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Abstract

Popular beliefs link terrorism to economic, political and social underdevelopment. In this contribution, we comprehensively review the related, most relevant cross-country analyses to ascertain the true determinants of terrorism. The related theoretical underpinnings are presented and common analytical and methodological objections are discussed. In general, we find that terrorism is closely linked to political instability, sharp divides within the populace, country size and further demographic, institutional and international factors. Sound counter-terrorism policies should work on these prominent root causes of terrorism. Evidence is only marginal that economic performance, structural economic conditions, democratization, education or religious affiliation significantly interact with terrorism. Thus, we are skeptical towards popular policy advice that focuses on poverty alleviation, a promotion of economic development, democratization, education or the like.

Keywords: Determinants of Terrorism, Political Violence, Counter-Terrorism Policies

JEL Classification: D74, H56, K40, N40

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1 Introduction

Popular beliefs link terrorism to economic, political and social underdevelopment. In this contribution, we comprehensively review the most relevant cross-country analyses to ascertain the true determinants of terrorism. The related theoretical underpinnings are presented and common analytical and methodological objections are discussed. In general, we find that terrorism is closely linked to political instability, sharp divides within the populace and further demographic and institutional factors. Possibly, geographic and international political factors may amplify terrorism. Evidence is only marginal that economic performance, structural economic conditions, democratization, education or religion significantly interact with terrorism. Thus, we dismiss popular policy advice that focuses on poverty alleviation, a promotion of economic development, education or the like. On average, sound counter-terrorism policies should instead work on the prominent root causes of terrorism, for instance, through increased international cooperation. Given the complexity of terrorism, such policies should always be designed as to match with the predominant forms of violence and of political conflict, and with further circumstances within specific countries.

In particular after the attacks of New York and Washington on September 11, 2001, politicians and the general public have tried to bring to light the incitements to terror. US-President Bush (2002) argued that there is a vicious circle of political disenfranchisement, state failure and terror, saying that because “[...] persistent poverty and oppression can lead to hopelessness and despair [...] these failed states can become havens for terror.” Similarly, then-UK Prime Minister Blair (2004) argued: “[...] poverty and instability leads to weak states, which can become havens for terrorists [...]” The media and the public has widely picked up such argumentation. In general, popular discourse links the genesis of terrorism closely to economic, political and social underdevelopment. Accordingly, policy measures are advocated that aim at alleviating underdevelopment. For instance, then-German Chancellor Schröder (2003) argued: “[...] to address the root causes of terrorism and insecurity [...] we must ensure social and material but also cultural security.” That is, policies that, for example, overcome economic and social insecurity or political instability are argued to be sound counter-terrorism means by removing incentives for terrorism.

The aim of this contribution is to identify the true determinants of global terrorism. Therefore, we review existing empirical evidence on this issue, ultimately contrasting our findings with popular hypotheses on the roots of terrorism. Although empirical case studies (cf., e.g., Enders and Sandler, 1996; Abadie and Gardeazabal, 2003) are revealing with respect to the dynamics of terrorism in certain countries, we focus our efforts solely on cross-country evidence. Additionally, we pool cross-country findings on various forms of terrorism – domestic, transnational and suicide terrorism – instead of only centering upon one specific form of terrorism. We are aware of problems associated with such an approach, for example, in terms of comparability. Still, we consider our approach – a general review of cross-country evidence on the roots of terrorism – to be the most

promising one, particularly when evaluating the validity of popular beliefs on the determinants of terror.

As its main results, this contribution finds that (i) terrorism is most prominently linked to political and demographic factors. In particular, political instability – for instance, as a consequence of political transformation or opening – and sharp social divides within a population – for example, as a result of nationalistic struggles for autonomy or severe ideological differences – promote the genesis of terrorism. (ii) International factors as well as further demographic and institutional dynamics may also aggravate political violence. For instance, international dispute and conflict, youth burdens or a lack of economic opportunity are associated with increased terrorism risk. Favorable geography may amplify already existing terrorist activity. Quite naturally, larger and more populous countries tend to be likelier targets of terrorism. As a consequence of this, (iii) sound counter-terror policies – for instance, increased international cooperation, political participation, foreign aid or the like – should focus on these ‘established’ causes of global terror.

Regarding popular hypotheses on terrorism, (iv) no convincing evidence is found that economic factors – for example, economic growth, poverty, income disparity or the like – are closely connected to terrorism. Richer countries only seem to be more often targeted by transnational terrorism. There is only marginal evidence that religious or ideological affiliation – mainly, Islam and Islamism – is connected with terrorism risk. Additionally, higher levels of education or democratic political systems do not guard effectively against terrorism. Hence, (v) several popular policy advices – such as poverty alleviation, economic development, democratization or the like – should be watched critically, considering their efficiency in fighting terrorism. However, in reference to political instability, (vi) popular beliefs are confirmed insofar as governmental weakness and political transformation tend to systematically encourage terrorism. Surprisingly for Western leaders, installing stable democratic regimes is not a panacea for terror in this connection. Given the findings of our review, stable authoritarian regimes appear to combat global terrorism just as effectively, although related potential under-reporting biases should be considered carefully.

The remainder of this contribution is organized as follows: In section 2, we discuss the theoretical and empirical environment that is associated with the economics of terrorism. Section 3 reviews the relevant literature on various possible determinants of terrorism. We also provide a compact overview of our findings in the form of a table. In section 4, we discuss our results, summarize our findings, highlight several policy implications and hint at fruitful areas of future research.

2 The Economics of Terrorism

Terrorism may be defined as the deliberate use of violence and intimidation directed at a large audience in order to coerce a community or its government

into conceding demands that are politically or ideologically motivated (cf., e.g., Rathbone and Rowley, 2002; Krueger and Maleckova, 2003). We may distinguish between the tactical – short-run – and strategical – long-run – goals of terrorist organizations. As for the former, terrorists’ main tactical objectives – beside the ones that are associated with perpetuating the financing of the organization, recruiting new members and the like – are (i) gaining publicity and media attention, (ii) achieving a destabilization of existing political systems and (iii) damaging national economies (cf., e.g., Tavares, 2004). As for the latter, the ultimate goals of terrorists are, inter alia, a redistribution of power, influence and wealth (cf. Frey and Luechinger, 2004). We assume that violence, fear and intimidation that are linked to tactical terrorist behavior – such as bombings, assassinations, hostage-takings or the like – serve the purpose of achieving the organizations’ strategical goals.

Considering the tactical goals of terrorist organizations, it becomes immediately clear that political violence may be costly for affected countries. Even if its direct costs may be marginal, the indirect political and economic costs of terrorism through increased instability and insecurity may be substantial. As for possible political costs, terrorist actions may reduce governmental stability (cf. Gassebner *et al.*, 2008) or may induce governments to pursue policies that are not compliant to human rights, for example, making a democratic regime less liberal (cf. Dreher *et al.*, 2007). As for economic costs, terrorism may, for example, negatively impact the development of the entire economy or certain industries, of trade or capital flows. A number of recent studies deals with estimating these costs (cf. Nitsch and Schumacher, 2004; Crain and Crain, 2006; Abadie and Gardeazabal, 2008). Furthermore, a comprehensive study by Frey *et al.* (2007) emphasizes losses in individual and collective life satisfaction through terrorism. A short survey by Llusa and Tavares (2007) provides an additional overview of the literature on the costs of terrorism.

While there is little disagreement about the cost side of terrorism, there is a controversial debate – in particular in the political arena – about the causes of terrorism. Since this contribution focuses on the determinants of terrorism as detected in the most relevant empirical academic literature, it is necessary to get straight – in a first step – the theoretical underpinnings before moving to empirical findings. Two main lines of arguments have been put forward. On the one hand, it is argued that terrorism may be the consequence of irrationality, psychopathy or insanity. Such an argumentation – while being popular – is too simple, as we deprive ourselves of any systematical theoretical or empirical approach on the roots of terrorism. On the other hand, we may consider political violence to be the result of the interaction of actors and circumstances. That is, the various dimensions of terrorism – its genesis, forms, magnitude, targets, motivations or the like – are closely linked to personal or group psychology and country-specific circumstances (cf. Victoroff, 2005).

As for psychological traits, individual terrorists may, inter alia, be characterized by (i) a predisposition for ideological issues, combined with (ii) stronger-than-average personal preferences for, for example, aggressiveness, violence, identity or glory, or feelings of, for example, frustration, humiliation or depriva-

tion, added by (iii) low cognitive adaptiveness and (iv) the ability to attack the innocent, having eliminated related moral constraints (cf. McCormick, 2003; Victoroff, 2005). Factors such as cultural conditions, the dominance of group leaders or other group dynamics may interact with individual character features.

Psychological traits are difficult to measure and can only be marginally influenced by political actions. In addition, it cannot be assumed that someone becomes a terrorist by automatism only because of certain personal features. As outlined before, it is the interaction of actors' traits and circumstances that generates terrorism and determines its extent, form or life cycle. Empirical literature – and with it our contribution – focuses on the identification of country-specific factors that are related to terrorism and their respective interdependencies. Here, an economic, most often rational-choice perspective is adopted. That is, the average terrorist behaves more or less like a homo economicus, considering his response to incentives, his narrow self-interest and the rationality of his expectations (cf. Caplan, 2006). He is a rational actor who commits terrorist actions in order to maximize his utility, given certain benefits, costs and constraints that are linked to these actions (cf. Sandler and Enders, 2004). Caplan (2006), however, excludes suicide terrorists from this view and considers them to be true outliers that do not match with traditional concepts of rationality.

Given this perspective on terrorists, quite naturally certain country-specific determinants – the 'circumstances' – may influence the costs and benefits associated with terrorism. For instance, a tightening of national security may increase the costs of terrorism, thereby altering its dynamics. Conversely, easy access to safe heavens may reduce terrorism-related costs, thus amplifying terrorist activity.

In order to deal with the substantial, sometimes devastating effects of terrorism on both macroeconomic and individual levels, precise analyses of the roots of terrorism are needed in order to develop and employ sound counter-terrorism policies. Without neglecting the influence of psychological factors, the empirical literature focuses on observable country-specific determinants of terrorism, basing their analyses on rational-choice or game-theoretic models of economic theory which adequately represent terrorist behavior and allow for meaningful empirical analyses (cf. Sandler and Enders, 2004, 2007). These country-specific factors impact the terrorists' cost-benefits matrices and thus their behavior. Such determinants may be of economic, political, demographic, international or geographic nature. In the following section, we will exhaustively review the related literature. Identifying those factors that significantly interact with terrorism will obviously benefit (i) economic theory and the design of both (ii) future empirical research and (iii) policies that appropriately counter terrorism.

3 The Determinants of Terrorism: Theory and Evidence

In this section, the empirical literature dealing with the main determinants of terrorism is reviewed and critically assessed. Table 1 presents five broad categories, each of them divided into more refined sub-categories of potential root causes for terrorist behavior. The main categories include economic factors, institutions and internal politics, international politics, demographic and geographic factors. For each impact factor, we first present the underlying theoretical argument, then review the existing empirical evidence and finally conclude by commenting on the results. Table 2 at the end of this section summarizes all reviewed studies in an easily accessible manner, providing additional information on estimation techniques and the employed data sets.

– Table 1 about here –

3.1 Economic Factors

In this subsection, we investigate the relationship of economic factors and incidences of terrorism. First, we focus on long-run structural conditions. Second, we scrutinize the linkages between short-run economic performance and terrorism. Finally, we review related literature on the interdependencies of economic integration and terror, given the growing importance of an international dimension to economic interrelations.

Economic Development The relationship between a country’s level of economic development and terrorist activity is argued to be an ambiguous one. On the one hand, wealthier countries may be more prone to terrorism. Blomberg *et al.* (2002, 2004) develop a model showing that groups unhappy with national resource distributions use terrorism in wealthier countries, while resorting to open civil wars in poorer economies. Furthermore, well-developed economies offer terrorists, *inter alia*, more vulnerable and worthwhile targets as well as easier access to weapons, the mass media or sophisticated means of communication and transportation (cf. Crenshaw, 1981; Ross, 1993).

On the other hand, poor structural economic conditions such as poverty or uneven income distributions are also argued to be root causes of terrorist activity. Both in intra-country and international comparison, poverty and inequality should be recognized as more drastic and threatening in less developed countries (cf. Salvatore, 2007). Consequently, terrorist organizations may be able to recruit new members and find popular support more easily and cost-efficiently in such countries which offer only few economic opportunities and which exhibit a high amount of discontent and desperation associated with low economic development, poverty and inequality (cf. Bueno de Mesquita, 2005; Piazza, 2006).

Empirically, the analysis of Blomberg *et al.* (2004) reveals that richer countries are indeed more often the victims of terrorist attacks. This findings is

confirmed by Tavares (2004) who also finds that more developed economies exhibiting higher per capita incomes are more frequently attacked by terrorists. Further studies which control for the effect of economic development on terrorism point to a similar, albeit not always strong relationship (cf. Eyerman, 1998; Testas, 2004; Wade and Reiter, 2007).

Nevertheless, the examination of further studies does not completely reinforce this picture. The findings of Blomberg and Hess (2005) link an increase in economic development to a decrease in terrorist activity in the source countries of transnational terrorism, whereas a comparable positive development in the target countries seems to significantly attract further terrorist activity from abroad. Krueger and Laitin (2007) argue that economic development only determines terrorism in targeted economies, while economic conditions do not appear to matter in countries from which terrorism evolves. Contrary to this, Li and Schaub (2004) find that with growing economic development of a country and its trade partners the likelihood of terrorism inside the country decreases. Additionally, the findings of Krueger and Maleckova (2003), Abadie (2004), Kurrild-Klitgaard *et al.* (2006), Piazza (2006) and Dreher and Gassebner (2008) suggest that economic development neither significantly encourages nor discourages terrorist activity, so development and poverty do not at all constitute a strong determinant of terrorism.

Particularly focusing on income inequality, the review of existing literature yields rather unambiguous results. Most studies find only an insignificant association of income distribution patterns and terrorism (cf. Abadie, 2004; Feldmann and Perälä, 2004; Li, 2005; Kurrild-Klitgaard *et al.*, 2006). Only Li and Schaub (2004) detect a terrorism-enhancing effect of inequality when they include an adequate proxy in their estimation model.

In general, most scrutinized empirical studies suggest that poor economic development and related structural conditions such as poverty and income inequality are not root causes of terrorism. That is, evidence is weak for the hypothesis that desperation and deprivation that are linked to poor economic environments significantly facilitate the activities of terrorist organizations. Nevertheless, higher levels of economic development may be associated with higher vulnerability towards transnational terrorism. Thus, a disentanglement of source and target countries of international terrorism may be appropriate when analyzing the effects of long-run economic factors on terrorist behavior.

Economic Performance In general, economic performance over the business cycle is expected to share a straightforward relationship with terrorist activity. Poor economic times are accompanied by increases in terrorism, while, conversely, in phases of cyclical upturns countries should experience less violence. The model by Blomberg *et al.* (2002, 2004) predicts that low growth rates or stages of recession, respectively, cause conflict because certain societal groups are less likely to be satisfied with their share in resource distribution. Factors that come along with poor economic performance such as high inflation or unemployment rates additionally increase discontent and instability, thus

similarly enhancing the probability of terrorist activity (cf. Piazza, 2006).

The empirical findings of Blomberg *et al.* (2004) suggest that reduced economic activity, that is, phases of recession, are indeed linked to an increase in terrorist activity. These results are confirmed by the ones of Li (2005) insofar as high annual GDP per capita growth is associated with lower levels of terrorism. Tavares (2004) also detects a prominent relationship between growth and incidences of terrorism, finding that more successful economies are to some extent more vulnerable to certain kinds of terrorist attacks.

Still, most empirical evidence suggests that measures of economic performance are at best only weakly associated with terrorist activity. Feldmann and Perälä (2004) for Latin America show that higher levels of inflation to some extent correlate with more nongovernmental terrorism, while growth and unemployment rates do not. Similarly, Piazza (2006) detects no significant linkages between terrorism and various performance proxies, namely growth, inflation and unemployment rates. The studies of Testas (2004), Drakos and Gofas (2006a), Kurrild-Klitgaard *et al.* (2006) and Krueger and Laitin (2007) which all control for the influence of income growth on terrorism also find no significant association between these factors.

Thus, in general no convincing evidence is found that poor economic times generate terrorism. Most examined studies point at a rather weak association between short-run economic conditions and terrorist activity. Given our findings with respect to long-run economic development, this result is not all too surprising.

Economic Integration From a theoretical perspective, the interaction between economic integration and terrorism is a priori unclear. Various channels may exist through which a country's participation in the international exchange of goods, services and capital may impact terrorist behavior. As for the terrorism-reducing effects of economic globalization, it is argued that increases in trade or foreign direct investment promote economic growth and reduce poverty, thereby allaying incentives for terrorism that are linked to low economic development (cf. Li and Schaub, 2004). Because the effect of economic integration is expected to be positive for all participants, for example, for all trade partners, a reducing effect of integration on terrorism may be anticipated on a global scale through its general enhancement of development.

As for possible terrorism-facilitating effects of integration, it is conversely argued that it may facilitate illegal cross-border activities such as smuggling or money laundering when terrorists capitalize on global distribution and transportation networks (cf. Mirza and Verdier, 2008). Moreover, terrorists will, for example, have less difficulties finding suitable targets because of the increasing mobility of people and assets (cf. Li and Schaub, 2004; Mirza and Verdier, 2008). For instance, terrorists will find it less difficult to attack Western companies or their employees because economic integration plainly raises their density in the terrorists' home countries.

In general, economic integration may then reduce terrorism by eroding the

mobilization pools of terrorist organizations through positive influences on development, or may foster terrorism by reducing the costs that are associated with, for example, the financing of terrorist activity or the selection of appropriate targets.

Empirically, the study of Li and Schaub (2004) is one of the two most comprehensive ones on the issue. Their findings suggest that economic integration does not promote transnational terrorism, for example, as a consequence of increasing vulnerabilities or a facilitation of illegal cross-border activities. Instead, with economic development of countries that maintain trade or investment relationships the amount of terrorist activity within the affected countries declines. That is, through its positive effect on economic growth international integration may help to reduce terrorism. The analysis of Blomberg and Hess (2005) is the other study that carefully investigates the interactions of globalization and terrorism. As its main results, it is found that more integration of the source country of transnational terrorism is associated with a decline in terrorist events, while more openness in the target economy results in an increase in terrorist activity. Thus, the effect of globalization on terrorism cannot be considered as a mitigating one only.

The studies of Bravo and Dias (2006), Burgoon (2006), Kurrild-Klitgaard *et al.* (2006) and Drakos and Gofas (2006a) also control for openness, although their respective analytical focus lies elsewhere. Here, Kurrild-Klitgaard *et al.* (2006) and Drakos and Gofas (2006a) find that more open economies experience significantly lower levels of terrorist activity, while the findings of Bravo and Dias (2006) and Burgoon (2006) indicate only a weak and rather inconclusive relationship between integration and terrorism.

In general, empirical results then show some support for the hypothesis that economic integration reduces the amount of terrorist events, particularly in countries that harbor transnational terrorism. Still, this effect needs not to be universal. That is, more open economies may be more vulnerable to terrorism, especially when other economic or institutional factors furthermore amplify this interrelation.

3.2 Institutions and Internal Politics

In the following subsection, we focus on political and institutional determinants of terrorism. Given that an installing of democratic governments is sometimes argued to counter terrorist activity, we first focus on this relationship. Then, we review the impact of political and economic freedom on the genesis of terror. Finally, we investigate the influence of governmental activity on terrorist behavior, considering that governments usually work as the key enemies of terrorist organizations. Throughout this subsection, it should be noted that the discussed determinants are closely interrelated. For instance, we would expect a democracy to generally offer high degrees of political and economic freedom which may influence governmental capabilities with respect to counter-terror policies. The interaction of institutional determinants of terrorism therefore has to be considered with particular care.

Democracy A democratic regime is generally argued to have a terrorism-reducing effect. Compared to autocracies, in democracies lower costs of political participation are offered, for example, by means of fair elections, the straightforward establishment of political parties or similar channels (cf. Eyerman, 1998; Li, 2005). Thus, the opportunity costs of terrorism are reduced, making it more difficult for terrorists to recruit new members.

Nevertheless, democratic regimes may be more prone to terrorism because of their appraisal of civil liberties and the like. That is, terrorist organizations may capitalize on such freedoms, while police forces are law-abiding, thus lowering the costs of terrorism that are associated with governmental retaliation (cf. Ross, 1993; Li, 2005). Additionally, a democratic regime may not be superior to an autocratic regime by itself. For instance, non-democratic regimes may combat violent opposition more ruthlessly, thereby increasing the costs of terrorist activity.

The empirical evidence in general suggests that incidences of democratic regimes and terrorism are rather strongly interrelated. Blomberg *et al.* (2004) find that democratic, high-income countries are likelier targets of international terrorism. Blomberg and Hess (2005) confirm this result by finding that wealthier and more democratic countries are targeted by terrorist activity more frequently. Their analysis also reveals that democratic change within a country negatively affects the generation of terrorists. The results of Li and Schaub (2005), Burgoon (2006) and Krueger and Laitin (2007) – while only controlling for the effect of democracy – also suggest that political changes towards more democratic forms of government are associated with an increase in terrorist activity. That is, democratic countries appear to be likelier victims of terrorism. This result is also confirmed by Eubank and Weinberg (2001) who ascertain that stable democracies are most often the victim and the origin of terrorist activity.

Conversely, the results of Eyerman (1998) and Weinberg and Eubank (1998) indicate that stable democracies are less likely to be victims of transnational violent activity. Nevertheless, newly established, that is, rather instable democracies in these analyses appear to be particularly vulnerable to terrorism. Kurrild-Klitgaard *et al.* (2006) also find that democracy has a terrorism-dampening effect, whereas countries that undergo democratic change are more prone to terrorism, presumably because of their intermediate position that entails instability.

Li (2005) suggests that democracy is negatively linked with transnational terrorism, also pointing out that the exact institutional framework of such a regime – for example, with respect to the trade-off between civil liberties and security needs – has to be taken into account in order to fully gauge the influence of open societies on terrorism. Piazza (2008) finds that democracies are less likely to produce suicide terrorism, without being especially prone to suicide attacks themselves. Only in Drakos and Gofas (2006a), the link between democracy and terrorism is found to be truly insignificant.

Summarizing, empirical evidence indicates a significant relationship between the level of democracy and incidences of terrorism within a country. The exact

mechanics of this interaction remain rather unclear. While some studies find that democratic regimes coincide with more terrorism, other studies come to reverse results. The overview suggests that several aspects have to be factored into a broad analysis of democracy-terrorism interdependencies. First, not the existence of a democratic regime per se but its institutional composition appears to interact strongly with terrorism. Taking into account the interaction between democracy and related factors such as civil liberties or governmental capabilities seems to be appropriate. Second, the stability of democratic regimes may be an especially important determinant of terrorism. Third, as a methodological objection non-democratic regimes may oppress their media and means of communication, causing an under-reporting bias in available data. Thus, a correlation between democracy and terrorism may to some extent be a spurious consequence of such a bias (cf. Drakos and Gofas, 2006a,b).

Political and Economic Freedom The degree of political and economic freedom a country guarantees its citizens is generally expected to share a significantly negative relationship with terrorism. That is, higher degrees of freedom should cause lower levels of terrorism by amplifying political participation, conflict resolution and entrepreneurship, thereby reducing the opportunity costs of terrorism both in the political and economic sphere (cf. Rummel, 1984; Kurrild-Klitgaard *et al.*, 2005). Conversely, a lack of participation in the political process is likely to increase dissatisfaction, thereby making it more easy for terrorist groups to recruit new members or find popular support (cf. Crenshaw, 1981).

Nevertheless, by granting its citizens liberties which, for example, give violent organizations comparatively easy access to means of mass communication or which generally constrain counter-terrorism measures, more open societies may propel terrorism instead (cf. Ross, 1993). In addition, the issue of causality has to be controlled for carefully. That is, higher levels of repression may be the mere consequence and not cause of higher terrorist activity within a country (cf. Piazza, 2006).

A number of studies put an emphasis on the analysis of the impact of freedom on the patterns of political violence (cf. Abadie, 2004; Kurrild-Klitgaard *et al.*, 2006; Basuchoudhary and Shughart, 2007). Abadie (2004) finds that political freedom shares a non-monotonic relationship with terrorism. Countries that exhibit intermediate levels of political freedom are most vulnerable to terrorism, whereas societies with high or low levels of political freedom are not. Similar results are obtained by Kurrild-Klitgaard *et al.* (2006) who also detect evidence for non-linear linkages between political freedom and incidences of transnational terrorism. More precisely, they find that civil liberties are a strong, negative determinant of terrorism, whereas the relationship between political rights and political violence is non-monotonic. This non-linear relationship may allude to the fact that intermediate levels of political participation – common to phases of political transformation – coincide with, *inter alia*, weak governments or sudden shifts in cost-benefit relations associated with violent and non-violent political

activity, usually making it more attractive to use terrorism as a means of violent political expression. In Basuchoudhary and Shughart (2007), evidence indicates that political freedom is a significant, negative determinant of transnational terrorism only after the end of the Cold War. That is, a lack of political rights and civil liberties has not swayed terrorism before 1990, indicating that the patterns of terrorism may have changed thereafter (cf., e.g., Shughart, 2006), so the influence of liberal political institutions now matters.

For the case of Latin America, Feldmann and Perälä (2004) find that changes in political institutions are usually followed by changes in nongovernmental terrorist activity. Increases in political freedom coincide with increases in political terrorism, also highlighting the relationship between political opening and political violence which has been discussed in the previous section on democracies. Krueger and Maleckova (2003) find that terrorism is less likely to be generated in countries with high amounts of civil liberties. In Krueger and Laitin (2007), a similar connection is detected. Repression and a lack of political freedom increase the probability of a country becoming the breeding ground of terrorism, whereas political factors do not appear to matter for determining the targets of terrorism. Similarly, in Piazza (2006) the level of state repression is positively related to incidences of terrorism, indicating that more repressive regimes attract political violence. For a number of Muslim countries, Testas (2004) finds that both low and high levels of repression are strong determinants of terrorism. Political violence is then at first reduced by increases in repression, whereas high levels of repression again attract violent behavior, thereby again hinting at a non-linear relationship between political factors and terrorism.

In contrast to all former findings, a few studies only find rather weak connections between political freedom and terrorism (cf. Tavares, 2004; Bravo and Dias, 2006; Wade and Reiter, 2007). While these studies generally lack consistent empirical evidence, a cautious review of their findings nevertheless re-emphasizes our previous findings that higher levels of political freedom are associated with lower vulnerability to terrorism.

Turning to economic freedom, only the studies of Kurrild-Klitgaard *et al.* (2006) and Basuchoudhary and Shughart (2007) systematically control for its effect on terrorism. Here, the former study finds no significant linkage with transnational terrorism, while the latter argues that the amount of economic freedom is a strong, negative predictor of terrorist activity.

Reviewing existing empirical evidence, we find that most studies detect a significant connection between institutional factors and terrorism. In almost all cases, higher levels of repression/lower levels of political rights are associated with an increase in political violence. Several studies also highlight the possibility of a non-linear relationship between state repression and the genesis of terrorism. Such a finding is consistent with our previous one on the relationship between constitutional designs, political transformation and terrorism. While the impact of economic freedom on terrorism has not been scrutinized in detail, we suspect that the lack of economic opportunity may be a determinant of terrorism. Thus, it may rather be this lack than poor short-run and long-run economic conditions which foster terrorism in certain areas.

Governmental Strength Again related to general constitutional designs, governmental activities and its characteristics may be associated with terrorism in various ways. Specifically, governmental strength, regime stability and governmental policies may influence terrorism patterns.

First, the theoretical approaches summarized by Kurrild-Klitgaard *et al.* (2006) suggest that stronger governments may be generally more capable of controlling its populace. Conversely, Burgoon (2006) alludes to the fact that high governmental strength, for example, represented by military manpower, may attract terrorist actions by increasing hostility and global envy rather than working as a means of deterrence. The model developed by Kirk (1983) also suggests that governments which are characterized by substantial interference in economic activity may cause more terrorism because they attract more rent-seeking terrorist activity.

Second, more stable regimes should be able to punish terrorism more rigorously and to negotiate with dissenting groups on more credible grounds (cf. Eyerman, 1998). Consequently, regimes that are in phases of political transformation may be especially prone to terrorism because of their perceived weaknesses and lack of political commitment.

Third, governmental policies that specifically affect national health, nutrition, social security and the like may also impact terrorist activity within a country. For instance, unemployment insurance should reduce worries about poor economic times, thereby reducing violent behavior that is motivated hereof. Similarly, governmental social services should replace informal social services provided by ethnic or religious groups, thus reducing potential support for various fringe groups (cf. Burgoon, 2006). In general, welfare states may then be expected to experience less terrorism as social spending should act indirectly on various violence-generating factors.

With respect to the empirical findings, it is found that governmental capacity is associated with terrorism. Here, the findings of Li and Schaub (2004) and Li (2005) suggest that more capable regimes attract more terrorism, whereas Eyerman (1998) finds that more proficient governments tend to discourage terrorist activity within their borders. Nevertheless, the findings of Kurrild-Klitgaard *et al.* (2006) suggest that the overall size of a government – as a broad indicator of governmental strength – is not a significant predictor of terrorist activity.

Controlling for governmental stability, the results of Li (2005) indicate that more stable regimes experience less incidences of transnational terrorism. Krueger and Laitin (2007) also allude to the fact that international terrorism tends to originate from rather instable political environments, while the targets of terrorists tend to live in politically more stable countries. Similarly, Dreher and Gassebner (2008) find that more fractionalized governments significantly attract terrorist activity. That is, countries with governments which comprise of many parties are more often attacked by transnational terrorism, presumably because of less stability and sharper political divides. With respect to the special case of suicide terrorism, Wade and Reiter (2007) find that regime durability correlates at best only weakly with terrorism, so suicide terrorism does not in particular originate from instable environments.

The study of Burgoon (2006) most carefully controls for the effect of social welfare policies on the genesis of terrorism. His findings suggest that social policies are useful tools in countering terrorism. Terrorist violence is reduced by an increase in social policies. Considering transnational terrorism, welfare policies are also negative determinants of terrorism, so such policies reduce both the genesis of and vulnerability to terrorist attacks.

In general, governmental activities tend to be linked to terrorism in multiple and rather strong ways. First, more capable regimes appear to attract terrorist activity, rather than using their capacities to suppress it. Second, more stable political regimes tend to generate less political violence, a more general finding that is consistent with our previous discussion on the linkages between political transition and terrorism. Third, while mere governmental size does not seem to allure terrorist attacks, certain governmental policies – such as social policies – may reduce terrorism risk.

3.3 Demographic Factors

In this subsection, we investigate the interdependencies of terrorism and several demographic factors. First, we consider the effect of minorities on determining terrorism. We then in particular focus on religion and ideology, given that in popular discourse such factors are often linked to increases in terrorist activity. After this, we center upon further population dynamics which may coincide with social stress and thereby with terrorism. Finally, we investigate empirical evidence on the popularized education-terror nexus.

Minorities The existence of minorities exhibiting linguistic, ethnic or cultural characteristics within a country is argued to be positively linked to terrorism. For instance, minorities that strive for equal rights, political autonomy or the conservation of their cultural heritage may resort to violent actions if their claims are not recognized (cf. Crenshaw, 1981). Dissatisfaction, grievances and social stress facilitate terrorist activity, for example, through their cost-reducing effect on mobilization or recruitment.

Basuchoudhary and Shughart (2007) put a special emphasis on the relationship between ethnicity and the generation of terrorism. Their findings suggest that terrorism develops more easily in ethnically diverse societies. Here, the connection between the existence of ethnic tensions and the genesis of transnational terrorism holds after controlling for other possible channels of influence.

A number of further studies controls for the effect of linguistic or ethnic diversity on the risk of terrorist activity. Blomberg and Hess (2005) suggest that the existence of a common language increases the probability of transnational terrorism affecting the respective countries. Bravo and Dias (2006) find that ethnic diversity is associated with terrorism in the sense that higher diversity is related to more terrorism. Additionally, Piazza (2006) detects a similar and significant relationship between ethnically diverse societies and the likelihood of terrorist actions. Abadie (2004) finds that only linguistic diversity is significantly correlated with terrorism, so that again higher diversity appears

to increase a country's vulnerability to terrorism. In Kurrild-Klitgaard *et al.* (2006), an increase in ethnic fractionalization is associated with less terrorism, while a rise in linguistic fractionalization is positively linked with terrorism risk. The results of Tavares (2004) point at the same direction. Only the results of Drakos and Gofas (2006a) and Krueger and Laitin (2007) indicate no significant relationship between the magnitude of diversity within a country and its susceptibility to terrorism.

Most studies confirm theoretical hypotheses suggesting that diversity within societies may foster terrorism. Although linguistic and ethnic diversity are obviously correlated, it seems that linguistic fractionalization is more closely connected with terrorism, compared to ethnic diversity. Thus, we may conclude that it is not so much the mere coexistence of ethnic groups – common to modern-day open societies – but rather the existence of sharper, more palpable cultural divides – for example, in the sense of nationalistic movements which may also define themselves by languages – that amplify terrorist actions.

Religion and Ideology The existence of a predominant secular or spiritual ideology within certain sections of populations may foster the genesis of terrorism. As for strong secular world views, one may think of Communism or extreme nationalism; as for an important spiritual ideology, one may consider Islamism. In general, followers of such ideologies should prefer its respective values and goals above all others. Consequently, such followers are willing to abandon and sacrifice everything in order to fight the evil and to help their world view prevailing (cf. Bernholz, 2006). The presence of secular or spiritual ideologies should then, *inter alia*, make it less difficult for terrorist organizations to recruit compliant members, urge them to commit violent actions against non-believers, gain support by exploiting feelings of indignation and debasement that are linked to modern-day life and ignore means of peaceful co-existence with other sections of the population (cf. Ehrlich and Liu, 2002; Bernholz, 2006). Ideologies are argued to be especially strong forces behind terrorism when these ideologies strive for expansion and power, are exploited by charismatic leaders, clash with contrarious ideologies or are secretive against outsiders and the general public (cf. Rathbone and Rowley, 2002; Bernholz, 2006).

The possible relevance of religion in explaining terrorism has entered various analyses, particularly with respect to an alleged connection of Islamism and terrorism. In the study by Piazza (2006), ethno-religious diversity is found to share a positive, albeit not always significant relationship with the amount of terrorist incidences and casualties. Interestingly, the results of Krueger and Maleckova (2003) indicate that no religious affiliation seems to be especially prone to terrorism, in the sense that terrorist activity has been spotted throughout the world.

The results of Wade and Reiter (2007) suggest that countries in which Islam is the dominant religion are likelier targets of suicide terrorism, also finding that the existence of religious minorities may weakly coincide with an increased probability of suicide attacks. The findings of Bravo and Dias (2006) furthermore

suggest that the existence of a Muslim minority in a country does not increase its terrorism risk.

Conversely, Blomberg and Hess (2005) find that more religious fractionalization appears to discourage the genesis of terrorism. Similarly, the findings of Tavares (2004) suggest that higher religious diversity is weakly associated with a decrease in terrorist activity. Further studies find no significant link between ideology and terrorism, so religious fractionalization does not coincide with an increase in the genesis of or vulnerability towards terrorism (cf. Abadie, 2004; Kurrild-Klitgaard *et al.*, 2006; Krueger and Laitin, 2007).

Turning to ideology in the broader sense, only the study of Piazza (2008) offers some insights. Here, terrorist groups that strive for nationalist, separatist or domestic political goals generally do not resort to suicide terrorism, while organizations with highly ideological aims do.

Although religion in popular discourse has been suggested as an important determinant of terrorist activity, empirical evidence tells a different story. First, religious diversity and terrorism share at best a weak connection. Second, the nature of this linkage does not appear to be clear, as both a negative and positive connection between spiritual ideology and terrorism can be detected. Third, the review does not indicate that the mere existence of Muslim minorities systematically encourages violence. In general, we may assess that especially highly ideological goals to which terrorist groups relate may interact with political circumstances, thereby developing a significant relationship with terrorism only in special cases, for example, when considering suicide terrorism (cf. Wade and Reiter, 2007; Piazza, 2008).

Population Dynamics The different dimensions of population dynamics may generally interact with terrorism in straightforward ways. That is, population size, growth, structure and distribution are all positively related to terrorism. A larger population simply coincides with an increased availability of targets but also with a higher probability of problems associated with ethnic or religious diversity (cf. Burgoon, 2006). A rapidly growing, thus especially young population should be linked to high incidences of terrorism because of its strong correlation with economic and political instability and with social stress, factors which should motivate violent behavior (cf. Ehrlich and Liu, 2002; Tavares, 2004). Moreover, a society that is more urbanized should also be more vulnerable to terrorist activity, mainly by increasing the possibility of terrorist organizations to find support, resources, targets or recruits (cf. Crenshaw, 1981; Ross, 1993).

Empirically, several analyses account for aspects of population dynamics. When controlling for population size, the studies mostly find a highly significant and positive connection with terrorism (cf. Krueger and Maleckova, 2003; Li and Schaub, 2004; Li, 2005; Burgoon, 2006; Piazza, 2006; Krueger and Laitin, 2007; Dreher and Gassebner, 2008). Only in the study by Eyerhan (1998), no significant correlation can be detected, although the estimations signs still reinforce the results of the other analyses accounting for population size. With

respect to the growth rate and age structure of a population, the scarce empirical evidence suggests that growth rates are not significantly related to terrorism (cf. Piazza, 2006), while a country's age structure is. Hence, young populations may more likely generate terrorism (cf. Tavares, 2004). Accounting for population density, the results of Tavares (2004) suggest that a higher share of urban population is positively linked to terrorism. Similarly, the findings of Drakos and Gofas (2006a) show that countries with higher population densities are likelier victims of terrorism.

In general, empirical evidence indicates a strong and positive relationship between population size and terrorism. Unsurprisingly, more populous countries more often generate various forms of terrorism or are affected by it, presumably because bigger populations mean, on the one hand, more targets and related conflicts, and, on the other hand, a higher probability of successfully operating clandestinely and undetectedly. In addition to that, other demographic features also appear to be linked to terrorism, although evidence in these cases is more sparse. Terrorist actions seem to be more likely in countries that exhibit youth burdens or high levels of urbanization. Such factors may, for example, be related to social stress and despair, thus fueling support for terrorist organizations.

Education In popular discourse, the role of education in combating terrorism has been especially emphasized. Conventional wisdom says that low levels of education coincide with low skills, a general lack of economic opportunity and strong persuasibility (cf. Bueno de Mesquita, 2005). Thus, low educational skills may, *inter alia*, ease terrorist mobilization. A rise in education should then be associated with a decline in terrorist activity.

Nevertheless, higher levels of education may also give rise to terrorism. For instance, higher educated terrorists are likely to be more skilled and thus more successful in their actions (cf. Testas, 2004; Bueno de Mesquita, 2005). Additionally, well-educated terrorists may more strongly identify with their organizations' ideologies and politics, thereby adding to their probability of success (cf. Krueger and Maleckova, 2003).

The effect of education on terrorism may then be ambiguous. On the one hand, low levels of education theoretically create support and a big pool of potential terrorist recruits. On the other hand, terrorist organizations are likely to select from such pools those members that exhibit an education that is above the average.

The study by Krueger and Maleckova (2003) in particular centers on issues of education and their connection with terrorism. Their findings suggest only a weak link between terrorism and educational levels. Similar results are obtained by the analyses of Drakos and Gofas (2006a), Kurrild-Klitgaard *et al.* (2006) and Krueger and Laitin (2007) which also account for such linkages. These studies find no evidence for a significant relationship between education and violence, suggesting that other approaches may be more fruitful.

Tavares (2004) detects some evidence that a connection between education and terrorism nevertheless exists, finding that higher illiteracy among males is

to some extent linked to more incidences of terrorism. Additionally, Azam and Thelen (2008) suggest – in line with public discourse – that foreign aid aiming at a strengthening of education in countries that generate terrorism may be a useful tool for reducing terrorism emerging from affected countries. Moreover, the analyses of Testas (2004), Bravo and Dias (2006) and Piazza (2008) detect a strong relationship between education and terrorism. Notwithstanding, while Testas (2004) and Piazza (2008) find that higher levels of education as well as a higher literacy rate are associated with an increase in terrorism, the study by Bravo and Dias (2006) finds evidence for a converse connection, so more education in the form of less illiteracy reduces the risk of terrorism.

At best, most empirical evidence suggests a rather weak link between educational levels and terrorism. Here, the proxy for education may measure rather diverse issues across studies. For instance, some studies control for the effect of basic education in the sense of literacy, while others take into account the effect of higher levels of education, that is, of secondary or tertiary education. The terror-reducing effect of improvements in basic education appears to be more gaugeable, while the effect of high educational levels on terrorism seems to be rather insignificant or ambiguous. Its importance in fighting terrorism that is attributed to education in popular discourse cannot be justified by our review.

3.4 International Politics

In the following, we review empirical evidence on the impact of international politics on terrorism. Given that terrorism – mainly, in the sense of state-sponsored terrorism – may be used as a foreign policy tool, we investigate the linkages of foreign conflict or incidences of hegemony with the genesis of terrorism. After this, we also analyze the influence of foreign aid – as a positive means of international politics – on terror. In general, empirical evidence is sparse. Thus, we consider the interdependencies of the international political system and terrorism to be a promising field of further empirical research, in particular with respect to possible links between so-called rogue states and international terrorism.

International Crisis and Conflict The existence of international crises and of armed external conflicts may share a positive relationship with terrorism. When a country is involved in a conflict with another force, such conflicts should make it more likely that this country is targeted by transnational, perhaps even state-sponsored terrorism, for example, as means of hostility or retaliation (cf. Li and Schaub, 2004). Moreover, conflicts between countries should spur internal conflict and thus terrorism, for example, when certain groups feel discriminated against because of distributional patterns that are mainly motivated by war (cf. Burgoon, 2006). The exact extent to which conflicts or crises may influence terrorist activity may be conditional upon several factors. For instance, O’Brien (1996) argues that non-democratic regimes are more likely to resort to terrorism as an instrument of foreign policy. That is, when authoritarian countries are expected to suffer or have already suffered a defeat in an international crisis, they

may sponsor terrorism in order to capitalize on the low-cost benefits of terrorism or in order to conceal their defeat. In general, conflicts between countries should foster terrorism because of both external and internal factors. Still, the exact magnitude by which this impact occurs may be dependent upon several factors that arise, for example, from the political, economic or institutional design of the involved conflict parties.

The analysis of O'Brien (1996) is the only one which specifically investigates the influence of international crises on terrorism. The results of O'Brien (1996) are in line with the aforementioned hypothesis. Authoritarian regimes use terrorism as a means of foreign policy, especially in times of international crisis or when their international position is threatened. Conversely, democratic countries are not found to support terrorist activity in such ways.

Drakos and Gofas (2006a) who control for the effect of international disputes on terrorism similarly find that countries exhibiting high levels of international quarrel are likelier targets of terrorists. A number of further studies also controls for the effect of interstate conflict on terrorism. Here, both Li and Schaub (2004) and Burgoon (2006) detect no significant relationship between terrorism and incidences of interstate conflict. The study by Li (2005) provides weak evidence that military conflict reduces terrorist activity, presumably via a tightening of internal security that coincides with the level of external threat. Broadly related and somewhat converse to this, Testas (2004) ascertains a significant relationship between incidences of civil war and terrorism. In his study, internal conflict is argued to serve as an amplifier of terrorist activity.

In general, empirical evidence weakly indicates that international crises and conflicts may interact with terrorism. Such effects, with respect to their magnitude or direction, appear to be strongly conditional upon the concomitants of such conflicts. For instance, the nature or scale of international dispute as well as the conflict parties involved may have a prominent impact.

Hegemony Related to the former argument, the existence of one or conflicting hegemony and their respective position in the international political system may also be associated with terrorism. Such connections may take different forms. On the one hand, existing superpowers may hamper terrorism. Volgy *et al.* (1997) argue that strong hegemony can, for example, put military or economic pressure on countries that potentially sponsor or harbor terrorism or can limit the access of terrorists to needed resources.

On the other hand, the existence of hegemonic powers may also induce terrorism. O'Brien (1996) suggests that superpower intervention in international crises propels terrorist actions from antagonistic countries that regard such an intervention as unfavorably or destabilizing. In times of superpower weakness, for example, due to military setbacks or foreign policy or economic crises, other forces are likely to challenge the hegemon, at this also resorting to terrorism (cf. O'Brien, 1996; Volgy *et al.*, 1997). Conflict between superpowers may also promote terrorism if at least one superpower regards terrorism as an established policy tool and if the political or ideological positions of those powers are

sufficiently opposed.

Generally, the influence of hegemony on terrorism is dependent upon the structural and relational power of the hegemon, where weakness of the hegemon induces terrorism because of its high potential gains at low costs. Dreher and Gassebner (2008) argue that the related mechanics not only apply to the affected hegemon but also to its allies. Polarity in the international system – especially with regard to the relations between the United States and the Soviet Union after World War II – may interact with terrorism when polar conflict intensifies or the balance of power shifts. In either case, terrorism becomes a valuable tool for both poles when trying to solve issues in their favor.

Only the analyses of O'Brien (1996), Volgy *et al.* (1997) and Dreher and Gassebner (2008) systematically scrutinize the influence of aspects of hegemony on terrorism patterns. O'Brien (1996) focuses on the global hegemons of the Cold War era, namely the US and the Soviet Union. He finds that crises intervention of these superpowers has influenced terrorism significantly when such intervention is perceived as negative or hostile. A crisis intervention by the US raises the probability of future terrorist actions. A crisis intervention by the Soviet Union decreases the likelihood of prospective terrorism. Such findings are consistent with the hypothesis that authoritarian regimes – as those which are especially hostile towards hegemonic US crisis intervention – resort to terrorism or its support more often. The findings of O'Brien (1996) also suggest that the weakness of hegemons, for example, as a result of a direct involvement in an international crisis, has an appealing effect on terrorist. Similarly, the results of Volgy *et al.* (1997) underline the importance of hegemonic strength in shaping terrorist behavior. They detect an inverse relationship between the capabilities of hegemons and terrorism, so strong hegemons appear to be successful in combating terrorists. Turning to the effects of polarity on terrorism, for the Cold War era Volgy *et al.* (1997) detect some support for the hypothesis that terrorist activities change with alterations in the polar structure of the international system. For instance, a reduction in bipolar balance is found to correlate with an increase in terrorist activity, presumably because the now weaker pole of the international systems cannot exercise a sufficiently high amount of pressure on terrorist organizations or their sponsors. The findings of Dreher and Gassebner (2008) indicate that political proximity to the US results in an increased likelihood of being attacked by transnational terrorism. This finding alludes to the fact that the hegemony of the US does not only impact terrorist actions against the US but also against its allies. Thus, allies of the US are also associated with features perceived as negative with respect to US hegemony, for example, military or cultural dominance.

Our review yields two distinct results. First, strong hegemons may impede terrorism, while weak ones may attract it. Second, a bipolarization of the international system – mainly, US vs. Soviet Union – may rather weakly promote terrorism when the poles engage in conflict or lose influence. The influence of international politics on the genesis of terrorism appears to be dependent upon several factors, for example, upon the willingness to use terrorism as a policy tool or the importance of hegemony or polarity for certain world regions (cf.

O'Brien, 1996). A further clarification of such factors decisively shaping the hegemony-terror nexus should be attempted by future research.

Foreign Aid The models by Azam and Delacroix (2006) and Azam and Thelen (2008) show the mechanics through which foreign aid influences terrorism in the recipient country. In both models, the donor country uses foreign aid to support the recipient country in its fight against terrorism, thus reducing the flow of terrorist activity from there. Channeling foreign aid towards education or economic development may also be helpful in reducing terrorism in the aid-receiving country if such factors are found to be at levels where they induce terrorism. In general, foreign aid should then constitute a means of reducing terrorism, be it either through direct military aid or through indirect educational or economic support.

The sparse empirical evidence indicates that the levels of terrorist activity and of foreign aid are simultaneously determined (cf. Azam and Delacroix, 2006). That is, the countries from which most terrorists originate are also the ones receiving the most aid. An in-depth analysis of the relationship between foreign aid and terrorism reveals that the amount of foreign aid received by a country exerts a significant and negative effect on terrorism, consistent with the theory presented before (cf. Azam and Delacroix, 2006). The study by Azam and Thelen (2008) also suggests that the level of foreign aid is negatively linked with terrorist activity.

In general, the rare evidence on the impact of foreign aid on terrorism indicates an inverse relationship between the two factors. Using aid for directly financing military or police force against terrorism, or rather indirectly for poverty reduction or investment in human capital are channels through which foreign aid may develop its terrorism-reducing effect (cf. Azam and Delacroix, 2006; Azam and Thelen, 2008). Given the overall robustness of existing evidence, future analyses on the determinants of terror should incorporate the influence of foreign aid, thereby also helping to validate previous results.

3.5 Geographical Factors

In this subsection, we focus on the relationship of geographical factors and terrorism. We first consider the interaction of geostrategy and terror. After this, we investigate the effect of country size. Finally, we examine whether further geographical features – for instance, climate or terrain – interact with terrorism. In general, we allude to the fact that geography may share a rather indirect relationship with terrorism. That is, we assume that geographical factors do not trigger off political violence. Rather, we think of geographical factors as multipliers of such violent behavior. In the following subsection, we only consider such indirect, amplifying geographical factors. We are well aware of the fact that geography – especially in the sense of artificial boundaries which generate minorities, as argued by Shughart (2002, 2006) – may also be a direct determinant of terrorist actions but we have already treated this issue when considering the demography-terrorism nexus.

Geostrategic Relevance Closely related to international political and national economic systems, a country's location, endowments and international relations may attract terrorist activity. Bravo and Dias (2006) argue that such geostrategic considerations have to be taken into account when analyzing the genesis of terrorism. Such contemplations may include access to resource endowments such as oil or minerals, the existence of vital transportation routes or the availability of locations that are especially valuable to the military. Military, political or economic activities and competition of regional or exterior powers – or even a hegemon – in certain world areas may make it easier for terrorist organizations to find local support or targets. The former may be a possible consequence of feelings of deprivation, whereas the latter may be a result of increased presence of suitable military or corporate targets.

In addition, attacking countries that exhibit a particular geostrategic importance is more likely to hurt geostrategic players, thus increasing the benefits from terrorism. An example of a world region of geostrategic relevance is the Persian Gulf. The region exhibits resource endowments (oil) and transportation routes (Strait of Hormuz). Here, the interests of regional powers (Iran, Israel) clash with international powers (European Union) and a hegemon (US). Consequently, it is also a region of massive terrorist activity (Iraq, *USS Cole* incidence).

The study by Bravo and Dias (2006) is the only one which orderly controls for the effects of geostrategy on terrorism. They find that for European and Asian countries some proxies measuring geopolitical relevance, such as mineral resources or membership in international organizations, correlate with incidences of terrorism. The geostrategic position of some countries may then indeed attract terrorist activity as theory suggests. Still, not all factors indicating geopolitical importance in Bravo and Dias (2006) are significantly associated with terrorism. Additionally, Tavares (2004) who controls for whether a country is a primary good exporter – as a proxy for resource endowments – finds only a weak association between this factor and terrorist activity.

Generally, we conclude that from a theoretical point of view geostrategy may constitute an interesting impetus for the actions of terrorist organization. Empirical results on this issue are rare, indicating that some countries may attract terrorism because of their position.

Country Size Bigger countries are argued to be more vulnerable to terrorism compared to smaller ones. Countries that exhibit a bigger area are likely to also exhibit larger populations. As outlined before, larger populations may mean a higher probability of conflict and heterogeneity, and also more constraints for the government to effectively control their population (cf. Eyerman, 1998; Abadie, 2004). Furthermore, larger countries should also exhibit more impenetrable areas such as mountains which may constitute retreat areas for terrorist groups. As outlined before, country size may therefore be considered not as a truly independent determinant of terrorism but as one that coincides with other factors that may promote terrorist activity.

The only studies that investigate the effect of country size on terrorism are the ones by Abadie (2004) and Blomberg and Hess (2005). For both studies, it is found that larger countries are expected to be more often attacked by terrorists. In detail, the findings of Abadie (2004) indicate that country size is an efficient estimator for terrorist activity. Blomberg and Hess (2005) who use an approach strongly influenced by gravity analysis also show that the size of countries shares a positive relationship with terrorism.

Sparse empirical evidence indicates that country size is linked to terrorism as predicted by theory. Nevertheless, we allude to two factors. First, country size cannot only be measured in a geographical but also in an economic – for instance, size of per-capita GDP – or demographic – for example, population size – sense. Such parameters may constitute more useful measures of linking actual country size with terrorism because of their more straightforward theoretical connections. Second, other geographical factors which can be interrelated with country size may predict terrorism more convincingly.

Other Geographical Factors A number of further geographical factors may also be associated with the emergence of terrorism. Abadie (2004) argues that areas which are difficult to access because of elevation, climate or vegetation constitute safe havens for terrorist organizations. Organizations that operate in mountainous or tropical areas face, for example, fewer costs that are linked to counter-terrorism actions by the government. In the sense that geographical features may correlate with general economic development, additional channels between geography and terrorism may open up. For instance, countries that are landlocked are less likely to benefit from international trade compared to countries that have access to the sea (cf. Rathbone and Rowley, 2002; Abadie, 2004). In general, geographical disadvantages other than mere country size may favor terrorist activity directly or indirectly, for example, by lowering its potential costs or by hampering general economic development.

The study by Abadie (2004) is the one which precisely controls for the effects of geographical features on terrorism. Further analyses control for some aspects of geography on terrorist activity only indirectly (cf. Blomberg and Hess, 2005; Kurrild-Klitgaard *et al.*, 2006; Krueger and Laitin, 2007).

The findings of Abadie (2004) indicate that a country's climate as well as the scale of its ranges influences terrorism significantly. Both factors are associated with terrorism along the lines of theory. That is, both tropical climate and the presence of mountains promote terrorism. Abadie (2004) also suggests that landlockedness may foster terrorism indirectly by its negative impact on economic development.

The results of Kurrild-Klitgaard *et al.* (2006) confirm such findings insofar as latitude is negatively linked to terrorism. That is, countries that are more distant from the Equator are less likely to become targets of terrorists. We may see such a finding as indirect evidence for the hypothesis that climate is linked to terrorism as latitude should coincide with climatic conditions. Blomberg and Hess (2005) find that greater distance between two countries diminishes

the risk of terrorist connections between them. Geographical proximity appears to amplify terrorist activity, presumably by offering comparatively low costs for transnational terrorist organizations. Converse to the findings of Abadie (2004), Krueger and Laitin (2007) find that a country's terrain is not significantly correlated with incidences of terrorism.

While the theoretical considerations that link geographical features with terrorism are rather straightforward, only few studies have tested them empirically. Most findings indicate that such features are associated with terrorism in a way that geographical disadvantages favor terrorism. The rather small effect of certain geographical features on terrorism, especially in comparison to other terrorism-enhancing determinants, adds to the hypothesis that geography works as an amplifier of terrorist activity and not as an independent determinant. General conclusion should be considered with care, especially as most studies control for geographical factors rather indirectly and marginally, so analyses may face problems associated with spurious results.

– Table 2 about here –

4 Discussion and Conclusion

In popular discourse, terrorism is closely linked to economic, political and social underdevelopment. In this contribution, we reviewed existing cross-country evidence to ascertain the true determinants of terrorism. We emphasized the importance of the rational-choice model as a central theoretical underpinning for an economic analysis of the issue. Terrorists pursue short-run and long-run objectives, where the amount and design of their activity is influenced by costs and benefits related to country-specific circumstances. We reviewed the influence of economic, political, demographic, international and geographic factors on terrorists' cost-benefit matrices.

The results of our review can be summarized as follows: (i) The genesis of terrorism seems to be amplified by political and institutional instability and by sharp social divides which are, for example, unveiled by confronting ethnicities or secular and spiritual ideologies. Large and populous countries – sometimes suffering from institutional weaknesses as well as from social stress and a general lack of opportunities accompanying population dynamics – are more often targeted by terrorism. Geographical factors and international features may also interact significantly with terrorism. (ii) Considering the case of transnational terrorism, we find that its target countries seem to be chosen mainly because of economic success, while in general our previous findings on the circumstances in the origin countries of international terrorism still hold. (iii) Terrorism seems to be only marginally linked to short-run economic performance as well as long-run structural economic conditions. Additionally, democratic regimes are neither especially vulnerable to nor shielded against terrorism. Educational and religious factors also do not interact with terrorism on a large scale. Thus, we may dismiss several popular hypotheses on the determinants of terrorism.

Several objections can be made which may blur our results, so we discuss them briefly. (i) Terrorism is a manifold phenomenon. Various forms of terrorism may be driven by diverse factors and goals (cf., e.g., Loayza, 2004). A generalization of obtained results thereby has to be made with caution, keeping in mind the complexity of the issue which may influence the implementation and interpretation of empirical analyses as well as the review of related literature. (ii) The datasets employed by the reviewed empirical studies may suffer from certain biases. For instance, authoritarian regimes may impede the freedom of press, resulting in possible underreporting biases of terrorist activity (cf. Drakos and Gofas, 2006a,b; Dugan *et al.* 2006). Consequently, datasets and their investigation may be vulnerable to spurious results and interpretations. (iii) Our review has focused on cross-country evidence. We allude to the fact that the reviewed studies may not always be completely comparable. One has to keep in mind that the studies employ different econometric techniques, use different datasets, focus on various forms of terrorism, center upon different world regions or the like, as summarized by Table 2. Additionally, the number of studies providing evidence with regard to certain root causes is in some cases small, sometimes consisting of only one or two articles. In general, the objections show that any analysis of the issue of terrorism – and with it the generalization approach of this review – has to be met with some caution. Nevertheless, the already existing strong empirical evidence in this quickly emerging field of research should provide a sufficiently broad picture to generalize the most relevant findings.

Keeping in mind our previous discussion, we may – on a global scale – highlight the following policy implications: (i) Apart from hard governmental strategies related to deterrence or the like, soft strategies may include, inter alia, political or fiscal decentralization, increased political participation and sound social policies (cf., e.g., Frey and Luechinger, 2003, 2004; Burgoon, 2006; Dreher and Fischer, 2008). (ii) From an international perspective, the community of states needs to increase cooperation, consequently contributing to, for example, more stable political and economic systems or less inter-state conflict (cf., e.g., Sandler, 2003; Azam and Thelen, 2008). (iii) ‘Classical’ policies advocated in the ‘war on terror’ should not be pursued with priority. Poverty alleviation, strong economic development, rapid democratization or higher levels of education do not appear to be useful tools in successfully reducing terrorism on a large scale (cf., e.g., Krueger and Maleckova, 2003; Hehir, 2007). (iv) Considering the complexity of terrorism, counter-terrorism policies should be designed to match with the particular specificities of terrorism in certain countries.

From our review, the most important determinants of terrorism are found to be of political and demographic but not of economic nature. Here, future research may focus on (i) answers to the question as to why a lack of opportunities and of social security – for example, represented by low levels of economic freedom, insufficient social policies or high youth burdens – seemingly promotes terrorism but actual poor economic performance or conditions do not. Both broader theoretical approaches and more in-depth empirical analyses are needed in order to explain and reveal, for example, the mechanics through which higher

levels of social security reduce terrorism risks, as detected by Burgoon (2006).

Since sparse empirical evidence also highlights the interactions of geography and international linkages with terrorism, we moreover argue for (ii) an extension of related research to assess their specific importance. For instance, the connections of terror with international conflicts, with developments in the international system – especially after the end of the Cold War – or with geostrategic considerations should be scrutinized in future research, employing various datasets and econometric approaches to validate previous findings on these issues. The interplay of the internationalization of terrorism – for example, in the form of spillover or spatial contagion effects of terrorism – and the internationalization of politics – for instance, positively in the form of foreign aid, alliances or international cooperation; negatively, in terms of sponsoring international terrorist organizations and of utilizing them as instruments of foreign policy – surely is an interesting field of empirical research that has been disregarded to a large extent. Related empirical analyses may build on various theoretical approaches that center upon international aspects of terrorism (cf., e.g., Lee, 1988; Sandler, 2005; Addison and Murshed, 2005).

At large, we furthermore advocate that (iii) instead of too often relying on ad hoc hypotheses – which often resemble popular discourse – on the links of terror and its various determinants, intensified economic modeling is needed. That is, empirical analyses on the determinants of terrorism should test for the validity of hypotheses deduced from substantive, underlying theoretical considerations. Here, for instance, the model by Bueno de Mesquita (2005) provides some insights as to why education is not linked to terrorism in the straightforward ways popular beliefs suggest, thereby helping to explain related empirical findings. In general, enlarging theoretical frameworks on the determinants of terrorism should help to unveil related mechanics and channels of transaction, ameliorate and refine empirical analyses and improve policy advice, through this more strongly dissociating from popular discourse.

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Table 1: Determinants of Terrorism

Main Group	Determinant (Abbreviation)	Proxies/Indicators (exemplary)
Economic Factors	Economic Development (DEV)	GDP p.c., poverty, inequality, energy consumption
	Economic Performance (PERF)	GDP growth rates, unemployment, inflation
	Economic Integration (INT)	FDI, terms of trade, trade openness
Institutions and Internal Politics	Democracy (DEM)	Democracy index
	Political and Economic Freedom (FREE)	Political rights, civil liberties, repression, regulations
Demographic Factors	Government (GOV)	Regime durability, size of government, government spending
	Minorities (MIN)	Ethnic/linguistic fractionalization, diversity, minorities at risk
	Religion and Ideology (REL)	Islam, proportions of religions, religious fractionalization
	Population Dynamics (POP)	Population growth, size, age structure, urbanization, density
	Education (EDU)	Literacy, primary/secondary/tertiary school attainment
	International Crises and Conflict (CON)	Various dummies
International Politics	Hegemony (HEG)	Various dummies
	Foreign Aid (AID)	Level of foreign aid
Geographical Factors	Geostrategic Relevance (GEO)	Primary good production or export
	Country Size (SIZE)	Size of country
	Other Geographical Factors (OGF)	Climate, elevation, proximity, latitude

Table 2: Evidence on the Determinants of Terrorism

Authors (Date)	Data	Econometric Technique	Tested hypotheses	Hy-	Main Findings
Abadie (2004)	2003-2004 ^(d,t) 186 Countries	OLS Regression; IV Regressions	DEV , FREE , MIN , REL , SIZE , OGF		Terrorism and economic factors are not related. Countries in political transformation are especially prone to terror. Geography may amplify terrorism.
Azam and Delacroix (2006)	1990-2004 ^(t) 178 Countries	Negative Binomial Regression, OLS and Poisson Regression; Endogeneity Test	AID		The supply of terrorism by a country positively correlates with the amount of foreign aid it receives because of the endogeneity of foreign aid. Aid in general has a negative impact on terrorism.
Azam and Thelen (2008)	1990-2004 ^(t) 176 Countries	Negative Binomial Regression; Hausmann Endogeneity Test	AID , EDU		The supply of terrorist attacks originating in recipient countries is significantly reduced by both the received level of foreign aid and its level of education.
Basuchoudhary and Shughart (2007)	1982-1997 ^(t) 118 Countries	Fixed-Effect Negative Binomial Regression with Panel Data	DEV , FREE , MIN		Transnational terrorism originates from countries with high amounts of ethnic tensions and low institutional quality. Economic freedom is a negative determinant of terrorism.
Blomberg <i>et al.</i> (2004)	1968-1991 ^(t) 130 Countries	Markov Process Estimations	DEV , PERF , DEM		Economic activity and terrorism are interrelated. A reduction in economic growth coincides with increased terrorism. Democratic, high-income countries are especially vulnerable to the interaction of economic decline and terrorism.
Blomberg and Hess (2005)	1968-2003 ^(t) 179 Countries	Gravity Model Analysis with Tobit Estimators	DEV , INT , DEM , MIN , REL , SIZE , OGF		The level of terrorism being generated in a country is negatively affected by democratic institutions and by high levels of economic development and integration. Democracy, high development and openness make it more likely for a country to be hit by transnational terrorism.

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<i>Table 2 (ctnd.)</i>					
Bravo and Dias (2006)	1997-2004 ^(d,t) 60 to 85 Countries	OLS Regression	INT, MIN, EDU, REL , GEO	FREE, REL , DEM , POP , CON	Terrorism is more likely in poor, non-democratic countries with low levels of education. Geostategic factors also matter. Welfare policies are negatively associated with incidences and the genesis of terrorism, so social policies may reduce terrorism. Government capacity, democracy and large populations tend to attract terrorism.
Burgoon (2006)	Various Datasets ^(d,t)	Negative Binomial Regression with Pooled Time-Series, Cross-Sectional Data	INT, GOV , CON	DEM, POP , CON	
Drakos and Gofas (2006a)	1985-1998 ^(t) 139 Countries	Negative Binomial Regression; Zero-Inflated Negative Binomial Regression	PERF, DEM, POP, CON	INT, MIN, EDU, CON	Terrorist attack venues are driven by low levels of integration, large populations and international conflict. There is evidence for a spatial and temporal contagion effect of terrorism.
Dreher and Gassebner (2008)	1975-2001 ^(t) 116 Countries	Negative Binomial Regression with Fixed Effects and Panel Data	DEV, GOV, HEG	FREE, POP, HEG	Transnational terrorism is driven by political proximity to US hegemony. Allies of the US are more vulnerable to terrorist attacks.
Eubank and Weinberg (2001)	Various Datasets ^(t)	Statistical Data Analysis	DEM , FREE	DEM , FREE	Terrorism occurs most often in stable democracies, while countries with more repressive forms of governments suffer less from terrorism.
Eyerman (1998)	1968-1986 ^(t) 154 Countries	Negative Binomial Regression	DEV, GOV, POP	DEM , POP	Stable democracies suffer less from terrorism, compared to rather authoritarian regimes. Newly established democracies are the most vulnerable and likely targets of terrorism.
Feldmann and Perälä (2004)	1980-1995 ^(d,t) 17 Latin American Countries	Time-Series, Cross-Sectional Regression; OLS Regression	DEV, PERF, FREE	PERF, FREE	Nongovernmental terrorism in Latin America is mainly driven by political factors. Weak institutions, repression and a certain level of political freedom foster terrorism, whereas economic factors do not.

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page*

Author(s)	Year(s)	Number of Countries	Statistical Analysis	Variables	Methodology	Findings
Krueger and Laitin (2007)	Various Datasets ^(t,s)		Statistical Analysis; Negative Binomial Regression	Country-Level	DEV, DEM, GOV, REL, EDU, OGF	International terrorism originates from countries with high amounts of repression. The targets of international terrorism are richer countries/segments of a society. Education, religion, democracy and weak institutions are rather weakly linked to terrorism.
Krueger and Maleckova (2003)	1997-2002 ^(t)		Cross-Country Binomial Regression	Negative	DEV, FREE, REL, POP, EDU	Poverty and education are not significant determinants of international terrorism. Population size and religious affiliation correlate positively with terrorism, while civil liberties do so in a negative way.
Kurrid-Klitgaard <i>et al.</i> (2006)	1996-2002 ^(t)	97 to 121 Countries	Binary Logistic Regression		DEV, INT, FREE, MIN, REL, EDU, OGF	Transnational terrorism is only marginally associated with economic factors, religion or education. Terrorism shares a significant but ambiguous relationship with political and some demographic factors. Trade openness appears to decrease the genesis of and vulnerability to terrorism.
Li (2005)	1975-1997 ^(t)	119 Countries	Negative Binomial Regression		DEV, DEM, GOV, POP, CON	Features of democracies influence terrorism patterns. Democratic participation and regime durability reduce transnational terrorism, while constraints on governments increase it. Population size and international conflict are systematically associated with terrorism.
Li and Schaub (2004)	1975-1997 ^(t)	112 Countries	Negative Binomial Regression with Pooled Time-Series, Cross-Sectional Data		DEV, INT, DEM, GOV, POP, CON	Trade and FDI only indirectly reduce transnational terrorism by fostering economic development. With higher economic development of trade partners, the likelihood of terrorism is reduced. Country size, democracy and governmental capabilities are all positively linked to terrorism.
O'Brien (1996)	1968-1986 ^(t)		ARIMA Model		HEG, CON	The structure and dynamics of the international system impact terrorism. Authoritarian regimes are more likely to resort to terrorism.

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Table 2 (ctnd.)

Piazza (2006)	1986-2002 ^(d) 96 Countries	Multiple OLS Regression	DEV, PERF, FREE, MIN, REL, POP	Demographic and political factors are important determinants of global terrorism. Economic variables show no significant association with terrorism.
Piazza (2008)	1998-2005 ^(s) 88 Countries	Logistical Regression	DEV, DEM, REL, EDU, CON	Democracies are not likelier targets of suicide terrorism. Suicide terrorism is driven by religious and ideological features of the executing terrorist organization and high levels of repression in its country of origin.
Tavares (2004)	1987-2001 ^(t)	OLS Regression; Truncated Regression	DEV, PERF, FREE, MIN, REL, POP, EDU, GEO	Urbanized, linguistically diverse and economically successful countries are more vulnerable to terrorism. Higher basic education as well as ethno-religious diversity reduce terrorism.
Testas (2004)	1968-1991 ^(t) 37 Muslim Countries	Cross-Sectional Poisson Regression	DEV, PERF, FREE, EDU, CON	Transnational terrorism in Muslim countries is positively driven by education and internal conflict. Levels of repression correlate with terrorism in a non-linear way, while economic development is not associated with violence.
Volgy <i>et al.</i> (1997)	1968-1996 ^(t)	Generalized Event Count Regression	HEG, CON	International terrorism is influenced by structural determinants of the international system. The capabilities of hegemons and the effects of systemic conflicts affect terrorism.
Wade and Reiter (2007)	1980-2003 ^(s)	Negative Binomial Regression; Rare Events Logit Model	DEV, FREE, DEM, GOV, REL, POP	Democracies are not notably vulnerable to suicide terrorism. Muslim states experience more suicide terrorism. Population size is positively linked to terrorism. Economic development or minorities explain terrorism rather weakly.
Weinberg and Eubank (1998)	Various Datasets ^(d,t)	Statistical Data Analysis	DEM, FREE	Terrorism is more likely in democratic and free countries. Terrorism is more likely in countries that undergo political transformation, so instability fosters violent behavior.

Notes: For a description of the tested hypotheses and their abbreviations, see Table 1. Abbreviations in bold letters indicate an analytical focus of the study. (d), (t) and (s) denote a focus on domestic, transnational or suicide terrorism, respectively.

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