Patterns of Force: System Strength, Terrorism and Civil War*

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Abstract: We jointly analyze the genesis of terrorism and civil war, providing a simple conceptual framework to explain why violent opposition groups choose distinct forms of violence (i.e., terrorism and open rebellion). We argue that the distinct modes of violent opposition are chosen by opposition groups in response to the strengths and weaknesses of the system they challenge. An empirical test of this hypothesis for 104 countries for 1992 to 2004 indeed shows that the socio-economic strength of a system positively correlates with the likelihood of terrorism, but negatively with the incidence of civil war. Institutional quality and political participation of opponents reduce the risk of civil war, but do not affect the likelihood of terrorism. We also show that system stability reduces the likelihood of all forms of violent opposition.

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1. Introduction

Many empirical studies have analyzed the causes (determinants) of terrorism and civil war, given the enormous direct costs (e.g., loss of life, destruction of infrastructure) of these forms of violence and also their broader implications for economic and political development, even on an international scale.[1] Where the determinants of terrorism are concerned, studies have linked its genesis to among others to poor socio-economic conditions (e.g., Burgoon 2006, Freytag et al. 2009), economic integration (e.g., Kurrild-Klitgaard et al. 2006), political participation and repression (e.g., Li 2005; Abadie 2006; Krueger and Laitin 2008), ethnic conflict (Basuchoudhary and Shughart 2010) and political instability (e.g., Piazza 2008a; Sanchez-Cuenca 2009b).[2] Similarly, empirical studies have suggested that the origins of civil war are connected to, for example, natural resources and the uneven distribution of wealth (e.g., Fearon and Laitin 2003; Lujala et al. 2005; Basedau and Lay 2009), unfavorable features of political regimes and political instability (e.g., Hegre et al. 2002; Collier and Hoeffler 2004; Reynal-Querol 2005; Carey 2007; Bates 2008), ethnic tensions and demographic pressures (e.g., Ellingsen 2000; Sambanis 2001; Urdal 2006) and the dynamics of the international political system (e.g., Balch-Lindsay and Enterline 2000; Regan and Aydin 2006).

In order to gain a better understanding of the genesis of terrorism and civil war, a *joint analysis* of their roots may be helpful. In this contribution we build on recent works and ideas by e.g., Sambanis (2008), Besley and Persson (2009) and Sanchez-Cuenca (2009a). We argue that terrorism and civil war are distinct *modes of violent opposition*, chosen by violent opposition groups *in response to the strengths and weaknesses of the system* they challenge. We provide a simple analytical framework which models the mode of violent opposition as a function of the distinct features of the opposed system. When challenged systems are 'weak', open rebellion is an opportune form of violent opposition. By contrast, when the challenged systems are 'strong', open violence becomes less likely but terrorism becomes more probable.

[1] A number of empirical studies assess the economic and political consequences of civil war and terrorism. For instance, Murdoch and Sandler (2002) document the negative growth effects of civil war, while Crain and Crain (2006) find similar effects for terrorism. Other studies find a negative effect of civil war (Bayer and Rupert 2004; Martin et al. 2008) and terrorism (e.g., Nitsch and Schumacher 2004) on international trade. Some empirical studies also stress the consequences of negative spill-over effects of violent civil conflicts in neighbouring countries, e.g., reduced economic growth (Murdoch and Sandler 2002) or increased political instability (Iqbal and Starr 2008).

[2] A comprehensive survey of the empirical literature on the determinants of terrorism is provided by Krieger and Meierrieks (2010), while Sambanis (2002) and Blattman and Miguel (2010) examine civil conflict and civil war, respectively.

We believe that this approach offers an intuitive explanation as to why e.g., the *Liberation Tigers of Tamil Eelam* (*LTTE*) were able to fight an open civil war between 1983 and 2009 in Sri Lanka (causing more than 90,000 fatalities), whereas the group *Euskadi Ta Askatasuna* (*ETA*) has been running a terrorist campaign in Spain (claiming approximately 820 lives), even though both groups pursue a similar ideology of ethnic-nationalist liberation and violently challenge the status quo (which does not grant their peoples independence). In short, the *LTTE* could resort to *open* rebellion because the Sri Lankan system was '*weak*'. By contrast, because the Spanish system is '*strong*', *ETA* is forced to resort to an *underground* terrorist campaign.

In this contribution we empirically test whether the mode of violent opposition is a function of the distinct features of the system it challenges. Using cross-sectional time-series data for 104 countries for 1992 to 2004, we first identify certain dimensions of system strengths/weaknesses through a principal component analysis. Then we run a number of multinomial logistic regressions and find some support for our main hypothesis. In particular, we find that a latent variable indicating socio-economic strength positively correlates with the likelihood of terrorism but negatively with the incidence of more violent forms of opposition. We also show that socio-economic instability makes the existence of violent opposition more likely. Further, our results indicate that political exclusion and 'bad governance' are positively associated with civil war. Thus, our results imply that civil war can be prevented through institutional and political measures as well as through improved socio-economic conditions, even though this may mean that terrorism becomes more likely.

The remainder of this contribution is structured as follows. In Section 2 we provide a conceptual framework for the relationship between violent opposition and the system it challenges, arguing that the patterns of violent opposition are a function of the strengths and weaknesses of the challenged system. In Section 3 we describe the data we use to test this hypothesis empirically. The empirical methodology and results are discussed in Section 4. In Section 5 we conclude.

2. A Conceptual Framework for the Relationship between System Strength and Violent Opposition

2.1 Violent Opposition

In this study we assess the factors contributing to the existence (incidence) of violent opposition within a country. That is, we consider only the kind of opposition by non-state actors that opposes the existing system or status quo (i.e., the distribution of power and resources) and seeks to eliminate and replace it. Evidently, this form of opposition will also involve a certain degree of violence.[3]

We believe that there are distinct modes of violent opposition (i.e., terrorism and civil war) which differ in many respects (as we shall discuss below). However, some characteristics are common to all forms of violent opposition. First, opposition groups have similar *intermediate goals*. They attack in order to destabilize the economic and political system and gain public attention. Violent opposition groups (terrorist and rebel/insurgent groups) try to weaken their enemy through destabilization (so that it is more likely that their enemy will accommodate them) and to gain popular support. Second, violent opposition groups often have similar *ultimate goals*; i.e., they use violence as a means to meet an objective (Wintrobe 2006). For instance, both the *LTTE* and *ETA* are fighting for national independence, as argued above. In the past, violent opposition against the status quo was fueled by the ideals of national liberation, leftist world revolution or religious fundamentalism (Shughart 2006). No ideology seems to be linked specifically to one mode of violent opposition. Third, all types of violent opposition groups tend to attack *similar targets*. As stressed by Sanchez-Cuenca (2009a), even though terrorism is often associated with attacks against unarmed (civilian) targets, terrorist groups (similar to rebel groups) tend rather to attack the armed forces of the opposing system (i.e., the police or military).[4] This fits in with the logic of considering terrorist activity as the use of force to overthrow an existing system by weakening it (attrition).

We build on some related ideas in Sambanis (2008) and Sanchez-Cuenca (2009a) and argue that any kind of opposition directed against the status quo that involves violence should be considered violent opposition. It is our understanding that terrorist and rebel groups (i.e.,

[3] Thus we exclude any form of non-violent opposition (e.g., general strikes), even if such opposition openly opposes the existing system or status quo (e.g., peaceful separatist political parties).

[4] Sanchez-Cuenca (2009a) argues that international and right-wing terrorist activity is more strongly directed against civilians. Thus, the often-perceived connection between terrorism and attacks against civilians may stem, inter alia, from the over-representation of these forms of terrorism in the media.

all kinds of violent opposition groups) generally have similar tactical and strategic goals and usually direct their violent activity against the opposing system and its representatives (and not against civilians). As we shall discuss in the next subsection, it is the strength (weakness) of the very system that protects the status quo which determines the mode of violent opposition.

2.2 The Modes of Violent Opposition

Even as terrorism and open rebellion may be motivated by similar goals and use violence towards similar targets, they clearly differ in many respects. For our analysis we distinguish between two modes of violent opposition and an intermediate type. Specifically, we argue that violent opposition may be characterized as (i) terrorism, (ii) a civil conflict or major terrorist activity or (iii) a civil war.[5] Table 1 gives an overview of the differences between the various modes of violent opposition. Here, we again build on the ideas of Sambanis (2008), Sanchez-Cuenca (2009a) and Sanchez-Cuenca and Calle (2009).

Table 1: Categories of Violent Opposition

Type/Level of Violent Opposition	Terrorism	Civil Conflict/Major Terrorist Campaign	Civil War
Visibility	Low (Clandestine)	Rather Low	Rather High (Open Rebellion)
Territorial Control	No	Potentially Yes	Mostly Yes
Fatalities/Year	<25	25-1,000	>1,000
Organizational Structure	Decentralized Cells	More Strongly Organized	Centralized (Military and Political) Hierarchy
Public Participation	Low Support	Potentially stronger	Strong (Mass) Support
Power Balance	High Degree of Asymmetry	Rather High Degree of Asymmetry	Rather Low Degree of Asymmetry

In this context, we argue that the modes of violence differ with respect to visibility, ability to gain control over a territory, level of violence, degree of organization, degree of public support and participation and the power differential between the violent opposition group and

[5] Note that we create an intermediate category of violent opposition to clearly differentiate between 'pure' terrorism and 'pure' open civil war. This intermediate category may include the incidence of a waning civil war below the 1,000 fatalities/year threshold (e.g., Guatemala in the early 1990s) or an episode of major terrorist activity (e.g., the al-Gama'a al-Islamiyya's activities in Egypt in the 1990s). Future research may try to break down this intermediate category further.

the system it challenges. For our empirical analysis, we focus on the different fatalities/year thresholds to distinguish between the different modes of opposition.

2.3 System Strength and Violent Opposition

Among the different modes of violence, open rebellion is obviously most promising, so it is the default option of any violent opposition group. Economically speaking, open rebellion is the mode with the highest pay-off, given that successful rebellion allows the violent opposition group to replace the status quo and gain control over the political and economic agenda-setting (i.e., the distribution of power and wealth). By contrast, terrorist groups are highly unlikely to gain ultimate control over the distribution of power and resources. For terrorists, success means forcing the enemy (i.e., the system) to acquiesce to (at least some of) their demands.

While the benefits of open rebellion are always expected to be greater than the benefits of terrorism, we believe that the strengths and weaknesses of an opposed system influence the (opportunity) costs of violent opposition and in turn, the chosen mode of resistance (cf., e.g., Abbink and Pezzini 2005). For instance, the direct costs of rebellion (e.g., establishing a liberated territory) ought to be high when an opposed system has tight control over its territory and is able to retaliate quickly (e.g., because it is not involved in other conflicts).[6] On the other hand, the strengths and weaknesses of an opposed system may impact the opportunity costs of violence (e.g., Frey and Luechinger 2003). Civil conflict on a major scale, in particular, ought to become less likely when a system offers efficient means of inclusive and non-violent socio-economic and political participation (i.e., alternatives to violence). For instance, it should be more difficult (more costly) for underground groups to gain popular support when the system they oppose enables the population to participate in economic success (e.g., if the youth burden is low and property rights are protected). However, in a situation where political and socio-economic participation is constrained (meaning that the opportunity costs of violence become rather low), violent opposition activity may become more attractive.

Generally, a 'strong' system makes a large-scale rebellion less probable, given that it makes the effort comparatively more costly from the perspective of potential perpetrators and supporters. Intuitively, one may assume that a 'strong' system generally deters violence (since it impacts on the cost-benefit considerations of violent groups). However, it is our

[6] Basically, open rebellion is the most costly form of violent opposition, since it requires the rebels to fund large military and political organizations. Terrorism is comparatively cost-efficient.

understanding that violent opposition groups resort to terrorism for exactly this reason. Civil war is not the most efficient mode of opposition when the challenged system is 'strong' enough as it may be too costly to gain enough support (cf. Abbink and Pezzini 2005), so terrorism becomes the more likely mode of attack. This choice, then, is clearly related to the differences between the modes highlighted in Table 1. For instance, violent opposition groups facing a 'strong' system are forced to operate underground (cf. Sanchez-Cuenca 2009a), so they are neither able to control territory nor inflict major damage and thus need to resort to more decentralized forms of organization. This underground activity is usually referred to as 'terrorism'. Based on the discussion above, our main research question is whether the mode of violent opposition depends upon the strength and weaknesses of the system it challenges. While system strength makes large-scale rebellions less likely, it makes terrorist activity more likely.

In the next sections, we want to empirically test our research question. In particular, we are interested in examining what aspects of system strength/weakness influence the choice of mode of violent opposition. Therefore, we distinguish between institutional, political and socio-economic system strength (Section 4).

3. Data

In order to empirically test our hypothesis that the mode of violent opposition depends upon certain characteristics of the system it challenges, we compile panel data on the incidence of violent opposition (dependent variables), system strength (independent variables) and some other control variables for 104 countries for 1992 to 2004.[7]

3.1 Dependent Variables

For our empirical analysis we use three dummy variables indicating violent opposition (with 1 denoting an incidence in the respective year and 0 denoting peace). The first measures *incidence of homeland terrorism* and was constructed using the *Global Terrorism Database* (*GTD*) of LaFree and Dugan (2007). This measure is defined as any terrorist action by a known group in their home country (homeland), regardless of the victims' nationality.[8] Sanchez-Cuenca and Calle (2009) argue that the 'classic' differentiation between domestic and transnational terrorism certainly leads to a truncation of datasets used to analyze

[7] A country list is given in the appendix.

[8] As media attention is one of the goals of terrorist groups, we do not consider unclaimed acts of terrorism as they may very well only have a criminal background. We measure terrorism dichotomously, so the possibility of underreporting terrorism due to this constraint is small.

terrorism, so that empirical analyses may potentially yield biased results.[9] In any event, the differentiation appears artificial. By using the *GTD*, we avoid having to differentiate between domestic and transnational terrorism.[10] The second variable measures *incidence of civil conflict or major terrorist activity*. As argued above, we consider this measure to be an intermediate variable, either indicating a civil war below the 1,000 fatalities/year threshold or a major terrorist campaign exceeding 25 fatalities/year. Our second variable is thus defined by the lethality of violent opposition in a given year and country, where this lethality ranges between 25 and 1,000 fatalities/year. Data for this variable was taken from the *PRIO database* (Gleditsch et al. 2002). Our third indicator captures high-level civil conflict, i.e., an *open civil war* with more than 1,000 fatalities in a given year. This variable also comes from the *PRIO database*.

3.2 Independent Variables

As already noted above, the empirical literature has discussed a number of potential variables explaining the causes of terrorism and civil war. For this study we consider several variables that account for various aspects of the strengths and weaknesses of a system that is challenged by violent opposition. Considering socioeconomic (i.e., economic and demographic) factors, we employ data on *per capita income*, *population size*, *urbanization, ethnolinguistic fractionalization (ELF), net official development aid (ODA)* and the existence of a *youth burden*. We also use a number of political and institutional variables, namely political participation (*democracy*), *regime stability*, the situation of *human rights*, the *rule of law*, the quality of the national *bureaucracy*, degree of *corruption*, th*e influence of religion* on politics and *military expenditure*. We include further *lagged dependent violent opposition* variables and *years of peace* to account for the reinforcing nature of political violence (e.g., Enders and Sandler 2005, Collier and Hoeffler 2004). To account for the possibility of *spatial contagion*, we also include dummy variables indicating conflict in the neighborhood in the respective or previous year. Following, e.g., Buhaug and Gleditsch (2008), we want to use these variables to model the potential spill-over of civil war (e.g., through migration and ethnic ties) to other

[9] Domestic terrorism refers to terrorism involving only one country. Transnational terrorism refers to terrorism that involves more than one country. While domestic terrorism is more common than transnational terrorism, it is not accounted for in 'traditional' terrorism datasets, which focus on international terrorism instead.

[10] We follow the 'classic' differentiation between domestic and transnational terrorism, so we consider all domestic terrorist activity and all transnational terrorist activity that originates in and is carried out in a given country (i.e., the homeland). Thus, we avoid a truncation of the data and consider all activities by terrorists in their 'natural' territory. We expect this kind of terrorism to interact most strongly with the challenged homeland system.

countries. A similar concept was also introduced in the study of the determinants of terrorism (cf. Krieger and Meierrieks 2010).

In contrast to previous studies on the causes of violent opposition, we do not use the aforementioned indicators on their own. As we shall discuss later, we instead use them to construct several comprehensive measures of system strength and weakness in a principal component analysis. Thus, we do not discuss our independent variables in detail. Further information on these variables (e.g., with respect to data sources) is given in the appendix.

3.3 Further Control Variables

In order to validate the robustness of our empirical findings, we consider some other factors that may also influence the choice of a certain mode of violent opposition but could not be integrated into a set of latent variables by means of principal component analysis (see Section 4). Information on these variables can also be found in the appendix.[11]

Firstly, we include the variable *trade openness*, which is argued to be a deterrent to the genesis of terrorism as it impacts positively on economic development. As countries benefit from economic globalization, it becomes more costly for terrorist organizations to recruit new members or to gain support by building on grievances related to economic deprivation. Corresponding evidence can be found in Kurrild-Klitgaard et al. (2006) and Blomberg and Hess (2008). Trade may also create bonds between nations and thus reduce the likelihood of civil war (Bayer and Rupert 2004) on the one hand, while it may increase, on the other, the risk of contagion effects if third parties have important trade interests in a country in conflict (Aydin 2008). Trade openness is measured as the sum of exports and imports over GDP, with data drawn from the *WDI*.

Secondly, we control for certain geographical features. Here, *mountainous terrain* may facilitate violent activity as difficult-to-access areas may be used as a hiding or training place for opposition groups (making violence less costly).[12] Similar arguments are used for a country's climate. For instance, Abadie (2006) and Kurrild-Klitgaard et al. (2006) show that a climate which favors a certain type of vegetation (e.g., jungle) is positively related to terrorist activity. Also, terrain which is inaccessible due to a certain climate makes it more difficult for a system to use its military capacity to oppress any violent opposition.

[11] Note that we also include time and regional dummies to control for specific geographical or year effects.

[12] Absolute latitude may be used to account for a country's climate. However, as this variable may also capture economic development it is difficult to interpret. Please note that we therefore do not include this variable in our empirical analysis.

Thirdly, we include the variable *economic rights* which captures a population's chance of economic participation. For the case of terrorism, a model by Faria and Arce (2005) shows that policies that aim to increase political and economic participation succeed in reducing terrorist activity as popular support shrinks and terrorist recruitment becomes more costly. Even if there is an underground that opposes the status quo, it is less likely that a violent underground movement will emerge if the opportunity costs of violence are high.[13] Also, it is more costly to run a prolonged campaign of violence when the alternatives are more attractive. Indeed, there is empirical evidence linking higher levels of economic freedom (Basuchoudhary and Shughart 2007) to less terrorist activity. There is empirical evidence that similar mechanisms also apply to the case of civil conflict (Dorussen 2005).

4. Methodology and Empirical Results

In this section we describe our empirical methodology to assess the links between system strength and violent opposition and present our empirical results. Our basic premise is that the probability of a country experiencing certain forms of violent opposition (VIOLENCE) is dependent upon aspects of system strength (SYSTEM STRENGTH), net of the impact of a set of controls (X'):

$$P(VIOLENCE_{ij,t}) = f(SYSTEM\ STRENGTH_{ik,t}\ X'_t) \quad (1)$$

Let $SYSTEM\ STRENGTH_{ik,t}\ X'_t$ be denoted further on as w_{it}. It follows from equation (1) that the probability that country *i* experiences the *j*-th form of political violence (i.e., terrorism, civil conflict or civil war) in year *t* generally depends upon system strength (measured in the *k*-th form) and the set of controls.

4.1 Principal Component Analysis

In order to identify the strengths and weakness of a system, a *principal component analysis* (PCA) is employed. With this analysis, we are able to reduce the variables and thus the dimensions to be considered in the analysis, which reduces the problems associated with multicollinearity and ambiguous interpretability. We assume that several indicators (described before as independent variables) together linearly describe 'strong' and 'weak' system characteristics. The latent variables identified in the PCA consist of the correlation

[13] Note that 'lone wolf' terrorism (e.g., the Unabomber case in the US) is not ruled out even when the opportunity costs of violence are extremely high.

coefficients between the observed variables and the latent variable from the equation $Z = PA'$, where Z is the standardized coefficient matrix of the latent variable, P the linear relationship between latent and observed variable and A the data matrix of the observed variables. We use 19 observed (independent) variables to obtain five latent variables. The results of the PCA (i.e., the constructed variables and their factor loadings) are reported in Table 2. We interpret these five latent variables as indicators of distinct system characteristics, namely (i) *institutional quality (good governance),* (ii) *socio-economic strength* (iii) *internal instability,* (iv) *political exclusion,* and (v) *external instability (bad neighborhood).*

Table 2: Results of the Principal Component Analysis (Rotated Component Matrix)

	Components				
	Institutional quality	*Socioeconomic strength*	*Internal instability*	*Political exclusion*	*External instability*
Rule of law	**0.726**	0.324	-0.255	0.009	0.050
Bureaucracy	**0.700**	0.475	-0.017	-0.195	-0.027
Stability	**0.771**	0.217	0.044	0.066	-0.034
Corruption	**-0.792**	-0.109	0.166	0.276	-0.016
GDP pc	0.600	**0.722**	-0.154	-0.037	-0.117
ODA	-0.134	**-0.797**	-0.144	-0.104	-0.027
Youth burden	-0.454	**-0.731**	0.074	0.304	0.058
ELF	-0.112	**-0.701**	0.150	0.259	-0.075
Urbanization	0.375	**0.709**	-0.157	0.089	-0.169
Human rights	0.476	0.147	**-0.628**	-0.311	-0.149
Population size	-0.134	0.228	**0.677**	-0.191	0.191
Peace years	0.123	0.277	**-0.763**	-0.147	0.035
Conflict last year	-0.048	-0.180	**0.755**	0.238	-0.112
Terror (lagged by 1 year)	0.035	0.055	**0.752**	-0.065	-0.020
Democracy	0.303	0.214	0.049	**-0.749**	-0.189
Military expenditure	0.107	0.034	0.030	**0.750**	-0.059
Religious influence	-0.343	-0.054	0.372	**0.579**	0.091
Neighborhood war this year	-0.010	-0.022	0.022	0.039	**0.913**
Neighborhood war last year	-0.016	-0.038	0.006	0.057	**0.909**

Notes: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 5 iterations. All variables enter PCA in Z-normalized form. Bold numbers indicate prominent factor loading (see text).

More specifically, the variable *institutional quality* consists of the observed variables rule of law, bureaucracy, stability and corruption (enters negatively).[14] This latent variable indicates good governance, meaning that a higher country score in the observed indicator corresponds with better governance, except in the case of corruption. Therefore, the constructed variable should display system strength since high institutional quality ought to offer e.g., alternative modes to express opposition voices and make it difficult to gain public support. Therefore, good governance raises the opportunity costs of organizing civil war through e.g., a capable judicial and police system.

A second latent variable, *socioeconomic strength*, is constructed using the observed (normalized) variables GDP per capita, official development aid (ODA; enters negatively), population under 14 (youth burden; enters negatively), ethnolinguistic fractionalization (ELF; enters negatively) and urbanization. Overall, this variable should indicate system strength rather than weakness. We expect major socioeconomic strength to make highly organized forms of violent opposition (i.e., open rebellion) less likely because the (opportunity) costs of such behavior ought to be comparatively high.

By contrast, the third latent variable *internal instability* indicates a weakness of the system as it is composed of observed variables that denote contempt for human rights, population pressure (population size), years of peace, as well as a dummy variable for terrorist activity or civil conflict in the year before. We hypothesize that larger systems (measured in population size) are more prone to all kinds of violent opposition due to scale effects. On the one hand, it should become more difficult (more costly) to defend a system as it becomes larger. On the other, all forms of violent opposition are able to draw from a larger pool of recruits and supporters when a system becomes larger.[15] Additionally, as the number of peaceful years increases the war infrastructure may deteriorate and thus may lower the risk of a new onset of civil war since the cost of renewing the required war infrastructure increases (cf. Collier and Hoeffler 2004). Contempt for human rights may lead to riots and destabilize a system. Thus, with increasing stability of the political system, the chance of violent opposition decreases as e.g., the acceptance of the political system within the population increases (e.g., due to advances in institution building).

[14] Note that GDP per capita is also a prominent observed variable within the latent variable institutional quality. However, as it scores higher on socioeconomic strength it is marked within the latent variable socioeconomic strength.

[15] At the same time, any kind of violence (in particular low-scale terrorism) is expected to be reported more frequently when a system is large. In other words, our third latent variable is also to some extent linked to the underreporting problem that is common in the empirical analysis of terrorism (cf. Drakos and Gofas, 2006).

A fourth latent variable, *political exclusion*, should also indicate system weakness. It is constructed using information on military expenditure, democracy (enters negatively) and religious influence. Bundling military expenditure and non-democratic systems makes sense, considering the role of the military in non-democratic systems (cf. Acemoglu et al. 2010). We can hypothesize that more militarized and undemocratic systems are less able to integrate opposition and offer non-violent means of conflict resolution. Consequently, the cost-benefit matrices of any (potential) violent opposition group are swayed in ways that make such opposition more likely (e.g., by making alternatives to violence less attractive). Religious influence may serve to stabilize non-democratic regimes and legitimize autocratic systems. However, in our argumentation it also contributes to system weakness as it may hinder the political participation of religious and political opposition forces.

A fifth latent variable is labeled *external instability* and comprises dummy variables for civil conflict in a neighboring country either in the year in question or the year before, in order to capture a possible spillover effect.

4.2 Multinomial Logistic Regression Estimations

We now use the five (latent) variables indicating strengths and weaknesses of a system in *multinomial logistic model* (MLM) to assess how they are related to distinct modes of violent opposition. Our empirical model takes the following form (e.g., Greene 2008):

$$P(VIOLENCE_{ijt}|w_{it}) = \frac{\exp(w_{it}'\alpha_j)}{\sum_{j=0}^{3}\exp(w_{it}'\alpha_j)}, \text{ with j = 0, 1, 2, 3} \qquad (2)$$

It is our understanding that violent opposition occurs in three distinct modes, namely (low-scale) terrorism, civil conflict or civil war. With respect to Equation (2) this means that our indicator of violent opposition (VIOLENCE) can take on four different values. Our baseline (*j=0*) is peace; *j=1* when a country *i* suffers from (homeland) terrorism; *j=2* when a country faces civil conflict (i.e., a large-scale terrorist campaign or a civil war below the conventional threshold) in period *t*; *or j=3* if there is high-level conflict (civil war).[16]

Using the MLM we estimate the probability of a certain mode of violent opposition depending on w_{it} and α_j, i.e., on system strength variables and other controls. To account for potential biases arising from omitted variables or outliers, we use robust standard errors. The

[16] Note that by measuring violent opposition this way we are able to circumvent the problem of underreporting which usually plagues terrorism analyses (cf. Drakos and Gofas 2006). Also, the outlier problem is eliminated (in contrast to, e.g., count data models).

use of robust standard errors (and time lags of the dependent variable) is also justified given that other tests indicate the presence of heteroscedasticity (cf. White 1980) and autocorrelation (cf. Wooldridge 2002; Arrelano and Bond 1991) in the dataset, which may bias the results.[17] Note that we let the explanatory variables enter the model in the *(t-1)* lagged form in order to avoid reverse causation problems. However, we are not able to account for possible endogeneity effects due to a lack of a proper instrument (cf. Miguel et al 2004; Blattman and Miguel 2010). So we do not establish causalities here, but rather discuss correlations.

We first specify and estimate a baseline MLM that includes only the five latent system strength variables. The results are reported in Table 3 and indicate that the risk of all levels of violent opposition diminishes with increasing internal stability of the system, which strongly suggests the existence of temporal contagion. Only intermediate and high levels of violent opposition become more likely with political exclusion, yet this system weakness does not matter to terrorist activity. While good governance seems to reduce the likelihood of civil war, it has no significant effects on the other two modes of violent opposition.

Table 3: Baseline Results of the Multinomial Regression Model

	Terrorism	Civil Conflict	Civil War
Institutional quality (t-1)	0.102	-0.122	**-1.159 *****
	(0.148)	(0.195)	(0.386)
Internal instability (t-1)	**1.619 *****	**3.381 *****	**4.846 *****
	(0.166)	(0.287)	(0.501)
Socio-economic strength (t-1)	**0.529 *****	-0.297	-0.725
	(0.163)	(0.220)	(0.500)
Political exclusion (t-1)	**-0.240 ***	**1.037 *****	**2.089 *****
	(0.142)	(0.227)	(0.347)
External instability	-0.115	**-0.428 *****	**-0.533 ****
	(0.103)	(0.156)	(0.255)
Constant	**-2.064 *****	**-4.744 *****	**-5.772 *****
	(0.468)	(0.951)	(1.912)
No. of Observations	1026		
Pseudo R^2	0.442		
Wald Chi^2 (63)	362.7		

Notes: The baseline outcome is peace (no violent opposition). Robust standard errors in parentheses; (*), (**) and (***) indicate significance at 10%, 5% and 1% levels.

[17] Note that multicollinearity is generally not a problem for our estimations, since it is tested by the variance inflation factor.

Generally, from our baseline model we find support for our hypothesis that certain components of system strength are negatively related to high-scale violence but positively to low-scale violence (terrorism). Evidently, open rebellion is not a cost-efficient option when a system offers socioeconomic strength. Violent opposition groups should have difficulties finding sufficient support and funding and hence resort to underground violence (terrorism) instead. Regarding potential spatial contagion, we find support for the cases of civil conflict and civil war, but surprisingly our coefficients show a negative sign, i.e., the risk of civil conflict onset seems lower if the neighboring country is already exposed to violent political opposition.

Next, we amend our baseline model and add three additional control variables (mountainous terrain, trade openness and secure property rights).[18] The corresponding results are reported in 4 and generally confirm those of the baseline estimation. That is, we again find that internal stability lowers the probability of experiencing all three modes of violent opposition. Socioeconomic strength again seems to favor terrorist activities, while it is found to reduce the risk of civil war. Furthermore, good governance diminishes the likelihood of civil war, while political exclusion fuels the probability of civil conflict and civil war. Bad neighborhood again reduces the risk of terrorism and civil conflict in the home country. With respect to the additional controls, we find that economic integration (trade openness) reduces the probability of civil conflict and terrorism but does not prevent civil war. However, there is no evidence that geographic features matter to the modes of violent opposition. Also, the protection of property rights (economic rights) does not significantly correlate with any of the three forms of violent opposition. Our baseline findings are, however, generally stable to the addition of the controls.

Finally, we estimate our extended MLM with the squares of the distinct system strength variables as additional explanatory variables to test for a nonlinear relationship between the modes of violent opposition and system strength. In Table 55 to Table 8, we report our MLM findings when we let squared terms enter the MLM one by one. Our results suggest only weak non-linear effects between system strength and weaknesses and violent opposition. Rather, we find that our baseline findings are supported. Only for terrorism do we find a non-linear effect with internal instability, whereas civil conflict and civil war are non-linearly related to political exclusion. We again find that our baseline findings hold to some methodological

[18] Note that while secure property rights (economic rights) is a variable describing the strength/weakness of a system, (according to our PCA results) it does not fit into any of the broader categories identified by the PCA. By contrast, the PCA indicates that the extent of economic rights is a category of its own and thus enters our extended model as such. The same holds for trade openness and mountainous terrain.

changes. Our main hypothesis finds additional support, in particular with respect to the positive relationship between socioeconomic strength and terrorism and the strong negative link between socioeconomic strength and open rebellion (civil war).

Table 4: Results of the Extended Multinomial Regression Model

	Terrorism	Civil Conflict	Civil War
Institutional quality (t-1)	0.0456	-0.191	**-1.793 *****
	(0.155)	(0.215)	(0.496)
Internal instability (t-1)	**1.491 *****	**3.200 *****	**5.379 *****
	(0.173)	(0.282)	(0.612)
Socioeconomic strength (t-1)	**0.480 *****	-0.308	**-1.362 ****
	(0.174)	(0.224)	(0.606)
Political exclusion (t-1)	-0.215	**1.110 *****	**2.189 *****
	(0.150)	(0.238)	(0.464)
External instability	-0.172	**-0.564 *****	-0.347
	(0.110)	(0.175)	(0.261)
Trade openness (t-1)	**-0.223 ***	-0.525 *	0.422
	(0.125)	(0.272)	(0.389)
Mountainous terrain	0.150	0.277	-0.188
	(0.101)	(0.184)	(0.284)
Economic rights (t-1)	-0.00436	0.175	0.0595
	(0.153)	(0.257)	(0.351)
Constant	**1.765 ****	-1.444	**-5.308 *****
	(0.883)	(1.021)	(1.564)
No. of Observations	1017		
Pseudo R^2	0.450		
Wald Chi^2 (72)	370.1		

Notes: The baseline outcome is peace (no violent opposition). Robust standard errors in parentheses; (*), (**) and (***) indicate significance at 10%, 5% and 1% levels. Specification includes time and regional dummies (not reported).

As a further robustness check, we run three separate logistic regressions using our baseline specification (so that we only estimate the likelihood of terrorism, minor conflict or civil war at one time). Generally our main results do not change (not reported). The same holds if we exclude GDP per capita from our analysis. As this variable is prominent in two latent variables, one may argue that this may disturb the analysis. Excluding this variable does not lead to any change in results (not reported).

Table 5: Analysis of Non-Linear Effects of Institutional Quality

	Terrorism	Civil Conflict	Civil War
Institutional quality (t-1)	0.0496	-0.189	**-1.766** ***
	(0.170)	(0.222)	(0.518)
Institutional quality (t-1) (Sq.)	-0.00381	0.00663	-0.0643
	(0.0690)	(0.130)	(0.195)
Internal instability (t-1)	**1.492** ***	**3.201** ***	**5.351** ***
	(0.175)	(0.285)	(0.590)
Socioeconomic strength (t-1)	**0.481** ***	-0.309	**-1.306** **
	(0.174)	(0.233)	(0.652)
Political exclusion (t-1)	-0.214	**1.110** ***	**2.200** ***
	(0.152)	(0.238)	(0.464)
External instability	-0.173	**-0.563** ***	-0.359
	(0.110)	(0.178)	(0.264)
Trade openness (t-1)	**-0.223** *	**-0.523** *	0.395
	(0.125)	(0.273)	(0.396)
Mountainous terrain	0.150	0.278	-0.199
	(0.101)	(0.185)	(0.282)
Economic rights (t-1)	-0.00623	0.175	0.0539
	(0.153)	(0.263)	(0.355)
Constant	-0.203	**-3.232** ***	**-7.502** ***
	(0.846)	(0.984)	(1.459)
No. of Observations	1017		
Pseudo R^2	0.450		
Wald Chi^2 (75)	378.0		

Notes: The baseline outcome is peace (no violent opposition). Robust standard errors in parentheses; (*), (**) and (***) indicate significance at 10%, 5% and 1% levels. (Sq.) indicates squared term. Specification includes time and regional dummies (not reported).

Table 6: Analysis of Non-Linear Effects of Internal Instability

	Terrorism	Civil Conflict	Civil War
Institutional quality (t-1)	0.0451	-0.200	**-1.772** ***
	(0.155)	(0.211)	(0.512)
Internal instability (t-1)	**1.620** ***	**3.304** ***	**6.277** **
	(0.175)	(0.371)	(2.669)
Internal instability (t-1) (Sq.)	**-0.396** **	-0.311	-0.573
	(0.174)	(0.221)	(0.771)
Socioeconomic strength (t-1)	**0.446** **	-0.334	**-1.374** **
	(0.175)	(0.220)	(0.618)
Political exclusion (t-1)	-0.115	**1.177** ***	**2.207** ***
	(0.155)	(0.244)	(0.448)
External instability	-0.171	**-0.542** ***	-0.351
	(0.107)	(0.171)	(0.260)
Trade openness (t-1)	-0.189	**-0.467** *	0.432
	(0.128)	(0.270)	(0.429)
Mountainous terrain	0.123	0.262	-0.208
	(0.102)	(0.182)	(0.287)
Economic rights (t-1)	0.0476	0.210	0.0680
	(0.156)	(0.253)	(0.358)
Constant	0.191	**-3.001** ***	**-7.758** ***
	(0.847)	(1.019)	(2.353)
Observations	1017		
Pseudo R^2	0.453		
Wald Chi^2 (75)	398.5		

Notes: The baseline outcome is peace (no violent opposition). Robust standard errors in parentheses; (*), (**) and (***) indicate significance at 10%, 5% and 1% levels. (Sq.) indicates squared term. Specification includes time and regional dummies (not reported).

Table 7: Analysis of Non-Linear Effects of Socioeconomic strength

	Terrorism	Civil Conflict	Civil War
Institutional quality (t-1)	0.0586	-0.176	**-1.820** ***
	(0.159)	(0.215)	(0.515)
Internal instability (t-1)	**1.502** ***	**3.199** ***	**5.341** ***
	(0.175)	(0.283)	(0.616)
Socioeconomic strength (t-1)	**0.513** ***	-0.352	**-1.622** **
	(0.185)	(0.296)	(0.801)
Socioeconomic strength (t-1) (Sq.)	0.0346	-0.0188	-0.126
	(0.0900)	(0.120)	(0.320)
Political exclusion (t-1)	-0.202	**1.113** ***	**2.203** ***
	(0.151)	(0.239)	(0.468)
External instability	-0.169	**-0.562** ***	-0.356
	(0.110)	(0.176)	(0.273)
Trade openness (t-1)	-0.208	**-0.530** *	0.389
	(0.131)	(0.282)	(0.394)
Mountainous terrain	0.156	0.274	-0.227
	(0.102)	(0.187)	(0.285)
Economic rights (t-1)	-0.00188	0.162	0.0190
	(0.153)	(0.257)	(0.368)
Constant	**1.779** **	-1.461	**-5.394** ***
	(0.880)	(1.027)	(1.565)
Observations	1017		
Pseudo R^2	0.450		
Wald Chi^2 (75)	371.1		

Notes: The baseline outcome is peace (no violent opposition). Robust standard errors in parentheses; (*), (**) and (***) indicate significance at 10%, 5% and 1% levels. (Sq.) indicates squared term. Specification includes time and regional dummies (not reported).

Table 8: Analysis of Non-Linear Effects of Political Exclusion

	Terrorism	Civil Conflict	Civil War
Institutional quality (t-1)	0.0537	-0.0670	**-1.657** ***
	(0.156)	(0.213)	(0.489)
Internal instability (t-1)	**1.494** ***	**3.066** ***	**5.267** ***
	(0.172)	(0.276)	(0.617)
Socioeconomic strength (t-1)	**0.480** ***	-0.246	**-1.283** **
	(0.173)	(0.227)	(0.611)
Political exclusion (t-1)	-0.195	**1.485** ***	**2.766** ***
	(0.178)	(0.350)	(0.662)
Political exclusion (t-1) (Sq.)	0.00501	**-0.301** ***	**-0.393** *
	(0.0723)	(0.110)	(0.218)
External instability	-0.175	**-0.619** ***	-0.397
	(0.111)	(0.178)	(0.267)
Trade openness	**-0.224** *	**-0.531** **	0.427
	(0.125)	(0.264)	(0.375)
Mountainous terrain	0.144	0.221	-0.264
	(0.104)	(0.182)	(0.295)
Economic rights	-0.00165	0.176	0.00703
	(0.153)	(0.263)	(0.364)
Constant	-0.207	**-2.864** ***	**-1.657** ***
	(0.833)	(0.990)	(0.489)
Observations	1017		
Pseudo R^2	0.452		
Wald Chi^2 (75)	380.7		

Notes: The baseline outcome is peace (no violent opposition). Robust standard errors in parentheses; (*), (**) and (***) indicate significance at 10%, 5% and 1% levels. (Sq.) indicates squared term. Specification includes time and regional dummies (not reported).

5. Conclusion

In this contribution we provide a simple conceptual framework to explain why violent opposition groups choose distinct forms of violence which differ with respect to e.g., employed tactics, lethality and organizational structure. We build on the previous works and ideas by e.g., Sambanis (2008), Besley and Persson (2009), Sanchez-Cuenca and Calle (2009) and Sanchez-Cuenca (2009a). Our main hypothesis is that violent opposition groups (while potentially not differing in their intermediate and ultimate goals, e.g., national independence and the choice of target) use certain modes of violence in response to the strengths and weaknesses of the system they challenge. Essentially, the mode of violent opposition is a function of system strength and weakness. When systems are 'weak', open rebellion (war) ought to be more likely as this gives opposition groups an opportunity to gain control over political and economic agenda-setting. By contrast, when systems are 'strong', terrorism is the likely choice of violent opposition.

We test this hypothesis in the empirical part of this contribution. First, we identify certain dimensions of system strength and weakness through principal component analysis. Then we run a number of multinomial logistic regressions for 104 countries from 1992 to 2004, finding that (i) a latent variable indicating socioeconomic strength is positively related to the likelihood of terrorism but negatively to the existence of more extreme forms of violent opposition; (ii) good governance matters to the more extreme mode of violent opposition but not to terrorism; (iii) system instability is positively associated with the existence of all modes of violent opposition; (iv) political exclusion may lead to political violence in the form of civil conflict and civil war; (v) economic integration reduces the chance of terrorist activities and (low-scale) civil conflict.

Given the positive correlation between economic development and system strength, we believe that our findings may help to understand why most studies on the determinants of terrorism have failed to connect it to poor economic conditions (cf. Krieger and Meierrieks 2010). In fact, countries with poor economic development are more likely to experience more violent forms of opposition, which are usually labeled 'civil war' and not 'terrorism'.[19] The latter result is found e.g., in Fearon and Laitin (2003). Our study also offers an intuitive explanation as to why some studies (e.g., Li 2005; Burgoon 2006) have found that more

[19] Note that this does not imply that violent opposition (in particular terrorism) is not rooted in poor economic conditions. Rather, we may assume that previous studies on the causes of terrorism have failed to thoroughly disentangle the effects of economic conditions (economic development) and state strength on the genesis of terrorism.

capable systems are more likely to be targeted by terrorism. Again, this stems from the fact that violent opposition groups are more likely to opt for terrorism in the face of a 'strong' system.

Our findings imply that episodes of major violence can be prevented through sound conflict management and improved socioeconomic conditions, e.g., through institutional reforms and efforts to improve socioeconomic and political development and stabilization (both internally and internationally). However, our results also indicate that there is some price to pay. In particular, an improvement in socioeconomic conditions, while it may fend off civil war, may make terrorism more likely.

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Appendix A. List of Countries

Albania	Ethiopia	Malawi	Senegal
Algeria	Finland	Malaysia	Serbia Montenegro
Angola	France	Mali	Sierra Leone
Argentina	Gambia	Mexico	Slovakia
Australia	Germany	Mongolia	South Africa
Austria	Ghana	Morocco	South Korea
Bahrain	Greece	Mozambique	Spain
Bangladesh	Guatemala	Namibia	Sri Lanka
Belgium	Guinea	Netherlands	Sudan
Bolivia	Guinea-Bissau	New Zealand	Sweden
Botswana	Honduras	Nicaragua	Switzerland
Brazil	Hungary	Niger	Syria
Bulgaria	India	Nigeria	Tanzania
Burkina Faso	Indonesia	Norway	Thailand
Cameroon	Iran	Oman	Togo
Canada	Ireland	Pakistan	Tunisia
Chile	Israel	Panama	Turkey
China	Italy	Papua New Guinea	UAE
Colombia	Japan	Paraguay	Uganda
Cote d'Ivoire	Jordan	Peru	United Kingdom
Cyprus	Kenya	Philippines	United States
Czech Republic	Kuwait	Poland	Uruguay
Denmark	Lebanon	Portugal	Venezuela
Ecuador	Liberia	Romania	Yemen
Egypt	Libya	Russia	Zambia
El Salvador	Madagascar	Saudi Arabia	Zimbabwe

Appendix B. Independent and Control Variables

Variable	Measurement	Data Source
Bureaucracy	Rescaled index of bureaucratic quality	International Country Risk Guide (ICRG)
Conflict last year/terror last year	Dummy variable with 1 if conflict/terrorist attack in the respective country in the year before, otherwise 0	based on GTD and PRIO, own compilation
Corruption	Rescaled indicator of degree of corruption	ICRG
Democracy	Rescaled Polity2 variable	Polity IV Project, World Bank
Economic rights	Rescaled index of secure property rights	ICRG
ELF	Ethnolinguistic fractionalization of the population	Fearon (2003)
GDP pc	Logged real GDP per capita	Penn World Table (PENN)
Human rights	Index on human rights situation (e.g., with respect to torture, political imprisonment etc.)	Cingranelli and Richards (CIRI) Human Rights Dataset
Military expenditure	Fraction of central government expenditure	World Development Indicators (WDI)
Mountains	Fraction of state territory defined as mountainous	Fearon and Laitin (2003)
Neighborhood conflict this/last year	Dummy variable with 1 if civil conflict in neighboring countries above 1,000 fatalities per annum threshold in the respective year and the year before, otherwise 0	based on PRIO, own compilation
ODA	Official development aid received	WDI
Years of peace	Years without civil conflict reported. If no civil conflict is reported for the period, then years counted from 1945 are used.	Based on PRIO; Collier/ Hoeffler (2004)
Population size	Logged size of population	PENN
Religious influence	Rescaled indicator of the degree of religious influence in politics and religious conflict	ICRG
Rule of law	Rescaled index of the quality of the judicial and police system	ICRG
Stability	Number of years since last major regime change (durability variable)	Polity IV Project, World Bank
Trade openness	Ratio of the sum of exports and imports to real GDP	PENN
Urbanization	Fraction of population in urban areas	WDI
Youth burden	Fraction of population below the age of 14	WDI

Appendix C. Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Homeland terrorism	1350	0.410	0.492	0.000	1.000
Civil conflict	1352	0.179	0.383	0.000	1.000
Civil war	1352	0.056	0.230	0.000	1.000
Bureaucracy	1350	5.641	2.851	0.000	10.000
Conflict last year	1352	0.174	0.379	0.000	1.000
Corruption	1350	4.719	2.149	0.000	10.000
Democracy	1336	70.112	32.034	0.000	100.000
Economic rights	1350	6.031	1.964	0.000	10.000
ELF	1339	0.474	0.276	0.004	1.000
GDP pc	1342	7.658	1.662	4.035	10.571
Human rights	1326	5.937	2.882	0.000	10.000
Military expenditure	1267	2.913	2.914	0.363	31.786
Mountains	1339	15.577	17.956	0.000	71.300
Neighborhood conflict last year	1352	0.145	0.352	0.000	1.000
Neighborhood conflict this year	1352	0.140	0.347	0.000	1.000
ODA	1352	5.041	9.513	-0.689	81.487
Years of peace	1352	32.053	23.244	0.000	58.000
Population size	1349	16.519	1.411	13.178	20.983
Religious influence	1352	2.318	2.282	0.000	10.000
Rule of law	1350	6.589	2.355	0.000	10.000
Stability	1349	25.584	33.248	0.000	195.000
Trade openness	1318	70.982	35.104	12.797	228.875
Urbanization	1352	55.987	22.585	11.350	97.230
Youth burden	1349	32.700	10.868	14.065	51.105