

Chapter 5

Economic Costs of Terrorism and Costs of Counter-Terrorism Measures

5.1 Introduction

TARGET countries incur two types of costs associated with terrorism: ① The cost of the adverse consequences of terror attacks—which will be called the *economic cost of terrorism*. ② The cost of counter-terror measures.

It is natural to ask, how much damage do the terror attacks cause to an economy and a society in a monetary unit? What is the socio-economic cost of terrorism? The questions look simple, but the answers are not. There are inherent difficulties. First, *what are the cost items to be included?* Obviously, one should include the cost of properties damaged and the values of lives lost and injuries. But there are indirect costs like the adverse impact of terror attacks on the local or national economy. One may also want to include the cost of increased security apparatus a government deploys in the aftermath of terror attacks. Second, *how much value to ascribe to or what would be the price tag on items to be included* like injuries, death, health services offered, and business losses? Third, there are impacts of terrorism that are hard to measure and thus hard to evaluate—the loss of civil liberty due to security restrictions, mental suffering of families of the deceased, and public fear and anxiety caused from terror attacks.

In principle, we can distinguish three types economic costs of terrorism in terms of time horizon: short term, medium term, and long term. In each type, we can think of direct and indirect costs. Buesa et al. (2007) explain this nicely.

Short-Term Costs Short-term *direct costs* are associated with the immediate consequence of terror attacks. It includes the costs of loss of lives, loss of private property and public infrastructure, delays and interruptions, attending to injuries, removing debris, etc. Short-term *indirect costs* address the disruptions caused to an economy. An example will be the losses by the tourism-affected industries like hotel and restaurant businesses.

Medium and Long-Term Costs Rehabilitation of the affected areas is a cost of this type. For instance, the destruction of the World Trade Center buildings in 9/11 attacks led to a newly designed ground-zero structure. Another example is disability pensions for severely injured survivors. These are direct costs. But the bulk of medium- and long-term costs of terrorism are indirect. Examples would include new permanent security systems against the conventional as well as non-conventional attacks with the help of biological and possibly nuclear weapons, resource cost of counter-terrorism units, reduction in an economy's growth rate and foreign direct investment, and so on. Needless to say, valuing medium and long-term costs are fraught with measurement issues.¹

The preceding discussion has two implications. First, *the cost estimates are bound to have high variance*. Studies trying to assess the cost of the September 11 attack provide estimates ranging from \$35 billion to \$109 trillion. This is *not* to say that the estimates are inconsistent *per se*, because different items are included or excluded in different studies and their valuations may somewhat differ. Even if we limit ourselves to direct short-run costs, the variability can be considerable. For instance, a bio-terrorist attack could be delivered using a poison, virus, or bacteria, each of which would have varying degrees of damage. According to Institute for Economics & Peace (2014b), the estimated economic cost of such an attack could range from \$477.7 million to \$26.2 billion for every 100,000 persons exposed. Second, *estimating indirect costs associated with the loss of civil liberty, mental suffering of the families of the deceased and public fear and anxiety that terror attacks cause are very difficult to quantify*. Terrorism also leads to change of behavior that can have costs too. For instance, 9/11 attacks led to an increased fear of flying as well as loss of time due to more intense security checks at airports, which, in turn, led to more travel by road, causing more accidents (Blalock et al., 2009). Most estimates of terrorism costs simply ignore these. Hence, *the estimates presented in this chapter are to be regarded as lower bounds of the true cost of damage from terror*.

Section 5.2 lists costs of some specific, high-profile terror attacks. There are estimates available for all terror attacks combined for various countries and the world as a whole for different years. These are discussed in Sect. 5.3. In order to deter terrorist attacks, potential target countries incur costs of security, intelligence, regulations, assistance to foreign countries as well as cost of attacking terrorists, their leaders, terror camps, etc. An account of the *direct* costs of counter-terror measures is included in Sect. 5.4.

¹ Sometimes it is not easy to draw a line between direct and indirect costs of terrorism. For instance, should we consider increased security costs as direct or indirect?

5.2 Costs of Specific Attacks

5.2.1 9/11 Attacks

Various estimates of costs associated with 9/11 attacks are available. A little over a month after the attacks, Gary Becker and Kevin Murphy wrote a piece in the *Wall Street Journal* (Becker & Murphy, 2001), which stated that capital equipment (including the value of planes lost) and property damages from the attacks amounted to \$13 to \$14 billion, equal to about 0.05% of the value of total physical assets in the USA. If we include the productivity of the individuals killed, the loss was between \$25 to \$60 billion, whereas the upper limit is 0.06% of the total productive assets of the US economy at the time. The authors viewed that, generally, advanced countries rebound from natural disasters rather quickly. Thus, “prosperities will rise out of the ashes” [from the 9/11 losses].

Navaro and Spencer (2001) provided an early yet detailed estimates of losses from 9/11 attacks. They valued property damages between \$10 and \$13 billion (close to Becker and Murphy’s).² Apart from physical damages, \$6.67 million was taken as the average value of a human life lost in the 9/11 attacks. The box below outlines a simple back-of-the-envelope method of calculating the value of human life.

Calculating the Value of Human Life

Suppose an individual decides to cross a busy road in order to save two minutes. If he/she earns \$120 an hour, then two minutes of his time are worth $\$120/30 = \4 . If the chance of getting killed while crossing the street is say 1 in 1 million, then choice of the crossing the road amounts to preferring \$4 over the value of life divided by one million. Hence the value of life cannot exceed $\$4 \times 1 \text{ million} = \4 million . We can thus consider \$4 million as the value of human life.

The amount \$6.67 million was reached on the basis of similar calculations, accounting for the fact that people who lost their lives in New York were more highly educated and had higher income than the national average. Hence 3000 fatalities translate into $\$6.67 \times 30,000 = \20 billion .^{3,4} Adding this to the earlier total of \$10 and \$13 billion, the value of physical and human capital loss then ranges from \$30 and \$33 billion.⁵

Compared to Navaro and Spencer (2001), others have included additional sources of loss and arrived at higher estimates. Kunreuther et al. (2003)’s estimates of losses due to 9/11 attacks equal \$80 billion—which takes into account workers’ compensation lost, values of commercial properties destroyed, business

² Between 50–60% of this figure is attributed to the loss of World Trade Center buildings (\$3 to \$4.5 billion) and office equipment and software (\$3.2 billion). See the authors’ Table 2.

³ See (Enders & Sandler, 2012, Chapter 10).

⁴ At the time of their writing, Navaro and Spencer (2001) did not have a precise estimate of fatalities. They assumed that it was \$6000, and hence the total value of lives lost was placed at \$40 billion.

⁵ This is less than the estimate obtained by Becker and Murphy (2001).

interruptions, aircraft hull, health, and disability effects, etc. According to Rose et al. (2009), the attacks on the World Trade Center directly entailed business disruption costs amounting to \$19.8 billion and relocation costs of \$5.3 billion. Indirect costs of these attacks in terms of air travel and other related travel were \$35.3 billion and \$55.9 billion, respectively. All these estimates are in 2006 dollars.

Institute for Economics & Peace (2014b) notes that fatalities and infrastructure damage from the 9/11 attack on the World Trade Center cost \$55 billion in New York alone, while secondary effects such as increased security and decreased economic activity cost respectively \$589 billion and \$123 billion. Insurance premiums on large structures increased considerably. For instance, the annual insurance premiums on Chicago's O'Hare airport surged from \$125,000 to \$6.9 million while its insurance coverage for terrorism declined from \$750 million to \$150 million per year.^{6,7}

Although estimates vary widely, the overall impact of the 9/11 attacks on the GDP of the USA is rather small, less than one percent.

However, in their web-interactive piece, Carter and Cox (2011) arrive at a much higher number: The total estimated costs of the 9/11 attacks are nearly \$3.3 trillion. These are in 2011 dollars, translating into roughly 3 trillion 2006 dollars.⁸ This figure includes long-term indirect costs like expenditures on homeland security and intelligence, subsequent wars in Iraq and Afghanistan, etc. Out of this total, the costs of lives lost, injuries, and property damages and economic impacts like business disruption, reduced air travel, and event cancellations were estimated at 178 billion in 2011 dollars (thus 159 billion 2006 dollars).⁹

5.2.2 Madrid Commuter Train Bombing in 2004

Direct costs of train bombings on March 11, 2004 in Madrid have been estimated by Buesa et al. (2007). They amount to €211 million, roughly 0.03% of Spain's GDP at the time.

The authors clearly state their methodology and items included in estimating various components. Costs are based on the number of people killed and injured, number of people mobilized to help the victims, resources used as well as damage to property and railways infrastructure. Quantities are estimated from official and

⁶ The insurance-value losses of World Trade Center and Pentagon buildings were \$22.7 billion. See Enders and Sandler (2012, Chapter 10).

⁷ Following the 9/11 attacks, reduction in coverage for damage due to terror attacks was feared to cause lending problems. As a result, the USA passed the Terrorism Insurance Act in 2002, which created a temporary federal program. The Act provided a risk-sharing mechanism between the Federal government and to the insurance industry to share losses in the event of major terror attacks on business infrastructures. It has been periodically extended ever since. The latest is the Terrorism Risk Insurance Program Reauthorization Act of 2015, which places the end of 2020 as the expiration date of this insurance program.

⁸ This conversion is based on consumer price index being 11.58% higher in 2011 than in 2006, according to the Bureau of Labor Statistics.

⁹ Another estimate due to Riedel (2011) places the cost of property damage in New York and Washington alone at about 100 billion and cumulative economic cost to the global economy at 2 trillion, both in 2011 dollars.

journalistic sources. The evaluation of damages and compensations accords with scales stipulated by the Ministry of Interior. As an example of the comprehensiveness of their coverage of direct costs, there was a massive demonstration by 2.3 million people in Madrid (against these attacks) a day after the attacks (March 12, 2004). The authors estimated that among 2.3 million present, about one million were employed. At the rate of €60 per one employed person, the total opportunity cost of these individuals was valued at €57.36 million. A summary of various types of direct costs is given in Table 5.1.

It is clear from our discussion on 9/11 and Madrid terror attacks that

Is That So? 5.1: Economic Cost of Large-Scale Terror Attacks

As percentage of GDP, large-scale individual terror attacks have caused small direct losses.

Cost item	Cost in million €
Rescue and initial care of the victims cost, based on detailed accounts of various resources used and their costs like police, firemen, vehicles, administrators, health professionals, etc.	2.18
Health care of the injured	5.15
Cost of compensation to the victims	134.12
Loss of wages of the injured in the attacks	2.37
Damages in infrastructure and houses	5.27
Performing autopsies and identification of victims cost	0.18
Psychological support for the victims	4.9
Opportunity cost of employed people who took part in the demonstration	57.36
Total	211

Table 5.1: Components of direct cost of March 11, 2004 Madrid train bombings.

Source: Buesa et al. (2007, Table 11); permission to reproduce by the Taylor & Francis Group is thankfully acknowledged.

5.3 Country-Wise and Global Cost of Terrorism

Considering all recorded terror events within a country during a year, the Institute of Economics and Peace (IEP) publishes the annual costs of terrorism for selected countries as well as for some regions and the entire world. This is useful for comparing economic burden of terrorism across countries as well as the burden for the same country over time.

5.3.1 IEP's Methodology

It uses the number of deaths and injuries and valuation of properties destroyed associated with all recorded terror attacks within a year. In addition, if the number of deaths from all attacks within a year exceeds 1000, then a macro economic cost is included. The information on death, injury, and property damage is obtained from GTD. The unit costs of death and injury due to terrorism are proxied by those of homicides and aggravated assault, which are sourced from McCollister et al. (2010).¹⁰ To account for the income differences across countries, the unit costs are scaled on the basis of the country's Purchasing Power Parity (PPP) GDP per capita, relative to the source of the unit costs (see Institute for Economics & Peace, 2014a, 2016b).¹¹ For instance, a country with a PPP GDP per capita equal to 26% of the US per capita GDP would have a homicide unit cost equal to 26% of the US homicide unit cost. If the costs are to be expressed in prices of a year different from 2008, the corresponding rate of inflation in the USA for that year relative to 2008 is factored in.

Evaluating property damages is more involved.¹² Global estimates are obtained by aggregating the costs across countries. IEP's calculations include direct costs that are quantifiable and leave out the indirect costs of terrorism, except for significant GDP costs. Hence the estimates are conservative and should be regarded as lower bounds of true costs associated with terrorism. The advantage of IEP's methodology is that the estimates are comparable across countries and time.

¹⁰ The cost of one death is \$8,888,692 and that of one injury is \$120,622, both at 2008 dollars for the USA. These are a bit different from the numbers in McCollister et al. (2010), as they are adjusted for terrorism-related death and injury, as opposed to other forms of violence.

¹¹ PPP per-capita GDP is based on PPP-adjusted exchange rate. Purchasing power parity compares the cost of a common representative basket of goods across a pair of countries. If, say, in the USA it is \$100 and in Japan it costs ¥8000, then the PPP-adjusted exchange is \$1 = ¥80. (The costs of the representative basket of goods may be imputed from the respective consumer price index.) This is the different from the nominal exchange rate between two currencies that is based on daily trade in the world currency market and thus can vary daily. There are some common factors affecting the two exchange rates, but there are different factors as well.

¹² GTD categorizes terror events into four types: minor, major, catastrophic, and unknown. For the unknown category, property damages are assumed to be zero. For events with available reported costs of property damage, the figures are converted to the US dollars. Those associated property damage costs less than \$1 million, between \$1 million and \$1 billion and higher than \$1 billion are defined as minor, major, and catastrophic, respectively. The GTD dataset also contains information on the tactics used in terror events like bombing/explosion, armed assault, hijacking etc., and, the cost of property damage from some, not all, terror events during a year. From this information, IEP calculates, for each country, the average cost of property damage for each tactic and for each of the three aforementioned categories (minor, major, and catastrophic). These averages are applied for all terror events in terms of tactic whether or not property damage estimates associated with them are available, and, then summed over all events. Next, they are scaled on the basis of the income type of the country: high-income OECD, high-income non-OECD, upper middle income, and lower income country groups (Institute for Economics & Peace, 2016b).

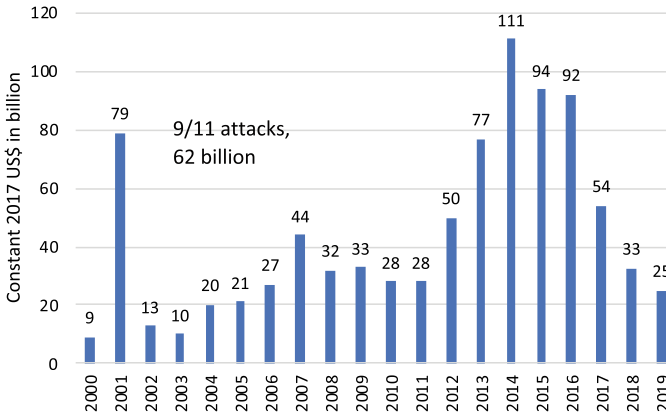


Fig. 5.1: Estimates of economic cost of terrorism: global, 2000–2019.

Sources: Institute for Economics & Peace (2019, Figure 1.6), Institute for Economics & Peace (2020b, Table 2.1); permission to reproduce from IEP is thankfully acknowledged

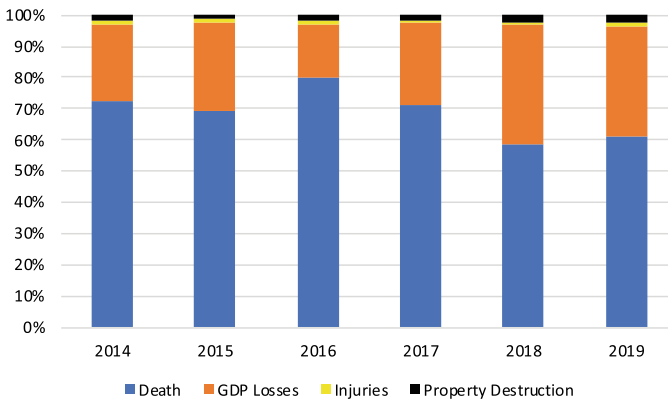


Fig. 5.2: Percentage breakdown of global terror costs: 2014–2019.

Source: Institute for Economics & Peace (2020b, Table 2.2); permission to reproduce from IEP is thankfully acknowledged

5.3.2 Patterns and Trends

A time-series of global costs of terrorism during 2000–2019 is presented in Fig. 5.1. (Needless to say, the 9/11 attacks explain the spike for the year 2001.) Observe that there is an overall increasing trend in the global cost of terrorism from 2000 to 2014 and a downward trend since 2014, whereas the year 2014 coincides with the zenith of ISIS’s atrocities and “occupation.”

Is That So? 5.2: Global (Direct) Costs of Terrorism

Following the Institute of Economics and Peace’s methodology, the global direct cost of terrorism had an increasing trend from 2000 to 2014, and, since then it has been falling.

Figure 5.2 presents the breakdown of global terrorism costs over the years 2014–2019 according to the sources. As we can see, among the four categories of the impact of terrorism, deaths constitute the major share, followed by GDP loss.

There are however considerable differences of terror costs across countries. Top ten countries in terms of incurring the cost of terrorism for years 2015–2017 and 2019 are listed in Table 5.2. Given that since 9/11, a large share of worldwide terror attacks have occurred in the Middle East, South Asia, and Africa, it is not surprising that the countries in these regions have also incurred large economic costs of terrorism.

Comparing economic losses from terrorism across countries,

Is That So? 5.3: Economic Costs of Terrorism: Middle East, South Asia, and North Africa

Over 2000s and 2010s, the countries from Middle East, South Asia, and North Africa have incurred maximum losses from terrorism.

There also exist estimates of economic costs of terrorism for the developed economies. Figure 5.3 tracks the economic costs of terrorism for Europe from 2007 to 2019. Note that these costs are less than \$1 billion in 2014 PPP\$ in every year during 2007–2014, while 2015 was a really bad year. It is because Belgium, France, and Turkey witnessed a dramatic increase in the number of terror attacks during this year. The economic costs of terrorism crossed \$4 billion in 2015. In more recent years the economic cost for Europe from terrorism is around \$600 million.

Detailed estimates of economic cost of terrorism incurred by individual countries in the European Union over the period 2004–2016 and over 2013–2016 as a whole are given in (van Ballegooij & Bakowski, 2018, Tables 2 and 3). Figure 5.4 shows the total figures for the entire region. It may be noted that while the IEP’s methodology is used in this study in estimating costs of fatalities, injuries, and property damage, the GDP costs are based on econometric estimation of the impact of terrorism on

Rank	2015		2016		2017		2019	
	Country	% of GDP	Country	% of GDP	Country	% of GDP	Country	% of GDP
1.	Iraq	17.3	Iraq	24	Afghanistan	12.8	Afghanistan	16.7
2.	Afghanistan	16.8	Afghanistan	13	Iraq	10.8	Syria	3.4
3.	Syria	8.3	South Sudan	9	Syria	5.8	Nigeria	2.4
4.	Yemen	7.3	Syria	6	Somalia	5.0	Burkina Faso	1.9
5.	Libya	5.7	Libya	3	South Sudan	3.9	Mali	1.9
6.	South Sudan	4.8	Nigeria	3	Central African Republic	2.6	Somalia	1.2
7.	Nigeria	4.5	Yemen	2	Nigeria	2.6	Iraq	1.1
8.	Pakistan	2.8	Central African Republic	2	Libya	1.8	Yemen	1.0
9.	Niger	2.1	Burundi	1	Egypt	0.8	Sri Lanka	1.0
10.	Central African Republic	2.1	Turkey	1	Yemen	0.7	Central African Republic	0.9

Table 5.2: Top 10 Countries in terms of economic costs of terrorism in 2015–2017, 2019.

Sources: Institute for Economics & Peace (2016b, 2017, 2018, 2020b); permission to reproduce from IEP is thankfully acknowledged

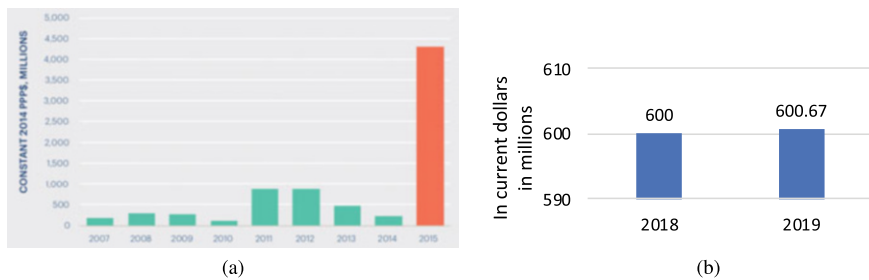


Fig. 5.3: Estimates of Economic Cost of Terrorism: Europe. (a) Economic Costs of Deaths and Injuries from Terrorism for Europe, 2007–2015. (b) Total economic costs for Europe, 2018–2019.

Sources: (a) Institute for Economics & Peace (2016a, Figure 14), (b) (Institute for Economics & Peace, 2019, Table 1.4), (Institute for Economics & Peace, 2020b, Table 2.5); permission to reproduce from IEP is thankfully acknowledged

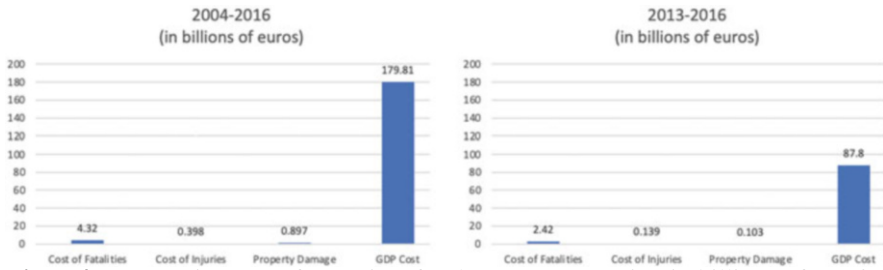


Fig. 5.4: Economic costs of terrorism for the European Union in billions of 2016 €: 2004–2016 and 2013–2016.

Source: van Ballegooij and Bakowski (2018, Tables 2 and 3)

growth. As a consequence, well over 90% of total cost of terrorism is attributed to GDP losses. Also notice that the total cost over the period 2013–2016 is nearly half of the total cost over the period 2004–2016, which is consistent with our earlier observation that terrorism problems in Europe are more severe in relatively recent years than in the first decade of this century.

The annual GDP of the European Union runs in trillions of euros. Obviously, the total cost of terrorism, indicated in Fig. 5.4, is much less than one percent of the total GDP. In contrast, referring back to Table 5.2, we see that for countries like Iraq, Afghanistan, Syria, and Somalia among others, the costs of terrorism bear a much higher proportion to the respective GDPs. Thus,

Is That So? 5.4: Economic Costs of Terrorism: Small Versus Advanced Economies

Small and less diversified economies are much more impacted by terrorism compared to advanced and more diversified economies.

5.3.3 Cost of Terrorism vis-à-vis Cost of Violence and Conflict

It is important to keep in mind that terrorism is “a” particular form of violence, while violence manifests also in other forms like homicide, civil war, external war, etc. As it turns out, the economic costs of terrorism are a small fraction of the economic costs of overall violence and conflict.

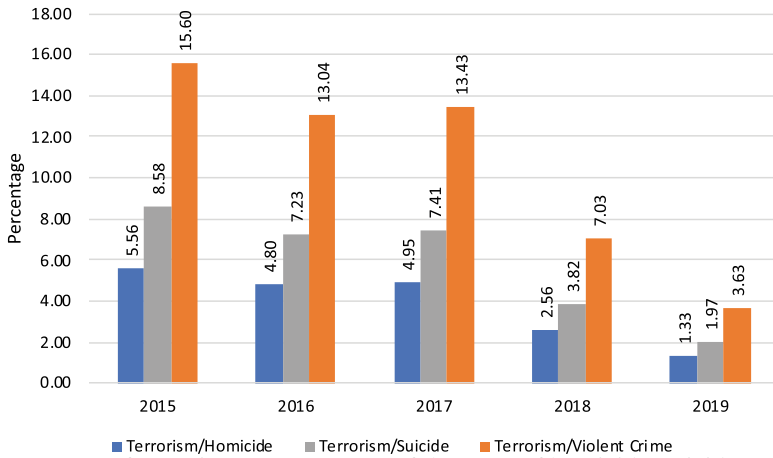


Fig. 5.5: Cost of terrorism as percentage of the costs of homicide, suicide, and violent crime: global, 2015–2019.

Source: Institute for Economics & Peace (2020a, Table 3.2); permission to reproduce from IEP is thankfully acknowledged

Globally, in 2014, interpersonal violence—which includes homicide, violent and sexual assault, fear of crime, and terrorism—cost 32 times higher than terrorism and claimed 13 times the lives lost in terror attacks (Institute for Economics & Peace, 2015). Figure 5.5 shows that the economic cost of terrorism is a small fraction of that of homicide, suicide, or violent crime.

Comparing the economic costs of terrorism with another category of violence, namely, conflict also shows how small the cost of terrorism is relative to that of conflict. Figure 5.6 presents a comparative time-series of the economic impact of terrorism and conflict from 2007 to 2015. In 2015, the economic costs of terrorism were 14.2% of that of conflicts (Institute for Economics & Peace, 2016b). Conflict is a “driver of terrorism.” In 2019, 96% of global deaths from terrorism occurred in countries that experienced conflict (Institute for Economics & Peace, 2019).

Is that So? No. 5.5 is a notable observation.

Is That So? 5.5: Economic Costs of Terrorism and Conflict

Estimates of economic cost of terrorism are a small percentage of homicide, suicide, violent crime, or conflict. Further, the economic cost of terrorism is positively and strongly correlated with that of conflict.

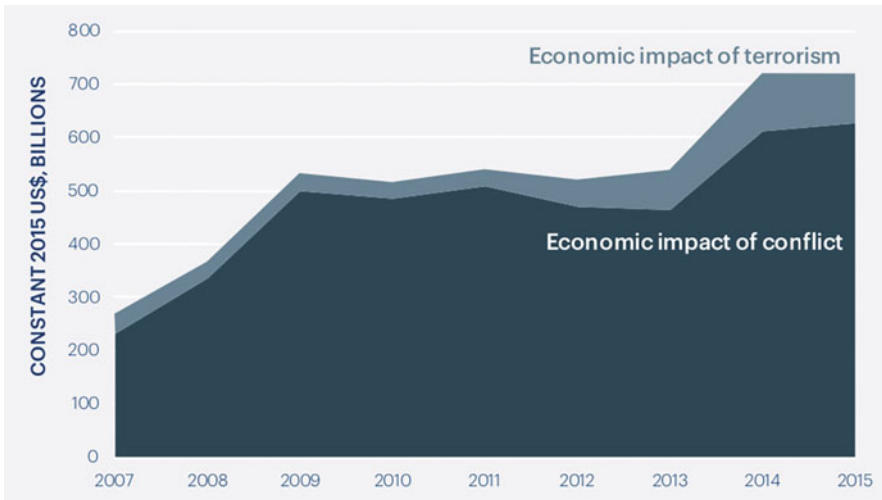


Fig. 5.6: Cost of terrorism versus cost of conflict.

Source: Institute for Economics & Peace (2016b, Figure 4.3); permission to reproduce from IEP is thankfully acknowledged

The costs of terrorism in comparison to cost of overall violence is even much smaller than in comparison to interpersonal violence or conflicts. In 2015, the global economic cost, using Purchasing Power Parity, of overall violence—inclusive of interpersonal violence, communal and ethnic conflicts, internal, and external military conflicts—was \$13.6 trillion, whereas that of terrorism was \$89.6 billion, which is 0.65% of the total cost of violence. The corresponding numbers for 2017 and 2019 were (\$14.76 trillion and \$52 billion) and (\$14.5 trillion and \$26.4 billion).¹³

Is That So? 5.6: Economic Costs of Terrorism vis-à-vis Economic Costs of Violence

The economic cost of terrorism is less than one percent of the economic cost of violence.

However, what sets terrorism apart is the unexpectedness of collective injury, death, and devastation and thus the aggregate sense of fear and anxiety it creates. Monetary equivalent of these adverse effects is not easy to measure and typically not included in the estimation of the cost of terrorism. If they are quantified, the measured cost of terrorism would be surely higher.

¹³ See Institute for Economics & Peace (2016b, 2018, 2020b). The cost of violence does not include domestic or self-directed violence.

5.4 Direct Cost of Counter-Terrorism (CT) Measures

Many countries do not divulge much information on the cost of their CT measures. However, *some* worldwide estimates as well as accounts of expenditure on CT measures by the USA are publicly available, albeit a bit dated.

In principle we can divide these costs into three categories: ① security including intelligence, ② preemptive attacks against terrorists and their bases, and ③ foreign aid or assistance to other countries to act toward containing terrorism in their countries.

5.4.1 Security Costs

Needless to say, worldwide security measures increased dramatically in the aftermath of the 9/11 attacks. It is however difficult to separate out these costs for terrorism only, because spending on immigration, border protection, domestic law enforcement, etc. is only partly used for containing terrorism. According to Institute for Economics & Peace (2015),

Is That So? 5.7: USA is the Leader in terms of Spending on National Security Agencies

Global security costs totaled \$117 billion in 2014 and the US accounts for 70% of the total global spending on national security agencies.

In the USA, 41% of expenditure on domestic security agencies is devoted to terrorism, while in the UK, 81% of budget for M15 is targeted toward terrorism. Over 2005–2014, USA spent \$650 billion on intelligence (including terrorism and other concerns). For G20 countries combined, the spending on national security and intelligence that target terrorism and other concerns reached \$117 billion in 2014.

European Parliament (2016) reported that European Union's spending on CT security measures increased from €5.7 billion in 2002 to €93.5 billion in 2009, a 16-fold increase. Following the 2015 January attacks, France increased its CT spending by €3.8 billion for the next four years. EU's budget for "Security and Citizenship" increased from €2.52 million in 2015 to €4.05 million in 2016. Founded in 1992, *Europol* is the law enforcement agency of the European Union. Counter-terrorism was not included in its mandate till 1999. Between 2002 and 2009, *Europol*'s budget increased from €53 million to €68 million. In 2016, its budget exceeded €100 million.¹⁴ During 2007–2013, the European Commission made €1.4 billion available

¹⁴ In the same year, the European Counter-Terrorism Centre was created within *Europol*.

for security research. Under the 2014–2020 Multiannual Financial Framework of the European Union, a fund named Internal Security Fund (ISF) was created to support security-enhancing initiative in the EU. The fund has a budget of €3.8 billion, which is divided between borders, visa, and police issues. The portion allocated for police is used for CT measures.

According to the UK Home Office, in 2017 an estimated amount of £824 million was spent by the Office of Security and Counter-Terrorism. Of £8.5 billion allotted to Crime, Police, and Fire group, £731 million was slated for counter-terrorism policing (van Ballegooij & Bakowski, 2018).

The facts and figures on security measures indicate considerable variation across countries and regions.

5.4.2 Cost of Preemptive Strikes

These costs refer to launching offensives against terrorists and terror organizations. During the height of “The Troubles” in the 1970s when PIRA was very active, the British government spent about \$6 million per day to counter PIRA (Clarke, 2015, page 30).

Data are available for *Operation Inherent Resolve* (OIR), the operational name for the military campaign against ISIS in Iraq and Syria by the USA in concert with the coalition forces. The data contains # of air strikes by allied forces as well as *weekly data* on the costs of operations of OIR by the USA (not other members of the coalition): visit <https://www.defense.gov/OIR/>. Figure 5.7 graphs the breakdown—by category, expense, and service—of total cost of US air campaign against ISIS in Iraq and Syria over a two-year and ten-month period: from August 6, 2014 to June 30, 2017. By category, military “operational tempo” (OPTEMPO in brief), which refers to the rate of military actions or missions, tops the list. Because these are costs of air strikes, air force constituted the lion’s share of total expenditures toward army, navy, air force, and SOCOM combined.¹⁵

Figure 5.8 tracks the average daily cost of OIR, which increased from \$9.1 million in May 2015 to \$13.6 million per day in June 2017.

Is That So? 5.8: Cost of US Air Campaign against ISIS

By June of 2017, the US spending on air campaign against ISIS in Iraq and Syria reached \$13.6 million per day.

¹⁵ SOCOM stands for Special Operations Command.

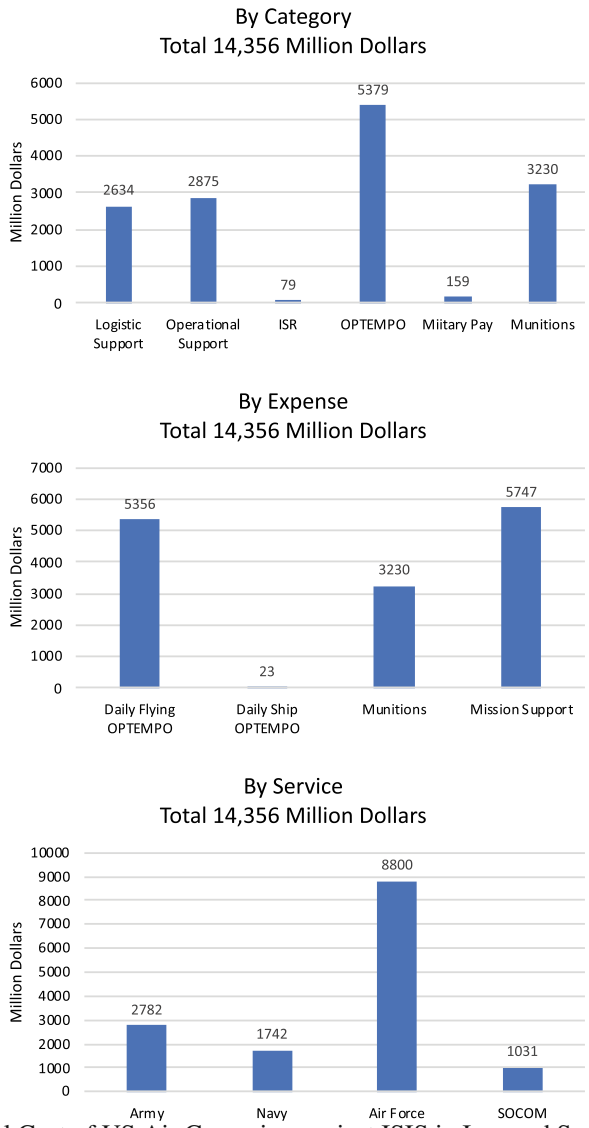


Fig. 5.7: Total Cost of US Air Campaign against ISIS in Iraq and Syria: August 8, 2014 to June 30, 2017.

Source: <https://www.defense.gov/OIR/>, Accessed on Dec 4, 2019

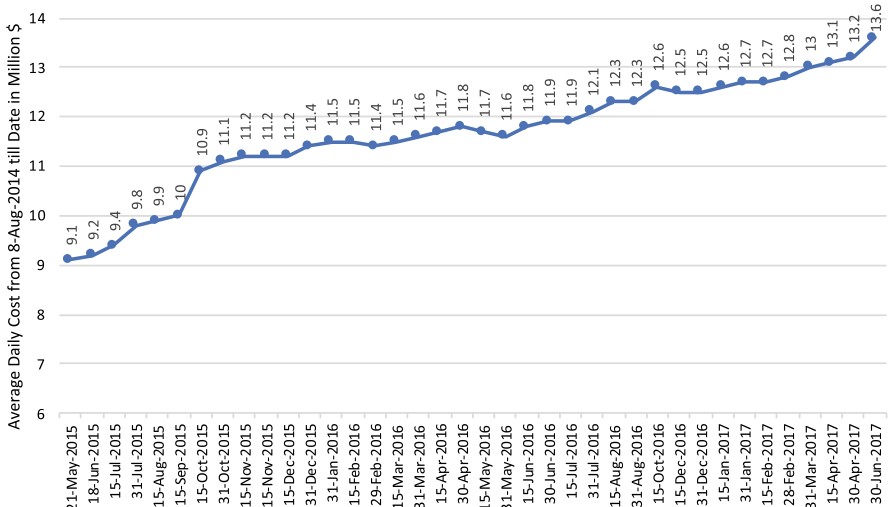


Fig. 5.8: Average daily cost of US Air Campaign against ISIS in Iraq and Syria: August 8, 2014 to June 30, 2017.

Source: <https://www.defense.gov/OIR/>, Accessed on Dec 4, 2019

5.4.3 War in Afghanistan

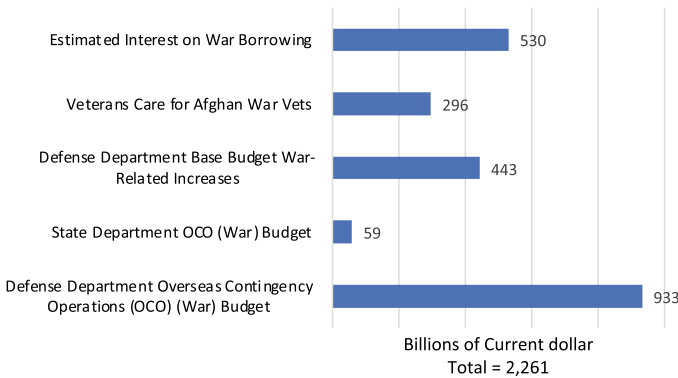


Fig. 5.9: Cost of war in Afghanistan, breakdown, 2001–2021.

Source: Crawford and Lutz (2021); permission to reproduce by the authors is thankfully acknowledged

The US war in Afghanistan is covered by two mission names: *Operation Enduring Freedom* (2001–2014) and *Operation Freedom’s Sentinel* (since 2015). In a broad sense, most of the expenses in Afghanistan can be interpreted as the cost of

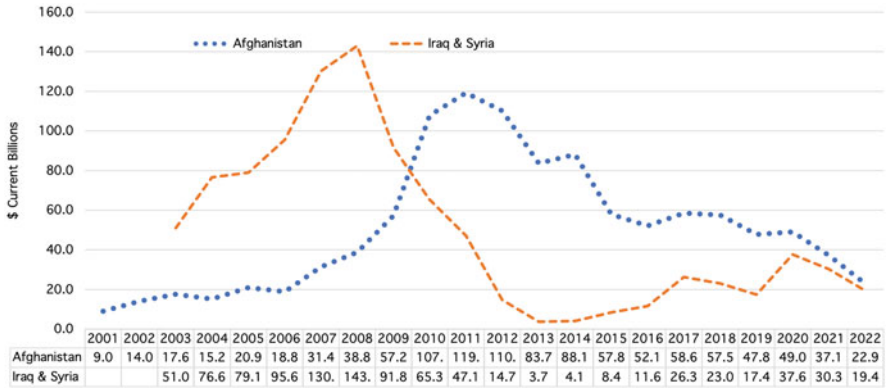


Fig. 5.10: Cost of War in Afghanistan–Pakistan and Iraq–Syria under Defense and State Department Appropriations.

Source: Reproduced from (Crawford, 2021, Figure 4); permission to reproduce by the author is thankfully acknowledged

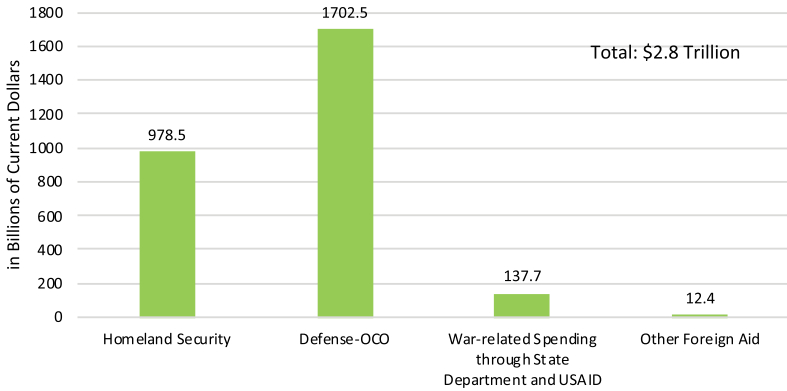
counter-terror measures, because, in the first place, the USA moved into Afghanistan in order to counter-terrorist threat, both direct and indirect, emerging from Afghanistan.

Is That So? 5.9: Cumulative Cost of Afghan War to the USA

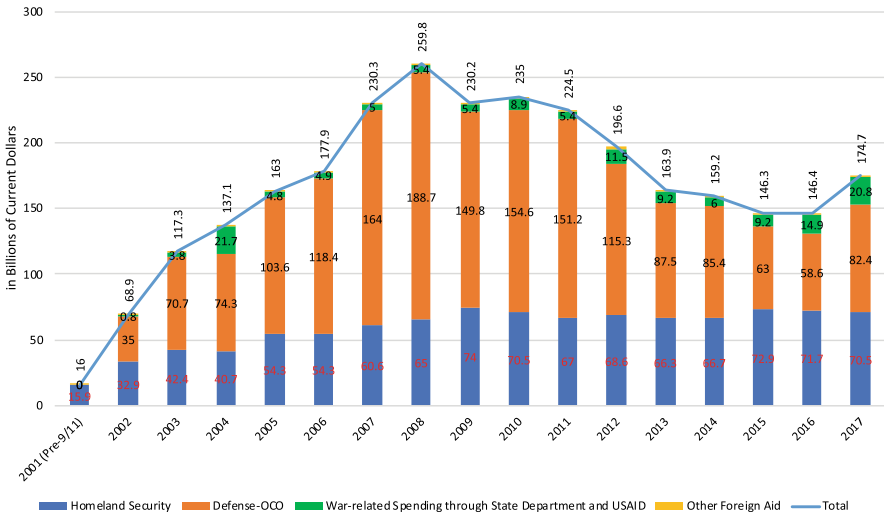
According to Crawford and Lutz (2021) as well as other sources, the estimated total cost, both direct and indirect, of the Afghan war (including operations in Afghanistan and Pakistan) from fiscal year 2001 to the fiscal year 2021 is over 2 trillion in current dollars.

The breakdown of costs, constructed according to the departments or agencies that are budgeted, is shown in Fig. 5.9. The spending under the heading of Defense and State Department Appropriations approximates the direct cost of involvement in Afghanistan (including Pakistan). The evolution of spending under this heading is exhibited in Fig. 5.10.¹⁶ The total is 1.16 trillion in current dollars.

¹⁶ The number for the fiscal year 2022 is amount requested by the Biden administration.



(a)



(b)

Fig. 5.11: US Spending on CT Measures: 2001–2017. (a) Overall CT spending during 2002–2017. (b) Time-Series of Spending on CT Measures.

Source: Stimson Study Group (2018, Figure 3); permission to reproduce from the Stimson Center is thankfully acknowledged

5.4.4 Aggregate Counter-Terrorism Spending by the USA since 9/11

In contrast to most of the available information on the cost of CT measures being fragmented, Stimson Study Group (2018) documents a systematic account of these costs for the USA from 9/11 to the year 2017. They are organized into four broad categories depending on where the expenses are itemized in the federal budget, namely,

Homeland Security It includes government-wide homeland security spending, distributed over the Department of Homeland Security *and* other agencies.

Defense-OCO It refers to the Department of Defense (DOD) spending designated as emergency and overseas contingency operations (OCO). This includes a major part of war-related expenses in Afghanistan, Iraq, and Syria.

War-Related Spending at the State Department and USAID Some of the overseas spending on security, related CT measures as well as foreign aid are financed through budget to the State Department and US Agency for International Development USAID.

Other Foreign Aid It covers foreign aid through various US initiatives specifically created for counter-terrorism. Foreign aid to countries with significant presence of al-Qaeda, its affiliates, ISIS and Iraq falls in this category.¹⁷

As Fig. 5.11a shows, the total federal CT spending in the post 9/11 years till 2017 totaled 2.83 trillion in current dollars, 35%, 60%, and 5% of which are spent respectively for homeland security, defense-OCO, and war-related spending at the State Department and USAID. Other foreign aid is only a tiny fraction (less than 0.5%) of the CT spending. Year-wise CT spending is shown in Fig. 5.11b.¹⁸ We see that CT spending by the USA surged after 9/11 and peaked in 2008, representing 16-fold increase over the pre-9/11 total. Since 2008, total CT spending has declined, and this is due to reduced spending on war. As of 2017 the total CT spending was still pretty high—11-fold higher—compared to 2001 before 9/11. The cost of preemptive measures against terrorism falls mostly under defense-OCO. Recall that between August of 2014 and June of 2017, the US air campaign in Iraq and Syria cost 14.36 billion, which is about 7% of CT spending on defense-OCO during 2015–2017.

Note that the spending on homeland security more than doubled in 2002 compared to pre-9/11 2001 and steadily climbed till 2009, when it reached \$74 billion. It remained relatively stable afterwards varying between \$66.3 and \$72.9 billion. Stimson Study Group (2018) divides homeland security spending under the headings: border and transport security, defense against catastrophic threats, domestic counter-terrorism, emergency preparedness and response, intelligence and warning

¹⁷ Stimson's estimate of CT-related US spending from 2002–2017 does not include foreign contributions to counter-terrorism; state and local investments in counter-terrorism; some dual-use programs and spending, such as drones; economic losses and secondary effects associated with the long-term cost of counter-terrorism operations and homeland security; and classified CT spending.

¹⁸ No numbers are shown for other foreign aid as these are too small compared to the other three categories.

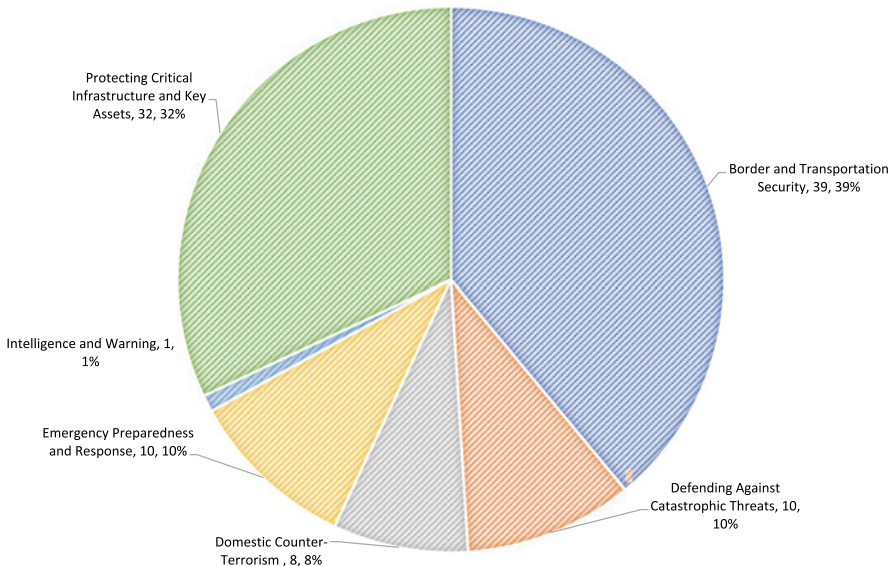


Fig. 5.12: Composition of spending on homeland security: 2002–2017.

Source: Stimson Study Group (2018, Figure 8); permission to reproduce from the Stimson Center is thankfully acknowledged

and protecting critical infrastructure and key assets. As shown in Fig. 5.12, the major shares of spending on homeland security are held by border and transport security (39%) and protecting critical infrastructure and key assets (32%).

Before 9/11, the CT spending was less than 2% of the total discretionary spending of the federal government that spans a wide range of areas, including defense, education, and medical research. At its peak in 2008, CT spending amounted to 22% of total discretionary spending. By 2017, CT spending had fallen to 14% of the total. During 2002–2017, the overall CT spending was 15% of the total discretionary spending.¹⁹ Despite this drop, the study group found no indication for CT spending to decline further.

¹⁹ Discretionary spending is spending that is subject to the appropriations process, whereby Congress sets a new funding level each fiscal year (which begins October 1st) for programs covered in an appropriations bill. As opposed to discretionary spending, there is mandatory spending, which does not take place through appropriations legislations. It includes entitlement programs, such as Social Security, Medicare, and required interest spending on the federal debt. Mandatory spending accounts for about two-thirds of all federal spending. In most cases, but not all, mandatory spending is ongoing; it occurs each year absent a change in an underlying law that provides the funding.

Is That So? 5.10: Counter-Terrorism Spending in the USA

According to Stimson Study Group (2018), the counter-terrorism spending by the USA in 2017 was nearly \$175 billion and this is not likely to decline in the subsequent years.

While both discretionary and CT spending rose rapidly since 9/11, CT spending increased more sharply. At the 2008 peak, CT spending had increased 277%—primarily because of the wars—while overall discretionary spending had grown by 116% since 2002. By 2017, CT spending increased by 154% from 2002, whereas overall discretionary spending increased by 102%.

5.4.5 Indirect Cost of Counter-Terrorism Measures

There are indirect costs of CT measures as well, which are quite important but have not been measured. For instance, various security measures including collection of intelligence infringe upon our civil liberty and privacy, which are an integral part of liberal democracy that we all cherish. Preemptive strikes cause collateral damage in terms of civilian lives. This may be unacceptable to us on humanitarian grounds, lead to lack of local support undermining our military efforts and very well breed resentment and encourage more participation in terrorism.

5.5 Are Such Large Spending on Security and Counter-Terrorism Rational?

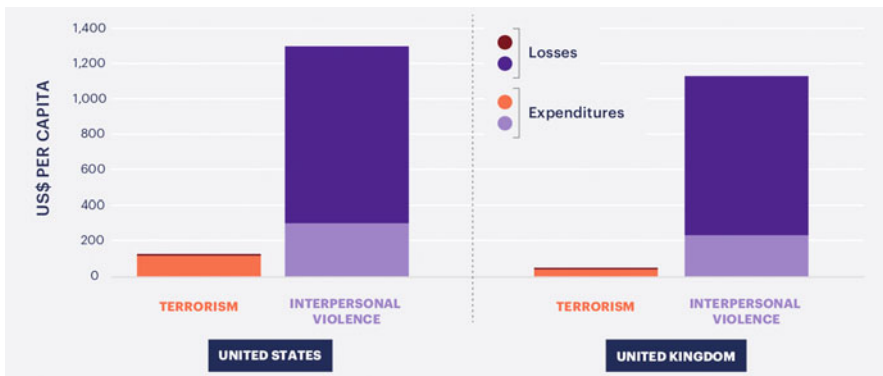


Fig. 5.13: Security expenditure vis-à-vis economic losses.

Source: Institute for Economics & Peace (2015, Figure 36); permission to reproduce from IEP is thankfully acknowledged

Of course, large spending on security and other CT measures has made us safer than otherwise: Just imagine how much suffering would result in the modern age from terror attacks without enhanced CT measures. However, a natural economic question is whether the size of expenditure on CT measures justifies the magnitude of the benefits from them. Keeping aside the expenditure on preemptive measures, as Fig. 5.13 (adapted from Institute for Economics & Peace, 2015) shows, the direct security expenditure on containing terrorism is much larger than the economic loss from terrorism for the USA and the UK²⁰ For instance, in 2014 the USA spent \$115 per capita on national security agencies, whereas the per-capita economic losses from terrorism were only 61 cents.

Mueller and Stewart (2011, 2014) provide an interesting back-of-the-envelope cost–benefit calculation, showing that the cost of security measures far outweigh the estimated benefits from security measures. They first estimate that before 9/11 the security costs per year for the USA were around 25 billion in 2010 dollars. After 9/11, these costs increased by 75 billion 2010 dollars per year on average till 2011.²¹ They also estimated that a \$75 billion increase in security is likely to reduce the chance of a successful terror attack on the US soil by 50%. Suppose the estimated economic cost of a 9/11 type attack is \$200 billion. Then \$75 billion extra security spending would save us an expected cost of a 9/11-type attack, equal to \$100 billion. Hence a four-year security spending of \$75 billion per year, that is, a total spending of \$300 billion over four years would breakeven with the benefit if there were three 9/11 type attacks over four years (which would yield a benefit of $3 \times 100 = \$300$ billion). Over ten years (2.5×4 years), \$75 billion per year spending would then break even with benefits if there were $3 \times 2.5 = 7.5$ September 11-type attacks. This obviously has not happened. Therefore the security costs are much higher than their expected benefits.

However, let us be reminded that there are many indirect costs of terror attacks that have not been included in the calculations. Take for instance Carter and Cox (2011)'s estimate of the cost of the 9/11 attacks, which is \$3.3 trillion 2011 dollars and thus \$3.2 trillion in 2010 dollars (assuming an inflation of 3% between 2010 and 2011). This translates into a benefit of \$1.6 trillion from an extra security cost of \$75 billion in 2010 dollars. Thus such a spending over 21 years (amounting to \$75 billion \times 21 = 1.57 trillion) is justified as long as there is a single 9/11-type attack once in 21 years. This is not an overly excessive security spending scenario.

²⁰ In contrast, for interpersonal violence in general, the expenditure is considerably less than the economic losses.

²¹ This includes security spending by the Department of the Homeland Security, the Department of Defense, the Department of Justice, the Department of Energy, the Department of Health and Human Services and 26 other federal agencies, while it does not include the cost of war in Afghanistan and Iraq or CT-related assistance to foreign governments. Additionally, it includes indirect opportunity costs.

Is That So? 5.11: Economic Costs of Terrorism vis-à-vis Costs of Counter-Terrorism Measures

Cost–benefit analysis of counter-terror measures suggests much less benefits than costs when the benefits only account for direct losses from terror attacks. If the values of indirect losses from terrorism are included, it is likely to yield a more balanced outcome.

5.6 Sum-Up and Take-Aways

- Costs of terrorism can be grouped into short-term direct and indirect costs and medium- and long-term direct and indirect costs. Indirect costs are hard to identify and measure.
- The estimates of 9/11 attacks vary widely, starting from \$60 billion to \$8.3 trillion depending on what are included and what their estimated cost is.
- According to Buesa et al. (2007), the direct cost of Madrid attacks in March 2004 was around €211 million.
- Based on a methodology developed by the Institute for Economics and Peace, the global direct cost of terrorism increased from 2002 to 2014 and has declined thereafter.
- In more recent years, the countries from Middle East, South Asia, and North Africa have incurred maximum losses from terrorism.
- In general, small and less diversified economies are impacted more by terrorism compared to the advanced economies that are more diversified.
- The economic cost of terrorism is less than one percentage of the economic cost of violence, which includes terrorism, homicide, etc. However, the cost of terrorism does not typically incorporate the public fear and anxiety factor that is the hallmark of terrorism.
- The USA accounts for well over 50% of the total global spending on national security agencies.
- By June of 2017, the US spending on air campaign against the ISIS in Iraq and Syria reached \$13.6 million per day.
- The estimated overall cumulative cost of Afghan war for the USA during the period 2001–2020 is over two trillion in current dollars.
- According to Stimson Study Group (2018), the counter-terrorism spending by the USA in the Afghan war was nearly \$175 billion in 2017.
- Total US spending on CT measures over 2001–2017 was \$2.8 trillion. Defense-OCO and homeland security constitute respectively the first and the second highest categories of expenditure out of the four broad categories of CT spending by the USA.

- Cost–benefit analysis of counter-terror measures suggests much less benefits than costs of the benefits that include only the values of direct losses from terror attacks. If the values of indirect losses from terrorism are included, it is likely to yield a more balanced outcome.

Questions

- 5.1 “Major terror attacks have exerted heavy losses to national economies.” Defend or refute.
- 5.2 The Afghan war has cost the USA in trillions of dollars. Can you articulate some of the benefits (in concrete terms) from this long war on terror? (You would have to do your own research to develop a good answer.)
- 5.3 Do you agree with Mueller–Stewart analysis and conclusion that the costs of CT measures far exceed the benefit from them? Justify your answer.
- 5.4 Develop a back-of-envelope calculation of the expected damage in terms of dollars from a nuclear warhead falling into the hands of a jihadist terrorist group.