, which began in March 2003.

Terror events with identified perpetrators are relatively similarly distributed to all terror events, but the share of unidentified perpetrators increased in the last two decades, especially in the Middle East, North Africa and South Asia. Most countries with many attacks by unknown perpetrators (Iraq, Pakistan, Lebanon, and Afghanistan) have endured prolonged periods of civil war or regional insurgency and have experienced predominantly Islamist terror.

## 4. Empirical approach

### 4.1. Econometric model

From the original GTD data on single terrorist incidents we constructed a panel dataset with the number of terrorist attacks *originating* from a country in a given year for 160 countries and for each year between 1975 and 2008.<sup>17</sup> Our largest estimation sample consists of an unbalanced panel dataset with 4730 observations. The number of terror incidents in country *i* and year *t* ( $Y_{it}$ ) forms our dependent variable, which is a highly over-dispersed count variable (cf. Table A2). The probability distribution for count data is truncated at zero and strongly skewed to the right. The regression model best suited to accommodate this type of data is the negative binomial, which has become the standard model in the empirical analysis of terrorism (cf. Kis-Katos et al., 2011a, Table A1).

As a baseline regression model, we use the pooled negative binomial (PNB) model, which accommodates overdispersion by including a constant overdispersion parameter  $\delta$ . The probability mass function of this model is given by

$$\Pr(Y_{it} = y_{it} | \mathbf{x}_{it}, \delta) = \frac{\Gamma(\delta + y_{it})}{\Gamma(\delta)\Gamma(y_{it} + 1)} \left( \frac{\delta}{\delta + \mu_i} \right)^\delta \left( \frac{\mu_i}{\mu_i + \delta} \right)^{y_{it}}, \quad (1)$$

which can be thought of as a gamma mixture of Poisson distributed variables with the parameter  $\mu_i = \exp(\mathbf{x}'_{it}\boldsymbol{\beta})$ , where  $\mathbf{x}_{it}$  is the vector of explanatory variables. The moments of this so-called NB-2 model (Cameron and Trivedi, 1998) are  $E(y|\mu, \delta) = \mu$

<sup>15</sup> The data for 1993 are missing since all records for this year were lost by the PGIS (LaFree and Dugan, 2007). For the purpose of the graphing, they are projected, but they are treated as missing in the econometric analysis.

<sup>16</sup> The changing importance of different types of terror has been reflected in the 'wave theory of terrorism' (Shughart, 2006).

<sup>17</sup> For countries that ceased to exist (like the Soviet Union or Yugoslavia) or were newly formed (like the post-Soviet countries or East Timor), the length of the observation period is reduced accordingly. For a list of countries and the number of observations per country, see Table A3.



and  $\text{Var}(y|\mu, \delta) = \mu(1 + \delta\mu)$ . The model is robust to distributional misspecification, provided that the conditional means are correctly specified and we can estimate it also using cluster-robust standard errors. It does not allow, however, for individually different dispersion parameters and is insofar more restrictive than the conditional fixed-effects negative binomial panel model (Hausman et al., 1984; Cameron and Trivedi, 1986).

Our alternative model, the conditional fixed effects negative binomial (FENB) model is given by

$$\Pr(Y_{it} = y_{it} | \mathbf{x}_{it}, \delta_i) = \frac{\Gamma(\lambda_{it} + y_{it})}{\Gamma(\lambda_{it})\Gamma(y_{it} + 1)} \left( \frac{1}{1 + \delta_i} \right)^{\lambda_{it}} \left( \frac{\delta_i}{1 + \delta_i} \right)^{y_{it}}, \quad (2)$$

with parameters  $(\lambda_{it}, \delta_i)$ , where  $\lambda_{it} = \exp(\mathbf{x}_{it}\beta)$  and  $\delta_i$  denote the dispersion parameters. In this specific case, the dispersion (variance to mean ratio)  $1 + \delta_i$  is constant within each cross-sectional unit (Cameron and Trivedi, 1986). The fixed-effects model is favored over the random-effects model as it is less restrictive by allowing an arbitrary correlation between the country specific effect  $\delta_i$  and the independent variables.

The FENB model is not a “true” fixed effects model in the sense that time-invariant individual regressors are captured by the fixed effects (Allison and Waterman, 2002; Guimaraes, 2008). It models individually different dispersion parameters (which affect means and variances), but unlike the traditional fixed effects models, it allows estimating time-invariant individual parameters. One important property of the FENB model is, however, that it drops all countries from the sample that do not have any positive counts (of terror attacks) in the time period covered as the individual dispersion parameter cannot be estimated. In aggregate analyses of terror, this is inconsequential as countries that never experience terror attacks of any kind are relatively rare; in our context, this has the disadvantage that the sample sizes differ for different terror types, which hampers comparability. For instance, some countries may experience left-wing terror but never Islamist terror; they will be included in the sample for the former type of terror but not in the latter. Thus, results of the FENB model are conditional on terror of a specific type occurring at all; keeping this in mind is crucial for a correct interpretation of the results. Since the FENB model is more flexible by allowing individually different dispersion parameters, but more restricted by disallowing same sample sizes for different terror types, we opted to report both sets of results and to compare them.

#### 4.2. Explanatory variables

Our analysis, like most analyses in this strand of the literature, relates terror incidents per country-year to country characteristics at the macro level in order to identify the causes of terror from the origin perspective. Our choice of covariates in the baseline model is based on a careful review of the existing empirical and theoretical literature and guided by the idea to use an econometric specification that is representative of the literature and robust to variations in the set of covariates.<sup>18</sup> In order to better describe ideology-specific determinants of terror, we extend our baseline model by a further set of ideology-specific controls. A detailed overview of the explanatory variables, their exact definitions and their sources is provided in Table A1, descriptive statistics are in Table A2.

Terrorism is not only determined by the political and economic environment but may also affect a country's economy and its political system (e.g., Abadie and Gardeazabal, 2003; Drakos and Kutun, 2003; Blomberg et al., 2004; Gassebner et al., 2008; Gould and Klor, 2010). To address concerns of possible endogeneity, we lag all relevant political-economic variables by one period or calculate them over a period of several past years. Moreover, we control for the intensity of terror over the past five years, and hence condition on the overall terror environment; this should mitigate issues of temporal dependency (Campos and Gassebner, 2013) and autocorrelation. In all regressions, we also include a complete set of year fixed effects to capture shocks common to all countries (or change in reporting style, cf. fn. 12). By using year fixed effects, we cannot explain the socio-economic determinants of the ideological shifts in terror over the examined 34 years, only cross-country differences in the intensity of terror and its shifts over time.

The baseline model includes a set of controls for the economic environment, political freedom, stability and conflict history, as well as controls for urbanization, openness and population size. *GDP per capita* in quartile splines serves as the main economic control. Quartiles are defined separately for each year, so that relative income differences are measured rather than absolute ones.<sup>19</sup> We capture changes in economic conditions and potential modernization pressure by *GDP growth*, the growth rate of GDP per capita. Although GDP levels and growth should be highly correlated from a theoretical perspective, in reality, this is not the case.

The political system is captured by categories of the polity score, a composite index of democracy from the Polity IV dataset.<sup>20</sup> The variable measures competitiveness and openness of executive recruitment, constraints on the executive as

<sup>18</sup> Gassebner and Luechinger (2011) analyze 40 studies on terror using our approach or similar ones and find 62 variables in total that were used to explain terror.

<sup>19</sup> GDP data are predominantly based on PWT 6.3 and extended by quartile dummies (and growth rates) from further sources for dissolved states or missing data (for a comparison of PWT 6.3 and 7.0, see Breton, 2012). We use the same quartile definitions in all regressions; for subsamples of countries, one could also compute the income quartiles by subsample. We compared these two alternatives; the results are not substantially affected by how we define the income quartiles.

<sup>20</sup> The Polity IV indicator is preferred over the more commonly used democracy indicator by Freedom House because it is consistent over time. The Freedom House index has undergone numerous changes in scaling and methodology over time and thus cannot be used in panel analyses (Linder and Santiso, 2003; Freedom House, 2011).

well as the regulation and competitiveness of political participation. In accord with the political science literature (Collier and Levitsky, 1997; Epstein et al., 2006), we differentiate between *autocracy*, *partial democracy*, and *full democracy* as state form. Additionally, we record the political system as a *weak state* if it is in transition, under anarchy, or under foreign rule. In all regressions, *autocracy* functions as the left out comparison group.

Stability and the conflict environment are measured by the *years of domestic* and *years of international conflict*, which record the number of years (out of the past five years, in order to mitigate endogeneity issues) during which the country has suffered from armed conflict. Conflict is defined here as “a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths” (Gleditsch et al., 2002); this has been shown to fuel terrorism (e.g., Campos and Gassebner, 2013). In addition to that, *past events* measure the average number of terror events per year over the last five years, and control for temporal contagion. *Regime durability*, which affects the effectiveness of counter-terrorism, is measured by the number of years since the last drastic regime change, indicated by at least a three point change in a country’s polity score over three years (see e.g., Li, 2005).

The organizational ability of terror networks may be affected by *urbanization*, which may also make a country an attractive target as the damage and terror created by it may be larger (cf. Tavares, 2004). Urbanization is measured as the share of population living in urban areas. To control for size effects, we also include the size of *population*—more populous countries create more terror incidents per year, other things being equal. As a measure of economic integration, dependence on other countries and exposure to foreign cultural influence, *openness*—measured as the sum of imports and exports over GDP—is also included in the baseline regressions (see e.g., Li and Schaub, 2004).<sup>21</sup>

The baseline model is further extended by additional control variables reflecting heterogeneity in grievances, in the scope for mitigation and in the terrorist groups’ organizational ability. These additional controls are included on a one-by-one basis only, because of their shorter time or narrower country coverage or the lack of time variation. The effects of education are measured by the average years of *schooling*. Inequality is measured by each country’s *Gini coefficient* (previously used by e.g., Li and Schaub, 2004). We capture *ethno-linguistic fragmentation* by the ELF(15) measure of Desmet et al. (2012): It records fine linguistic differences at the 15th level of a language tree and has been shown to be highly influential in explaining conflict. Alternatively, we also include *ethno-linguistic polarization* as an explanatory variable. As a further measure of ethnic cleavages, we use an indicator variable that records whether there is at least one considerable minority within the country that is discriminated in economic or political terms; this has been shown to increase the likelihood of domestic terror attacks (Piazza, 2011). The above three ethnic and linguistic variables are time-invariant. We capture the potential for religious conflict by two religious polarization variables: *Inter-religious polarization* records polarization across the major religions (Christian, Muslim, Jewish, Hindu, Buddhist, etc.); *intra-religious polarization* measures polarization within the largest religion of each country and hence encodes polarization along the dimensions of either Shia/Sunni/other Islamist denominations or Catholics/Protestants/Orthodox/other Christian churches. Lastly, we include foreign policy variables as these have been shown to affect transnational terrorism (Dreher and Gassebner, 2008; Savun and Phillips, 2009). We include an index of how aligned a country’s voting behavior is to the US in the UN General Assembly (Dreher and Sturm, 2012) and the size of *US troops* in a country, normalized by population to measure their visibility.

## 5. Results

### 5.1. Baseline results

We present the results on the number of terror incidents originating from a given country in a given year by terror type. We first always report the results from the PNB model in order to have the same set of countries for each terror type (cf. Section 4.1). Results from the FENB model are discussed subsequently and contrasted to the PNB results. The unconditional pooled model portrays the characteristics that make a country home to (a specific type of) terror and, if it exists, determine its magnitude. The conditional fixed effect model analyzes the characteristics that increase a specific type of terror, given that terror exists at all. In the case of Islamist terror, the unconditional PNB perspective has one specific drawback: While, in principle, left- and right-wing terror could occur in any country, and ethnic-separatist terror could arise in a large number of countries, Islamist terror can only originate in a subset of countries with at least some Muslim population.<sup>22</sup> Unconditional PNB models may thus in part describe characteristics of countries in which Muslims live rather than the determinants of Islamist terror as such. To account for this, we additionally control for the share of Muslims in the population (model 6 of Tables 2 and 4). Alternatively, the conditional FENB results are estimated only for countries with at least one Islamist terror attack.

<sup>21</sup> We have also used the KOF index of globalization as an alternative measure for integration and foreign—Western—influence (Dreher, 2006). Results are similar in spirit, but do not reach usual significance levels in most specifications. For instance, coefficients on the index are positive but insignificant for Islamist terror.

<sup>22</sup> The same problem could in principle also apply to other religious terrors, but because of the small group of affected countries, we do not distinguish between other religions.

**Table 2**

Attacks by identified groups: pooled negative binomial model.

| Attack types:                                 | Total (1)             | Left-wing (2)        | Right-wing (3)      | Ethn.-sep. (4)        | Islamist (5)        | Islamist 2 (6)        |
|---|-----------------------|----------------------|---------------------|-----------------------|---------------------|-----------------------|
| GDP pc. quart. 2 ( $t-1$ )                    | 3.070***<br>(1.052)   | 2.372<br>(1.464)     | 1.317<br>(0.814)    | 2.506*<br>(1.200)     | 9.988***<br>(5.916) | 31.986***<br>(19.845) |
| GDP pc. quart. 3 ( $t-1$ )                    | 3.515***<br>(1.527)   | 4.746**<br>(3.212)   | 0.682<br>(0.564)    | 3.977**<br>(2.515)    | 3.579<br>(3.067)    | 18.962***<br>(16.396) |
| GDP pc. quart. 4 ( $t-1$ )                    | 5.555***<br>(3.358)   | 7.490**<br>(6.785)   | 0.256<br>(0.287)    | 13.131***<br>(12.519) | 5.342*<br>(5.023)   | 16.880***<br>(15.445) |
| GDP pc. growth ( $t-1$ )                      | 0.993<br>(0.006)      | 0.999<br>(0.008)     | 1.030***<br>(0.008) | 0.990<br>(0.006)      | 0.995<br>(0.008)    | 1.004<br>(0.006)      |
| Partial democracy ( $t-1$ )<br>(Polity cat.2) | 1.477<br>(0.362)      | 4.395***<br>(1.520)  | 0.583<br>(0.241)    | 2.609***<br>(0.840)   | 0.580<br>(0.340)    | 1.618<br>(0.850)      |
| Full democracy ( $t-1$ )<br>(Polity cat.3)    | 0.955<br>(0.251)      | 2.811***<br>(1.068)  | 1.454<br>(0.711)    | 1.083<br>(0.361)      | 0.265***<br>(0.127) | 3.792***<br>(1.677)   |
| Weak state ( $t-1$ )<br>(Polity cat. X)       | 3.340***<br>(1.079)   | 3.735***<br>(1.445)  | 0.716<br>(0.368)    | 4.558**<br>(2.939)    | 8.945***<br>(5.411) | 25.812***<br>(17.175) |
| Years of dom. conflict                        | 1.585***<br>(0.081)   | 1.492***<br>(0.119)  | 2.326***<br>(0.302) | 1.890***<br>(0.124)   | 1.700***<br>(0.154) | 1.936***<br>(0.205)   |
| Years of intl. conflict                       | 0.954<br>(0.107)      | 0.765<br>(0.130)     | 0.885<br>(0.204)    | 1.225<br>(0.155)      | 1.404**<br>(0.233)  | 1.175<br>(0.311)      |
| Past events                                   | 22.013***<br>(14.796) | 12.602***<br>(8.716) | 6.538***<br>(4.261) | 20.949***<br>(15.988) | 4.518*<br>(3.600)   | 2.038<br>(1.108)      |
| Regime durability ( $t-1$ )                   | 0.936*<br>(0.037)     | 0.908*<br>(0.047)    | 1.078<br>(0.066)    | 0.889**<br>(0.046)    | 0.992<br>(0.062)    | 1.016<br>(0.053)      |
| Urbanization (%)                              | 1.002<br>(0.008)      | 1.006<br>(0.011)     | 1.048***<br>(0.017) | 0.991<br>(0.011)      | 0.999<br>(0.016)    | 0.989<br>(0.016)      |
| Openness ( $t-1$ )                            | 0.910***<br>(0.028)   | 0.908*<br>(0.052)    | 0.907**<br>(0.039)  | 0.907***<br>(0.028)   | 0.987<br>(0.043)    | 0.930<br>(0.041)      |
| Population                                    | 1.001<br>(0.002)      | 1.002<br>(0.003)     | 1.001<br>(0.002)    | 1.002<br>(0.001)      | 1.004<br>(0.009)    | 1.003<br>(0.003)      |
| Share of Muslims                              |                       |                      |                     |                       |                     | 1.045***<br>(0.007)   |
| Year fixed effects                            | Yes                   | Yes                  | Yes                 | Yes                   | Yes                 | Yes                   |
| No. countries                                 | 160                   | 160                  | 160                 | 160                   | 160                 | 157                   |
| No. observations                              | 4730                  | 4730                 | 4730                | 4730                  | 4730                | 4693                  |
| Dispersion par. ( $\alpha$ )                  | 6.306                 | 9.469                | 23.358              | 12.518                | 17.581              | 12.460                |
| GDP qt. 2=3                                   | 0.648                 | 0.058                | 0.284               | 0.223                 | 0.085               | 0.335                 |
| GDP qt. 2=4                                   | 0.176                 | 0.037                | 0.059               | 0.017                 | 0.376               | 0.293                 |
| GDP qt. 3=4                                   | 0.217                 | 0.341                | 0.123               | 0.059                 | 0.353               | 0.797                 |
| Polity cat. 2=3                               | 0.130                 | 0.321                | 0.085               | 0.015                 | 0.254               | 0.115                 |
| Polity cat. 2=X                               | 0.000                 | 0.559                | 0.259               | 0.021                 | 0.000               | 0.006                 |
| Polity cat. 3=X                               | 0.007                 | 0.607                | 0.749               | 0.400                 | 0.001               | 0.000                 |
| Mean of attacks                               | 8.282                 | 5.278                | 0.615               | 2.815                 | 0.910               | 0.917                 |

Note: All models are estimated by pooled negative binomial regressions and include a full set of year dummies. Standard errors are clustered at the country level. Estimation results are presented in the form of incidence rate ratios.

\*\*\* Denotes significance at the 1% level.

\*\* Denotes significance at the 5% level.

\* Denotes significance at the 10% level.

Our baseline results are presented in Tables 2 and 3 and contain the most commonly used variables that capture the three groups of determinants discussed in the literature: economic prosperity, political freedom and regime stability/conflict history. In Section 5.2 we present results on further variables that capture ideological differences between terror types in a number of additional dimensions. Our baseline regressions allow for the maximum number of 160 countries; the introduction of further variables reduces the sample to 133–157 countries (depending on the specification). All results are reported in the form of incidence rate ratios.<sup>23</sup>

Column 1 of Table 2 presents the PNB results for total terror, disregarding differences in group ideologies. Terror increases monotonically with GDP per capita. Moving from the lowest income quartile of countries (the omitted category) to the highest quartile increases the number of terror incidents by the factor 5.6; in other words, incidents rise by 460%.<sup>24</sup> That

<sup>23</sup> The incidence rate ratio (IRR) for variable  $X_j$  describes by how much the expected number of incidences increases if  $X_j$  increases by one unit relative to the expected number of incidences at the baseline, i.e.  $IRR_j = E(Y|X_{-j}, X_j) / E(Y|X_{-j}, X_j + 1)$ . The IRRs for binary variables are interpreted accordingly: The IRR of 3.07 in the first column, first row of Table 2 indicates that the number of total terror incidents originating from a country in a given year increases by the factor of 3.07 if the country belongs to the second quartile of the GDP per capita distribution instead of the first quartile (the omitted base category).

<sup>24</sup> We test for equality of coefficients for the second, third, and fourth quartiles of income per capita and polity score.  $p$ -Values are given in the lower panel of the tables. In column 1, the coefficients for the second, third, and fourth GDP quartiles are not statistically significantly different from each other at usual significance levels.

**Table 3**  
Attacks by identified groups: fixed effects negative binomial model.

| Attack types:   | Total (1)           | Left-wing (2)       | Right-wing (3)      | Ethn.-sep. (4)      | Islamist (5)        |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|
| GDP pc. quart. 2 ( $t-1$ )                              | 1.705***<br>(0.188) | 1.406*<br>(0.265)   | 1.047<br>(0.360)    | 1.420**<br>(0.216)  | 3.672***<br>(0.979) |
| GDP pc. quart. 3 ( $t-1$ )                              | 2.818***<br>(0.416) | 2.287***<br>(0.518) | 1.301<br>(0.572)    | 2.004***<br>(0.469) | 2.840***<br>(1.018) |
| GDP pc. quart. 4 ( $t-1$ )                              | 6.019***<br>(1.127) | 3.799***<br>(0.989) | 3.057**<br>(1.663)  | 8.076***<br>(2.492) | 5.861***<br>(2.922) |
| GDP pc. growth ( $t-1$ )                                | 0.999<br>(0.003)    | 0.995<br>(0.005)    | 1.019**<br>(0.009)  | 0.996<br>(0.005)    | 1.003<br>(0.005)    |
| Partial democracy ( $t-1$ )<br>( <i>Polity cat. 2</i> ) | 1.287***<br>(0.118) | 1.663***<br>(0.220) | 0.756<br>(0.192)    | 1.700***<br>(0.231) | 1.385*<br>(0.271)   |
| Full democracy ( $t-1$ )<br>( <i>Polity cat. 3</i> )    | 1.131<br>(0.120)    | 1.607***<br>(0.220) | 0.379***<br>(0.102) | 2.005***<br>(0.311) | 1.013<br>(0.206)    |
| Weak state ( $t-1$ )<br>( <i>Polity cat. X</i> )        | 1.374***<br>(0.165) | 1.097<br>(0.204)    | 1.011<br>(0.319)    | 1.926***<br>(0.376) | 2.646***<br>(0.651) |
| Years of dom. conflict                                  | 1.284***<br>(0.023) | 1.283***<br>(0.032) | 1.207***<br>(0.054) | 1.444***<br>(0.038) | 1.101***<br>(0.038) |
| Years of intl. conflict                                 | 0.862***<br>(0.035) | 0.934<br>(0.053)    | 0.851<br>(0.107)    | 1.009<br>(0.057)    | 1.132**<br>(0.068)  |
| Past events   | 1.452***<br>(0.045) | 1.345***<br>(0.057) | 1.471***<br>(0.123) | 1.265***<br>(0.074) | 1.405***<br>(0.086) |
| Regime durability ( $t-1$ )                             | 0.959***<br>(0.014) | 0.954***<br>(0.016) | 0.892***<br>(0.032) | 0.974<br>(0.022)    | 0.849***<br>(0.029) |
| Urbanization (%)  | 0.995*<br>(0.003)   | 1.008**<br>(0.004)  | 1.012<br>(0.009)    | 0.985***<br>(0.005) | 0.998<br>(0.007)    |
| Openness ( $t-1$ )                                      | 0.984<br>(0.011)    | 0.997<br>(0.016)    | 1.049<br>(0.037)    | 1.001<br>(0.018)    | 1.062***<br>(0.022) |
| Population  | 1.002***<br>(0.000) | 1.001**<br>(0.000)  | 1.014***<br>(0.002) | 1.001**<br>(0.000)  | 1.002**<br>(0.001)  |
| Year fixed effects                                      | Yes                 | Yes                 | Yes                 | Yes                 | Yes                 |
| No. countries   | 107                 | 63                  | 40                  | 63                  | 42                  |
| No. observations  | 3293                | 2008                | 1301                | 1965                | 1298                |
| GDP qt. 2=3   | 0.000               | 0.000               | 0.453               | 0.056               | 0.271               |
| GDP qt. 2=4   | 0.000               | 0.000               | 0.009               | 0.000               | 0.221               |
| GDP qt. 3=4   | 0.000               | 0.001               | 0.005               | 0.000               | 0.027               |
| Polity cat. 2=3   | 0.190               | 0.781               | 0.009               | 0.272               | 0.166               |
| Polity cat. 2=X   | 0.155               | 0.038               | 0.003               | 0.839               | 0.000               |
| Polity cat. 3=X   | 0.604               | 0.024               | 0.375               | 0.546               | 0.014               |
| Mean of attacks   | 11.896              | 12.433              | 2.234               | 6.775               | 3.314               |

Note: All models are estimated by fixed effects negative binomial models and include a full set of year dummies. Estimation results are presented in the form of incidence rate ratios, with standard errors in parentheses.

\*\*\* Denote significance at the 1% level.

\*\* Denote significance at the 5% level.

\* Denote significance at the 10% level.

is a highly significant and very sizable effect; the income gradient becomes even more pronounced in the FENB model (cf. Table 3). Our results thus corroborate findings in the literature that poverty is not the hotbed for terrorism (e.g., Freytag et al., 2011). Economic growth is not significantly associated with terrorism. In terms of the political system, the estimated incidence rate ratio indicates that almost 1.3–1.5 times as many attacks originate from *partial democracies* as compared to non-democratic states (the omitted category), although the effect is only significant in the FENB model, while no significant difference can be found for *full democracies*. Such a difference could be a result of autocratic states being less restrained by civil rights and liberties in their fight against terrorism and therefore be more effective (e.g., Eubank and Weinberg, 1998; Enders and Sandler, 2006). Alternatively, autocratic states might be able to effectively control the media and thereby prevent terror attacks from being reported in the press and thus included in our database (Drakos and Gofas, 2006). Conflict history and political stability exert a large influence on the occurrence of terror, which confirms the failed states hypothesis (see e.g., Piazza, 2008). *Weak states*, i.e. those under foreign rule, in transition between regime types, or in anarchy, generate three times as many terror attacks (1.4 times in the FENB model) as autocracies. Likewise, *domestic conflict* has a strong influence on terror activities: each year in the past five years that witnessed domestic conflict increases the number of terror attacks by more than half (by the factor of 1.3 in the FENB model). *International conflicts* seem not to increase total terror incidents and might even reduce them among the countries that experienced terror (in the FENB model). *Past events* increase the number of current events significantly and very strongly; *regime durability* reduces terror incidents significantly: each year without regime change reduces terror incidents by 6%. *Urbanization* is significantly negative in the FENB model only, *openness* reduces terror incidents significantly in the full sample: a 10 percentage point increase in openness reduces terror incidents by 9%.

Yet, hidden behind these aggregate figures is a very distinct heterogeneous pattern. Thus, aggregate determinants are uninformative for the behavioral determinants of different types of terror groups. Traditional analyses on the determinants of terror therefore run into something similar to the common ecological fallacy problem. While the aggregate figures (columns 1 of Tables 2 and 3) show a monotonous increase of terror incidents with income, with the second/third/fourth *income quartile* having 3/3.5/5.6 times as many incidents as countries in the first quartile, this increase is much steeper for left-wing terror and especially for ethnic-separatist terror. The latter is concentrated in the highest income quartile countries with terror incidents being 13 times more frequent than in the countries in the lowest quartile, making ethnic-separatist terror—and to a lesser extent left-wing terror—a rich country phenomenon. In contrast, there is no clear income pattern for Islamist terror, with second income quartile countries experiencing more terror than those in the first and third quartiles.<sup>25</sup> Right-wing terror is mostly independent of GDP per capita. This describes the pattern for the entire sample of countries, whereas when focusing only on countries with right-wing terror, terror is concentrated in the richest quartile. *Growth* of GDP per capita does not alleviate terror—the negative effect never becomes significant at usual levels. However, right-wing terror increases with GDP growth, both in the PNB and in the FENB model. This corroborates the modernization loser-hypothesis (Betz, 1994; Minkenberg, 2003; Rydgren, 2007) and—again—distinguishes right-wing terror from all other terror types.

While there was no significant pattern for total terror with respect to democracy, there are large variations between and distinct patterns for different types of terror: Left-wing terror is strongly concentrated in democratic states, but there is no pattern for right-wing terror in the total sample. For those countries that experience right-wing terror, *full democracies* are home to right-wing terror more than 60% less often (FENB). This is opposite to the result for left extremist terror, but also for ethnic-separatist terror: the latter originates 2.6 times more often in *partial democracies* and 1.7 (2.0) times more often in *partial (full) democracies* than in autocracies in the set of countries that do experience ethnic-separatist terror (FENB). Islamist terror originates from *full democracies* much less often in the PNB model, but this only reflects that Muslims happen to live much less often in strongly democratic states. The favorable effect of democracy disappears in the FENB model and is even reversed in the PNB model once we control for the share of Muslims in total population (column 6 of Table 2): 3.8 times more Islamist terror attacks originate in *full democracies* than in the reference category. Thus, for left-wing and ethnic-separatist terror, but also for Islamist terror, we do not find any reliable evidence that terror is rooted in the deprivation of political rights or that democratic structures mitigate grievances. For right-wing terror, however, democratization may actually help to reduce terror incidents.

*Weak states* are clearly a hotbed for terror of all types, as expected—except for right-wing terror. However, the effect for Islamist terror is much stronger than for left-wing or ethnic-separatist terror; in the PNB model the effect almost triples if we control for the share of Muslims. *Years of domestic conflict* increase terror incidents significantly for all terror groups as they weaken the effectiveness of counter-terrorism strategies and stir up violent opposition—a situation conducive for terror groups to organize effectively, irrespective of their ideological orientation. *International conflicts*, in contrast, do not affect terror significantly. They may weaken the countries' abilities to fight terrorism as domestic conflicts do, at the same time, they may dominate domestic conflicts and silence opposition either violently (e.g., through the imposition of martial law) or through creating solidarity against a common—external—enemy, making the net effect insignificant. The only exception is Islamist terror, which increases significantly and strongly (in both PNB and FENB models). This supports the thesis that a major grievance that gives rise to Islamist terror is Western influence, which is perceived as a threat to Muslim identity. International conflicts may pave the way for these cultural influences especially if foreign—Western—troops operate in the country. This result is consistent with the finding that suicide attacks, which are predominant among Islamist terrorists, often arise as a response to foreign occupation (Pape, 2003; Collard-Wexler et al., *in press*). *Past terror* increases present terror, indicating that terror is a persistent phenomenon. *Regime stability* reduces terror. This is a common pattern across all types of terror.

Right-wing terror occurs in more *urbanized* countries; yet, if we condition on the countries in which terror of some type occurs, it is shown that left-wing terror is a more urban phenomenon, while ethnic-separatist terror is more prevalent in rural areas. More *open* countries experience less political and separatist terror, but this effect vanishes if we restrict our samples to the countries that experience terror of the respective type at all (FENB). Then only Islamist terror increases significantly—a 10 percentage point higher openness increases Islamist terror by 6%. Again, this supports the hypothesis that Islamist terror is fueled by the perceived threat to traditionalist Muslim identity posed by foreign—Western—influences, proxied by the intensity of international trade.

## 5.2. Extensions

We extend our baseline results in a number of ways by including additional variables in our baseline specification. Results are presented in Tables 4 and 5. Average years of *schooling* have no significant effect on terror in the PNB model, except for Islamist terror, which significantly decreases with education. Again, this is an indication that Islamist terror originates in countries that have less average education, not that increased education reduces terror. Once we control for the share of Muslims in the population, we obtain the opposite result: One additional year of average education increases the

<sup>25</sup> Once we control for the share of Muslim population, the coefficients on income increase very strongly; still no monotonic income gradient arises. There is no monotonic income effect in the FENB model for Islamist terror either. All income patterns remain qualitatively the same in the FENB model, if we substitute our income quartiles based on the whole sample with income quartiles computed for each group of countries separately (results available upon request).



**Table 4**  
Attacks, with further controls: pooled negative binomial model.

| Attack types:                | Total (1)           | Left-wing (2)       | Right-wing (3)      | Ethn.-sep. (4)      | Islamist (5)        | Islamist 2 (6)     |
|------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|
| Schooling                    | 0.923<br>(0.062)    | 0.962<br>(0.095)    | 1.011<br>(0.119)    | 0.943<br>(0.084)    | 0.731***<br>(0.081) | 1.301*<br>(0.187)  |
| No. countries                | 133                 | 133                 | 133                 | 133                 | 133                 | 133                |
| No. observations             | 4071                | 4071                | 4071                | 4071                | 4071                | 4071               |
| Mean of attacks              | 9.229               | 6.014               | 0.609               | 3.150               | 0.941               | 0.941              |
| Gini coefficient             | 1.024<br>(0.016)    | 1.109***<br>(0.022) | 1.027<br>(0.019)    | 0.977<br>(0.018)    | 0.966<br>(0.021)    | 1.004<br>(0.023)   |
| No. countries                | 134                 | 134                 | 134                 | 134                 | 134                 | 132                |
| No. observations             | 2782                | 2782                | 2782                | 2782                | 2782                | 2751               |
| Mean of attacks              | 11.471              | 8.390               | 0.272               | 4.172               | 0.686               | 0.694              |
| Ethno-linguistic fract.      | 0.993*<br>(0.004)   | 0.986**<br>(0.005)  | 0.988*<br>(0.007)   | 1.006<br>(0.005)    | 1.014**<br>(0.007)  | 1.015**<br>(0.006) |
| No. countries                | 155                 | 155                 | 155                 | 155                 | 155                 | 154                |
| No. observations             | 4653                | 4653                | 4653                | 4653                | 4653                | 4647               |
| Mean of attacks              | 8.372               | 5.332               | 0.625               | 2.848               | 0.925               | 0.926              |
| Ethno-linguistic polariz.    | 1.000<br>(0.004)    | 0.990<br>(0.007)    | 0.981**<br>(0.008)  | 1.013*<br>(0.007)   | 1.045***<br>(0.009) | 1.014<br>(0.009)   |
| No. countries                | 155                 | 155                 | 155                 | 155                 | 155                 | 154                |
| No. observations             | 4653                | 4653                | 4653                | 4653                | 4653                | 4647               |
| Mean of attacks              | 8.372               | 5.332               | 0.625               | 2.848               | 0.925               | 0.926              |
| Discrim. minority exists     | 1.851***<br>(0.414) | 2.639***<br>(0.899) | 1.184<br>(0.457)    | 3.730***<br>(1.090) | 1.495<br>(0.548)    | 0.805<br>(0.286)   |
| No. countries                | 160                 | 160                 | 160                 | 160                 | 160                 | 157                |
| No. observations             | 4730                | 4730                | 4730                | 4730                | 4730                | 4693               |
| Mean of attacks              | 8.282               | 5.278               | 0.615               | 2.815               | 0.910               | 0.917              |
| Intra-rel. polarization      | 0.999<br>(0.003)    | 1.001<br>(0.005)    | 1.011*<br>(0.006)   | 0.993<br>(0.005)    | 0.992<br>(0.005)    | 1.004<br>(0.006)   |
| Inter-rel. polarization      | 0.992**<br>(0.004)  | 0.979***<br>(0.006) | 0.980***<br>(0.007) | 1.012**<br>(0.005)  | 1.001<br>(0.007)    | 1.011*<br>(0.006)  |
| Share of non-religious       | 0.977<br>(0.015)    | 0.927***<br>(0.020) | 1.031*<br>(0.018)   | 1.005<br>(0.020)    | 0.899***<br>(0.025) | 0.955*<br>(0.026)  |
| No. countries                | 157                 | 157                 | 157                 | 157                 | 157                 | 157                |
| No. observations             | 4693                | 4693                | 4693                | 4693                | 4693                | 4693               |
| Mean of attacks              | 8.347               | 5.320               | 0.619               | 2.837               | 0.917               | 0.917              |
| Voting with the US ( $t-1$ ) | 1.056<br>(0.093)    | 1.298*<br>(0.205)   | 0.801<br>(0.119)    | 0.822<br>(0.103)    | 0.725**<br>(0.105)  | 0.862<br>(0.137)   |
| No. countries                | 150                 | 150                 | 150                 | 150                 | 150                 | 150                |
| No. observations             | 4407                | 4407                | 4407                | 4407                | 4407                | 4407               |
| Mean of attacks              | 7.429               | 5.150               | 0.601               | 1.894               | 0.959               | 0.964              |
| US troops per pop. ( $t-1$ ) | 1.314*<br>(0.208)   | 0.975<br>(0.119)    | 1.826***<br>(0.445) | 0.819<br>(0.165)    | 0.752<br>(0.138)    | 0.868<br>(0.108)   |
| No. countries                | 148                 | 148                 | 148                 | 148                 | 148                 | 147                |
| No. observations             | 4143                | 4143                | 4143                | 4143                | 4143                | 4127               |
| Mean of attacks              | 8.790               | 5.782               | 0.658               | 3.029               | 0.776               | 0.779              |

Note: All models are estimated by pooled negative binomial regressions and include all controls from the baseline specification, with a full set of year dummies. Model (6) (Islamist 2) includes the share of Muslim population as an additional control. Standard errors are clustered at the country level. Estimation results are presented in the form of incidence rate ratios.

\*\*\* Denote significance at the 1% level.

\*\* Denote significance at the 5% level.

\* Denote significance at the 10% level.

likelihood of Islamist terror by a factor of 1.3. This result is corroborated in the FENB model and is in line with findings by Krueger and Maleckova (2003) and Berrebi (2007). Left-wing terror decreases with education in the FENB model.

Inequality significantly increases left-wing terror in the PNB and FENB models. This supports the notion that income inequality is a particular grievance that extreme left (terror) groups cater to, but not other terror groups to the same extent. Right-wing terror increases with inequality in the FENB model but not in the PNB model, suggesting that there may be some overlap in grievances that these two types of terror groups feed upon.

Left- and right-wing terror occurs more in ethnically more homogeneous societies, as measured by *ethno-linguistic fragmentation* (ELF). Islamist terror is more frequent in more fragmented societies. Yet, if we analyze the countries that are home to the specific terror type at all, only right-wing terror increases with ELF. This is in line with our predictions as the ideology of the extreme right advocates an ethnically homogeneous society (with their—majority—ethnicity dominating).

**Table 5**

Attacks, with further controls: fixed effects negative binomial model.

| Attack types:                | Total (1)           | Left-wing (2)       | Right-wing (3)      | Ethn.-sep. (4)      | Islamist (5)        |
|------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Schooling                    | 0.989<br>(0.027)    | 0.804***<br>(0.032) | 0.926<br>(0.080)    | 0.997<br>(0.044)    | 1.200***<br>(0.082) |
| No. countries                | 90                  | 56                  | 37                  | 52                  | 37                  |
| No. observations             | 2882                | 1814                | 1220                | 1663                | 1169                |
| Mean of attacks              | 13.037              | 13.496              | 2.033               | 7.710               | 3.278               |
| Gini coefficient             | 1.005<br>(0.006)    | 1.024***<br>(0.008) | 1.033*<br>(0.019)   | 0.997<br>(0.010)    | 0.999<br>(0.018)    |
| No. countries                | 82                  | 53                  | 34                  | 44                  | 31                  |
| No. observations             | 1924                | 1406                | 879                 | 1025                | 746                 |
| Mean of attacks              | 16.584              | 16.602              | 0.860               | 11.320              | 2.558               |
| Ethno-linguistic frac.       | 0.997<br>(0.002)    | 1.002<br>(0.002)    | 1.018***<br>(0.005) | 1.000<br>(0.003)    | 1.001<br>(0.005)    |
| No. countries                | 103                 | 61                  | 39                  | 62                  | 42                  |
| No. observations             | 3231                | 1978                | 1285                | 1949                | 1298                |
| Mean of attacks              | 12.056              | 12.542              | 2.261               | 6.800               | 3.314               |
| Ethno-linguistic polariz.    | 0.999<br>(0.002)    | 1.005*<br>(0.003)   | 0.996<br>(0.006)    | 1.009**<br>(0.004)  | 0.985**<br>(0.006)  |
| No. countries                | 103                 | 61                  | 39                  | 62                  | 42                  |
| No. observations             | 3231                | 1978                | 1285                | 1949                | 1298                |
| Mean of attacks              | 12.056              | 12.542              | 2.261               | 6.800               | 3.314               |
| Discrim. minority exists     | 1.094<br>(0.104)    | 0.903<br>(0.116)    | 0.337***<br>(0.098) | 1.482***<br>(0.217) | 1.029<br>(0.223)    |
| No. countries                | 107                 | 63                  | 40                  | 63                  | 42                  |
| No. observations             | 3293                | 2008                | 1301                | 1965                | 1298                |
| Mean of attacks              | 11.896              | 12.433              | 2.234               | 6.775               | 3.314               |
| Intra-rel. polarization      | 1.005***<br>(0.001) | 0.998<br>(0.002)    | 1.011**<br>(0.005)  | 1.002<br>(0.002)    | 1.008**<br>(0.003)  |
| Inter-rel. polarization      | 1.003*<br>(0.002)   | 0.986***<br>(0.003) | 1.001<br>(0.007)    | 0.998<br>(0.002)    | 1.001<br>(0.004)    |
| Share of non-religious       | 0.975***<br>(0.008) | 0.914***<br>(0.015) | 1.016<br>(0.016)    | 0.986<br>(0.011)    | 0.937***<br>(0.016) |
| No. countries                | 106                 | 63                  | 39                  | 63                  | 42                  |
| No. observations             | 3277                | 2008                | 1285                | 1965                | 1298                |
| Mean of attacks              | 11.953              | 12.433              | 2.261               | 6.775               | 3.314               |
| Voting with the US ( $t-1$ ) | 1.070<br>(0.045)    | 1.338***<br>(0.082) | 0.904<br>(0.094)    | 1.084<br>(0.070)    | 1.087<br>(0.078)    |
| No. countries                | 85                  | 51                  | 30                  | 50                  | 35                  |
| No. observations             | 2273                | 1411                | 859                 | 1303                | 926                 |
| Mean of attacks              | 13.119              | 15.502              | 0.476               | 5.792               | 3.243               |
| US troops per pop. ( $t-1$ ) | 0.996<br>(0.029)    | 1.141***<br>(0.039) | 0.952<br>(0.114)    | 1.034<br>(0.054)    | 1.057<br>(0.053)    |
| No. countries                | 85                  | 51                  | 30                  | 50                  | 35                  |
| No. observations             | 2273                | 1411                | 859                 | 1303                | 926                 |
| Mean of attacks              | 13.119              | 15.502              | 0.476               | 5.792               | 3.243               |

Note: All models are estimated by fixed effects negative binomial regressions and include all controls from the baseline specification, with a full set of year dummies. Estimation results are presented in the form of incidence rate ratios.

\*\*\* Denote significance at the 1% level.

\*\* Denote significance at the 5% level.

\* Denote significance at the 10% level.

Such a claim in turn is facilitated if there is a dominant majority ethnicity, implying that the ELF is not too large, which explains the finding of the PNB model. Given that such a dominant ethnicity exists, perceived grievances increase with the share of “ethnic foreigners”, which explains the results of the FENB model.

*Ethno-linguistic polarization* (ELP) reduces right-wing terror in the PNB model—the own ethnicity loses its dominant status and thus, the basis for nationalist and “ethnic purity” ideology is eroded. Where right-wing terror exists, ELP plays no role. In contrast, ethnic-separatist terror increases significantly in both models. This corroborates our hypothesis that ethnic separatist terror is sparked by ethnic conflict, which is most intense if polarization is highest (Montalvo and Reynal-Querol, 2005). For Islamist terror, we do not see consistent results: the effects of ethno-linguistic polarization disappear in the PNB model once the population share of Muslims is introduced as control; among countries affected by this type of terror (FENB), the most ethnically polarized countries experience actually less Islamist terror. This is in contrast to the clear results on religious polarization (see below).

Ethnic-separatist terror increases very significantly and very strongly (and consistently in both PNB and FENB models) if a discriminated minority exists. Terror incidents are 3.7 times higher in the PNB model and 48% higher in the FENB model. Often the discriminated minority is ethnically defined or has an ethnic dimension to it; the feeling of deprivation and humiliation provides motivation and a support base for ethnically identified terror groups that claim to fight against this discrimination. Left-wing terror groups subscribing to a Marxist ideology of equality, at least in theory, may pick up these grievances as well, as egalitarian ideology may appeal to discriminated groups. This would explain the result in the PNB model. In contrast, right-wing terror does not appeal to discriminated groups (as the ideology of the extreme right itself propagates discrimination), which might explain the strong decline of right-wing terror in countries with a discriminated minority in the FENB model.

*Intra-religious polarization* increases neither secular nor religious terror in the PNB model, which may be surprising given, for example, the magnitude of terror between Sunnites and Shiites. However, for the entire sample of countries, intra-religious polarization may be unimportant as it captures also intra-religious polarization between Catholics and Protestants, which should be inconsequential for Muslim terror (and vice versa). Wherever Islamist terror exists, however, it is intensified by intra-religious polarization as shown in Table 5. *Inter-religious polarization* increases the occurrence of ethnic-separatist, Islamist, and other religious terror; for Islamists the effect becomes significant in the PNB model as soon as a control for the share of Muslim population is introduced. These results accord with our argument that religious terror fights for supremacy of the own religion: Religious tensions are higher and therefore religious terror is more prevalent, the higher religious polarization is. Ethnic-separatist and religious conflict lines often overlap and thus it is not surprising that ethnic-separatist terror increases as well. Left- and right-wing terror are lower where inter-religious polarization is higher, whereas right-wing terror is positively associated with intra-religious polarization. The terror reducing effect of inter-religious polarization can be potentially explained through a crowding out effect: As religious and ethnic-separatist terror increase as they cater better to the grievances caused by religious (and often ethnic) tensions, other terror ideologies become less appealing and less prevalent. More secular societies, as measured by the *share of non-religious* people in the population, create fewer terror attacks by extreme left or religious groups. While the forces behind this result are not immediately obvious, it may be that the lower rates of religiosity may indicate a lesser affinity to ideologies at large and thus a reduced support base for potential terror groups.

Foreign policy variables affect left-wing terror. A voting record of the government in the UN in alignment with the United States increases left-wing terror strongly and significantly in the PNB and FENB models. A 10 percentage point higher share of aligned votes increases terror incidents by roughly a third. For all other types of terror we do not see such an effect. The size of US troops, scaled by population, increases right-wing terror in the PNB model, indicating that right-wing terror groups are more likely to operate in countries with US military presence. Left-wing terror increases with the presence of foreign troops in the FENB model pointing toward an infuriation effect. Surprisingly, there is no consistent pattern of foreign policy variables for Islamic terror.

### 5.3. Primary ideology

Our results in Sections 5.1 and 5.2 are based on a classification of terror groups in potentially multiple types. In order to test for the robustness of our results to the encoding procedure, we estimated the same models for each group's primary ideology only and report the results in Tables B1–B4 in the Online Appendix. Focusing on primary orientation leads to a considerable decline in the average number of events, especially for left-wing and other religious terror. Almost all groups that have an extreme left ideology as “secondary ideology” are primarily ethnic-separatist. Three quarters of the attacks with other religious as secondary ideology are primarily ethnic-separatist.

Overall, the models on primary ideology confirm most of our previous results from the baseline specification. The patterns of the income gradients (positive for left-wing, none for right-wing, highest in high-income countries for ethnic-separatists, non-linear for Islamist terror) are confirmed for primary ideologies as well. Primarily left-wing terror is significantly reduced with economic growth, primarily right-wing terror still responds adversely to it. The effects of democracy, weak states, and domestic conflict also confirm our previous findings. International conflict ceases to significantly induce Islamist terror once only primary orientation is considered, and regime durability becomes also less significant in most cases. The adverse effects of openness on Muslim terror are confirmed in the FENB model for primary orientation.

The additional—partly ideology-specific—explanatory factors are also broadly the same, with some smaller differences. Inequality turns out significantly positive for primarily right-wing terror not only in the FENB but also in the PNB model. One potential reason for this is that among the primarily right-wing groups, anti-left groups are somewhat more strongly represented than among all right-wing groups. Moreover, more unequal countries seem to generate fewer primarily Islamist terror attacks in the PNB model, but not in the FENB model. The effects of ethno-linguistic polarization and the presence of discriminated minorities are considerably stronger for terror with ethnic-separatist as primary motivation than for its more broadly defined version; the effects of ethno-linguistic fragmentation vanish for primarily Islamist terror. Religious polarization has almost the same effects under both definitions.

## 6. Characterization of terror groups

Our results have demonstrated that there is a significant and sizable heterogeneity in the determinants of terror between groups with different ideologies. Thus, terrorism cannot be regarded as a uniform phenomenon but depends on the belief system to which the groups adhere. In what follows, we characterize the different types of terror groups as defined by their ideology.

*Left-wing terrorism* is the most frequent form of terror, both in terms of incidents and fatalities, but it is largely an issue of the past. Left-wing terror is concentrated in Latin America and in Europe and Central Asia. In Europe, it is less lethal than in Latin America. It is overwhelmingly a domestic phenomenon (not shown); generated in richer, more democratic and more urbanized countries. As leftist ideology propagates equality, it caters to grievances created by inequality and discrimination: leftist terror originates significantly more often in countries with high income inequality and where a discriminated minority exists. It is strongly path-dependent and occurs less in stable regimes and more in countries ridden with domestic conflict and in countries with governments more closely aligned with the US.

In contrast, *right-wing terror* is by far the least frequent type of terror and is also less lethal as measured by fatalities per attack. Starting from relatively low levels, it has declined in the 2000s. It originates mainly from Latin America, Sub-Saharan Africa and North-America. In accordance with the modernization losers-hypothesis, it is the only type of terror that increases significantly with economic growth. It is largely unrelated to average income levels (only in the conditional FENB is it more frequent in the highest income quartile). Democracy does not affect right-wing terror in the unconditional model, but the conditional model shows that full democracies suffer significantly less from right-wing terror. Where it does occur, right-wing terror increases with ethno-linguistic fragmentation, which is in line with the xenophobic ideology that the extreme right subscribes to. It is less prevalent where a discriminated minority exists as minority discrimination is part of the extreme right's ideology. Right terror is strongly persistent and fueled by domestic conflict.

*Ethnic-separatist terror* is the second largest terror type; it was most prevalent in the 1980s and 1990s and has declined afterwards; it is concentrated in Europe and South Asia. Ethnic-separatist terror is strongly concentrated in rich countries; it originates more often in partially and fully democratic countries. In contrast to all other forms of terror, it is a rural phenomenon. It is significantly more prevalent in countries with a domestic conflict history and in weak states and it is persistent. Ethnic-separatist terror originates significantly more in ethnically polarized (but not in more fragmented) societies, which indicates that ethnic tensions are a fundamental grievance that give rise to this form of terror. Ethnic-separatist terror almost quadruples in countries with a discriminated minority, which is often defined along ethnic lines.

*Islamist terror* has risen in importance very strongly; it occurs mainly from 1990 onwards. It is also by far the most lethal form of terror as measured by fatalities per incident. Geographically, it is more spread out, originating from the Middle East, South Asia, Europe, and Southeast Asia. Overall, Islamist terrorism follows no clear income pattern, but originates much less from the poorest income quartile of countries. Controlling for where Muslims live, Islamist terror originates more in fully democratic countries; conditional on terror existing at all, it is more prevalent in partial democracies. While all terror, except for right wing terror, is more prevalent in weak states (those in transition between regime types or occupied or in anarchy), the effect is much more important for Islamist terror: It is more than five times the effect for ethnic-separatist terror and almost seven times the effect for left-wing terror. Past terror events are positively related to current terror events; yet they are less important in predicting Islamist terror than all other types of terror in the unconditional model. Unlike all other forms of terror, Islamist terror increases with education levels. It increases with inter-religious polarization in the conditional model, which bears witness of the fact that other religions or religious denominations pose a threat to the own religious identity. Islamist terror is the only form of terror that increases with openness and with international conflicts: both variables capture foreign influences by the degree of trade-related interactions and the presence of foreign troops. This observation supports the notion that Islamist terror fights against Western post-enlightenment values, which threaten traditional Muslim identity (cultural threat hypothesis).

## 7. Conclusion

In this paper, we have argued that terrorism is a very heterogeneous phenomenon. As terrorism describes a strategy and not a specific set of values or beliefs (except for the scant regard for the life of their victims that all terrorists share), we should not expect the determinants of terror to be the same across all types of terror as defined by their ideology. We have classified all terror incidents by identifiable terror groups into left-, right-wing, ethnic separatist and religious, in particular Islamist terror and have shown that indeed, terror groups of different ideologies have in part strongly diverging determinants. Our finding casts serious doubt on the explanatory power of an aggregate approach that relates all terror events originating from an given country in a given year to the characteristics of that country in that year disregarding the type of terror. This approach, which has become industry standard, either implicitly assumes that all terror is governed by the same forces or is interested only in aggregate terror determinants. We have shown the former to be incorrect and the latter to be uninformative. Aggregate behavior depends on the composition of terror types, which is changing over time, and its analysis does not lead to sensible policy conclusions as these need to take into account the specific terror type policy-makers are confronted with.

It is obvious from the large divergence in the determinants of terror across terror types that there is no unique solution to terrorism. Rather, specifically tailored solutions need to take into account the specific context, in particular, the grievances that give rise to terror, the degree to which they can be mitigated and the organizational constraints of the respective terror groups and thus their different responses to specific counter-terror policies. To design a general carrot-and-stick approach may simply be too naïve.

For instance, approaches that have proven successful for ethnic-separatist groups need not carry over to the case of Islamist terror. Granting more political power or regional autonomy to disenfranchised ethnic groups and legitimizing their political

representation, such as the political wing of ETA or IRA, together with a strong anti-terror approach, has had a favorable effect on the level of terror in the Basque country and in Northern Ireland. Yet, it is by no means clear that the same approach would work for Islamist terror. Our empirical results—and theoretical analyses cited above—suggest that uncritical adoptions of approaches to different types of terror groups may not be helpful at all or may be even outright counterproductive.

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## Appendix A

See Tables A1–A3

**Table A1**

Definitions and sources of independent variables.

| Variable                                    | Definition and source  |
|---|--|
| GDP p.c. quartiles ( $t-1$ )                | Quartile indicators based on per capita GDP figures (in constant USD) from PWT 6.3; extended by quartile dummies from PWT 7.1/5.6 and the WDI database for former states or states with missing data. First quartile is the left out category. Sources: <a href="#">Heston et al. (2009)</a> , <a href="#">World Bank (2013)</a>   |
| GDP growth ( $t-1$ )                        | Growth of per capita GDP (in constant USD). Sources: PWT 6.3; where missing, extended by information from PWT 7.1/5.6/WDI  |
| Partial/full democracy/weak state ( $t-1$ ) | Indicator variables for the composite Polity score lying in the range of 1/7 (partial democracy), 8/10 (full democracy), and $-88/-77/-66$ (weak state), this latter category encodes transition/anarchy/foreign rule. Autocracy is the left out category (index of $-10/0$ ). Sources: Polity IV dataset, compiled by <a href="#">Marshall and Jaggers (2002)</a>   |
| Years of dom./intl. conflict                | Years of internal or external violent conflict out of past five years. Sources: UCDP/PRIO Armed Conflict Dataset v4-2009, <a href="#">Gleditsch et al. (2002)</a>  |
| Past events                                 | Average number of yearly terrorist events during the past five years, measured in 100 incidents. Sources: <a href="#">START (2011)</a>   |
| Regime durability ( $t-1$ )                 | Years since last drastic regime change, defined by a three point change in the Polity score over three years, measured in ten years. Sources: Polity IV  |
| Urbanization                                | Percentage share of population living in urban areas. Sources: WDI   |
| Openness ( $t-1$ )                          | Sum of exports and imports per total GDP, measured in 10 percentage points. Sources: PWT/WDI   |
| Log of population                           | Log of size of total population (in millions). Sources: PWT/WDI  |
| Share of Muslims                            | Percentage share of Muslims within the population. Sources: <a href="#">Barro and McCleary (2005)</a> . For missing years a linear projection is calculated  |
| Schooling                                   | Average years of schooling of adult population (15+), measured at five-year intervals, missing years are filled by linear projections. Sources: <a href="#">Barro and Lee (2010)</a>   |
| Gini coefficient                            | Gini coefficient of income inequality; missing years are filled by linear projections. Sources: World Income Inequality Database ( <a href="#">UNU-WIDER, 2008</a> )   |
| Ethno-linguistic fract.                     | Time-invariant measure of a finely graded ethno-linguistic fragmentation, ELF (15), compiled as one minus the Herfindahl–Hirschman index of ethno-linguistic concentration; in percent. Sources: <a href="#">Desmet et al. (2012)</a>  |
| Ethno-linguistic polarization               | Time-invariant measure of a finely graded ethno-linguistic polarization, POL (15); in percent. Sources: <a href="#">Desmet et al. (2012)</a>   |
| Discr. minority exists                      | Time-invariant indicator variable that takes one if there is a minority within the country's territory that is discriminated against either in political or in economic terms. Sources: Minorities at Risk Project ( <a href="#">MAR, 2009</a> )   |
| Intra-rel. polarization                     | Polarization index measuring polarization within the dominant religion, Christianity (Catholics, Protestants, Orthodox, and other Christians) or Islam (Shia, Sunni, and other Muslims); in percent. Following <a href="#">Montalvo and Reynal-Querol (2005)</a> , it is calculated as $100 \sum_{i=1}^N [s_i]^2 [1-s_i]$ , where $s_i$ stands for the population share of the $i$ -th faction within the dominant religion. Source of religious adherence shares for 1970 and 2000: <a href="#">Barro and McCleary (2005)</a> ; of Shia and Sunni shares of population in 2009: <a href="#">PEW (2009)</a> . For missing years a linear projection of the index is calculated |
| Inter-rel. polarization                     | Polarization index measuring polarization between the major religions, Christianity, Islam, Judaism, Buddhism and Hinduism. The measure is calculated following the polarization measure by <a href="#">Montalvo and Reynal-Querol (2005)</a> (see above), where $s_i$ refers to the population share in the $i$ -th religion. For missing years a linear projection is calculated. Sources: <a href="#">Barro and McCleary (2005)</a>   |
| Share of non-religious                      | Percentage share of non-religious within the population. Sources: <a href="#">Barro and McCleary (2005)</a> . For missing years a linear projection is calculated  |
| Voting with the US ( $t-1$ )                | Index of the country's voting record in the UN General Assembly in line with the US following the definition of <a href="#">Thacker (1999)</a> . It is rescaled from 0 to 10: always(never) voting with the US results in 10(0), always abstaining in 5. Sources: <a href="#">Dreher and Sturm (2012)</a>  |
| US troops per pop. ( $t-1$ )                | Number of US military personnel stationed in the country per thousand of inhabitants. Sources: <a href="#">Kane (2004)</a>   |



**Table A2**  
Descriptive statistics.

| Variable                     | Mean  | SD     | Min   | Max    | N    |
|------------------------------|-------|--------|-------|--------|------|
| <i>Terror events</i>         |       |        |       |        |      |
| Total                        | 8.28  | 38.03  | 0     | 591    | 4730 |
| Left-wing                    | 5.28  | 32.99  | 0     | 591    | 4730 |
| Right-wing                   | 0.61  | 8.86   | 0     | 284    | 4730 |
| Ethnic-separatist            | 2.81  | 17.62  | 0     | 361    | 4730 |
| Islamist                     | 0.91  | 8.51   | 0     | 335    | 4730 |
| Primarily left-wing          | 4.25  | 31.06  | 0     | 591    | 4730 |
| Primarily right-wing         | 0.58  | 8.84   | 0     | 284    | 4730 |
| Primarily ethnic-separatist  | 2.56  | 16.35  | 0     | 361    | 4730 |
| Primarily Islamist           | 0.80  | 8.38   | 0     | 335    | 4730 |
| <i>Explanatory variables</i> |       |        |       |        |      |
| GDP p.c. quart. 2 ( $t-1$ )  | 0.25  | 0.43   | 0     | 1      | 4730 |
| GDP p.c. quart. 3 ( $t-1$ )  | 0.24  | 0.43   | 0     | 1      | 4730 |
| GDP p.c. quart. 4 ( $t-1$ )  | 0.22  | 0.42   | 0     | 1      | 4730 |
| GDP growth ( $t-1$ )         | 1.82  | 8.09   | -65.0 | 131.2  | 4730 |
| Partial democracy ( $t-1$ )  | 0.17  | 0.38   | 0     | 1      | 4730 |
| Full democracy ( $t-1$ )     | 0.32  | 0.47   | 0     | 1      | 4730 |
| Weak state ( $t-1$ )         | 0.05  | 0.21   | 0     | 1      | 4730 |
| Years of dom. conflict       | 0.92  | 1.72   | 0     | 5      | 4730 |
| Years of intl. conflict      | 0.14  | 0.61   | 0     | 5      | 4730 |
| Past events                  | 0.16  | 0.51   | 0     | 5.78   | 4730 |
| Regime durability ( $t-1$ )  | 2.29  | 2.89   | 0     | 19.80  | 4730 |
| Urbanization                 | 49.23 | 24.36  | 3.22  | 100.00 | 4730 |
| Openness ( $t-1$ )           | 6.62  | 4.22   | 0.12  | 42.90  | 4730 |
| Population                   | 36.76 | 125.71 | 0.16  | 1324.7 | 4730 |
| Share of Muslims             | 26.03 | 35.91  | 0     | 99.82  | 4693 |
| Schooling                    | 6.31  | 2.96   | 0.09  | 13.02  | 4071 |
| Gini coefficient             | 40.74 | 10.43  | 17.65 | 73.20  | 2782 |
| Ethno-linguistic fract.      | 48.10 | 31.03  | 0.02  | 99.03  | 4653 |
| Discr. minority exists       | 0.44  | 0.50   | 0     | 1      | 4730 |
| Intra-rel. polarization      | 46.22 | 34.94  | 0     | 99.00  | 4693 |
| Inter-rel. polarization      | 28.71 | 32.02  | 0     | 100.00 | 4693 |
| Share of non-religious       | 5.23  | 9.47   | 0     | 61.88  | 4693 |
| Voting with the US ( $t-1$ ) | 2.77  | 1.35   | 0     | 8.36   | 4407 |
| US troops per pop. ( $t-1$ ) | 0.09  | 0.67   | 0     | 22.10  | 4143 |

Note: Statistics always refer to the largest estimation sample.

**Table A3**  
List of countries in the sample.

|   |
|---|
| Afghanistan (33), Albania (33), Algeria (33), Angola (32), Argentina (33), Armenia (15), Australia (33), Austria (33), Azerbaijan (15), Bahrain (33), Bangladesh (33), Belarus (15), Belgium (33), Benin (33), Bhutan (33), Bolivia (33), Bosnia and Herzegovina (15), Botswana (33), Brazil (33), Bulgaria (33), Burkina Faso (33), Burundi (33), Cambodia (33), Cameroon (33), Canada (33), Central African Republic (33), Chad (33), Chile (33), China, P.R. (33), Colombia (33), Comoros (32), Congo, Dem. Rep. (33), Congo, Republic (33), Costa Rica (33), Croatia (16), Curacao (33), Cyprus (33), Czech Republic (15), Côte d'Ivoire (33), Denmark (33), Djibouti (30), Dominican Republic (33), East Germany (14), Ecuador (33), Egypt (33), El Salvador (33), Equatorial Guinea (33), Eritrea (15), Estonia (15), Ethiopia (33), Fiji (33), Finland (33), France (33), Gabon (33), Gambia, The (33), Georgia (15), Germany (17), Ghana (33), Greece (33), Guatemala (33), Guinea (33), Guinea-Bissau (33), Guyana (33), Haiti (33), Honduras (33), Hungary (33), India (33), Indonesia (33), Iran, Islamic Republic of (33), Iraq (33), Ireland (33), Israel (33), Italy (33), Jamaica (33), Japan (33), Jordan (33), Kazakhstan (15), Kenya (33), Korea, Rep. (33), Kuwait (33), Kyrgyz Republic (15), Lao People's Dem. Rep. (33), Latvia (15), Lebanon (33), Lesotho (33), Liberia (33), Libya (33), Lithuania (15), Macedonia (16), Madagascar (33), Malawi (33), Malaysia (33), Mali (33), Mauritania (33), Mauritius (33), Mexico (33), Moldova (15), Morocco (33), Mozambique (32), Myanmar (16), Namibia (17), Nepal (33), Netherlands (33), New Zealand (33), Nicaragua (33), Niger (33), Nigeria (33), North Yemen (15), Norway (33), Pakistan (33), Panama (33), Papua New Guinea (32), Paraguay (33), Peru (33), Philippines (33), Poland (33), Portugal (33), Qatar (33), Romania (33), Russia (15), Rwanda (33), Saudi Arabia (33), Senegal (33), Serbia and Montenegro (16), Sierra Leone (33), Singapore (33), Slovak Republic (15), Slovenia (16), Solomon Islands (29), Somalia (33), South Africa (33), Spain (33), Sri Lanka (33), Sudan (33), Swaziland (33), Sweden (33), Switzerland (33), Syrian Arab Republic (33), Tajikistan (15), Tanzania (33), Thailand (33), Timor-Leste (6), Togo (33), Trinidad and Tobago (33), Tunisia (33), Turkey (33), USSR (15), Uganda (33), Ukraine (15), United Arab Emirates (33), United Kingdom (33), United States (33), Uruguay (33), Uzbekistan (15), Venezuela (33), Vietnam (33), West Germany (16), Yemen, Republic of (18), Yugoslavia (16), Zambia (33), Zimbabwe (33) |
|---|

Note: The number of observations in the largest sample is in parentheses.

## Appendix B. Supplementary data

Supplementary data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.eurocorev.2014.02.009>.

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