

# THE ECONOMICS OF COUNTERTERRORISM: A SURVEY

Friedrich Schneider

*University of Linz*

Tilman Brück

*Stockholm International Peace Research Institute*

*Households in Conflict Network and Institute for the Study of Labor*

Daniel Meierrieks

*University of Freiburg*

**Abstract.** We provide a review of theoretical and empirical contributions on the economic analysis of terrorism and counterterrorism. We argue that simple rational-choice models of terrorist behavior – in the form of cost-benefit models – already provide a well-founded theoretical framework for the study of terrorism and counterterrorism. We also hint at their limitations which relate to the failure of accounting for the dynamics between terrorism and counterterrorism that may produce unintended second-order effects as well as for the costs associated with counterterrorism and its international dimension. We reevaluate previously proposed counterterrorism strategies accordingly. Finally, in the light of our findings, we discuss interesting areas of future research.

**Keywords.** Backlash; Counterterrorism; Rational-choice models; Terrorism

## 1. Introduction

The terrorist attack on New York and Washington, D.C., on September 11, 2001 ushered in – in many ways – a new era. Among others, these attacks were the catalyst for a renewed interest in the economic analysis of terrorism to better understand this – seemingly unreasonable – phenomenon.

Sandler and Enders (2002, p. 302) define terrorism as the “[...] premeditated use, or threat of use, of extranormal violence to obtain a political objective through intimidation or fear directed at a large audience.” Similarly, the *Global Terrorism Database (GTD)* defines terrorism as any action by a nonstate actor outside the context of legitimate warfare with the intention to coerce, intimidate, or communicate with an audience larger than the immediate victims, so as to achieve politicoeconomic goals (Drakos, 2011, p. 151).<sup>1</sup> Figure 1 uses data from the *GTD* to illustrate the global patterns of terrorism over time.<sup>2</sup> It shows that terrorism is not a phenomenon that is likely to go away.<sup>3</sup> Rather, trends in terrorism and globalization may magnify the terrorism threat. For instance, the recent wave of Islamist terrorism (*Al-Qaeda* and its affiliates) is particularly dangerous due to its use of (suicide) terrorism as a means to produce mass casualties (Piazza, 2009). Also, international linkages (e.g., trade, global production networks, refugee flows) and modern means of communication are expected to contribute to a more rapid



Figure 1. Global Terrorist Activity, 1970–2011.

spread of violence across borders, which may increase the politioeconomic vulnerability of societies to terrorism.

In the light of these issues, we provide a survey of the *economics of counterterrorism* to evaluate which strategies are truly effective in the fight against terrorism. It is structured as follows. In Section 2, we discuss the role of the static cost-benefit model in the economic analysis of terrorism and counterterrorism. However, such simple rational-choice representations fail to account for strategic-dynamic elements common to the interaction between terrorism and counterterrorism. In Section 3, we discuss these interactions and argue that while counterterrorism efforts typically lead to specific desired outcomes (*first-order effects*), they may also trigger undesired consequences (*second-order effects*) that result from the reaction of terrorists and other economic agents to them. In Section 4, we discuss a variety of counterterrorism policies suggested in the academic literature. Here, we examine their direct (first-order) effect on terrorism as it follows from economic theory and the empirical evidence, but also discuss their (second-order) disadvantages, which are usually unaccounted for in the literature. In Section 5, we discuss the international dimension of counterterrorism, arguing that while international efforts offer additional means to fight terrorism, they also involve further second-order effects and collective action problems. Section 6 concludes.

## 2. Rational-Choice Theory, Terrorism, and Counterterrorism

Rational-choice models are the theoretical workhorse of most economic analyses of terrorism (e.g., Landes, 1978; Sandler and Enders, 2002; Caplan, 2006; Freytag *et al.*, 2011). Here, terrorists are considered rational actors who choose the optimal (utility-maximizing) level of violence by considering the costs, benefits, and opportunity costs of terrorism, where the utility from terrorism is usually associated with achieving certain politioeconomic goals (Sandler and Enders, 2002).

The existence of a calculus of (rational) terrorists allows for an economic analysis of terrorism. For one, it informs empirical studies on the *determinants of terrorism*. For instance, it can be argued that poverty leads to terrorism by lowering the opportunity costs of terrorism, consequently making terrorism a more attractive option (Abadie, 2006).<sup>4</sup> For another, it informs empirical studies on the *consequences of terrorism*.<sup>5</sup> For example, Sandler and Enders (2008) argue that governments which face a terrorist threat

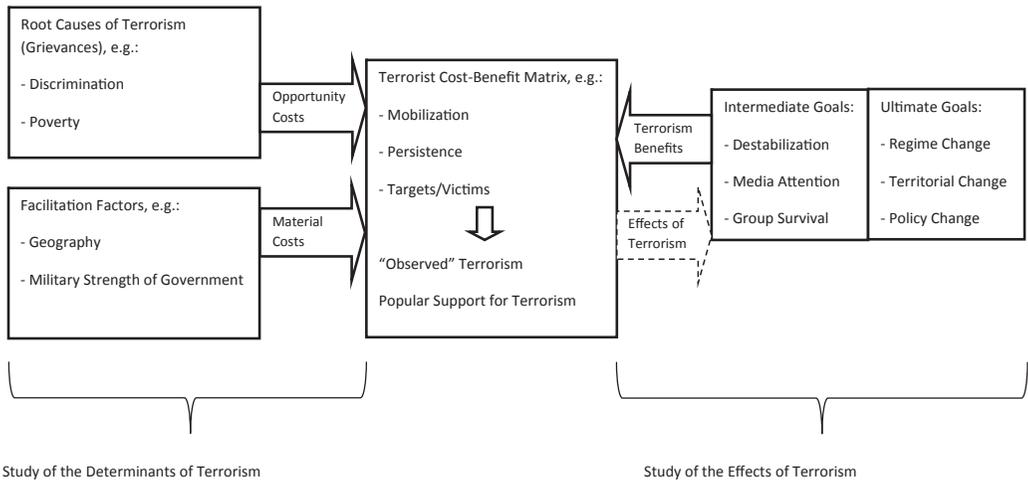


Figure 2. The Rational Cost-Benefit Model and the Study of Terrorism.

take on a rational perspective, weighing the cost of negotiating with the terrorists against the cost of a prolonged terrorist campaign that results from continued resistance by the government.

Below, we discuss in more detail the relationship between rational-choice theory, terrorism, and counterterrorism. Figure 2 anticipates the findings of this discussion.

### 2.1 Terrorists as Rational Actors

As argued by Krueger and Maleckova (2003), (rational) economic models of terrorism can be seen as an extension of the economic analysis of crime. Economic models of crime (Becker, 1968) suggest that criminals are rational actors who maximize their utility subject to a calculus that involves the costs of criminal activity (e.g., from punishment), its benefits (e.g., the “wage” that a crime pays), and its opportunity costs (e.g., foregone earnings from noncriminal activity). Analogous to this, rational cost-benefit models of terrorism assume terrorists to be actors who try to maximize their utility, given the benefits, (opportunity) costs and economic constraints linked to these actions.<sup>6</sup> While public perception tends to view terrorist behavior as “irrational,” psychological studies of terrorist behavior provide little evidence that terrorists routinely suffer from mental incapacities (Victoroff, 2005). As a matter of fact, Caplan (2006) provides an extensive analysis of terrorist irrationality and comes to the conclusion that the sympathizers of terrorism and most active terrorists act more or less rational, so that “the rational choice model of terrorism is not that far from the truth [and] the Beckerian analysis of crime remains useful” (Caplan, 2006, p. 101).<sup>7</sup>

### 2.2 The Terrorists’ Calculus

#### 2.2.1 The Direct Costs Associated with Perpetrating Terrorism

The direct or material costs of terrorism are one element of the terrorists’ calculus. Usually, these costs are associated with the operations of a terrorist organization, that is, offensive and defensive activities. For instance, they accrue from acquiring financial resources, purchasing firearms and explosives, and establishing safe houses to evade government punishment.

### 2.2.2 *The Benefits of Terrorism*

Benefits of terrorism are connected with the tactical and strategic goals of terrorism. As argued by Schelling (1991), the short-run (tactical) goals of terrorism include *politicoeconomic destabilization* (to weaken the enemy) and *media attention* (to communicate the terrorists' cause). Thus, achieving these tactical goals ought to benefit the members of terrorist groups. The long-run goals of terrorist groups usually involve political, economic, religious, or social change (gaining independence, imposing a politicoeconomic system based on religious doctrine, etc.; Abrahms, 2006; Shughart, 2006). Any success related to achieving these long-run goals (through government concessions, gaining political influence, etc.) ought to constitute a benefit of terrorism. Finally, membership in a terrorist group may also yield certain benefits in the form of mental rewards (e.g., identity) that enter the calculus of active terrorists accordingly (Abrahms, 2008).

### 2.2.3 *The Opportunity Costs of Terrorism*

The opportunity costs of terrorism refer to the foregone utility associated with nonterrorist activity. Typically, this utility comes from material rewards (i.e., wages) linked to nonviolence, that is, participation in the ordinary economic life. It can also be understood as a monetary equivalent of the potential political influence associated with terrorist activity. Such lines of reasoning are at the center of many contributions that economically model terrorist behavior (e.g., Blomberg *et al.*, 2004; Freytag *et al.*, 2011).

## 2.3 *The Terrorists' Calculus and Counterterrorism*

The identification of a static economic calculus associated with terrorist behavior allows for *three fundamental strategies* to reduce terrorist activity. *Ceteris paribus*, the utility-maximizing level of terrorism (i.e., its observed level) ought to be lower when: (1) the costs of terrorism increase, (2) the benefits of terrorism are reduced, or (3) the opportunity costs of terrorism increase.

### 2.3.1 *Raising the Costs of Terrorism*

Any counterterrorism policy that aims at raising the material costs of terrorism (e.g., by police or military efforts or raising the penalty for terrorist offences) ought to make it more difficult for terrorist groups to maintain their level of activity. For instance, the availability of weapons and explosives and a favorable geography (e.g., inaccessible terrain) have been found to be conducive to terrorism, while spatial or temporal proximity to terrorism may facilitate imitational behavior (Drakos and Gofas, 2006). Notably, however, the factors identified in empirical research as drivers of the material costs of terrorism are usually not causes of terrorism by themselves. Rather, they enable terrorist behavior once it has erupted due to specific grievances which we discuss below in more detail. For instance, while the geography of Afghanistan has surely favored various insurgencies, the emergence of these insurgencies has not been caused by it but has been rooted in concrete grievances (e.g., opposition to Afghan Communist modernization efforts in the 1970s, the Soviet invasion in the 1980s, and the Western military intervention after 2001).

### 2.3.2 *Reducing the Benefits of Terrorism*

The benefits of terrorism are directly linked to the short-run and long-run objectives of terrorist organizations. Therefore, counterterrorism may be effective when it makes it more difficult to achieve these goals, for example, by denying terrorist groups media attention, increasing politicoeconomic resiliency

to terrorism's destabilizing effects, and rejecting political concessions associated with the long-run goals of terrorist groups. Given that membership in a terrorist group may by itself generate social utility (e.g., in the form of identity), recognizing or enabling alternative means of organization (e.g., political parties, nonviolent opposition groups) may also prove helpful (Abrahms, 2008).

### 2.3.3 *Influencing the Opportunity Costs of Terrorism*

While raising the material costs of terrorism usually involves manipulating related *facilitation factors* (e.g., by restricting access to firearms and explosives), influencing the opportunity costs of terrorism typically involves policies that try to ameliorate *grievances* that underlie social conflict. As we shall discuss below, a variety of social conditions (e.g., poverty, political repression) and individual factors (e.g., education, religiosity) may matter to the genesis of terrorism and the level of popular support it enjoys. Ameliorating and influencing these variables through counterterrorism policies ought to reduce terrorism by swaying its opportunity costs in ways that make violence less attractive.

## 3. Interaction between Terrorism and Counterterrorism

Previously, we have argued that the cost-benefit model – as a straightforward rational-choice representation – is a powerful tool to understand the effects and underlying mechanics of counterterrorism. One major shortcoming of this approach is its *static nature*. In reality, terrorism and counterterrorism interact closely. In this section, we want to give a brief summary of typical interactions between terrorism and counterterrorism. In the following section, we then bring together findings from “classical” (static) cost-benefit models and ideas about the dynamic relationship between terrorism and counterterrorism to evaluate a number of counterterrorism strategies discussed in theoretical and empirical research.

### 3.1 *Innovation and Substitution*

Terrorist organizations may be able to adapt to specific counterterrorism measures by means of innovation and/or substitution. Innovation may include, for example, the use of more advanced terrorist “technology” to attack (e.g., more powerful weapons) or organizational innovation as a hierarchical group develops into a looser terrorist network. Substitution may involve, for example, choosing new targets that are less protected by counterterrorism measures. Arguably, substitution effects are standard elements of economic models, so it is not surprising that they also matter to the study of terrorism and counterterrorism (Enders and Sandler, 2004; Anderton and Carter, 2005). As a consequence of such effects, counterterrorism may merely change the face of terrorism (e.g., new attack methods, new targets) but not affect the overall level of violence.

### 3.2 *Provocation and Escalation*

Findley and Young (2012) argue that terrorist groups may use terrorism to provoke a harsh, disproportionate response by the government (e.g., by means of excessive police force). In such a scenario, counterterrorism may fuel radicalization and social polarization, meaning that provocation and excessive counterterrorism measures can result in cycles of violence. Indeed, it seems to be in the natural interest of terrorist groups to muster additional support by letting social conflict escalate, given that broader conflicts (e.g., civil wars) make it easier for them to pursue and implement their agendas (Findley and Young, 2012).

### 3.3 *Vigilantism*

Possibly, counterterrorism may contribute to the emergence of new grievances. As discussed above, excessive measures may embolden terrorist groups that are already in conflict with the government. By contrast, a (perceived) lack of effective counterterrorism measures may result in the emergence of terrorist groups on the other side of the political spectrum which perceive the state to be unable or unwilling to defend itself against its enemies (Bruce, 1992). Prominent historical examples are Loyalist terrorist groups in Northern Ireland (Bruce, 1992) and right-wing death squads (e.g., the *Alianza Anticomunista Argentina*) in Latin America that were active primarily during the 1970s and 1980s.

### 3.4 *Spoiling the Peace*

As a specific reaction to government concessions, terrorist groups may try to spoil the peace. For instance, they may have economic incentives (e.g., gains from illegal activity) associated with conflict and thereby oppose peace. Thus, it may be in the natural interest of extremist factions to sabotage the peace and re-escalate conflict (Kydd and Walter, 2002). Crucially, such sabotage may result in an end of negotiations and concessions and, instead, provoke more violent counterterrorism measures. Kydd and Walter (2002) argue that spoiling the peace – typically in reaction to benevolent policy measures such as concessions – may be particularly effective when mistrust and weakness among the more moderates on the sides of the terrorists and state abounds.

### 3.5 *Organizational Evolution*

We have already discussed that terrorist groups may innovate in the face of counterterrorism by changing their internal organization. However, counterterrorism may also result in changing the overall politicomilitary orientation of a terrorist group. The nature of these changes depends on the offered incentives and/or the effectiveness of counterterrorism. For one, positive incentives and/or relative counterterrorism effectiveness may lead to a situation where a group gives up its armed struggle, evolving into a political party that tries to foster change nonviolently, one example being the Colombian *Movimiento 19 de Abril*. For another, however, negative incentives and/or relative counterterrorism ineffectiveness may lead – as discussed above – to an escalation of conflict, so that terrorist campaigns may evolve into full-scale insurgencies (Sambanis, 2008; Findley and Young, 2012). As another possibility, potentially due to frustration over the inability to achieve their political goals, terrorist groups may become increasingly interested in purely financial gains, evolving into criminal groups (Bovenkerk and Chakra, 2004).

## 4. Evaluation of Counterterrorism Strategies

In this section, we discuss assorted counterterrorism strategies suggested by theoretical and empirical contributions. We examine the proposed strategies with respect to their expected effect on the (static) terrorists' calculus, while also hinting at potential shortcomings associated with them due to unintended (dynamic) second-order effects. In addition to this, we also highlight – when relevant – the relative efficiency of these policies by discussing their implementation and operating costs.

### 4.1 *Punishment and Deterrence: The Role of the Police, Military, and Intelligence Services*

The prevailing strategy – oftentimes advocated by policymakers – in the fight against terrorism is punishment and deterrence. This strategy involves the use of direct state action by the police, military forces, and intelligence agencies to capture active terrorists and their supporters, while also

**Table 1.** Security Forces and Intelligence Service Efforts and Counterterrorism Outcomes.

Case (Year)	Targeted Terrorist Organization	Involved Security Forces and Intelligence Services	Counterterrorism Outcome	Long-Run Consequences
<i>Operation Flavius</i> (1988)	<i>Provisional Irish Republican Army</i>	British Security Service <i>MI-5</i> , British Army ( <i>SAS</i> )	Detection of <i>PIRA</i> plan to detonate a car bomb in Gibraltar, killing of <i>PIRA</i> operatives and prevention of attack	<i>PIRA</i> retaliation and continuation of <i>PIRA</i> campaign in Northern Ireland and abroad
<i>Operación Victoria</i> (1992)	<i>Sendero Luminoso</i>	<i>National Police of Peru</i> , especially the <i>Counterterrorist Directorate (DIRCOTE)</i>	Capture of the politicomilitary leader of the <i>SL</i> , Abimael Guzmán	Sharp decline in <i>SL</i> activity, further aided by amnesty offers by the government
US Domestic Anti-counterterrorism Efforts (since 2001)	Various Islamist groups and individuals	<i>Federal Bureau of Investigation</i> , local police, further intelligence agencies (e.g., <i>National Security Agency</i> )	Detection and prevention of various terrorist plots motivated by Islamist ideology through infiltration and observation	Continued threat to US homeland by home-grown and international terrorism, with public criticism that threat may be exaggerated
<i>Operation Neptune Spear</i> (2011)	<i>Al-Qaeda</i>	<i>Central Intelligence Agency</i> , US Navy ( <i>Navy SEALs</i> ), further military units, and intelligence agencies	Identification of Osama bin Laden's compound in Pakistan through intelligence gathering and subsequent killing of Osama bin Laden	Threat of <i>Al-Qaeda</i> retaliation, no immediate decline in <i>Al-Qaeda</i> activity (see involvement in Mali and Syria after 2011)

Sources: Mueller and Stewart (2011) and various newspaper articles.

detering potential recruits (due to long prison sentences, increased probability of being captured, etc.). Economically speaking, this strategy raises the material costs of terrorism, making it – *ceteris paribus* – an increasingly unattractive option (Frey and Luechinger, 2003, pp. 237–238; Trajtenberg, 2003).

There is indeed evidence that increased punishment for specific terrorist acts leads to fewer of these acts (Landes, 1978), while higher spending on security, which ought to correlate with increased counterterrorism efforts, reduces terrorist activity (Drakos and Giannakopoulos, 2009; Arin *et al.*, 2011). Also, as suggested by Table 1, counterterrorism activities by the police and intelligence services (e.g., infiltration through the use of informers and undercover agents, observation, information gathering) have repeatedly weakened the operative capacity of terrorist organizations. Very effective direct counterterrorism efforts by security forces may lead to the quick breakdown of a terrorist group, potentially before a single shot is fired. For example, as indicated in Table 1, US security agencies have been successful

in spoiling a variety of Islamist terrorist plots on US soil after the 9/11 attacks. Direct counterterrorism efforts in the form of decapitation – that is, the killing of terrorist leaders – may also prove helpful against already established terrorist groups (Johnston, 2012; Price, 2012).

Still, some studies find that police and military actions are largely ineffective (e.g., Fielding and Shortland, 2009; Jordan, 2009; LaFree *et al.*, 2009; Gil-Alana and Barros, 2010). This suggests that punishment and deterrence do not automatically translate into reduced terrorist activity. First, this may be simply due to a lack of cooperation between various security agencies. For instance, Sanders (2011) argues that a lack of cooperation between security forces (e.g., due to competition between various agencies) and poor intelligence work negatively affected the counterterrorism abilities in the early days of the Troubles in Northern Ireland and may have actually aggravated this conflict. Second, the organizational structure and ideology of a terrorist group may matter (Jordan, 2009). For instance, as shown in Table 1, while the decapitation of the *Sendero Luminoso* in Peru in 1992 was very successful, the decapitation of *Al-Qaeda* – at least up until now – has not yielded comparable results. Potentially, this difference in counterterrorism effectiveness is due to the strongly hierarchical structure of the former and the rather loose structure of the latter. Also, religious groups such as *Al-Qaeda* may provide a particularly strong source of group cohesion that makes them less vulnerable to decapitation efforts (Jordan, 2009). Third, military efforts may be evaluated differently depending on the targets of these efforts. For instance, Zusmann and Zusmann (2006) find that stock markets in Israel respond differently to news about the assassination of members of Palestinian terrorist organization depending on the role these members play in their organizations. The stock market rises after the assassination of senior military leaders, but declines after senior political leaders are assassinated through Israeli military action, suggesting that only the former type of action is – as reflected in marketplace expectations – perceived as an efficient counterterrorism measure (Zusmann and Zusmann, 2006). In other words, selective violence may prove helpful. This idea is also supported by the findings of Benmelech *et al.* (2010). They find that punitive house demolitions (i.e., demolitions that directly target terrorist operatives) by the Israeli army had a negative effect on subsequent suicide attacks during the Second Intifada. However, they also find that precautionary house demolitions (i.e., demolitions not directly related to terrorist operatives) tended to actually increase the number of attacks.

The latter finding hints at the potential for unintended backlash violent counterterrorism efforts may produce. Potentially, strategies of punishment and deterrence may result in cycles of violence. This speaks to the observation that terrorist groups may attack to provoke harsh counterterrorism measures, so as to escalate conflict and facilitate recruitment (Jacobson and Kaplan, 2007). For instance, police and military actions by British Forces during the Troubles in Northern Ireland that resulted in the death of terrorist operatives were sometimes interpreted by terrorists and their sympathizers as “brutal overreaction” and accordingly used to justify further violence (LaFree *et al.*, 2009, p. 36). What is more, the experience of counterterrorism violence by an aggrieved population may amplify radicalization and popular support – an issue which we shall discuss below in more detail – for terrorism. As shown by Jaeger *et al.* (2012), counterterrorism efforts by the Israeli armed forces led to less support for moderate political positions among the Palestinian population. While Jaeger *et al.* (2012) find that such radicalization effects in general tend to be short-lived, for already more radical individuals within the Palestinian population the radicalization effect may be more durable. This suggests that counterterrorism efforts may contribute to the polarization of an aggrieved population and potentially fuel support for terrorist groups. Here, more support for extremist groups may also be generated by the economic damage harsh counterterrorism efforts (e.g., in the form of curfews or house demolitions) may produce, which tends to negatively affect the population’s attitude toward the government (e.g., Bueno De Mesquita and Dickson, 2007).

Besides producing a cycle of violence, punitive counterterrorism measures may yield further undesirable effects. First, terrorists may substitute terrorist actions associated with severe punishment with actions that are associated with less punishment. For instance, Landes (1978) finds that increasing the prison sentence for skyjacking has made other modes of attack more attractive, consequently doing

little to reduce total terrorism. Second, innovation may take place. Most notably, to avoid detection and serious damage to their organization (e.g., through decapitation), terrorist groups may increasingly rely on less hierarchical structures (Cronin, 2006). Third, another way of avoiding mounting pressure from security forces is internationalization, that is, the relocation of an organization's base of operation. For instance, the left-wing *Japanese Red Army* relocated to the Middle East to avoid detection and regain the initiative. Fourth, punishment and deterrence usually produce high economic costs (e.g., associated with the deployment of troops, police, etc.). Its political costs may also be substantial, given that there appears to be a thin line between legitimate and illegitimate counterterrorism means, where the latter may include a disregard for privacy, the excessive use of violence and torture, politically motivated imprisonments, and extrajudicial killings (Piazza and Walsh, 2009). One prominent example is the establishment of the *Grupos Antiterroristas de Liberación*, a death squad active against the Basque separatist group *Euskadi Ta Askatasuna (ETA)*, by members of the Spanish government, which severely damaged the democratic legitimacy of the Spanish state (Encarnacion, 2007).

#### 4.2 Target Hardening and Protection

Counterterrorism may also involve target hardening and protection. Prominent means are the introduction of metal detectors and mandatory passenger screenings at airports and the fortification of embassies and other government buildings by, for example, installing surveillance cameras and closing the surrounding area to traffic (for an in-depth discussion of such measures, see Jackson *et al.*, 2007). For one, these measures aim at increasing the direct costs of terrorism. For example, the introduction of measures to “immunize” buildings against terrorism (blast walls, reinforced windows, etc.) ought to necessitate more careful planning and the use of more advanced equipment (e.g., stronger explosives), which is expected to raise terrorism's material costs. For another, the same measures may reduce the benefits of terrorism. For instance, “immunized” buildings are expected to sustain less damage when terrorists attack, thereby lowering the attack's pay-off (e.g., in terms of media attention or economic damage).

Some empirical evidence indeed suggests that related counterterrorism measures are effective. For instance, Landes (1978), Cauley and Im (1988), and Enders and Sandler (1993) find that protective measures (the introduction of metal detectors at airports, fortification of US embassies, etc.) aiming at increasing air travel and embassy security have reduced skyjackings and attacks against US diplomatic facilities.

Still, these defensive policies may not affect the overall level of terrorist violence. Rather, they may induce substitution effects and innovation in terrorist behavior. For instance, the introduction of metal detectors at airports – while reducing skyjackings – has shifted terrorist activity to relatively “cheaper” actions such as hostage takings. Similarly, the fortification of US embassies – while leading to fewer attacks on embassies – has led to more assassinations (Enders and Sandler, 1993). That is, protecting specific targets confers a negative externality to all other potential targets (Trajtenberg, 2003).

Jackson *et al.* (2007) provide an extensive study on how terrorist groups adopt and innovate to defensive counterterrorism measures. For instance, they find that the *Provisional Irish Republican Army (PIRA)* avoided areas that are covered by cameras (substituting monitored with nonmonitored targets) and used larger and more developed explosive devices to overcome protective measures on cars and buildings (innovation in terms of the use of weapons). Besides substitution and adaption, counterterrorism measures that aim at target hardening or protection are also associated with direct costs for governments and private business (e.g., arising from the installation of security cameras). Indeed, negative macroeconomic effects of terrorism (e.g., reduced economic growth or trade) do not only arise from its direct costs but also from the implementation of counterterrorism measures (e.g., tightened transportation security) that increase transaction costs and adversely affect an economy's capability to efficiently allocate resources (Sandler and Enders, 2008).

### 4.3 *Politicoeconomic Decentralization*

Decentralization is also advocated as a counterterrorism means. With respect to the terrorists' calculus, decentralization ought to reduce the benefits of terrorism (particularly those from politicoeconomic destabilization), thereby – *ceteris paribus* – reducing the level of terrorism. Political decentralization ought to make it less likely that terrorism creates a political vacuum (e.g., when prominent political figures are assassinated) that cannot be filled by other actors or levels of government (Frey and Luechinger, 2004). Economic decentralization is expected to have a similar effect on terrorism. It may include avoiding concentrating power within a company in the hands of few individuals (because these individuals are attractive targets for attacks), not concentrating a company in one large headquarters (particularly when this headquarters is located in an iconic building such as the World Trade Center) and using multiple (rather than monopolistic) suppliers to protect a company's supply chain against disruptions (Frey, 2009).

Indeed, Brancati (2006) finds that decentralization is often detrimental to ethnic conflict and secessionism. Similarly, the findings of Dreher and Fischer (2010, 2011) suggest that decentralization may reduce the likelihood of terrorism. They find that fiscal decentralization is associated with fewer transnational and domestic terrorist attacks. However, they also find that political decentralization (i.e., political autonomy) does not lead to significantly fewer incidents.

Decentralization may neither constitute a cost-efficient nor particularly effective counterterrorism strategy when country-specific conditions (with respect to, for example, effective fiscal management, corruption control, democratic accountability) are poor. For one, decentralization is associated with direct implementation costs (e.g., occurring when autonomous regions with their political infrastructure are created) and may produce further operating costs. For instance, Tanzi (2004) finds that when a country's institutional capacity is low (considering the efficiency of its tax administration, budget management, etc.), fiscal decentralization is likely to result in inferior economic outcomes through the creation of excess regulation, high market fragmentation, and a lack of macroeconomic coordination. For another, decentralization may in fact foster conflict when regional (i.e., nationalist-secessionist) parties are able to influence policies at subnational levels (e.g., by introducing discriminatory policies and laws; Brancati, 2006).

### 4.4 *Role of the Media*

Media attention is another short-run goal of terrorist groups, where terrorism serves as a means of communication to gain support and legitimacy and make the organization's political agenda known to a general audience (Rohner and Frey, 2007). Also, media attention may constitute an important channel through which terrorism produces economic damage, where stronger media coverage is associated with more damage (Melnick and Eldor, 2010). Consequently, reducing or denying media coverage of terrorism is likely to curb the benefits of terrorism, making it a less attractive option.

Yet, the restriction of media coverage may produce undesirable effects. Most importantly, government-imposed restrictions (censorship) easily violate core democratic principles and therefore do not seem appropriate in open societies for constitutional reasons. One solution to avoid censorship is self-regulation. However, it is unclear whether the media is willing to comply, given the potential benefits of the coverage of terrorism such as boosts in sales and ratings (Rohner and Frey, 2007). Another alternative to (self-) censorship is suggested by Frey (1987) who argues that by providing the media with too much information on an attack, the government may manipulate media recognition of terrorist groups. Here, a government may publically hypothesize about the responsibility of various groups for an attack, even though it knows the true perpetrator. This may induce free-rider behavior of other groups, thus reducing the benefits associated with an attack.

Even when democratic principles are not violated, denying terrorists attention may not prove overly helpful. First, the restriction of media attention may result in more “spectacular” (i.e., deadlier) attacks that guarantee attention even though coverage is restricted (Cowen, 2006). Rohner and Frey (2007) argue that terrorists in developing countries conduct deadlier attacks to gain the attention of the Western media that is otherwise not interested in terrorism in non-Western countries. Second, the Internet has made media restrictions more difficult to implement and opened up additional means of mass communication for terrorist groups (Cowen, 2006, p. 234). Third, a considerable amount of terrorist activity is not claimed by any terrorist organization. For instance, Hoffman (2010) finds that of the 356 transnational terrorist attacks that hit Israel between 1968 and 2004, only 200 were claimed. His findings suggest that terrorist groups especially aim at media attention when they face competition from other groups. Thus, curtailing media attention is not expected to influence terrorist activity when terrorist competition is low.

#### 4.5 *Appeasement and Concessions*

As previously discussed, terrorists usually attack to gain political influence, which in turn is used to foster social change associated with the terrorists’ long-run goals, that is, demands for regime and/or territorial changes.<sup>8</sup> Government concessions may affect the calculus of terrorists accordingly, making terrorism a less attractive (possibly, unnecessary) option.

Arguably, giving in to the terrorist’s demands is likely to end terrorism. For instance, the creation of the state of Israel (territorial change) and the end of apartheid in South Africa (regime change) ended the armed struggle of Israeli and South African terrorist groups (e.g., *Irgun* and *Umkhonto we Sizwe*, the armed wing of the *African National Congress*) fighting for these very goals (Cronin, 2006). However, total appeasement is almost never an option. The ultimate goals of many terrorist groups are *maximalist*. For instance, the long-run goal of many Palestine groups is the destruction of Israel, so there is no possible offer by the Israeli government that will satisfy their demands.

If, however, the goals of a terrorist organization are limited and these organizations are open to negotiation, the government, while refraining from a complete surrender to terrorists’ demands, may make partial concessions, for example, by sharing power with terrorist groups. For instance, the *Good Friday Agreement* of 1998 led to power-sharing between Catholic and Protestant parties in Northern Ireland and to a strong decline in terrorist violence conducted by armed groups.

While making partial concessions is likely to reduce violence, it is not likely to end it. Concessions may contribute to the creation of more extreme splinter groups that continue their armed campaign, going so far as to spoil the peace by sabotaging negotiations between more moderate factions and the state through continued attacks (Kydd and Walter, 2002). For instance, the (partial) success of the *PIRA* (and its political wing *Sinn Fein*) in the negotiations of the Northern Ireland peace process led to the break-up and formation of the *Real IRA* that vowed to continue the fight. What is more, concessions are likely to carry clear moral costs. Terrorists (usually perceived as criminals, murderers, etc. by the general public) may be regarded as “winners” that are paid for using violence, possibly resulting in the demoralization of the general public in the face of appeasement.

#### 4.6 *Grievances and Popular Support for Terrorism*

A number of contributions argue that popular support for terrorism is important to the emergence and persistence of terrorism (Faria and Arce, 2005; Siqueira and Sandler, 2006; Paul, 2010). A sufficient level of popular support may, inter alia, facilitate recruitment, provide terrorist groups with material resources and other means that enable terrorist operations (e.g., sanctuary), and affect the bargaining power of a terrorist group. Terrorism supporters are, similar to active terrorists, subject to an economic calculus,

where the (opportunity) costs and benefits of support are weighed against cost-benefit considerations related to nonsupport (Freytag *et al.*, 2011). Counterterrorism may reasonably affect this calculus. In fact, terrorism supporters may be more responsive to incentives that make supporting terrorism less attractive, given that they ought to be less ideological and subsequently have less to lose (e.g., mental rewards from terrorism support) than active terrorists. Paul (2010) finds that popular support for terrorism is prominently shaped by grievances shared by terrorism supporters and active terrorists. Intuitively, counterterrorism may try to ameliorate specific grievances to curb popular support, thereby reducing terrorism.

In general, “winning the hearts and minds” of terrorism supporters seems to be a reasonable counterterrorism strategy. However, according to the reviews of Gassebner and Luechinger (2011) and Krieger and Meierrieks (2011), there is little consensus on the importance of specific social conditions (i.e., grievances) in the emergence of terrorism. In particular, the evidence does not consistently indicate whether terrorism is rooted in economic or politicoinstitutional underdevelopment. As shown in Table 2, some studies find that poor socioeconomic conditions predict terrorism. More empirical studies, however, come to the conclusion political variables (e.g., democratic institutions) are more relevant (e.g., Krueger and Laitin, 2008; Choi, 2010; Walsh and Piazza, 2010; Young and Dugan, 2011).<sup>9</sup> Economic and political development usually interact with other social phenomena, which further complicates the identification of the “true” social correlates of terrorism. For instance, Sen (2008) argues that poor socioeconomic conditions may fuel terrorism when they are coupled with unfavorable demographic conditions (e.g., ethnoreligious tensions) and poor institutions that foster politicoeconomic disenfranchisement (e.g., by dividing wealth and power along ethnoreligious lines). Such linkages are also discussed in empirical studies that emphasize the role of ethnoreligious tensions and discrimination as important determinants of terrorism (Basuchoudhary and Shughart, 2010; Piazza, 2011). Finally, the comparability of the evidence on the determinants of terrorism is further hampered by different research designs of distinct empirical studies (e.g., different country samples, different time horizons), as shown in Table 2. Overall, the evidence does not point to an obvious “panacea” to fight terrorism by favorably affecting its opportunity costs and “winning the hearts and minds” of terrorism supporters.

Similar issues emerge when empirical studies try to identify the determinants of popular support for terrorism rather than its social correlates. Again, the identification of grievances underlying popular support proves rather difficult, given that they seem to vary between and within countries, being conditional on certain idiosyncrasies (the goals of specific terrorist groups, the international context, etc.). As an example, existing studies on the determinants of popular support for Islamist terrorism do not provide a consistent picture (Table 3). For example, while Bueno De Mesquita (2007) finds that economic variables share little relationship with popular support (meaning that policies emphasizing economic participation ought to prove unhelpful), Mousseau (2011) finds that urban poverty fuels it (suggesting that counterterrorism may successfully reduce terrorism’s appeal by moderating poor economic conditions). The inconclusiveness of the evidence again makes it difficult to channel resources to projects that ameliorate the “true” grievances shaping popular support for terrorism, meaning that there is ample opportunity for inefficiencies.

Finally, even when the “true” grievances of terrorism and terrorism support are identified, this does not necessarily mean that violence ends. Counterterrorism efforts that address grievances may in fact make terrorist factions (within an organization) more extreme, given that individuals with moderate views are increasingly less likely to join or support it when nonviolent opportunities abound. Bueno De Mesquita (2008) argues that ameliorating terrorism’s root causes can fuel extremism to such an extent that the aggregate level of violence is unaffected, as smaller but more extreme groups can be just as violent as larger but more moderate groups.

**Table 2.** Economic and Political Development and the Social Origins of Terrorism.

Study	Scope	Terrorism Type	Main Findings
Krueger and Maleckova (2003)	148 countries, 1997–2002	Transnational terrorism	No effect of per capita income on emergence of terrorism. Terrorism more likely in countries with high levels of political repression.
Li and Schaub (2004)	112 countries, 1975–1997	Transnational terrorism	Terrorism indirectly negatively related to economic success through the beneficial effect of economic integration on growth and development. Level of democracy positively associated with terrorism.
Abadie (2006)	186 countries, 2003–2004	Terrorism risk index	No significant relationship between economic variables and terrorism (instrumental variable approach). Political variables (e.g., civil liberties, political freedom) matter nonlinearly.
Piazza (2006)	96 countries, 1986–2002	Transnational terrorism	Economic variables do not matter to incidences of terrorism. Transnational terrorist attacks more likely in repressive countries with high levels of political fractionalization.
Blomberg and Hess (2008)	179 countries, 1968–2003	Transnational terrorism	High income levels and democratic institutions make a country less likely to produce terrorism.
Piazza (2011)	172 countries, 1970–2006	Domestic terrorism	Terrorism more likely in rich countries (indicated by GDP p.c. and the Human Development Index) with strong income inequality and economic discrimination of minorities. Political variables also matter.

#### 4.7 Public Good Provision and Terrorism

Paul (2010) argues that the provision of public goods by terrorist groups may also strengthen their popular support and thereby affect the level of terrorism a country experiences. Many terrorist groups (such as *Hamas*) indeed also act as charitable organizations that provide social services in territory they control (Ly, 2007). Berman and Laitin (2008) and Berman (2009) argue that terrorist groups are particularly resilient and successful when they provide their members with vital “club goods,” while inhibiting free-rider behavior. Consequently, sound counterterrorism efforts may include social welfare policies that provide superior public goods (e.g., health and education services), as suggested by Burgoon (2006), Berman and Laitin (2008), Berman (2009), Krieger and Meierrieks (2010), and Berman *et al.* (2011). With respect to the calculus of terrorist supporters, the provision of public goods by the government may

**Table 3.** Popular Support for Islamist Terrorism.

Study	Scope	Main Results
Fair and Shepherd (2006)	14 Muslim countries, 2002	Unclear influence of economic conditions on support. Support increases with some religious factors (e.g., perceived threat to Islam). Results vary across countries.
Bueno De Mesquita (2007)	13 Muslim countries, 2002	Support for terrorism not correlated with education, economic situation and attitudes toward the USA and democracy. Ambiguous effect of religion on support.
Tessler and Robbins (2007)	Algeria and Jordan, 2002	Support for terrorism not dependent upon religion and economic situation. Support increases with negative assessment of US foreign policy and domestic political institutions and leaders.
Fair <i>et al.</i> (2010)	Pakistan, 2009	Support for terrorism depends on terrorist group and the desire for noncorrupt governments (which in turn is related to support for Sharia law). Results vary across regions.
Shafiq and Sinno (2010)	6 Muslim countries, 2005	Support for suicide terrorism depends on its target (attacks against Western military targets are seen more favorable than attacks against civilians). Effects of income and education vary across countries and interact with political dissatisfaction.
Mousseau (2011)	14 Muslim countries, 2002	Approval of Islamist terrorism linked to urban poverty but not poor education and religiosity.

lower the benefits of terrorism support. Simultaneously, this raises the material costs for active terrorists (e.g., associated with finding sanctuary). Finally, public good provision may aid counterterrorism efforts by making it more attractive for communities receiving these goods to share information about terrorist activities with the government, which in turn ought to increase the efficiency of the government's military measures (Berman *et al.*, 2011).

However, for one, this approach is a long-run and costly venture, given that welfare systems need to be installed and maintained. Other means, as discussed below and above, may prove more cost-efficient. For another, the provision of public goods by the government may only help to marginalize (but not eradicate) terrorism by curbing popular support. For instance, *Al-Qaeda in Saudi Arabia* emerged even though the Saudi government provides generous welfare programs (Berman and Laitin, 2008). As stressed by Bueno De Mesquita (2008), the effect of public goods provision on the level or intensity of terrorism can be ambiguous, given that a small but extremist group – like *Al-Qaeda in Saudi Arabia* – may also be capable of carrying out mass casualty attacks (e.g., the Riyadh compound bombings in 2003).

#### 4.8 Benevolent Policies for Active Terrorists

While addressing grievances and providing public goods appear to be reasonable strategies to reduce popular support for terrorism, the effect of such policies may not matter to active terrorists. As argued

above, governments are often unwilling to satisfy terrorists' demands, either because such demands are maximalist or because popular opinion opposes concessions (Cronin, 2006). What is more, active terrorists are unlikely to give up their activities for at least two reasons. First, they fear prosecution, given that they are usually responsible for crimes associated with severe punishments. Second, terrorist organizations are social units that offer their members certain mental rewards such as solidarity and friendship (Abrahms, 2008).

Benevolent policies that do not emphasize harsh counterterrorism measures focus on dealing with active terrorists. Here, one obvious policy is to grant terrorists amnesty or reduced punishment. Such a measure is expected to increase the (opportunity) cost of terrorism by offering terrorist operatives the prospects of a nonviolent future with sufficient means of politicoeconomic participation (Frey and Luechinger, 2003). For instance, the Italian state between the late 1970s and early 1980s successfully offered, in the form of principal witness programs, left-wing terrorists the possibility of reduced sentences when they renounced violence and cooperated (Cronin, 2006). Such policies also help to destroy a terrorist organization as a social unit. For instance, by granting amnesty in exchange for information, the government may reduce the social rewards from terrorism, as mistrust between active terrorists grows. The government may also create places and institutions that offer possibilities to overcome alienation, frustration, and isolation, so that individuals cease turning to terrorist organizations to overcome these very feelings (Abrahms, 2008). Once terrorists renounce violence, resocialization programs may be implemented (e.g., by helping former terrorists to find work or participate in political talks) to prevent them from taking up arms again (Frey and Luechinger, 2003).

Such policies again come with a price. First, while they tend to be nonviolent, they involve moral costs. For instance, terrorists may avoid punishment when they use the possibility of amnesty, which may create resentment among the victims of terrorism (Frey and Luechinger, 2003). Second, terrorist organizations are likely to react to benevolent incentives, potentially rendering them ineffective. For instance, a terrorist organization may resort to internal punishment when it sees the possibility of some of its members defecting due to government offers. Third, as noted by Frey and Luechinger (2003), some individuals may join terrorist groups in order to benefit from expected benevolent counterterrorism measures in the future. The creation of such "perverse incentives" should not be ignored when discussing the undesired consequences of benevolent counterterrorism measures.

## 5. The International Dimension of Counterterrorism

### 5.1 *The Internationalization of Terrorism*

The phenomenon of transnational terrorism affects our discussion of the economics of counterterrorism. By definition, terrorism becomes transnational when more than one country is involved (Enders *et al.*, 2011). Terrorism may internationalize when terrorist groups: (1) attack foreign targets within their natural territory (e.g., the bombing of an US Army building in Frankfurt in 1972 by the German *Red Army Faction*), (2) "export" terrorism to another country (e.g., attacks by the Algerian *Groupe Islamique Armé* in France), (3) cooperate with or receive sponsorship from another country (e.g., Iran-backed *Hezbollah*), (4) use foreign territory to challenge another government (e.g., the use of the Lebanon as a base of operation for Palestinian groups in the 1970s and 1980s) or (5) form truly transnational networks (e.g., *Al-Qaeda*), and finally, (6) terrorism may also internationalize due to foreign policy developments. For instance, aggressive foreign policy behavior – in the form of, for example, military interventions and overall politicomilitary dominance – tends to coincide with more foreign terrorist activity directed against the proponents of such policies (Dreher and Gassebner, 2008; Savun and Phillips, 2009; Plümper and Neumeyer, 2010). While only accounting for a fraction of total terrorism (Enders *et al.*, 2011), internationalized terrorism may, nevertheless, be conducive to interstate conflict (see the conflict between India and Pakistan over

the issue of Kashmiri terrorism) or detrimental to economic growth and development, particularly due to distorting effects on the international flow of goods and capital (Nitsch and Schumacher, 2004; Abadie and Gardeazabal, 2008).

## 5.2 *Collective Action Problems*

Sandler (2005) applies a game-theoretical framework to show that internationalized terrorism usually involves collective action failures for countries attacked by terrorist groups. By contrast, transnational terrorist groups seem to overcome collective action problems, potentially even benefitting from their internationalization (e.g., see the cooperation between Western left-wing and Palestinian terrorist organizations during the Cold War). While governments are able to choose an optimal counterterrorism strategy in the fight against domestic terrorism, counterterrorism against transnational terrorism may involve externalities. For instance, it may be attractive for some – often weak – states to tolerate the activities of terrorist organizations within their borders in exchange for no direct harm at the expense of other nations (*paid-riding*; Lee, 1988). Also, national governments may be tempted to overemphasize defensive counterterrorism measures to deter terrorist attacks, which may merely result in a relocation of terrorist attacks against the respective nation's citizens (e.g., see anti-US attacks in the Middle East or Africa). Alternatively, as suggested by Sandler (2005), countries may try to place the burden of offensive counterterrorism measures (e.g., preemptive strikes) onto the prime target of transnational terrorism, thereby benefitting from the reduction of terrorism without paying for it (*free-riding*). More generally, defensive policies can be regarded as largely private goods, so that the benefits of security provision are mostly internalized by the investors, while proactive policies show the characteristics of public goods (Sandler and Siqueira, 2006). Consequently, this may lead to an oversupply of defensive and an undersupply of proactive measures (Sandler and Siqueira, 2006). Collective action problems (e.g., free- and paid-riding, benefits of noncompliance) have so far undermined many measures directed against terrorism at an international level. For instance, Cauley and Im (1988) find that the introduction of a United Nation's convention on preventing attacks against diplomatic personnel did not help to reduce terrorism directed against diplomats. We discuss some further international counterterrorism strategies and associated implementation problems below.

## 5.3 *Military Measures*

Military measures are often chosen as prime strategy in the fight against terrorism, mimicking the use of such means as a first resort in the fight against internal terrorism. In an economic sense, such activities (e.g., military interventions, retaliatory strikes) ought to increase the material costs of terrorism by inflicting direct damage (e.g., destruction of terrorist infrastructure) and/or deterring future attacks by showing credible commitment.

On the one hand, military strikes may be directed against terrorist organizations. For instance, Israel launched air strikes against the *Palestine Liberation Organization (PLO)* bases in Syria in 1972 in response to a terrorist attack on Israeli athletes during the Olympic Games in Munich (Brophy-Baermann and Conybeare, 1994). Its aim was to incapacitate the *PLO*'s infrastructure, so as to limit its ability to attack, while at the same time showing commitment to retaliate similarly in the future. On the other hand, military actions may also be directed against state sponsors of terrorism. For example, the USA launched an air raid against Libya in 1986 to punish Libya for its alleged support for anti-US terrorism (e.g., the La Belle Discotheque bombing in West Berlin earlier in 1986). Again, the USA wanted Libya to stop supporting terrorism by inflicting direct damage on its infrastructure and by showing Libya (and other state sponsors of terrorism) that the USA would credibly punish future incidents of terrorism sponsorship (Prunckun and Mohr, 1997).

While such strikes usually yield some success – the Israeli airstrikes in 1972 destroyed *PLO* camps in Syria, while the USA attacks on Libya inflicted damage on Libyan targets – there is little evidence that such measures have the desired long-run effects. For instance, Brophy-Baermann and Conybeare (1994, p. 203) show that only the first retaliatory strike of Israel against *PLO* targets proved successful in terms of reducing terrorism, while subsequent strikes were unsuccessful. Terrorist organizations are likely to adapt to the threat of military actions. For instance, they may increasingly resort to network structures, which makes terrorist groups more mobile and elusive, increasing the difficulty for the military to attack them (Levine and Levine, 2006). Deterrence against state sponsors of terrorism is more credible and thus more likely to prove successful, given that states are naturally far less able to avoid military punishment (Levine and Levine, 2006). However, such deterrence need not work automatically. For example, existing evaluations of the 1986 US raid on Libya provide inconclusive evidence regarding its effectiveness (Enders and Sandler, 1993; Prunckun and Mohr, 1997). Eland (1998) argues that this raid in fact resulted in a series of Libyan-sponsored retaliatory terrorist strikes, the most notorious being the 1988 Pan Am bombing over Lockerbie, suggesting that military actions may potentially contribute to an escalation of conflict.

#### 5.4 *Terrorism Financing*

International efforts may also try to reduce terrorist activity by preventing terrorist organizations from gaining financial resources that could finance large-scale attacks and long-running campaigns.<sup>10</sup> Terrorist groups may gain financial support from states (state sponsorship), from private supporters (e.g., diaspora support), or from criminal activities (e.g., robberies, drug trafficking). Indeed, the financial needs and resources of terrorist groups can be substantial. For instance, Schneider (2009) estimates that between 2001 and 2004 *Al-Qaeda*'s annual budget amounted to between \$20 and \$50 million, where 50% of its budget was attributable to financial support from followers and income from criminal activity (e.g., extortion, drug trafficking). Counterterrorism efforts may try to denounce state sponsorship of terrorism (e.g., through actions by the United Nations), reduce the international money flows from terrorist supporters to terrorist groups and make it more difficult for terrorist groups to launder money coming from criminal activities via anti-money-laundering initiatives (Krieger and Meierrieks, 2013).

For one, however, such measures are likely to lead to an adaption by terrorist groups in an effort to find new means of financing. What is more, small (potentially self-radicalized) cells may receive little financial help from a terrorist organization but, nevertheless, be able to create great damage at low cost.<sup>11</sup> More importantly, international efforts against terrorism financing (e.g., by harmonizing means against money laundering) may involve collective action problems. For instance, the freezing of terrorists' assets to obstruct terrorism finance may prove unsuccessful when some states do not cooperate but instead provide terrorists with "financial safe havens" (Sandler, 2005).<sup>12</sup> That is, even when most states agree on countering money laundering and terrorism financing, a few nations that do not comply may provide terrorists with the financial infrastructure needed to continue their operations (Sandler, 2005).<sup>13</sup>

#### 5.5 *Military and Economic Aid*

The provision of aid can be seen as another means of reducing terrorism on an international scale. For one, military aid may be channeled to weaker countries to strengthen their counterterrorism capacities, so as to raise the material costs of terrorism. For another, nonmilitary economic aid may be used to remove the root causes of terrorism in the origin countries of transnational terrorism, so as to diminish popular support for terrorism and marginalize it in the long run. The main idea associated with such aid is to delegate the fight against terrorism from the potential target countries to the countries of origin (i.e., from developed to less developed countries). Aid may help to overcome collective action problems in the fight

against terrorism when it provides sufficient incentives for the origin countries of terrorism to face the terrorism threat at home, instead of profiting from paid-riding (Lee, 1988).

Indeed, the findings of Azam and Delacroix (2006) and Azam and Thelen (2008, 2010) indicate that foreign aid is negatively related to the production of transnational terrorism, suggesting that aid provides sufficient incentives for governments in the countries of origin of terrorism to react, consequently affecting the calculus of terrorist supporters and (possibly) active terrorists in ways that reduce violence.

Still, the provision of aid to delegate the fight against terrorism may result in suboptimal outcomes. First, aid is costly and may be regarded as a particularly poor policy instruments by the general public (i.e., the voters) when it is channeled to terrorism hotspots that jeopardize the security of the very donor country. Second, a poor mix of aid related to the fight against terrorism (military aid) and general aid may result in regime instability in the recipient country, aggravating the fight against terrorism (Bandyopadhyay *et al.*, 2011). This is particularly true given that foreign aid is oftentimes coupled with military actions by the donor country. For instance, the USA channeled massive foreign aid to the governments of Pakistan and Afghanistan after 2001, while also actively engaging in counterterrorism in this part of the world. Third, foreign aid may create “perverse incentives.” That is, foreign incentives may invite domestic governments to continue their fight against terrorist groups instead of negotiating with them (Bapat, 2011).<sup>14</sup> It may even provide incentives to “invent” terrorism to benefit from foreign aid. As a consequence, it may be helpful to earmark foreign aid for specific purposes, for example, for supporting education<sup>15</sup> (Azam and Thelen, 2008), so as to maximize its beneficial effects on terrorism production. Monitoring foreign aid accordingly, however, may turn out be costly.

## 6. Conclusion

In this contribution, we reviewed a plethora of theoretical and empirical studies related to the economic analysis of terrorism and counterterrorism. We argued that cost-benefits models of terrorist behavior provide a good starting point for such analyses. They imply that terrorism can be fought by affecting the terrorists’ calculus that involves the (opportunity) costs and benefits of terrorism (first-order effects). However, we also stressed that these models are static and therefore disregard important dynamics in the terrorism-counterterrorism relationship. These terrorism-counterterrorism interactions, however, matter to the effectiveness of counterterrorism by influencing its costs and potential unintended (domestic and international) consequences (second-order effects). To further illustrate this point, Table 4 gives a selective summary of historical first- and second-order effects associated with specific counterterrorism efforts, also citing examples where counterterrorism resulted in “Pyrrhic victories” due to the backlash associated with it.

In the light of this survey, what is the best counterterrorism strategy? Our surveys suggest that strategies that involve *influencing the benefits of terrorism* (e.g., decentralization, target protection) usually do not stop terrorism but rather induce substitution and innovation effects (new targets, new methods, etc.).

*Raising the direct costs of terrorism* may prove more effective, especially in the short run. Indeed, as shown in Tables 4 and 5, many terrorist groups have been negatively affected by pressure from security and intelligence agencies. What is more, many acts of terrorism are conducted by “one-hit wonders” that are only responsible for very few attacks (Blomberg *et al.*, 2010). Their quick demise is likely due to sound counterterrorism measures by security and intelligence agencies (Berman, 2009). Still, it is possible that direct state actions by the police, military, and intelligence services may backfire and create large second-order effects. Here, (relative) counterterrorism ineffectiveness may contribute to the emergence of powerful insurgencies or crime networks, that is, to the evolution rather than decline of terrorist groups. For instance, the French counterterrorism efforts during the Battle of Algiers (1957) against the Algerian *Front de Libération Nationale (FLN)* were a military success but – due to use of torture and other harsh

**Table 4.** Evaluation of Assorted Counterterrorism Policies.

Case (Year)	Main Strategy	First-Order Effect: Policy Success	Second-Order Effect: Policy Backlash
Battle of Algiers (1957)	Raising the material costs of terrorism through military punishment.	French military defeat of Algeria's <i>FLN</i> underground movement in Algiers as part of French campaign against Algerian insurgents.	Political isolation of and political crises in France due to use of torture and other harsh counterterrorism measures. Growing (international) support for <i>FLN</i> .
Introduction of metal detectors at US airports (1973)	Raising the material costs of terrorism by target protection.	Fewer skyjackings and associated threats.	Substitution of terrorist activity with other attack types (e.g., assassinations).
<i>La guerra sucia</i> (the "Dirty War") in Spain (1983–1987)	Raising the material costs of terrorism through military punishment.	Establishment of death squad <i>Grupos Antiterroristas de Liberación</i> by Spanish state leads to assassination of <i>ETA</i> operatives.	Death of innocent. <i>ETA</i> retaliation. Loss of democratic legitimacy of Spanish state.
Operation <i>El Dorado Canyon</i> (1986)	Raising the material costs of terrorism by military punishment and deterrence.	Destruction of infrastructure in Libya by the USA as response to alleged Libyan sponsorship of terrorism.	Military strike does not kill Libyan leadership, but produces civilian casualties. Subsequent "secret war" between Libya and USA (e.g., Lockerbie incident).
<i>Good Friday Agreement</i> in Northern Ireland (1998)	Raising the opportunity costs of terrorism through concessions.	Major contribution to end of terrorist violence in Northern Ireland. Transition of armed groups to legitimate political process.	Development of splinter groups opposing peace process (e.g., <i>Real IRA</i> ). Continuation of terrorist violence on lower level.
West bank barrier in Israel (since 2003)	Raising the material costs of terrorism through target hardening and protection.	Reduction of suicide attacks by Palestinian groups on Israeli territory through construction of a separation barrier.	Attacks on barrier itself; use of improvised rockets (Qassam rockets) by terrorist groups. Potential effect of barrier on Palestinian grievances (e.g., by increasing unemployment).

Sources: Galula (1963), Cauley and Im (1988), Enders and Sandler (1993), Eland (1998), Encarnacion (2007), and Jackson *et al.* (2007).

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**Table 5.** The End, Decline, and Evolution of Terrorist Groups.

Contributing Factor	Historical Examples
<b>Success</b>	
Total success	<i>African National Congress</i>
Partial success	<i>Palestinian Liberation Organization</i>
<b>Politicomilitary Pressure</b>	
Decapitation	<i>Shining Path</i>
Direct state action and military repression	<i>Liberation Tigers of Tamil Eelam</i>
External military intervention	<i>Al-Qaeda in Afghanistan</i>
<b>Crisis of Legitimacy</b>	
Loss of popular support	<i>Euskadi Ta Askatasuna</i>
Loss of external support	<i>Armenian Secret Army for the Liberation of Armenia</i>
Disintegration due to burnout or organizational split	<i>Weather Underground Organization</i>
No generational transition	<i>Red Brigades</i>
<b>Evolution</b>	
Internationalization	<i>Japanese Red Army</i>
Political party	<i>19th of April Movement</i>
Insurgency	<i>Khmer Rouge</i>
Crime	<i>Kosovo Liberation Army</i>

*Note:* This table partly draws on Cronin (2006).

counterterrorism measures – led to the international political isolation of France and growing (domestic and international) support for the *FLN*, while also triggering a political crisis in France.

Some terrorist groups are able to withstand the pressure of the security forces and monopolize the production of terrorism (Blomberg *et al.*, 2010). In fact, this very pressure may even strengthen such groups, either by eliminating their competition or by fueling support for the terrorists' cause when counterterrorism efforts are inadequate or disproportionate. Clearly, these more resilient groups are also more capable and dangerous. This calls for the use of different counterterrorism measures. Here, (long-run) strategies that aim at *raising the opportunity costs of terrorism* of would-be terrorists, potential terrorism supporters, and possibly even active terrorists are promising. As shown in Table 5, terrorist groups may disappear due to a loss of legitimacy and popular support or by evolving into political parties when opportunities for political participation open up. For instance, terrorist groups may be organizationally weakened (i.e., lose support and legitimacy) when through the provision of social services the government crowds out the provision of public goods by terrorist groups (Burgoon, 2006; Berman and Laitin, 2008).

Overall, of course, the effectiveness of strategies influencing the (opportunity) costs and benefits of terrorism is very much context-dependent. For instance, it is necessary to evaluate the appropriateness of such strategies vis-à-vis the goals of terrorist organizations (to assess which kinds of concessions can be made), the implementation costs of specific policies (to examine their cost efficiency), the international perspective (to factor in collective-action problems), and the organizational structure, ideology, and politicomilitary strategy of terrorist groups. For instance, counterterrorism strategies that worked well against terrorism in the 20th century (which usually had domestic goals, was hierarchically structured and attacked primarily military targets) may prove unsuccessful against the *Al-Qaeda*-styled terrorism of the 21st century that has transnational goals, is organized in networks, and also attacks civilian targets (Cronin, 2006, pp. 39–47).

In the light of this survey's findings, there are several fruitful avenues of future research. First, more empirical research is necessary to explore the potentially rich interactions between terrorism and counterterrorism. The use of empirical techniques that allow for feedback relationships (e.g., vector-autoregressions) to account for terrorism-counterterrorism dynamics may add to the existing evidence that builds on static empirical models (e.g., negative binomial regressions) associated with expectations from static cost-benefit models. Second, given that the overall effectiveness of counterterrorism is likely to be context-dependent, it seems crucial to analyze and identify the determinants of the responsiveness of terrorist groups to the positive and negative incentives set by counterterrorism. For instance, differences in the levels of popular and external support as well as in organizational structures and political ideology may explain why some groups are more responsive to specific counterterrorism means than others. Third, more research is necessary to assess which factors contribute to the radicalization of parts of a country's population and their support for terrorism. Possibly, the social correlates of popular support for terrorism and active participation are different. Identifying these determinants should be helpful to inform any policies that aim at "winning the hearts and minds" of larger segments of a population and counter the provision of "club goods" by terrorist groups. Finally, future assessments of specific counterterrorism strategies are well-advised to more "holistically" analyze their costs and benefits, also accounting for potential backlash, implementation/operation costs, and international repercussions.

The 9/11 attacks showed that terrorism in the 21st century can be deadly, costly – the attacks resulted in the death of approximately 3,000 individuals and produced high economic costs (between \$50 and \$100 billion at the US national level) – and may produce second-order effects, which can profoundly affect the course of world history (ranging from, for example, military interventions in Afghanistan and Iraq to the introduction of harsh antiterrorism legislation in Western democracies). Given that the threat of terrorism is not likely to vanish in the near future, we hope that our survey encourages scholars to continue their research on the economics of terrorism and counterterrorism, so as to assist policymakers in the future fight against terrorism.

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## Notes

1. There is, however, no academic consensus regarding a definition of terrorism (Weinberg *et al.*, 2004). For instance, this is due to the proximity of terrorism to organized crime (Bovenkerk and Chakra, 2004) and guerilla warfare within civil wars (Sambanis, 2008; Findley and Young, 2012).
2. The *GTD* collects data on domestic and transnational terrorism. Transnational terrorism involves more than one country (e.g., due to cross-border attacks), while domestic terrorism only affects one country. Figure 1 illustrates the patterns of total (domestic plus transnational) terrorism. Note that the drop in terrorism in 1998 is partly due to a change in *GTD* coding procedures (Enders *et al.*, 2011). Other terrorism data sets are discussed in Drakos (2011) and Enders *et al.* (2011).
3. We do not discuss the history of terrorism, trends in terrorism over time and its spatial distribution, as these issues are already reviewed in Sandler and Enders (2004, 2005), Shughart (2006), and Brandt and Sandler (2010).
4. Gassebner and Luechinger (2011) and Krieger and Meierrieks (2011) summarize the empirical literature on the causes of terrorism. Note that we discuss the evidence on the role of economic underdevelopment in terrorism in Section 4 in more detail.

5. For the sake of brevity, we cannot discuss the literature on the consequences of terrorism in more detail. In short, empirical studies have assessed – and largely confirmed – the negative effects of terrorism on political development (e.g., Gassebner *et al.*, 2008; Dreher *et al.*, 2010) and economic variables such as growth, investment, and entrepreneurship (e.g., Crain and Crain, 2006; Brück *et al.*, 2011; Gaibulloev and Sandler, 2011; Gries *et al.*, 2011; Meierrieks and Gries, 2013). Bird *et al.* (2008) and Sandler and Enders (2008) review the evidence on the economic effects of terrorism.
6. In contrast to ordinary crime, however, terrorism is not primarily geared toward material gains but to the acquisition of political influence (Krueger, 2007, p. 4). That is, while both ordinary criminals and terrorists follow an economic calculus, this calculus is not identical. We thank a referee for this hint.
7. Caplan (2006) argues that suicide terrorists typically violate the rationality assumption of the rational choice model. Pape (2003), among others, however, argues that even suicide terrorism is the result of strategic decision making.
8. While there are also terrorist organizations with other agendas (e.g., environmentalist groups), most groups have left-wing, right-wing, or religious agendas (all of which imply the wish for regime change) or separatist agendas (which imply demands for territorial changes). For instance, the *Egyptian Islamic Jihad* tried to replace the secular Egyptian government with an Islamic state (regime change), while *ETA* primarily fought for the independence of the Basque Country from Spain (territorial change).
9. Previously, we noted that terrorism may also produce economic damage, which suggests that any analysis of the effect of economic development on terrorism ought to take this source of endogeneity into account. Indeed, the instrumental-variable findings of Abadie (2006) suggest that economic underdevelopment does not cause terrorism, further weakening the evidence that terrorism has economic roots.
10. Reducing financial flows to terrorist organizations may, of course, also curb domestic terrorism. For instance, the government can try to properly protect businesses, thus making it more difficult for terrorist groups to extract “revolutionary taxes” from them.
11. For instance, the 7/7 London attacks in 2005 had very low direct costs for the terrorists (ca. \$15,000) and were self-financed (by defaulting loan payments and overdrawing bank accounts; Krieger and Meierrieks, 2013).
12. For instance, states may not regulate their financial industry to profit from the positive economic effects of an increased attractiveness to foreign capital. They may also have an incentive to undermine the control of terrorism finance when they engage in state sponsorship of terrorism.
13. Similar collective actions problem may arise when states negotiate other measures, for example, restrictions on arms trade.
14. As noted by Bapat (2011), however, this may prove beneficial for the foreign donor. For instance, military aid by the USA may deter foreign governments from negotiating with terrorist groups with clear anti-American agendas. The negative effects of terrorism are then internalized by the recipient country.
15. Benmelech and Berrebi (2007) find that Palestinian suicide bombers are more educated than the population average. They also find that more educated suicide bombers are more successful in producing damage. This indicates that even earmarking aid for education may backfire when conflict-specific circumstances are not recognized. For instance, for the Israeli-Palestinian conflict Benmelech *et al.* (2012) find that high unemployment among the highly educated allows Palestinian terrorist groups to recruit them more successfully. Such a finding suggests that Palestinian terrorism may be more effectively fought by considering the interaction between education, economic conditions, and active participation in terrorism.

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