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The Economic Consequences of Terrorism for the  
European Union

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# The Economic Consequences of Terrorism for the European Union

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## *Abstract*

In recent years, a number of major terrorist attacks in EU member states has put the fight against homegrown and international terrorism at the top of the agenda of European policy-makers. This paper analyzes the costs of terrorism in the European Union from both a theoretical and empirical perspective in order to evaluate counter-terrorism policies by comparing their costs and benefits. Two important policy implications can be derived from our exercise. First, individuals' behavioral predispositions typically result in a biased perception of the risk of terrorism leading to too high a demand for counter-terrorism measures relative to what the objective probability of terrorist events suggests. This results in a tendency to favor repressive over preventive measures against terrorism. Second, uncoordinated European policies against terrorism have the potential to undermine the effectiveness of counter-terrorism measures. If there is a justification for the existence of the European Union (which an increasing number of populist parties in Europe seems to doubt), then it is to provide supranational answers to coordination failure in European counter-terrorism policies.

*JEL classification*      D74, H56, N44

*Keywords*                terrorism; home-grown terrorism; European Union; counter-terrorism policies; coordination failure; behavioral responses to terrorism

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## 1. Introduction

In recent years, a number of major terrorist attacks in EU member states has put the fight against homegrown and international terrorism at the top of the agenda of European policy-makers. The attacks took place not only in European capitals such as Berlin, Brussels, London, Paris and Stockholm, but also in more peripheral places such as Ansbach in Germany or Trèbes in France. According to the Global Terrorism Index (2017), the year 2016 was the deadliest year for Europe in terms of terrorism in the post-9/11 era. There were 630 terrorist attacks with 826 victims. Since 2002, Turkey, France, Spain and the United Kingdom have suffered the most from terrorism, accounting for 67 per cent of attacks and 90 per cent of fatalities. More recently (2014-2017), the United Kingdom, Germany and France were the most affected countries. Overall, however, Turkey experienced the bulk of attacks, implying that the European Union is still a relatively safe place and civilians in the EU member states are hardly affected (only 40 per cent of the previously stated victims were civilians; cf. Global Terrorism Index, 2017).

It has been argued that the economic consequences of terrorism may be substantial, in particular by causing large direct and indirect costs which may range from the loss of human lives and the destruction of assets to reduced economic growth and life satisfaction. This chapter aims at evaluating the relevance of these costs and discussing appropriate strategies for fighting terrorism in the European context. First, we discuss how terrorism may produce economic damage and review some relevant empirical evidence. We argue that the direct costs of terrorism, i.e. the immediate costs from destruction (of human and physical capital), are usually lower than its indirect costs which are mostly a consequence of the reactions to terrorism of individuals (e.g., consumers, tourists, foreign investors) and institutions (e.g., government, agencies, firms) (Krieger, 2013). Typically, rational and risk-averse individuals tend to substitute away from potentially dangerous places and activities. For instance, additional security measures and the closing of tourist attractions add to a lower interest in visiting places where attacks have taken place.<sup>1</sup>

Second, we discuss the policy response to terrorism (counter-terrorism). We argue that the responses to terrorist events are hardly rational; instead, we usually observe a strongly biased reaction which implies an extraordinary “demand for security”. This demand results in transaction costs which further drive up the costs of terrorism. When evaluated in a rational cost-benefit comparison, the extent of counter-terrorism measures are affected *ceteris paribus* by the actual costs of terrorism. When terrorism appears to be increasingly threatening, the perceived cost of terrorism rises, thereby lowering the relative “price” of measures to fight it. Fear and assumed urgency shift decisions on counter-terrorism measures toward even higher levels of security, as well as to repressive rather than preventive measures. That is, state-of-emergency policies to secure public places and external borders against transnational terrorists very often appear to be the “natural” response to the terrorist threat, rather than introducing programs which ameliorate societal divides potentially underlying “homegrown terrorism”. Accordingly, we evaluate whether such “natural” responses are indeed meaningful in the fight against terrorism and discuss alternatives as well as complementary strategies.

Following this introduction, we first turn to the costs of terrorism from a theoretical perspective in Section 2 and explain which types of costs can be expected after a terrorist attack. In Section 3, we discuss empirical evidence on the costs of terrorism in Europe, and specifically the European Union.

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<sup>1</sup> For instance, after the terrorist attacks in Paris in 2015 the number of tourists went down significantly. Paris and the Île-de-France region saw 1.5 million fewer tourists in 2016 compared to 2015, resulting in a cost of 1.3 billion Euros or minus 6.1 per cent (Le Figaro, 2017).

Section 4 discusses counter-terrorism policies both in general and with a particular focus on Europe. Section 5 concludes.

## 2. The Costs of Terrorism: Theory

### 2.1 Economic Destabilization as a Goal of Terrorism

Following the widely used definition by Enders, Sandler and Gaibullov (2011: 321), terrorism can be seen as the “premeditated use or threat to use violence by individuals or subnational groups against non-combatants in order to obtain a political or social objective through the intimidation of a large audience beyond that of the immediate victims.” Broadly speaking, terrorism is a (short-run) tactic to achieve certain long-run political or social goals (e.g., for a left-wing terrorist group the redistribution of wealth and power or for a nationalist group gaining independence) which cannot be achieved in the regular, i.e. non-violent, political process.

The (in-)effectiveness of terrorism is an outcome of the terrorists’ strategic interaction with their enemies, i.e., governments and security forces. To improve their bargaining position in their strategic “game” with the government, terrorist organizations are expected to incur costs on affected countries. Indeed, Schelling (1991) argues that terrorist actions are means to achieve—besides media attention as a form of communication with the general public—economic and political destabilization.

Considering the case of *economic destabilization*, an attacked government ought to weigh the cost of giving in to (at least some of) the terrorists’ demands (i.e., the socio-political goals at stake) against the cost of a prolonged terrorist campaign that results from continued resistance by the government (Sandler and Enders 2008). When terrorists are successful at destabilizing an economy, the (opportunity<sup>2</sup>) costs of continued resistance increase, so that accommodating terrorists’ demands becomes comparatively less costly (i.e., more likely) from the government’s perspective.

### 2.2 Five Categories of Economic Costs

Terrorism may harm the economy directly and indirectly, where the latter is associated with the reaction of economic agents (e.g., consumers, foreign investors, governments) to terrorism. In detail, there are several transmission channels through which terrorism affects the economy, most prominently: destruction, disruption, diversion, dissaving and portfolio substitution.

First, *destruction* refers to the *direct* costs of terrorism. Through terrorism, human and physical capital are destroyed. Important models of economic growth, such as the Swan-Solow model (Solow 1956 Swan 1956), show that an economy’s output is a direct consequence of its capital stock; a larger capital stock allows an economy to produce more output. Consequently, when terrorism destroys this capital stock (e.g., by killing individuals that “carry” human capital or destroying buildings or infrastructure), economic output is expected to shrink.

The other effects refer to the *indirect* consequences of terrorism that emerge from the response of economic agents to terrorism. The *disruption* effect refers to the negative effects of terrorism on a country’s socio-economic life, i.e., the disruption of the socio-economic order. This disruption is expected to make economic transactions more difficult. For instance, terrorism may undermine social trust in public institutions (Arvanitidis, Economou and Kollias 2016). Sound institutions, however,

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<sup>2</sup> *Opportunity cost* is the cost of a foregone alternative. In case of economic destabilization of terrorism, not giving in to the terrorists’ demands may lead, e.g., to lower economic well-being due to continued interruptions of the economic life through terrorist attacks.

facilitate economic transactions through the costs of doing business (the so-called *transaction costs*); if trust in institutions decreases, this may increase transaction costs, leading to some economic transactions not materializing. For instance, given that terrorism creates uncertainty, it may consequently lead to the postponement of long-term investments (e.g., Bird et al. 2008); consistent with the Swan-Solow model, a reduction of investment (i.e., a smaller capital stock) would result in less output.

*Diversion* occurs when public resources are shifted from output-enhancing to non-productive expenditures. For instance, a government may increase spending on security at the expense of education and infrastructure expenditures. Such diversion may negatively impact future growth by, e.g., impeding the accumulation of (human) capital.

*Dissaving* refers to a decline in savings that affects an economy's capital stock. Again, a smaller capital stock (or a smaller rate of capital accumulation) is expected to result in reduced economic activity. For instance, terrorism may lead to dissaving when individuals weigh the decision of saving and consumption (not-saving) against each other; as terrorism reduces the likelihood of enjoying one's savings in the future, individuals may be less inclined to save and more inclined to consume (e.g., Naor 2015).

Finally, *portfolio substitution* refers to the flight of human, physical and financial capital during terrorist conflicts (e.g., Abadie and Gardeazabal 2008; Dreher et al. 2011). For instance, Abadie and Gardeazabal (2008) argue that terrorism negatively affects an economy's investment position since it poses a costly risk and reduces the returns to investment. A resulting withdrawal of capital may hurt economic development, particularly when foreign capital is an important engine of growth (e.g., in developing economies), substituting for poor domestic capital accumulation.

### 2.3 The Role of Psychological Effects

Economic performance may suffer through all of these five channels, particularly because they are expected to reinforce each other; for instance, a lack of private and public investment due to the disruption and diversion effects may further incentivize out-migration (i.e., the flight of human capital) due to a poor domestic economic outlook. Furthermore, psychological effects resulting from perceived insecurity due to terrorism may further increase terrorism's indirect economic costs.

Terrorism results in unfavorable (mass) psychological effects because of the nature of terrorist events. For one, it is highly unlikely to fall victim to terrorism; for instance, Naor (2006) notes that in 2002—during the height of the Second Intifada—less than 0.01% of the Israeli population (one hundredth of a percent) died due to terror activity, roughly as many as in traffic accidents. The risk of being affected by terrorism in Europe can be expected to be even much smaller. Still, one may nevertheless face extremely high individual costs if one gets involved in such an attack (e.g., losing one's life). Facing such low-probability but high-damage events, the human brain has difficulties correctly assessing the probability of terrorist attacks. The psychological mechanism explaining this effect is the so-called *probability neglect*, i.e., people focus their attention (too much) on the bad outcome despite its very low probability (Sunstein 2003). Instead, people tend to assess probabilities through the use of heuristics, i.e., they often make decisions based on approximate rules of thumb, not strict logic (Sunstein 2003).

A frequently employed heuristic in case of terrorist attacks is the so-called *availability heuristic*. Psychologically, people tend to assess the probability of an event by the ease with which occurrences can be imagined (Tversky and Kahneman 1974). The problem is that the retrievability of instances may be biased due to other factors such as salience and empathy. When trying to judge whether a specific event is likely to occur or not, individuals tend to overrate probabilities when similar (and recent)

occurrences are available and salient.<sup>3</sup> As – at least major – terrorist attacks are both available and salient, this may lead individuals to think that another such terrorist act is likely to occur.

Terrorists who understand this mechanism will exploit it through (unpredictable) attacks that make people increasingly fear that they “cannot be safe anywhere” (Sunstein 2003).<sup>4</sup> In addition, unpredictable and unexpected terrorist acts are particularly effective in increasing fear because people show a disproportionate fear of risks that seem unfamiliar and hard to control. As a consequence, it is not surprising that terrorist attacks may cause significant changes in the behavior of citizens and government alike. These changes are usually exaggerated when compared to the actual probability that a similar terrorist act could happen again. More specifically, when risk-averse individuals face a particularly fearsome event, they tend to exaggerate the benefits of preventive, risk-reducing or ameliorative measures (Sunstein and Zeckhauser 2011).<sup>5</sup> This also includes evasive reactions of people who try to avoid any risks (e.g., by changing their holiday destinations to places that are perceived more peaceful).

As a consequence of the unfavorable (mass) psychological effects of terrorism, individuals are willing to give up economic resources, political liberties as well as time (e.g., waiting time at security checks) to reduce or even entirely avoid the risk of future terrorist attacks. However, Krieger (2013) argues that the “price” (or “insurance premium”) they end up paying is usually too high when compared to the expected loss, i.e., the probability (which is extremely low) times the damage (usually very high) of a terrorist act. Typically, for other – less emotionally charged – negative events with the same expected (net) loss but relatively higher probability and smaller damage, the “willingness-to-pay” is much lower.

These mass psychological effects imply further indirect economic effects due to terrorism. For instance, the “demand for security”, i.e. the demand for “appropriate” policy measures, is particularly high after a terrorist attack – and governments usually respond to these demands quite willingly. According to Patt and Zeckhauser (2000) and Sunstein and Zeckhauser (2011), an overreaction by the government (the so-called “action bias”) is especially likely if the relevant actors will be able to obtain credit for responding to the risk. Not surprisingly, after terrorist attacks the public and policy responses are typically much larger than the actual risk warrants. Thus, the diversion of public resources to non-productive expenditures (to provide additional security demanded by the public) may be too high (compared to a rational policy response), further impeding economic activity.

### **3. The Costs of Terrorism: Empirical Evidence from Europe**

#### *3.1 Direct Costs*

In the European context, the direct costs of terrorism refer mostly to injuries or the loss of lives of victims (and the sorrow of relatives and friends). Some damage to infrastructure, vehicles and the like have occurred as well, but their extent is hardly comparable to those caused by the attacks of

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<sup>3</sup> This phenomenon is also well-known in other contexts, e.g. the perceived probability of developing cancer appears much higher when cancer has already occurred among friends or relatives.

<sup>4</sup> Kuran and Sunstein (1999) even call terrorists “availability entrepreneurs” because they systematically employ this strategy to increase fear.

<sup>5</sup> A famous example for such a behavioral response occurred after the 9/11 terrorist attacks in the US. While continuing to travel, people were too scared to use airplanes and therefore switched to cars. However, there is a relatively higher risk of dying in a car accident than through a terrorist act. Accordingly, there have been estimates of 327 additional driving deaths per month in late 2001 because people avoided flying (Blalock et al. 2009).

September 11, 2001, in the United States.<sup>6</sup> Estimating the direct costs is difficult because the individual suffering of victims, survivors and friends is hard to grasp economically. Adding up paid-out life and disability insurance contracts may constitute a lower bound of these costs, but not every victim has such an insurance. Economists prefer to use the “value of a statistical life” (VSL) (e.g. Viscusi and Aldy, 2003), which is calculated by asking people about their willingness to pay for small reductions in mortality risks (such as the risk of falling victim to a terrorist attack).<sup>7</sup> According to a recent meta-study by the OECD (2012), the range for the average adult VSL for the EU-27 is US-\$ 1.8-5.4 million (in 2005 US-\$), with a base value of US-\$ 3.6 million. That is, the VSL for the 130 killed victims of the Paris attacks on November 13, 2015, would amount to almost US-\$ 500 million (calculated at base value), not accounting for the almost 700 injured victims.<sup>8</sup>

### 3.2 Indirect Costs

Despite these large numbers, the indirect costs of terrorism (due to the disruption, diversion, dissaving and portfolio substitution effects), as argued above, are expected to matter more strongly (in the long run) to a country’s economic performance.

First, disruption – i.e., the disruption of the socio-economic order by terrorism – may matter. For instance, insurances against losses due to terrorist activity may become more expensive and additional security requirements generate substantial extra costs to firms.<sup>9</sup> As another example, disruption effects may negatively influence tourism in the EU. Major terrorist attacks (e.g., in the 2015 Paris attacks) may victimize (foreign) tourists; indeed, this is a desired outcome from the terrorists’ point of view as such an “internationalization of victims” tends to amplify the impact of terrorism (e.g., by multiplying media coverage). For the EU, however, we can expect the effect of terrorism on tourism to be generally minor. That is, such effects typically wear off after a while and are hardly observed when attacks are small and occur in resilient countries (including, e.g., Belgium, France and Germany; cf. World Economic Forum, 2017), which are believed by tourists to be able to handle this challenge. In 2017, for instance, the CFO of the French hotel group Accor SA stated that “people seem to be getting used to the current environment that we live in”, given that previous terrorist attacks in London, Stockholm, Berlin and on Paris’s Champs-Élysées “only had limited ripple effects” (Wall Street Journal, 2017). This was different after the 2015 terrorist attack in Paris that killed 130 people, when bookings at Accor SA fell in immediate response by 20 per cent.<sup>10</sup>

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<sup>6</sup> The 9/11 attacks resulted in, among others, the following costs: clean-up costs at Ground Zero (US-\$ 500 million); costs of rebuilding Ground Zero (US-\$ 21.8 billion); repairing the Pentagon (US-\$ 500 million); four lost airplanes (US-\$ 385 million) (CBS News, 2011).

<sup>7</sup> More specifically, the VSL represents “the value a given population places ex ante on avoiding the death of an unidentified individual. VSL is based on the sum of money each individual is prepared to pay for a given reduction in the risk of premature death, for example from diseases linked to air pollution. It is important to keep in mind that even if these mortality risk changes are not valued explicitly, they will still be valued implicitly through the policy decisions that are ultimately made” (OECD, 2012: 13).

<sup>8</sup> Note that these are not actual payments to victims, but a statistical approximation. The *September 11th Victim Compensation Fund* did actual payouts to the surviving families of 2880 victims (i.e., 98% of eligible families) of some US-\$ 2 million per victim (CNN, 2017).

<sup>9</sup> For instance, after the 9/11 attacks additional security measures at the U.S.-Canadian border delayed the flow of goods substantially. Simulations indicate that the annual amount of money Canada would gain if these delays were eliminated amounts to US-\$ 9.3 billion. The equivalent amount for the US is US-\$ 11.1 billion (Georges and Merette, 2012).

<sup>10</sup> A number of empirical studies have shown that there are substantial effects of terrorism on tourist flows in the Mediterranean countries, including some countries gaining from the problems of their neighbors, as some tourists substitute away from high-risk places toward low-risk locations (e.g., Drakos and Kutun, 2003; Enders and Sandler, 1991; Enders et al., 1992).



Second, more material to the economic effects of terrorism is its effect on diversion of public resources to the provision of security, where costs due to diversion are closely linked to the mass psychological effects of terrorism. As explained in the previous section, the disproportionate fear individuals tend to assign to unfamiliar and hard-to-control events leads to strong reactions. At the individual level, e.g., it has been observed that people chose not to fly after the 9/11 terrorist attacks, opting instead to travel by car. However, there is a relatively higher risk of dying in a car accident than through a terrorist act. Accordingly, there have been estimates of 327 additional driving deaths per month in the US in late 2001 because people avoided flying (Blalock et al., 2009). This is a terrorism-induced cost that is not directly visible. Similar “hidden” costs could occur in other (e.g., European) contexts as well because people tend to react in comparable ways to situations like this, in which the public is overly focused on a bad (but unlikely) outcome, leading to even more fear (Sunstein 2003).

A consequence of the mass psychological effects of terrorism is an extraordinary demand for security. Democratic governments interested in re-election are very likely to meet these demands, so that we expect the diversion effect to be prominent. Unfortunately, there is little precise information on public spending on counter-terrorism measures. For post-9/11 New York and the US, CBS News (2011) reports the following exemplary expenditures items: the cost to run the NYPD's counter-terrorism and intelligence activities for one year (US-\$ 192 million); the cost to operate the Department of Homeland Security since it was created in 2002 (US-\$ 408 billion); civilian and military intelligence gathering costs in 2010 (US-\$ 80.1 billion); minimum cost of 10 years' worth of U.S. airport security (US-\$ 43 billion). Similar trends in government spending can also be observed in European countries. According to Gaibullov and Sandler (2008), an additional terrorist event per 1 million inhabitants in a Western European country has led to an average increase of government expenditure by 0.17 percentage points.

The remaining two channels from terrorism to economic damage, dissaving and portfolio substitution do not play a major role when discussing the effects of terrorist events on European soil. Dissaving refers to a systematic decline in savings that affects an economy's capital stock. Typically, one observes this effect in countries with prolonged terrorist campaigns – in Europe, for example, in the Basque country or Northern Ireland – where due to the continuous terrorist threat and the resulting immediate uncertainty of what the future will bring people prefer to consume today rather than save for tomorrow's consumption. Portfolio substitution means the flight of human, physical and financial capital from a country in the face of conflict. These effects have not been observed recently in Europe.

### 3.3 Total Socio-Economic Costs

Given the previous discussion, we may expect terrorism to hurt macroeconomic performance (economic growth, investment etc.) in Western Europe via the disruption and particularly the diversion effects. Indeed, Gaibullov and Sandler (2008) show that terrorism has impaired economic growth for 18 Western European countries during the 1971-2004 period. They find that on average growth of GDP per capita is 0.2 percentage points and investments 0.33 percentage points lower for each additional terrorist attack per one million inhabitants. There is further evidence that terrorism caused reduced inflows of foreign direct investment into EU member states in the past (Enders and Sandler, 1996, show this, e.g., for Greece and Spain).<sup>11</sup> According to a simulation study by Abadie and Gardeazabal (2003), the growth rate of GDP per capita in the Basque country would have been 10 per cent higher without the terrorist activity by mainly the *Euskadi Ta Askatasuna* (ETA). For another part of Europe strongly affected by terrorism, Northern Ireland, Fielding (2003) similarly shows that manufacturing

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<sup>11</sup> Note that „foreign direct investment“ refers to long-term capital investments, not inflows of short-term financial capital to buy, e.g., stocks and bonds. The first reaction to many major terrorist attacks is to withdraw this kind of capital from local capital markets.

investment and employment are sensitive to variations in violent conflict, with more terrorist violence resulting in less investment and employment.

Besides such macroeconomic indicators (e.g., growth and employment rates), there exist further measures of personal well-being that help us gauge terrorism's socio-economic costs. For example, Frey et al. (2009) propose using the life-satisfaction approach (LSA) in the context of terrorism, in which reported subjective well-being serves as an empirically adequate and valid approximation for individually experienced welfare. The LSA suggests that the reduction in life satisfaction due to terrorism can be given a monetary expression, allowing for the valuation of the social costs of terrorism (Farzanegan et al., 2017). Frey et al. (2009) provide case-study evidence for France and the United Kingdom, showing that terrorism indeed reduces life satisfaction and that individuals living in terror-prone regions (e.g., Northern Ireland) are willing to sacrifice up to 26 per cent of their annual income for an elimination of terrorism. There are two channels which explain this effect. For one, terrorism may reduce life satisfaction by impairing economic activity (as argued above); indeed, Di Tella et al. (2003) show that macroeconomic instability (in the form of, e.g., slower economic growth) lowers life satisfaction. For another, terrorism also reduces life satisfaction by imposing substantial psychological costs on the inhabitants of affected countries. Psychological studies have repeatedly found that terrorism produces fear and (posttraumatic) stress not only for those directly affected by terrorism but also for a larger audience (Friedland and Merari 1985; Silver et al. 2002).

While these economic cost factors may still appear to be manageable for a society, there are also political costs which can be highly problematic for any democratic society. Fear makes people willing to give up not only (economic) resources, but also civil liberties to reduce or even entirely avoid the risk of future terrorist attacks. For instance, in 2002 almost half of all respondents to a survey declared that "the government should take all steps necessary to prevent additional acts of terrorism in the U.S. even if it means [my] basic civil liberties would be violated"; in 2015, this statement was still approved by 30 per cent of all Americans (Gallup, 2018). For the UK after the terrorist bombings of July 7, 2005, Bozzoli and Müller (2011) find a steep increase in the perceived risk of further terrorist attacks and the average willingness to trade liberties for security. The willingness remained high even after the perception of risks went down. According to Viscusi and Zeckhauser's (2003) survey analysis, a ten-minute delay due to a random screening of all passengers at the airport will already result in almost half of the respondents favoring a targeted risk profiling based on – most often salient – demographic characteristics (such as a person's age, race, gender, national origin, appearance and baggage). This means that they are willing to accept that such targeting may "systematically impose differential costs on particular groups within the population" (Viscusi and Zeckhauser 2003: 103). The effective cost of a measure like this on individuals and society as a whole is almost impossible to estimate in monetary terms. However, several studies have shown that civil liberties and political rights are positively correlated with economic growth (Aixalá and Fabro, 2009). Thus, constraining these rights is certainly inadvisable from both a social and an economic point of view due to the high costs that such government reactions to the threat of terrorism produce (Dreher et al., 2010; Piazza and Walsh, 2010).

### *3.4 Qualifications*

In general, some negative economic effects of terrorism have indeed materialized in Western Europe. There are direct effects on the economy through a loss of life (human capital) and the destruction of physical capital. Indirectly, terrorism hurts European economies through the disruption and especially the diversion channel. The indirect economic consequences of terrorism are compounded by the adverse mass psychological effects of terrorism and its political costs.

However, the strength of terrorism's effects on the economy should not be overestimated, especially when comparing the EU experience with terrorism with other parts of the world (e.g., Latin America).

For instance, Meierrieks and Gries (2013) show that terrorism has had a particularly negative effect on countries in Sub-Saharan Africa and the Islamic World, while its effects in Europe have been less pronounced. A number of factors inoculate the EU economies to the adverse effects of terrorism (at least to a large extent). First, while we have seen a relative increase in (smaller) terrorist events in some countries (e.g., France and the UK), we are still far from seeing massive terrorist campaigns. Therefore, the immediate (direct) economic costs remain relatively low. Furthermore, the indirect costs of terrorism scale with the magnitude and duration of a terrorist campaign (Sandler and Enders 2008). Second, markets and institutions<sup>12</sup> in the EU are comparatively strong. For one, this makes it harder for terrorist attacks to undermine social trust, as shown by Arvanitidis, Economou and Kollias (2016) for a number of recent terrorist attacks in Europe; when terrorism does not disrupt social trust, it is also less likely to induce economic costs because it is then less likely to affect transaction costs. For another, strong markets and institutions boost consumer and investor confidence and thus limit overreactions by economic agents to terrorist attacks. That is, when a country targeted by terrorism is known to have strong political, legal and economic institutions, consumers and investors are less likely to fear losing their savings or capital. This explains why stock prices, as a measure of expected future earnings of firms, have recovered quickly even after severe terrorist attacks in Europe (Kollias et al. 2011). Third, Western European economies are substantially diversified, meaning that terrorist attacks that hurt a specific economic sector (e.g., tourism) are less likely to produce larger macroeconomic repercussions. Rather, in diversified economies economic activity is expected to simply move from a vulnerable sector to relatively safe sectors (Sandler and Enders 2008).

Given our review of the evidence and the caveats voiced above, terrorism is therefore most likely to negatively affect the economies of Europe when (i) campaigns are prolonged and severe (as, e.g., in the Basque country or Northern Ireland), (ii) public investment overemphasizes security, crowding out private investment and public investment into more productive ventures and (iii) when economies (in specific parts of a country) are strongly geared towards terrorism-prone economic sectors such as tourism.

#### **4. Counter-Terrorism Policies and the International Policy Coordination Challenge**

Economists use rational-choice theory (RCT) as a starting point to model the behavior of terrorists and terrorist organizations. They assume terrorists to be rational, committing terrorist violence to maximize their utility, given certain benefits, costs and constraints that are linked to these actions (Sandler and Enders, 2004; Krieger and Meierrieks, 2011). The utility-maximizing level of terrorism conducted by rational terrorists and – in the aggregate – terrorist groups corresponds to the level of terrorism at which the marginal costs equal the marginal benefits of terrorism. Benefits from terrorism arise from obtaining the tactical and strategic goals of terrorism; e.g., such benefits include, in the short run, economic destabilization that weakens their enemy (the government) and, in the long run, government concessions. The costs of terrorism are, e.g., linked to the use of resources<sup>13</sup> and to the opportunity costs of violent behavior. From terrorists' cost-benefit matrices (together with other exogenous constraints) a *relative price of terrorism* can be derived. External political, economic and

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<sup>12</sup> Such institutions include, e.g., democratic governments that are aided by a functioning bureaucracy, so as to implement sound monetary and fiscal policies (e.g., reduction of interest rates, economic stimulus packages) after a terrorist attack has occurred (Sandler and Enders 2008).

<sup>13</sup> The costs of running a terrorist campaign are typically low. Recent estimates indicate that the perpetrators of the January 2015 attacks in Paris (Charlie Hebdo) spent a combined total of €26.000. The November 13, 2015, Paris attacks (Bataclan) cost the radical Islamists a total of €82.000, and the Nice attack July 14, 2016, no more than €2.500 (CAT 2016).

institutional factors affect the cost-benefit matrix through changes of this relative price; ultimately, the relative price determines both the decision to become active as a terrorist and the scope of activities.

Based on this reasoning, Frey (2004) – in his *stick-vs-carrot* approach – argues that counter-terrorism policies should mainly be concerned with changing the (opportunity) costs and benefits of terrorism as to raise its relative price.<sup>14</sup> While the original approach treats equally repressive (*stick*) and preventive (*carrot*) counter-terrorism measures, the previous discussion of the mass psychological effects of terrorism (i.e., its effects on the public “mind”) has shown that citizens typically demand an immediate government reaction to a terrorist attack. Because of this, governments tend to respond with “traditional” counter-terrorism policies which try to reduce the (perceived or real) terrorist threat by increasing the direct costs of terrorism through, e.g., increased security controls at prominent locations potentially targeted by terrorists or legal and extra-legal intelligence measures. The major benefit of this (*stick*) strategy is that it may indeed interrupt the planning and execution of future terrorist attacks (Krieger and Meierrieks, 2017). This eases the situation and is therefore in the immediate interest of politicians, the public and security forces. However, this approach also entails important problems. Most importantly, it does not remove the root causes of terrorism. Suppressing terrorist activities may increase the pressure under the surface, possibly causing an eruption of violence at some later point in time. Thus, though widely supported, a suppressive approach is most likely not a sustainable strategy against terrorism in the long run. In addition, in their effort to produce quickly promising counter-terrorism measures, legislators are often lax with respect to civil and human rights or international law. Since citizens will accept restrictions of their rights in extreme situations such as the aftermath of terrorist attacks, security forces and (military) intelligence tend to use this window of opportunity to push through far-reaching regulations, which often go beyond the issue at stake (e.g., Krieger and Meierrieks, 2013). These legal and institutional changes may prove to be irrevocable, causing high political, economic and social costs even in the long run (Krieger, 2013).

Besides fighting terrorists directly through traditional counter-terrorism policies, an alternative strategy could be to interrupt the genesis of terrorism by making terrorism an unattractive option for potential dissidents. Here, the most relevant (*carrot*) approach is to raise terrorism’s opportunity costs, which may make it more difficult for terrorist groups to recruit new members.<sup>15</sup> That is, when socio-economic grievances (e.g., poverty, inequality) are small, socio-demographic strain (e.g., youth unemployment) is negligible and/or politico-institutional conditions (e.g., a democratic system that favors non-violent political participation) are favorable, the interest in terrorism and the willingness to give up one’s “normal” life and become a terrorist are typically low. For instance, Roy (2004) argues that the recent rise of homegrown Islamist terrorism in many European countries follows from a specific combination of individual traits (e.g., low self-esteem) and environmental influences (e.g., poor socio-economic conditions, labor-market discrimination) causing radicalization. Krieger and Meierrieks (2010) show that social policies in Western European countries reduce (domestic) terrorist activities if targeted at the socio-economic environment of “typical” terrorists and their supporters. Suitable social policies include health care spending and labor market mobilization, which are perceived as offering better perspectives for potential terrorists. Hence, counter-terrorism policies

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<sup>14</sup> Krieger and Meierrieks (2017) provide a systematic taxonomy of counter-terrorism measures derived from this approach.

<sup>15</sup> At least from a theoretical perspective, one may as well try to reduce the expected benefits from terrorism. Here, it is possible to make it more difficult for terrorists to achieve their tactical (or short-run) goals, e.g., by increasing the resilience of the political and economic system (so that destabilizing the polity and the economy becomes more difficult). Another promising strategy is to undermine the terrorists’ belief system, so that, e.g., religious authorities express their doubts about, say, other-worldly rewards for martyrs who kill innocent victims in a suicide mission.

may focus on improving those socio-demographic and politico-institutional factors that have been shown to be particularly influential with respect to the genesis of terrorism.<sup>16</sup>

Since the success of these measure shows, however, only in the long run, these policies are not overly popular among the public, policy-makers and the security forces. Even worse, there is a systematic bias in favor of policies that increase the direct rather than indirect costs of terrorism. This may lead to a vicious circle: Since citizens demand an immediate increase of security, politics responds by providing additional repressive counter-terrorism measures, thereby especially raising public expenditures on the security forces. From an economic perspective, security forces are a services industry. The main characteristic of services is that they are consumed in the very same moment in which they are produced. This implies that security can be provided only as long as money is spent on it. Hence, spending on security resembles consumption expenditure rather than investment. Since public budgets are typically tight (in particular in Europe in the aftermath of the financial crisis), either public debt has to be increased or government spending shifts from investments (which is usually the only really flexible position in the budget plan) to public consumption which is neither productive nor sustainable in the long run. Even worse, if spending shifts from education and infrastructure toward security, future welfare gains will be reduced or even turn negative. Possibly, social expenditures may also be cut to finance security and, arguably, an ever-increasing security bureaucracy (like the Department of Homeland Security in the US), which may be detrimental to human rights and economic growth and is not revoked even if the threat of terrorism decreases. All of these developments have the unfortunate potential to further foster terrorism.

Many of these developments can be seen – to a greater or lesser degree – in many member states of the European Union. There is, however, another layer of challenges resulting from the supranational design of this entity. By definition, transnational terrorism involves more than one country, implying the need for international coordination through an appropriate international legal framework. If European law fails to internalize terrorism and counterterrorism spillovers between member states, overall European welfare is unlikely to be maximized. However, international coordination is a difficult task, given the risk of a prisoner's dilemma (Brück et al., 2015).

According to Lee (1988), two effects can arise from a unilateral counter-terrorism measure. First, a country fighting an internationally-oriented terrorist group with repressive domestic counter-terrorism measures may simply drive the group to another country (if the group can achieve its goals there as well). That is, a terrorist group will – perfectly rationally – search for the weakest link on the international counter-terrorism map (Sandler and Enders, 2004). This resembles a classic externality problem, in which the (social) costs of unilateral policy measures are too high from a global perspective because each country fails to internalize the (negative) external effects on its neighbors. International policy coordination, such as setting the same legal standards and conducting analogous counter-terrorism measures everywhere, might help to resolve this problem. This may, however, come at a price when uninvolved countries are pressured to sign international agreements that go against their national interests, at least those that would prevail if they were not exposed to terrorism diverted from another country. Furthermore, changes to international law also have distributional effects. The country that was initially targeted by the terrorists will be able to shift some of the costs of counter-terrorism measures to otherwise uninvolved countries.

Second, domestic counter-terrorism measures need not always have this problematic negative effect. In fact, they could also have the opposite effect, namely to weaken a terrorist group so much that it

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<sup>16</sup> On the contrary, if these conditions are less favorable, one would expect more terrorism. For a debate on whether the financial crisis and the (allegedly) subsequent austerity policy in Europe over the last decade has caused homegrown terrorism in France and Belgium, see Dold and Krieger (2017).

no longer poses a threat to any country, or to discourage followers in other countries. The successful police actions against the perpetrators of Paris and their clandestine networks in France and Belgium may have reduced the number imitators elsewhere in Europe. In this case, one country's activities cause a positive externality on its neighbors. Following again the classic externality argument, we would expect too low a (unilateral) level of counter-terrorism measures from a global perspective. Not only does the active country (say, France) provide too little effort in this respect, but other countries may try to free-ride on the active country's measures by providing hardly any activities themselves. Such a situation again calls for international policy coordination, with all (potentially) targeted countries agreeing on how to share the costs of counter-terrorism measures. However, effective coordination in cases of terrorism is difficult even in the European Union with its relatively close ties between national authorities. For one, countries do not like to give up national sovereignty or even share information in the sensitive field of national security (think of the UK as part of the "Five Eyes" intelligence alliance with Australia, Canada, New Zealand, and the United States). For another, any countries that support weakest link countries will see their own relative security levels fall, which is hardly in their interest. Hence, the unilateral implications of traditional cost-raising counterterrorism policies against the threat of international terrorism may be counterproductive without international policy coordination.

Whenever cross-border externalities matter, coordination failure in the form of a prisoner's dilemma is a likely outcome. Typically, even EU member states will have some incentives not to cooperate. With negative externalities, a reasonable strategy is to unilaterally divert terrorism into other countries and thus improve security at home. At the same time, not improving security while other countries do would result in an influx of terrorist activity. Irrespective of other countries' counter-terrorism policies, improving homeland security is the dominant strategy for any country. However, there is no upper limit to this strategy, meaning that an international "arms race" may result, which can entail, e.g., excessive restrictions on civil rights. With positive externalities, free-riding on other countries' counter-terrorism measures is likely a dominant strategy, resulting in sub-optimal protection against international terrorism. European law and institutions are shaped by these problematic incentives and therefore unlikely to be optimal in welfare terms.

Interestingly, this unsatisfactory picture also applies to European policy measures at the EU external borders or outside the EU, which are often considered as means to reduce the inflow of transnational terrorists. Neither can the EU agree on effective border enforcement to keep potential terrorists out of the Union (Mayr et al., 2012), nor are terrorism-producing countries (e.g., in the MENA region) sufficiently supported with external advice and financial aid to change the conditions that breed terrorism. Providing support unilaterally, e.g., by giving foreign aid, means that the supporting country produces a public good for the international community by contributing to a reduction in terrorist activities everywhere. This again leads to a prisoner's dilemma situation because each country's dominant strategy is to abstain from giving foreign aid. By free-riding on other countries' expenses, governments wait for other countries with a strong interest in fighting terrorism to give aid.

## **5. Conclusion**

The aim of this chapter was to provide an economist's perspective on the terrorism challenge to the member states of the European Union. We have argued that terrorism may indeed result in economic costs. Besides the direct costs caused by a terrorist attack itself, indirect costs resulting from behavioral changes of individuals and institutions (i.e., the government) are particularly relevant for affected countries. Here, the mass psychological effects of terrorism tend to amplify its negative effects, e.g., as the public demands and democratic governments provide "excessive" counter-terrorism spending

that crowds out more productive public investment. Often, there are complex causal chains and interaction effects associated with terrorism, leading to specific (sometimes unforeseen) socio-economic costs. For instance, restrictions to political rights and civil liberties that are implemented in the hope of preventing terrorism, may increase transaction costs and disincentivize business activities, ultimately causing economic slowdown. How strong these effects reduce growth is difficult to predict. Arguably, however, we expect terrorism to produce the most adverse economic effects when (i) a terrorist campaign is long and severe – which we observed in the Basque country or Northern Ireland, but not in the context of recent Islamist terrorist attacks in Europe – and (ii) terrorism is directed against especially vulnerable economic sectors (tourism) and aimed at economies with weak markets, unsound institutions and low levels of economic diversification, which is generally not the case for EU members, especially in comparison to many emerging and developing economies. Thus, while terrorism may indeed incur economic costs also in Europe, such costs tend to be comparatively small and short-lived, mainly stemming from public and policy responses to terrorism rather than terrorism's direct costs.

Two important policy implications can be derived from our exercise. First, individuals' behavioral predispositions typically result in a biased perception of the risk of terrorism. This leads to too high a demand for counter-terrorism measures relative to what the objective probability of terrorist events suggests. Furthermore, this results in a tendency to favor repressive over preventive measures against terrorism. The public discourse in most European countries is predominantly about additional security measures and stricter criminal laws, and far less about, e.g., social or anti-discrimination policies that may help to prevent young people from turning towards extremism. Both types of counter-terrorism, however, have their merits and should be pursued. Second, uncoordinated European policies against terrorism – defined both narrowly (e.g., security forces, criminal laws) and widely (e.g., border enforcement, foreign aid to terrorism-exporting countries) – have the potential to undermine the effectiveness of counter-terrorism measures and reduce legal standards on civil rights. If there is a justification for the existence of the European Union (which an increasing number of populist parties in Europe seems to doubt), then it is to provide supranational answers to coordination failure resulting from cross-border spillovers. This would require, however, closer, democratically legitimized coordination between member states and less national egoism on these issues.

Overall, terrorism clearly poses a challenge to the European Union and the rest of Europe. However, one needs to be very clear that terrorist attacks themselves are only one part of this challenge; the other major challenge results from the problematic individual and institutional responses in the member states and in Brussels. The present chapter attempted to clarify this challenge and to caution policy-makers to keep a close eye on the biases that underlie their decision-making.

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