





## QUANTIFYING PEACE AND ITS BENEFITS

The Institute for Economics and Peace (IEP) is an independent, non-partisan, non-profit think tank dedicated to shifting the world's focus to peace as a positive, achievable, and tangible measure of human well-being and progress.

IEP achieves its goals by developing new conceptual frameworks to define peacefulness; providing metrics for measuring peace; and uncovering the relationships between business, peace and prosperity as well as promoting a better understanding of the cultural, economic and political factors that create peace.

IEP has offices in Sydney, New York and Oxford. It works with a wide range of partners internationally and collaborates with intergovernmental organizations on measuring and communicating the economic value of peace.

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# Executive Summary

One of the major challenges in developing policies aimed at increasing peace is the difficulty of being able to accurately gauge the benefits that result from peace. Recognising this, the Institute for Economics and Peace (IEP) has developed a new and ground breaking methodology to estimate the cost of violence to the global economy, including calculations for 152 countries that detail the costs of thirteen different types of violence.

This deeper insight into the breakdown of national costs of violence allows for better targeting of development assistance and also enables national governments to more accurately assess the costs associated with violence and the likely benefits that would flow from improvements in peace.

In developing this methodology IEP uses the concept of 'violence containment' spending. ***IEP defines violence containment spending as economic activity that is related to the consequences or prevention of violence where the violence is directed against people or property.***

This approach uses ten indicators from the Global Peace Index (GPI) and three additional key areas of expenditure to place an economic value on 13 different dimensions. This process has been developed to enable relative comparisons between countries at different levels of economic development. GDP per capita has been used to scale the cost of violence containment for each country. In both the U.S. and the U.K. a number of robust analyses have been conducted on the cost of various types of violence and have been used as the basis for the scaling.

This study is highly conservative as there are many items that have not been counted simply because accurate data could not be obtained. Future estimates will attempt to capture these items and therefore are expected to be higher.

The economic impact of violence containment to the world economy in 2012 was estimated to be \$9.46 trillion or 11 percent of Gross World Product (GWP).<sup>\*</sup> This figure is comprised of \$4.73 trillion of direct and indirect costs as well as an additional \$4.73 trillion in additional economic activity that would flow from the reinvestment of these costs into more fruitful economic activities. Were the world to reduce its expenditure on violence by fifteen percent it would be enough to provide the necessary money for the European Stability Fund, repay Greece's debt and cover the increase in funding required to achieve the United Nation's Millennium Development Goals.

One of the easier items to count is military expenditure,

thus it is nearly fully included in the study. Military spending constitutes 51 percent of the total accounted expenditure on violence containment. However, the approach excludes many other forms of violence containment due to a lack of available data. If other forms of violence were included in the overall estimate, it is expected that military spending would drop considerably as a proportion of total violence containment expenditure. It is important to highlight that the world's direct expenditure on the military is more than 12 times the world's expenditure on foreign aid, as measured by Official Development Assistance (ODA).

The economic impact of homicides represents the next most significant cost at \$1.43 trillion dollars or 15 percent of the total impact. The third largest contributor is spending on internal security officers and police, accounting for around 14 percent of the total, or \$1.3 trillion dollars of the economic impact.

The longer-term research project for IEP aims to categorise and count many of these relevant areas of expenditure. Some examples of items that have been excluded are:

- The significant costs related to property crimes, motor vehicle theft, arson, household burglary and larceny/theft, as well as rape/sexual assault
- Many of the preventative measures, such as insurance premiums or the costs to businesses of surveillance equipment and lost management time
- The direct costs of domestic violence in terms of lost wages, emotional costs and recovery costs.

While expenditures on containing and dealing with the consequences of violence are important and a necessary public good, the less a nation spends on violence-related functions, the more resources can be allocated to other more productive areas of economic activity. Simply put, economic expenditure on containing violence is economically efficient when it effectively prevents violence for the least amount of outlay. However, money that is diverted to surplus violence containment, or money that is spent on inefficient programs, has the potential to constrain a nation's economic growth. Importantly, many societies that have lower levels of violence and crime also have lower violence containment spending. These societies reap a peace dividend.

This is because much of the expenditure on violence containment is fundamentally unproductive, and if

redirected toward more productive pursuits, would improve government balance sheets, company profits and ultimately, the productivity and wellbeing of society.

Unfortunately, the potential short and long term economic ramifications of conflict are often poorly understood prior to conflict. The U.S. interventions in Iraq and Afghanistan underline how immediate political or strategic imperatives are usually the major determinants for decisions surrounding conflict. Furthermore, the impacts of conflict are no longer local. For instance, the 2003 invasion of Iraq resulted in sharp increases in the world price of oil, increasing energy costs for households and stunting world economic growth (Salameh, 2009).

Although quantifying the economic costs of violence and its containment is important, this study also provides the necessary figures to develop a deeper analysis of the costs and benefits associated with various crime or violence reduction programs. This study is unique in that it allows cross-country comparisons of the cost of violence, thereby allowing country by country comparisons of the economic impact of various international programs. The findings also have important applications for business, government and the international community by informing:

- Governments: allowing a greater insight into the costs and likely benefits associated with their policies, both domestically and internationally.
- The international community: enabling a better understanding of the economic benefits that would flow from targeting peacebuilding through development assistance.
- Business: providing a more detailed profile of individual countries so as to better understand peace and its impact on corporate cost bases and markets.
- Civil society: promoting the economic benefits of peacebuilding initiatives, such as mediation and prevention programs centrally aimed at avoiding and resolving conflict.

In addition, some of those countries that were found to have the highest expenditure on violence are also some of the poorest, with the cost of violence dwarfing ODA. Consequently, these findings clearly demonstrate to the international community the necessity of investing in peace with respect to international development frameworks, such as the UN's Post-2015 Development Agenda.

This is the inaugural release of the Global Cost of

Violence Containment Report, which will be updated and enhanced periodically. The model used in this report will evolve over time as new data becomes available and better mechanisms are defined to estimate the likely costs. Particular emphasis needs to be placed on accounting for the major items that are not currently covered.

**“Violence containment spending is economic activity related to the consequences or prevention of violence where the violence is directed against people or property”**



\* All figures in this report are in US dollars, unless otherwise stated.

The world's violence containment expenditure is more than

**75 x**  
FOREIGN AID EXPENDITURE

If violence containment spending was reduced by 15% the world would save \$1.4 trillion

# THE GLOBAL COST OF VIOLENCE CONTAINMENT AS % OF GDP

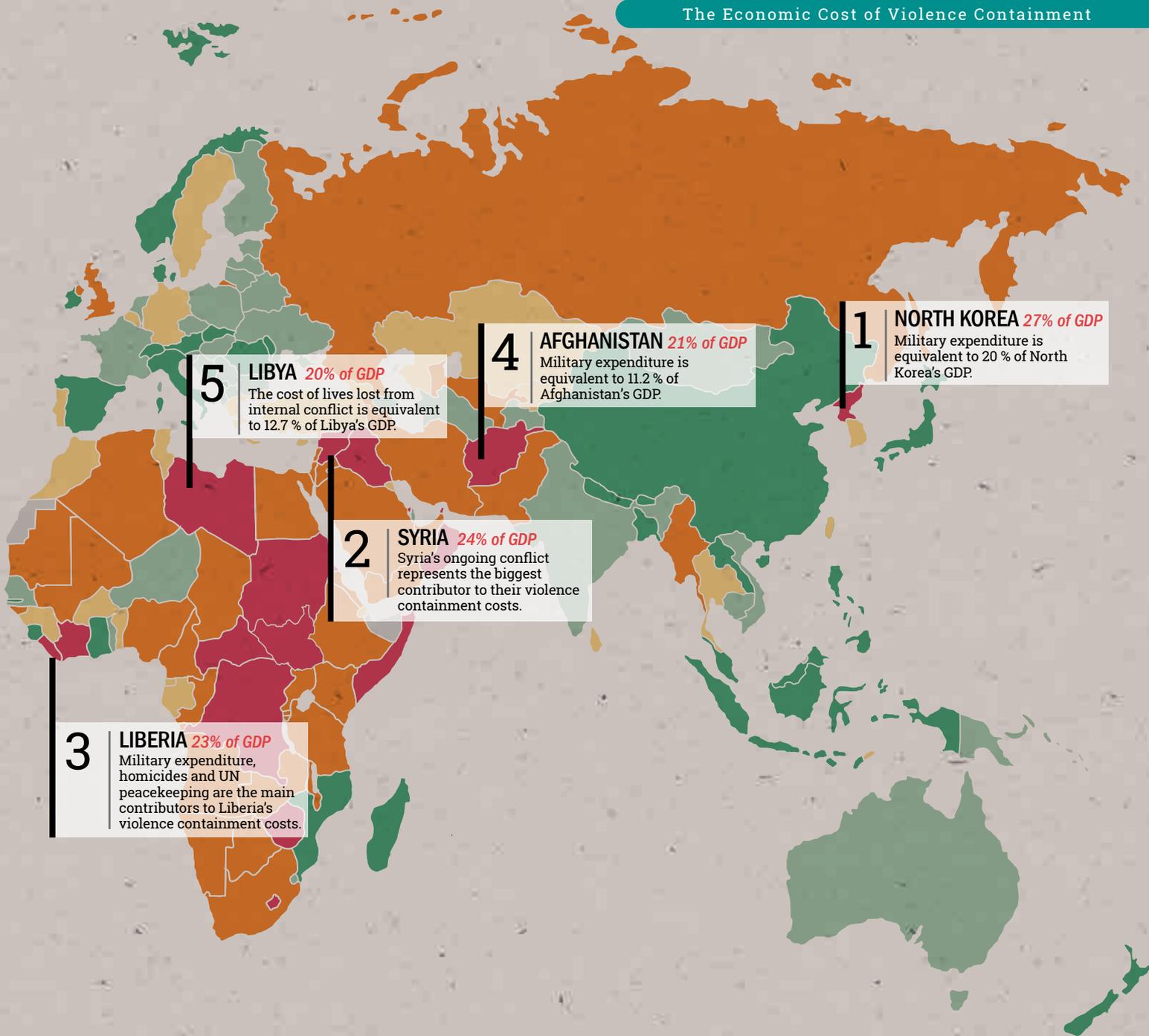
HIGHEST EXPENDITURE



LOWEST EXPENDITURE



COUNTRY	VC% OF GDP	COUNTRY	VC% OF GDP	COUNTRY	VC% OF GDP
North Korea	27.5%	United States of America	10.5%	Haiti	7.5%
Syria	23.8%	Central African Republic	10.4%	Ethiopia	7.5%
Liberia	22.7%	Lesotho	10.4%	Namibia	7.4%
Afghanistan	21.2%	Venezuela	9.9%	Iran	7.3%
Libya	19.6%	Israel	9.7%	Brazil	7.1%
Somalia	18.4%	Uganda	9.4%	Malawi	7.0%
Zimbabwe	18.2%	Mauritania	9.1%	Armenia	7.0%
Honduras	17.5%	Algeria	9.0%	Pakistan	6.9%
South Sudan	17.2%	Yemen	8.5%	Jordan	6.9%
Iraq	14.9%	Saudi Arabia	8.5%	Mexico	6.8%
Cote d' Ivoire	14.2%	South Africa	8.5%	Guinea-Bissau	6.8%
El Salvador	13.8%	Kenya	8.5%	Chad	6.6%
Trinidad and Tobago	12.1%	Guatemala	8.2%	Guyana	6.4%
Democratic Republic of the Congo	12.0%	Myanmar	8.1%	Eritrea	6.3%
Sudan	11.5%	Botswana	8.1%	Egypt	6.3%
Jamaica	11.4%	Republic of the Congo	8.0%	Mali	6.2%
Colombia	10.8%	Zambia	7.9%	Ecuador	6.2%
Oman	10.8%	Panama	7.9%	Dominican Republic	6.1%
Bahrain	10.8%	Russia	7.8%	United Arab Emirates	5.8%
		Angola	7.7%	United Kingdom	5.8%
		Burundi	7.6%	Tanzania	5.6%
				Lebanon	5.6%
				Nigeria	5.5%
				Rwanda	5.5%
				Cameroon	5.5%
				Uzbekistan	5.5%
				Burkina Faso	5.4%
				Kuwait	5.4%
				Kyrgyz Republic	5.4%
				Thailand	5.4%
				Gabon	5.3%
				Nicaragua	5.2%
				Timor-Leste	5.1%
				Djibouti	5.0%
				Guinea	4.9%
				Greece	4.8%
				Singapore	4.8%
				Benin	4.8%
				Turkey	4.7%
				Montenegro	4.6%
				Morocco	4.6%
				Cyprus	4.4%



● Georgia	4.4%	● Albania	3.8%	● Papua New Guinea	3.2%	● Argentina	2.6%
● Costa Rica	4.3%	● Serbia	3.7%	● Mauritius	3.2%	● Moldova	2.5%
● Belgium	4.2%	● Australia	3.7%	● Chile	3.2%	● Indonesia	2.5%
● Sri Lanka	4.2%	● Cuba	3.7%	● Lithuania	3.2%	● Norway	2.5%
● Equatorial Guinea	4.1%	● Cambodia	3.7%	● Latvia	3.2%	● Madagascar	2.5%
● Sweden	4.1%	● India	3.7%	● Tajikistan	3.1%	● Philippines	2.4%
● Taiwan	4.1%	● Azerbaijan	3.7%	● Hungary	3.1%	● Nepal	2.4%
● Peru	4.1%	● Czech Republic	3.6%	● Slovenia	3.1%	● Canada	2.3%
● Tunisia	4.1%	● Swaziland	3.6%	● Bosnia and Herzegovina	3.0%	● Ghana	2.3%
● South Korea	4.0%	● Belarus	3.5%	● Slovakia	3.0%	● Japan	2.1%
● Portugal	4.0%	● Croatia	3.4%	● Ireland	3.0%	● Austria	2.1%
● Germany	4.0%	● Uruguay	3.4%	● Gambia	3.0%	● Kosovo	2.0%
● Kazakhstan	4.0%	● Turkmenistan	3.4%	● Sierra Leone	2.9%	● Bangladesh	1.9%
● Bolivia	4.0%	● Ukraine	3.4%	● Spain	2.9%	● Switzerland	1.7%
● Finland	3.9%	● Netherlands	3.4%	● New Zealand	2.8%	● Laos	1.7%
● France	3.9%	● Bulgaria	3.3%	● Italy	2.8%	● Iceland	1.4%
● Paraguay	3.9%	● Macedonia (FYR)	3.3%	● Romania	2.8%	● Bhutan	0.5%
● Senegal	3.9%	● Qatar	3.3%	● Mozambique	2.8%		
● Vietnam	3.8%	● Niger	3.3%	● Malaysia	2.7%		
● Estonia	3.8%	● Mongolia	3.3%	● Denmark	2.7%		
● Togo	3.8%	● Poland	3.3%	● China	2.6%		

# THE ECONOMICS OF PEACE

The old idea of war being good for the economy has been thoroughly debunked and the economic benefits of encouraging peace are increasingly being recognised. To this end, IEP has sought to categorically identify and understand the economics of peace by quantifying the costs of violence and the benefits of peace. In order to do this, IEP has assessed the extent of spending on economic activity that is related to the consequences or the prevention of violence, or 'violence containment'. Although on its own this is an important first step in enabling a deeper understanding of the interactions between investments in activities that reduce violence and their potential economic flow-on effects, it is also a powerful means of illustrating exactly what the world has to gain by actively seeking greater peace. A powerful illustration of this has been provided in the case of Sierra Leone, where the absence of peace has resulted in both a substantial loss of life and economic activity.

The Sierra Leone Civil War lasted for 11 years, beginning in 1991 and ending in 2002. Even though the end of the war brought back economic growth, by 2010 the level of GDP

per capita was still 31 percent lower than what would have been expected in the absence of conflict.

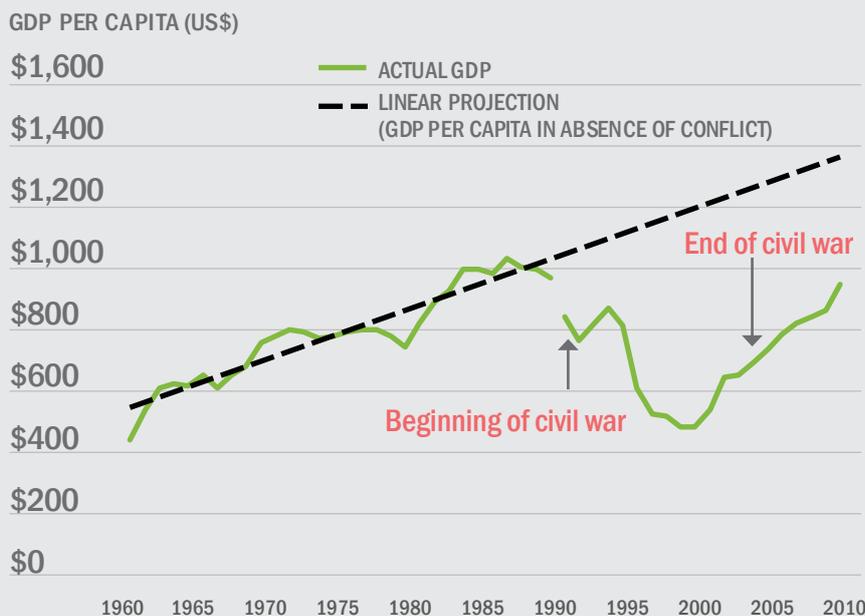
The negative economic impacts from conflict in Sierra Leone have also been mirrored by the trends in human development as measured by the Human Development Index, with Sierra Leone's levels of human development lagging behind regional averages and only improving after the cessation of conflict.

Although such examples provide a powerful illustration of the economic and development impacts of violence, the benefits of peace extend beyond the absence of violence. That is, peace is not just the absence of violence, but involves the creation of those institutions and structures that encourage greater resilience and foster human development. Encouraging peace through the development of the appropriate attitudes, institutions and structures that sustain peace therefore both reduces violence containment expenditure and encourages the fulfilment of human potential.

The relevance of this work has never been greater as government spending becomes more constrained,

**FIGURE 1 GDP PER CAPITA IN SIERRA LEONE (1960 TO 2010)**

In 2010 GDP per capita was 31 percent lower as a consequence of conflict.



SOURCE: PENN World Table 7.1

**The notion that war is good for the economy has been disproved and the economic benefits of peace are being recognised globally.**

necessitating a sharper focus on the costs and benefits of government programs. Under these conditions, programs that alleviate the need to contain violence become more economically viable over the medium-term, making the case for peace even stronger, as any violence alleviating program also has many positive spin-off effects such as encouraging education, better health and a more competitive business environment, which in turn helps improve social cohesion and human capital. This then helps in reducing the need for policing, judiciary and incarceration, as well as increasing labor market productivity and increasing taxation receipts.

By understanding the social and economic drivers of violence, policymakers and business leaders can better understand the costs and benefits of particular social and economic investment programs. Furthermore, by directing resources towards addressing the root causes of violence, society can begin to make long-term investments in the creation of a virtuous cycle of peace and economic prosperity.

## FIGURE 2 THE VIRTUOUS CYCLE OF PEACE

Investing in peace can pay clear economic dividends.



SOURCE: Institute for Economics and Peace

## Considering the Peace Multiplier

The multiplier effect is a commonly used economic concept which describes the extent to which additional expenditure has flow-on impacts in the wider economy. Every time there is an injection of new income into the economy this will lead to more spending, which will in turn create employment, further income and encourage additional spending. This mutually reinforcing economic cycle is the reason behind the 'multiplier effect' and why a dollar of expenditure can create more than a dollar of economic activity.

Although the exact magnitude of this effect is difficult to measure, it is likely to be particularly high in the case of violence containment expenditure as individuals would spend less time and resources protecting themselves against violence and contribute more to the wider economy as a consequence of lower levels of injury and death. Because of this decrease in violence, there is likely to be substantial flow-on effects for the wider economy, as money is diverted towards more productive areas such as health, education and infrastructure. For this reason, IEP uses the concept of a 'peace multiplier' which, in addition to the economic multiplier, incorporates the more productive use of resources.

For instance, when a homicide is avoided, the direct costs, such as the money spent on medical treatment

and a funeral, could be spent elsewhere. Furthermore, in avoiding a death the economy also stands to gain the lost lifetime income of the victim. The economic benefits from greater peace can therefore be significant. This was also noted by Brauer and Marlin (2009) who argued that violence or the fear of violence may result in some activity not occurring at all, thereby stunting economic activity.

More generally there is strong evidence to suggest that violence and the fear of violence can fundamentally alter the incentives faced by business. For instance, analysis of 730 business ventures in Colombia over 1997 to 2001 found that with higher levels of violence new ventures were less likely to survive. Consequently, with greater levels of violence it is likely that we would expect lower levels of employment and economic productivity over the long-term, as the incentives faced discourage new employment creation and longer-term investment (Hiatt & Sine, 2013).

This study assumes that the peace multiplier approaches two, signifying that for every dollar saved on violence containment, there will be an additional dollar of economic activity. This is a relatively conservative multiplier and broadly in line with the established literature (Brauer & Marlin, 2009; IMF 2012).

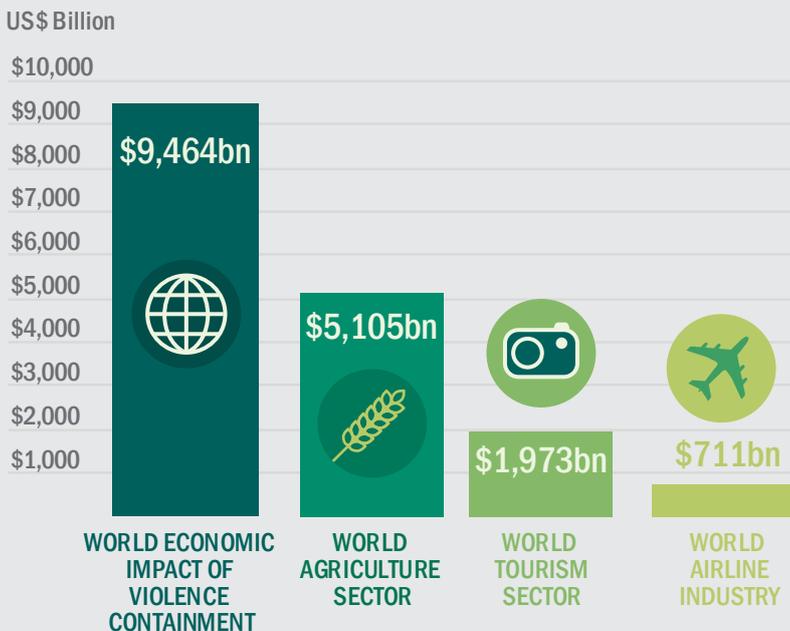
# RESULTS

Results stemming from the analysis suggest that the economic impact of violence containment to the world economy is significant, amounting to \$9.46 trillion per annum, or almost 11 percent of World GDP. This is the equivalent of \$1,300 for each person in the world, and almost double the value of world agricultural production. To illustrate the size of this expenditure, a 15 percent reduction in violence would be \$1.419 trillion and equivalent to:

- the amount needed for the European Stability Mechanism, \$900 billion or equivalent to nine percent of the total economic impact of violence; and
- the \$436 billion debt of Greece; and
- the increase in funding required to achieve the Millennium Development Goals, which is estimated to require an additional \$60 billion per annum or less than one percent of the economic impact of violence.

**FIGURE 3 ECONOMIC IMPACT OF VIOLENCE CONTAINMENT COMPARED TO THE GLOBAL SIZE OF SELECTED INDUSTRIES**

The economic impact of violence containment is almost double the size of the world's agriculture sector.



SOURCE: Institute for Economics and Peace & CIA World Factbook 2013, WTTC, 2012

**TABLE 1 GLOBAL VIOLENCE CONTAINMENT BROKEN DOWN\***

The costs of violence containment from military expenditure, homicides and internal security are significant.

VIOLENCE TYPE	TOTAL DIRECT COST (BILLIONS US\$)	PERCENT OF DIRECT COST
Military expenditure	2,425	51.23%
Homicides	715	15.13%
Internal security	650	13.74%
Violent crime	300	6.31%
Private security	295	6.23%
Incarceration	190	3.98%
GDP losses from conflict	80	1.73%
Deaths from internal conflict	40	0.85%
Fear	20	0.45%
Terrorism	5	0.13%
IDPs and Refugees	3	0.06%
UN Peacekeeping	5	0.14%
Deaths from external conflict	1	0.03%
<b>Total direct cost</b>	<b>4,729</b>	
<b>Total impact (including peace multiplier)</b>	<b>9,458</b>	

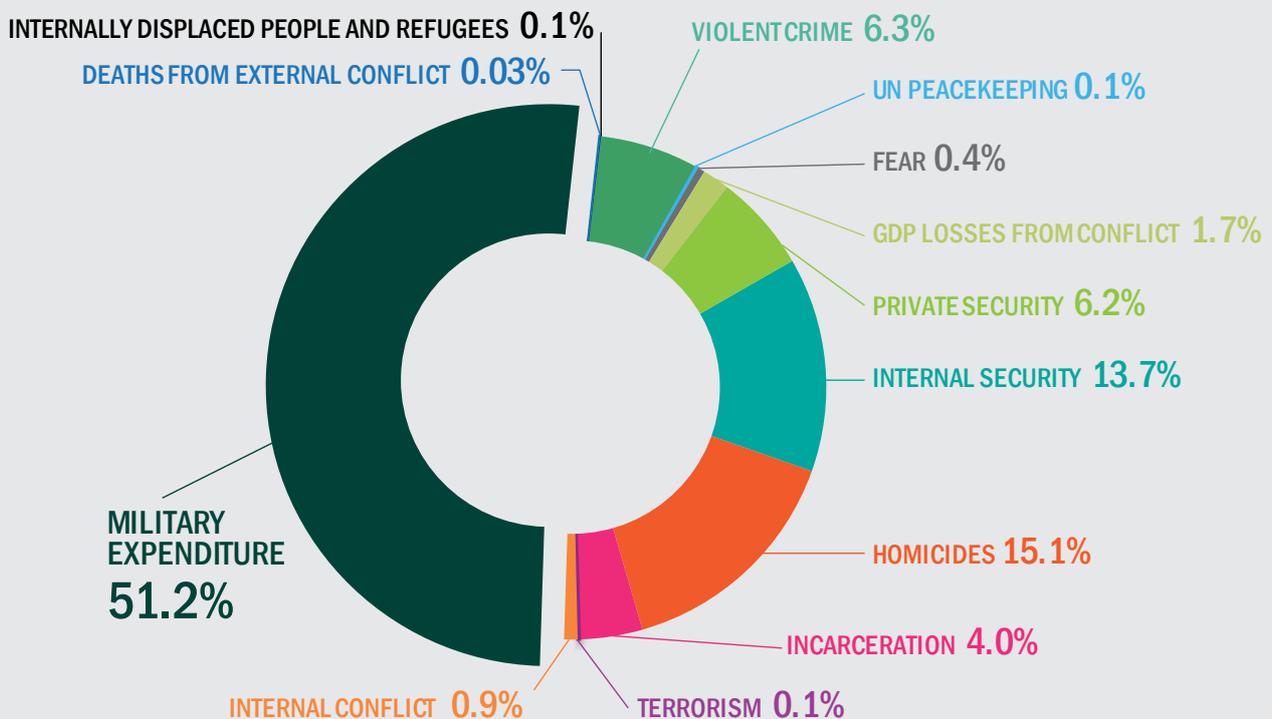
\*Individual category estimates do not include the 'peace multiplier effect'.

Military expenditure is the largest single contributor, at \$4.9 trillion<sup>1</sup> or 51 percent of the economic impact per annum. Homicides were the second highest category with an estimated impact of \$1.43 trillion per annum, accounting for 15.1 percent of world expenditure on violence containment. This was closely followed by police and security, which accounted for \$1.3 trillion or 13.7 percent of world violence containment costs. This has been illustrated in more detail in Figure 4.

**Violence containment costs are equivalent to \$1,300 per capita, per year.**

## FIGURE 4 THE ECONOMIC IMPACT OF GLOBAL VIOLENCE CONTAINMENT

Violence containment expenditure by category.



SOURCE: Institute for Economics and Peace

Whilst the figure above does not encompass all forms of violence containment it is one of the most comprehensive estimates completed to date. What has been counted in each category is outlined in greater detail below:

- **Military expenditure** - this category includes expenditure on the military.
- **Internal security** - includes government expenditure on internal security personnel, such as police.
- **Private security** - this category includes estimates of the amount of expenditure on security personnel employed by private bodies, such as security guards employed by business.
- **Deaths from internal conflict** - includes the costs of battle-related deaths that have occurred as a consequence of conflict internal to the country.
- **Deaths from external conflict** - this category includes the costs of battle-related deaths that have occurred as a consequence of conflicts that a country is engaged in outside the country.
- **Fear** - this denotes the average annual economic cost of individuals being in fear of violence.
- **GDP losses from conflict** - includes the total impact of conflict as a consequence of GDP reductions in countries currently in conflict.
- **IDPs and Refugees** - counts the budgetary costs of refugees and internally displaced persons (IDPs) for the United Nations High Commissioner for Refugees (UNHCR). Costs borne by countries are not included.
- **Incarceration** - denotes the costs attributable to the world's jailed population.
- **Terrorism** - includes the economic impact of deaths, injuries, asset damage and ransom payments that occur as a consequence of terrorism.
- **UN Peacekeeping** - counts the total cost of UN peacekeeping missions around the world.
- **Violent crime** - is an estimate of the cost of serious physical attacks on individuals. Excluding indecent/sexual assault; threats and slapping/punching.

As mentioned, there are also a range of costs that IEP was unable to estimate. Some of these have been outlined in greater detail below.

## What is not counted in this analysis?

This calculation is conservative because data is not available for many relevant categories of violence containment. Categories not counted in the study include:

- The spill-over effect of conflict on neighbouring countries which has been emphasized by Collier et al. (2003) as a quantitatively important effect.
- The costs related to property crimes of motor vehicle theft, arson, household burglary, larceny/theft and rape/sexual assault.
- Some of the costs associated with preventative measures are also excluded, such as insurance premiums or the cost of surveillance equipment.
- Direct costs of domestic violence in terms of individuals' expenditures and costs to providers. Also the indirect costs such as lost wages resulting from lower productivity, absenteeism.
- The monetary value associated with the time, effort and expenditures which minimise the risk of being victims of crime such as costs associated with household security systems, security guards, badge-only access at workplaces, guard dogs, neighbourhood watch programs and time spent seeking travel routes perceived to be safer.
- The social, developmental, environmental and strategic costs of conflict.
- The indirect cost of terrorism associated with pain, suffering and psychological trauma of the victims and their relatives. The indirect costs in terms of forgone revenues for the travel and tourism industry as a result of a terrorist attack.
- Estimates for the cost of conflict also do not include the costs attributable to injuries from armed conflict.

## The economic impact of violence containment is bigger than some of the world's largest economies

Just as the level of peace varies across countries, so does the cost and economic impact of violence. Countries with higher per capita incomes spend more per capita on containing violence and its consequences simply because they have higher incomes, therefore a better way of analysing the economic burden is to express the figure as a percentage of GDP. This has been illustrated in detail in Table 2.

Although it is a utopian vision to expect a world free of violence, a ten percent reduction in violence containment is achievable and would represent approximately \$473 billion in savings and an additional \$473 billion in additional economic activity. This would have a substantial positive impact on global GDP, allowing for resources to be diverted back to more productive uses such as investments in business, infrastructure, education or healthcare. The benefits from such redistribution are also far from trivial, with global violence containment costs dwarfing some of the world's largest economies.

The three countries that have the largest percentage of their GDP diverted to violence containment were North Korea, Syria and Liberia. For North Korea, this was chiefly a consequence of their high levels of military expenditure, accounting for over 70 percent of their expenditure on violence. Homicide costs and internal security were also significant, at approximately ten percent each. For Syria, it was found that over 50 percent of its violence costs were related to deaths from internal conflict, followed by military expenditure and internal security, which accounted for 16 percent and 14 percent respectively.

**TABLE 2 TEN COUNTRIES WITH HIGHEST VIOLENCE CONTAINMENT SPENDING AS A PROPORTION OF GDP\***

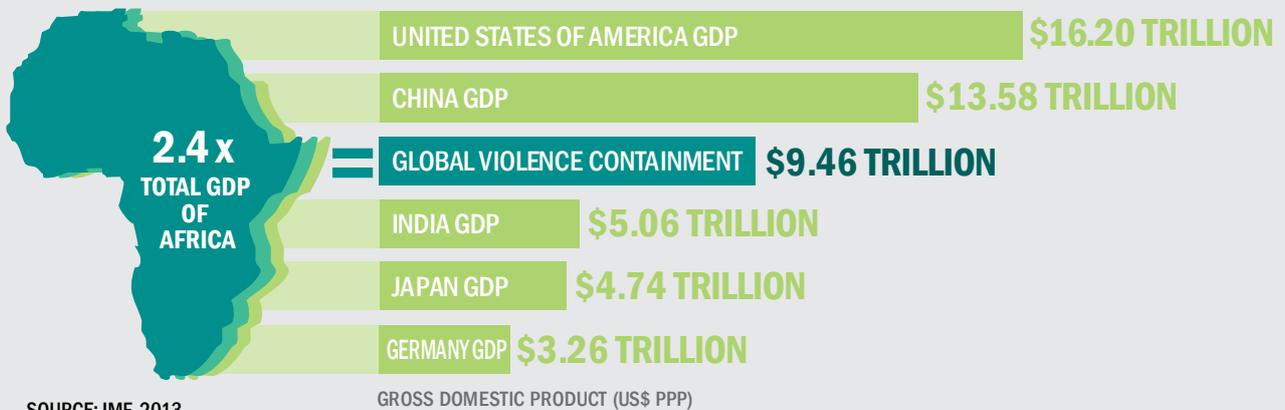
North Korea, Syria and Liberia were found to have the highest level of violence containment costs as a proportion of GDP.

TOP TEN SPENDERS (AS A PROPORTION OF GDP)	%
North Korea	27%
Syria	24%
Liberia	23%
Afghanistan	21%
Libya	20%
Somalia	18%
Zimbabwe	18%
Honduras	17%
South Sudan	17%
Iraq	15%

\* Because these estimates exclude the 'peace multiplier' effect, the economic costs are likely to be higher.

### FIGURE 5 ECONOMIC IMPACT OF VIOLENCE CONTAINMENT COMPARED TO MAJOR ECONOMIES

The economic impact of violence containment is larger than some of the world's biggest economies.



The countries with the biggest costs of violence containment in absolute terms were found to be the United States, China and Russia, accounting for almost half of the world's violence containment costs. This is despite these countries only accounting for 26 percent of the world's population. In all three cases the majority of their costs were from military expenditure. Specifically, in the United States, approximately 70 percent was found to be military expenditure followed by the cost of homicides, which were eight percent. Similarly for China, the military was the major contributor to violence containment expenditure followed by internal security and private security. For Russia, the biggest contributors to violence costs after military expenditure were the costs relating to internal security and homicides, each accounting for 22 percent of GDP.

The potential for these economic resources to be diverted into other more productive areas of expenditure is significant; this has been highlighted on a per capita basis in Table 5, on page 16. It needs to be emphasised that high income countries will tend to have the highest per capita costs as a consequence of their higher incomes.

### TABLE 3 BIGGEST CONTRIBUTORS TO GLOBAL VIOLENCE CONTAINMENT SPENDING AND WORLD GDP

The countries with the highest violence containment expenditure are also the world's largest economies.

TOPTEN (\$)	(BILLION US\$ - PPP)	% OF WORLD GDP
United States of America	1,709	18%
China	354	15%
Russia	207	4%
India	186	6%
Brazil	176	3%
United Kingdom	137	3%
Germany	130	4%
Mexico	126	2%
Japan	101	5%
France	89	3%

**Expenditure on violence containment is economically efficient when it effectively prevents violence for the least amount of outlay. However, money that is spent on surplus violence containment, or money that is spent on inefficient programmes has the potential to constrain a nation's economic growth.**

**TABLE 4 ALL COUNTRIES AND THEIR VIOLENCE CONTAINMENT COST AS A PERCENT OF GDP\***

Note estimates have been rounded and do not include the multiplier effect.

ECONOMIC VIOLENCE CNMNT. RANK	COUNTRY	TOTAL COST IN US\$ 2012 (\$ MILLIONS PPP)	VIOLENCE CONTAINMENT COST PER CAPITA (2012 US\$ PPP)	% OF GDP
1	North Korea	\$ 10,980	\$450	27.5%
2	Syria	\$ 20,900	\$1,005	23.8%
3	Liberia	\$ 670	\$160	22.7%
4	Afghanistan	\$7,280	\$205	21.2%
5	Libya	\$ 20,395	\$3,175	19.6%
6	Somalia	\$1,085	\$115	18.4%
7	Zimbabwe	\$1,355	\$105	18.2%
8	Honduras	\$6,900	\$890	17.5%
9	South Sudan	\$2,865	\$280	17.2%
10	Iraq	\$ 26,835	\$815	14.9%
11	Cote d' Ivoire	\$6,115	\$305	14.2%
12	El Salvador	\$6,550	\$1,050	13.8%
13	Trinidad and Tobago	\$3,415	\$2,535	12.1%
14	Democratic Republic of the Congo	\$3,615	\$55	12.0%
15	Sudan	\$9,385	\$275	11.5%
16	Jamaica	\$2,930	\$1,085	11.4%
17	Colombia	\$ 57,110	\$1,215	10.8%
18	Oman	\$ 10,275	\$3,610	10.8%
19	Bahrain	\$3,635	\$2,745	10.8%
20	United States of America	\$ 1,708,575	\$5,485	10.5%
21	Central African Republic	\$ 425	\$95	10.4%
22	Lesotho	\$ 435	\$200	10.4%
23	Venezuela	\$ 41,670	\$1,425	9.9%
24	Israel	\$ 25,175	\$3,240	9.7%
25	Uganda	\$5,075	\$145	9.4%
26	Mauritania	\$ 750	\$210	9.1%
27	Algeria	\$ 25,775	\$715	9.0%
28	Yemen	\$5,170	\$210	8.5%
29	Saudi Arabia	\$ 66,260	\$2,360	8.5%
30	South Africa	\$ 51,210	\$1,010	8.5%
31	Kenya	\$6,890	\$165	8.5%
32	Guatemala	\$6,730	\$455	8.2%
33	Myanmar	\$7,820	\$160	8.1%
34	Botswana	\$2,700	\$1,330	8.1%
35	Republic of the Congo	\$1,635	\$395	8.0%
36	Zambia	\$2,060	\$155	7.9%
37	Panama	\$4,790	\$1,340	7.9%
38	Russia	\$ 206,600	\$1,445	7.8%
39	Angola	\$ 10,385	\$530	7.7%
40	Burundi	\$ 440	\$50	7.6%
41	Haiti	\$1,065	\$105	7.5%
42	Ethiopia	\$8,345	\$100	7.5%
43	Namibia	\$1,310	\$565	7.4%
44	Iran	\$ 74,505	\$995	7.3%
45	Brazil	\$ 175,785	\$895	7.1%
46	Malawi	\$1,095	\$70	7.0%
47	Armenia	\$1,390	\$450	7.0%
48	Pakistan	\$ 37,355	\$210	6.9%
49	Jordan	\$2,805	\$455	6.9%
50	Mexico	\$ 126,055	\$1,100	6.8%
51	Guinea-Bissau	\$ 140	\$90	6.8%
52	Chad	\$1,455	\$125	6.6%
53	Guyana	\$ 425	\$560	6.4%
54	Eritrea	\$ 290	\$55	6.3%
55	Egypt	\$ 35,155	\$425	6.3%
56	Mali	\$1,130	\$70	6.2%
57	Ecuador	\$8,765	\$600	6.2%
58	Dominican Republic	\$6,360	\$635	6.1%
59	United Arab Emirates	\$ 16,400	\$2,080	5.8%
60	United Kingdom	\$ 137,265	\$2,190	5.8%
61	Tanzania	\$4,480	\$95	5.6%
62	Lebanon	\$3,710	\$870	5.6%
63	Nigeria	\$ 26,835	\$165	5.5%
64	Rwanda	\$ 895	\$80	5.5%
65	Cameroon	\$2,945	\$145	5.5%
66	Uzbekistan	\$6,145	\$210	5.5%
67	Burkina Faso	\$1,405	\$85	5.4%
68	Kuwait	\$9,235	\$3,275	5.4%
69	Kyrgyz Republic	\$ 800	\$145	5.4%
70	Thailand	\$ 37,245	\$535	5.4%
71	Gabon	\$1,475	\$960	5.3%
72	Nicaragua	\$1,095	\$185	5.2%
73	Timor-Leste	\$ 540	\$460	5.1%
74	Djibouti	\$ 125	\$140	5.0%
75	Guinea	\$ 640	\$65	4.9%
76	Greece	\$ 13,240	\$1,170	4.8%
77	Singapore	\$ 16,470	\$3,175	4.8%
78	Benin	\$ 785	\$85	4.8%
79	Turkey	\$ 55,895	\$760	4.7%
80	Montenegro	\$ 345	\$545	4.6%
81	Morocco	\$8,375	\$260	4.6%
82	Cyprus	\$1,030	\$925	4.4%
83	Georgia	\$1,235	\$275	4.4%

84	Costa Rica	\$2,675	\$565	4.3%	128	Lithuania	\$2,135	\$705	3.2%
85	Belgium	\$18,085	\$1,640	4.2%	129	Latvia	\$1,225	\$595	3.2%
86	Sri Lanka	\$5,685	\$275	4.2%	130	Tajikistan	\$595	\$85	3.1%
87	Equatorial Guinea	\$1,240	\$1,725	4.1%	131	Hungary	\$6,250	\$625	3.1%
88	Sweden	\$16,895	\$1,790	4.1%	132	Slovenia	\$1,805	\$880	3.1%
89	Taiwan	\$36,970	\$1,585	4.1%	133	Bosnia and Herzegovina	\$1,000	\$265	3.0%
90	Peru	\$14,195	\$485	4.1%	134	Slovakia	\$4,115	\$760	3.0%
91	Tunisia	\$4,430	\$415	4.1%	135	Ireland	\$5,840	\$1,275	3.0%
92	South Korea	\$68,745	\$1,380	4.0%	136	Gambia	\$115	\$65	3.0%
93	Portugal	\$9,875	\$935	4.0%	137	Sierra Leone	\$265	\$45	2.9%
94	Germany	\$130,155	\$1,590	4.0%	138	Spain	\$40,130	\$870	2.9%
95	Kazakhstan	\$9,855	\$595	4.0%	139	New Zealand	\$3,820	\$865	2.8%
96	Bolivia	\$2,290	\$225	4.0%	140	Italy	\$52,450	\$865	2.8%
97	Finland	\$7,950	\$1,475	3.9%	141	Romania	\$8,065	\$375	2.8%
98	France	\$89,370	\$1,365	3.9%	142	Mozambique	\$805	\$35	2.8%
99	Paraguay	\$1,780	\$270	3.9%	143	Malaysia	\$14,265	\$495	2.7%
100	Senegal	\$1,085	\$85	3.9%	144	Denmark	\$5,795	\$1,040	2.7%
101	Vietnam	\$13,215	\$150	3.8%	145	China	\$354,130	\$265	2.6%
102	Estonia	\$1,140	\$850	3.8%	146	Argentina	\$20,315	\$500	2.6%
103	Togo	\$280	\$45	3.8%	147	Moldova	\$335	\$95	2.5%
104	Albania	\$1,005	\$315	3.8%	148	Indonesia	\$32,285	\$135	2.5%
105	Serbia	\$3,085	\$425	3.7%	149	Norway	\$7,110	\$1,435	2.5%
106	Australia	\$37,510	\$1,680	3.7%	150	Madagascar	\$545	\$25	2.5%
107	Cuba	\$4,495	\$400	3.7%	151	Philippines	\$10,470	\$110	2.4%
108	Cambodia	\$1,455	\$100	3.7%	152	Nepal	\$1,005	\$35	2.4%
109	India	\$186,300	\$150	3.7%	153	Canada	\$34,255	\$995	2.3%
110	Azerbaijan	\$3,765	\$410	3.7%	154	Ghana	\$2,045	\$80	2.3%
111	Czech Republic	\$10,565	\$1,005	3.6%	155	Japan	\$100,560	\$785	2.1%
112	Swaziland	\$220	\$210	3.6%	156	Austria	\$7,800	\$925	2.1%
113	Belarus	\$5,580	\$590	3.5%	157	Kosovo	\$290	\$160	2.0%
114	Croatia	\$2,795	\$635	3.4%	158	Bangladesh	\$6,370	\$40	1.9%
115	Uruguay	\$1,905	\$565	3.4%	159	Switzerland	\$6,410	\$810	1.7%
116	Turkmenistan	\$1,750	\$345	3.4%	160	Laos	\$345	\$55	1.7%
117	Ukraine	\$12,185	\$265	3.4%	161	Iceland	\$195	\$605	1.4%
118	Netherlands	\$24,305	\$1,455	3.4%	162	Bhutan	\$25	\$35	0.5%
119	Bulgaria	\$3,565	\$485	3.3%					
120	Macedonia (FYR)	\$765	\$370	3.3%					
121	Qatar	\$6,685	\$3,575	3.3%					
122	Niger	\$480	\$30	3.3%					
123	Mongolia	\$580	\$210	3.3%					
124	Poland	\$26,990	\$700	3.3%					
125	Papua New Guinea	\$630	\$90	3.2%					
126	Mauritius	\$685	\$535	3.2%					
127	Chile	\$10,885	\$630	3.2%					

\* Individual estimates for countries have been removed where total or per-person figures were not considered as representative of the true costs of violence containment.

**TABLE 5 COUNTRIES WITH HIGHEST GDP PER CAPITA ECONOMIC IMPACT OF VIOLENCE CONTAINMENT\***

The United States, Oman and Qatar's per capita economic cost of violence containment are the highest in the world.

COUNTRY	VIOLENCE CONTAINMENT COST PER CAPITA (US\$ 2012)	GDP PER CAPITA	% OF PER CAPITA GDP
United States of America	\$5,485	\$42,486	13%
Oman	\$3,610	\$25,330	14%
Qatar	\$3,575	\$77,987	5%
Kuwait	\$3,275	\$47,935	7%
Israel	\$3,240	\$26,719	12%
Singapore	\$3,175	\$53,591	6%
Libya	\$3,175	\$13,300	24%
Bahrain	\$2,745	\$28,200	10%
Trinidad and Tobago	\$2,535	\$22,142	11%
Saudi Arabia	\$2,360	\$21,430	11%

\* These estimates exclude the 'peace multiplier effect'.

On this basis, the United States has the highest cost of violence per capita in outright terms, followed by Oman and Qatar. As previously mentioned the majority of these costs were found to be attributed to military expenditure and the costs of maintaining internal security forces. It is interesting to note the dominance of Middle Eastern nations in this table as a result of their high incomes, high levels of military spending and high expenditure on internal security.

Given that many of the items used to calculate the cost of violence are also used as measures to calculate the Global Peace Index (GPI) it would be expected that a close relationship would exist between peacefulness and the percentage of GDP diverted to dealing with or containing violence. This has been illustrated in Figure 6, which shows that there is via non-linear relationship between the costs of violence containment as a proportion of GDP and the country's level of peacefulness, as measured by their GPI. As a country becomes less peaceful the costs of violence containment as a proportion of GDP tends to increase.

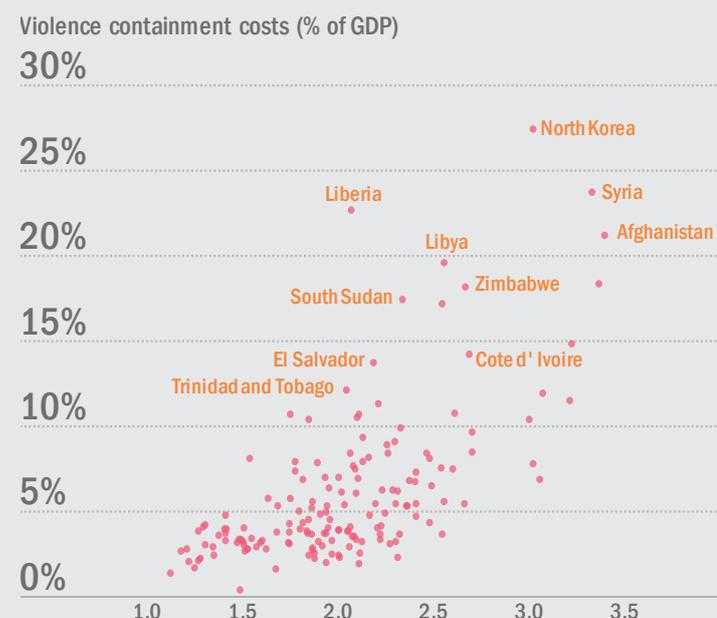
Although violence containment expenditure and GDP are correlated, the relationship is not universal, as there are a number of outlier countries. However, this is unsurprising given that the composition of violence varies significantly across countries. For instance, Honduras has relatively low military spending but extremely high homicide rates, so its cost profile is quite different to a country such as the U.K., which has much lower homicide rates and higher military spending. Finally, the overall relationship is skewed by a number of countries, such as North Korea, which has very high levels of militarisation and internal security.

In examining this relationship, it is also important to recognise that those countries with some of the highest violence containment costs, when expressed as a percentage of GDP, are also some of the poorest. This is illustrated in more detail in Figure 6, where it can be seen that the per capita costs as a proportion of GDP tend to be high in the Middle Eastern and African nations.

Furthermore, for many developing countries the cost of violence is much higher than ODA receipts, as shown in Figure 7 (on page 17). Through understanding the full nature of violence expenditures, better insight can be provided for aid allocations and likely economic ramifications.

**FIGURE 6 VIOLENCE CONTAINMENT EXPENDITURE AND THE GLOBAL PEACE INDEX (GPI) (R= 0.64)**

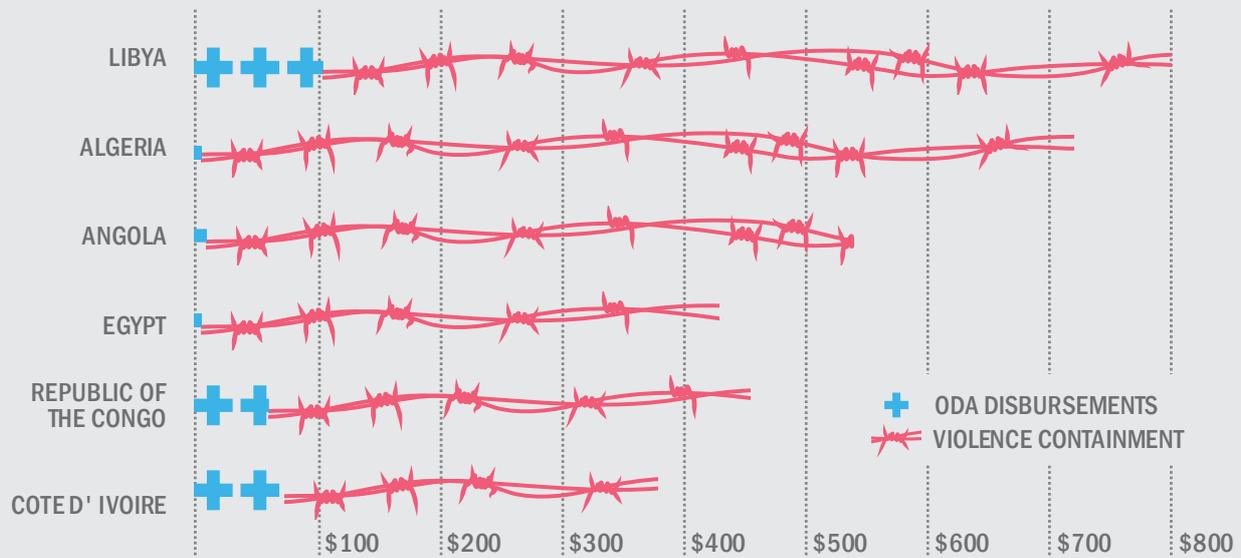
Violence containment costs tend to increase as peace decreases.



SOURCE: Institute for Economics and Peace

## FIGURE 7 VIOLENCE CONTAINMENT EXPENDITURE AND FOREIGN AID PER CAPITA

The economic impact of violence containment is much higher than developmental aid.



\*Please note the cost of violence containment for Libya has been truncated to aid comparison.  
SOURCE: Institute for Economics and Peace and World Bank, 2013

## Country Comparisons: United States and Germany

IEP has been progressively developing a range of national peace indices and studies on violence containment that have enabled national differences in peace and the costs of violence containment to be measured and compared. As a result, IEP has been able to compare the extent to which this study's estimates match others.

A detailed study was conducted for the United States in 2012 (IEP, 2012). The method used was to examine private and government expenditure on items relating to the protection against and the consequences of violence. The process was to examine data from surveys, financial reports and government budgets to determine the extent of expenditure on items such as national defense, surveillance, personal defense and policing. From the research it was found that each year, the United States spends approximately \$2.162 trillion, or 15 percent of GDP, on violence containment. This is still considered a conservative estimate as there are many items not covered, however the figure is higher than the 11 percent contained in this report due to the lesser number of items that can be estimated globally. Of the total, \$602 billion was private expenditure, whilst the remaining \$1,560 billion was made up of expenditure by government.

In 2013, IEP undertook research to provide estimates of the cost of violence containment in Germany using a similar approach to the US study. The method estimated

the cost of violence from the 'ground-up', through the examination of financial information relating to expenditures on items such as national defense, home security and social services aimed at dealing with the consequences of violence.

From this research, it was determined that violence containment costs accounted for approximately \$147 billion or 4.3 percent of Germany's GDP. Furthermore, it was found that of this, more than half, or \$80 billion, was accounted for by government expenditure, including spending on the military, police force and justice systems. On the other hand, private spending was found to contribute \$81.1 billion to the costs of violence containment through victim compensation, private security and defense contractors.

The Table 6 estimates suggest starkly different expenditure profiles between Germany and the United States. In particular, it was found that, as a proportion of GDP, the U.S. spends three times as much on violence containment. Much of this can be explained by the U.S. having a higher spending on national defence. The U.S. also spends significantly more than Germany on 'Other Public Sector Security Spending'. A key source of this is the U.S.' high level of expenditure on local police, justice and legal correction services, which is a result of their relatively higher levels of violent crime and homicide.

## TABLE 6 COMPARING VIOLENCE CONTAINMENT ESTIMATES FOR GERMANY AND THE UNITED STATES

Detailed studies of violence containment spending found starkly different levels of economic activity are consumed by violence.

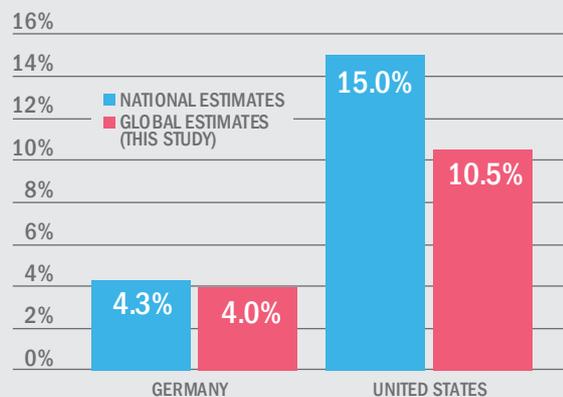
	GERMANY		UNITED STATES	
	US\$ (billion)	% of GDP	US\$ (billion)	% of GDP
National Defence (including homeland security)	\$42	1.2%	\$1,203	8.3%
Police, Justice & Legal, Corrections	\$32	1.0%	\$131	0.9%
Other Public Sector Security Spending	\$5	0.1%	\$227	1.6%
<b>Public Sector Total</b>	<b>\$80</b>	<b>2.3%</b>	<b>\$1,560</b>	<b>10.8%</b>
Household, Personal and Corporate Market - capital costs	\$7	0.2%	\$15	0.1%
Security Services Market	\$14	0.4%	\$228	1.6%
Consequences of Violence	\$42	1.2%	\$315	2.2%
Private Defence	\$3	0.1%	\$43	0.3%
<b>Private Sector Total</b>	<b>\$67</b>	<b>2.0%</b>	<b>\$602</b>	<b>4.2%</b>
<b>Total</b>	<b>\$ 147</b>	<b>4.3%</b>	<b>\$2,162</b>	<b>15.0%</b>

SOURCE: Institute for Economics and Peace

The U.S. private expenditure on violence containment was also found to be, as a proportion of GDP, almost twice that of Germany's. Again, this appeared to be mainly a consequence of relatively higher levels of violent crime in the U.S., with the majority of violence containment expenditure being found in the 'security services' market and in responding to the consequences of violence. The figures also compare favourably when these estimates are compared against the global violence containment model presented in this research, which can be seen in greater detail in Figure 8.

## FIGURE 8 A COMPARISON OF VIOLENCE CONTAINMENT COSTS

This study's estimates of violence containment costs were found to be similar to comparable studies



SOURCE: Institute for Economics and Peace

**The U.S. private expenditure on violence containment was found to be, as a proportion of GDP, almost twice that of Germany's.**

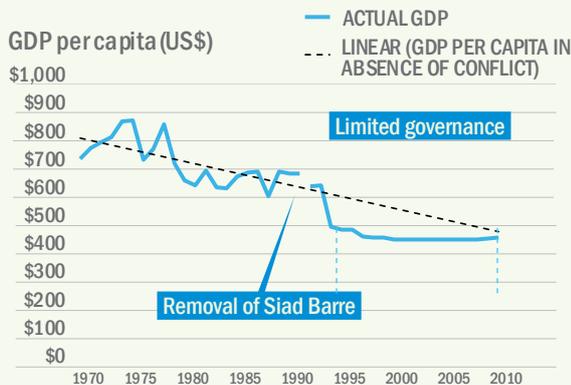
## Case study: the costs of conflict in Somalia

In Somalia, the removal of long-time leader Siad Barre in 1991 led to a political vacuum, resulting in armed opposition groups competing for control of the country. As a result the economy was badly affected and GDP per capita fell drastically from \$643 in 1992 to \$452 in 2001. As a point of reference, this is only 65 percent of pre-war levels. Somalia is the clearest example available of the worst-case scenario of long term conflict and insecurity and its impact on economic growth and human development and potential. The stagnation of economic growth since the mid-90s is due to a lack of governance and continued instability, which has undermined any prospect for even short term economic growth. This is shown in greater detail in Figure 9.

Somalia varies from the other countries analysed in this report, as there was a negative trend line for GDP per capita prior to the conflict. This trend may have been one of the causes of the conflict. Despite this, GDP per capita is still lower than the trend projection. Consumption and investment levels also dropped significantly with the start of the conflict and remained stagnant from 1995 until 2010 (see Figure 10).

### FIGURE 9 GDP PER CAPITA IN SOMALIA (1970 TO 2010)

Conflict in Somalia resulted in a marked reduction in per capita GDP. The lack of governance since the mid-90s has resulted in a complete stagnation of economic growth.

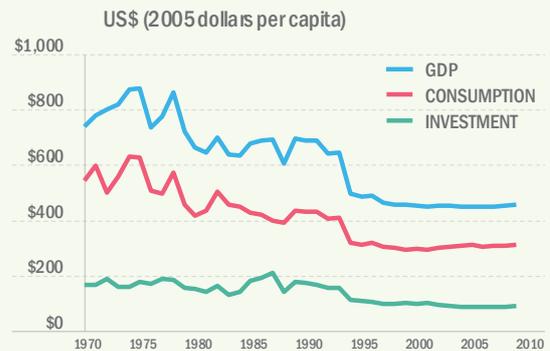


SOURCE: PENN World Table 7.1

**Somalia is the clearest example available of the worst-case scenario of long term conflict and insecurity and its impact on economic growth and human development and potential.**

### FIGURE 10 THE CHANGE IN CONSUMPTION, INVESTMENT AND GDP PER CAPITA IN SOMALIA OVER 40 YEARS

For Somalia, there was no change in per capita income, consumption and investment for 20 years and the indicators have experienced little growth since the conflict began.



SOURCE: PENN World Table 7.1

An important consequence of this fragility has been Somalia's reliance on international assistance for the provision of governance and violence containment, resulting in the largest per capita cost of any UN peacekeeping mission. In total, violence containment expenditure was estimated to have cost Somalia \$1.09 billion in 2012, or 18 percent of GDP. Of this, the top three costs were UN peacekeeping missions (\$46 per capita), homicides (\$25 per capita) and GDP losses from conflict (\$12 per capita). It should be noted that the UN Peacekeeping cost is the only cost in the methodology where the costs are not borne internally by the nation, but rather by the international community.

### TABLE 7 THE PER CAPITA EXPENDITURE ON VIOLENCE CONTAINMENT IN SOMALIA

In 2012, violence containment expenditure was estimated at \$1.09 billion or 18 percent of GDP.

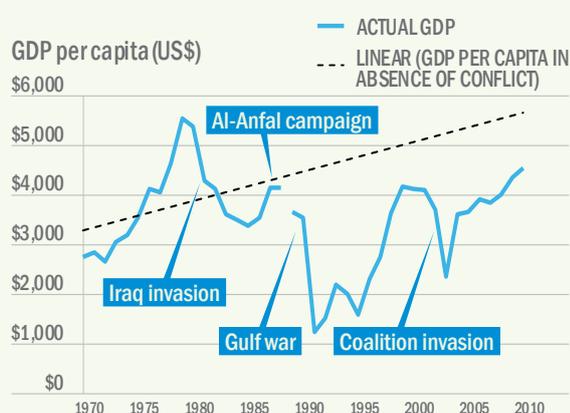
SOMALIA	VIOLENCE CONTAINMENT EXPENDITURE (PER CAPITA)
UN PEACEKEEPING	\$46
HOMICIDES	\$25
GDP LOSSES FROM CONFLICT	\$12
MILITARY EXPENDITURE	\$10
DEATHS FROM INTERNAL CONFLICT	\$8
IDPS AND REFUGEES	\$6
TERRORISM	\$4
INTERNAL SECURITY	\$2
TOTAL DIRECT COST	\$114

## Case study: the costs of conflict in Iraq

Iraq invaded Iran in 1980 and started one of the most violent and intense conflicts since World War II. The two main Iraqi Kurdish parties used the war to ally themselves with Iran to control parts of northern Iraq. The Iraqi government, headed by Saddam Hussein, launched a counter-insurgency program in 1987, known as the Al-Anfal campaign. Ending in 1988, government forces employed aerial, ground and chemical attacks resulting in an estimated 50,000 to 100,000 civilian deaths.

### FIGURE 11 GDP PER CAPITA IN IRAQ (1970 TO 2010)

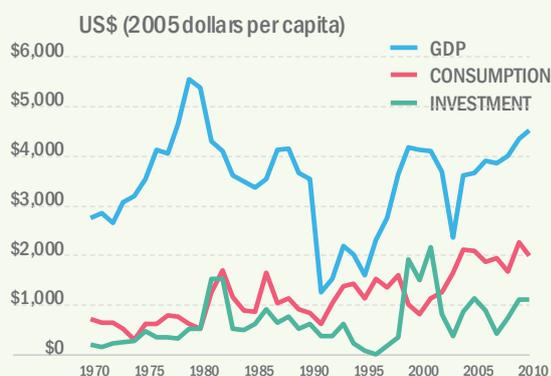
Conflict had a significant impact on average GDP, dropping from \$5,374 in 1980 to \$1,253 in 1991.



SOURCE: PENN World Table 7.1

### FIGURE 12 THE IMPACT OF CONFLICT ON IRAQ'S GDP PER CAPITA, CONSUMPTION AND INVESTMENT

Conflict resulted in a significant impact on Iraq's GDP per capita, consumption and investment.



SOURCE: PENN World Table 7.1

This prolonged history of conflict has had a devastating impact. For instance, in 1980, after initiation of hostilities with Iran, per capita GDP dropped drastically from US\$5,374 in 1980, to US\$1,253 in 1991. In fact, by 2010, although GDP per capita had climbed to US\$4,532, it was still approximately 20 percent below 1979 levels. The two steepest falls in Iraqi GDP per capita history have both coincided with the Gulf war in 1990 and the Coalition invasion in 2003, both putting Iraqi GDP per capita below 1970 levels. Similarly, in terms of human development, Iraq is below the regional average of the Arab States.

The costs of conflict also extend beyond that of its immediate impact. For instance, the per capita expenditure on violence containment was \$26.84 billion, or 15 percent of GDP. Perhaps even more striking was that this amounted to \$814 per capita. Unsurprisingly, the majority of violence containment expenditure was a consequence of military expenditure, reaching \$389 per capita, followed by the cost of homicides and GDP losses from conflict at \$143 and \$110 respectively. More detailed estimates of the most significant per capita costs of violence containment expenditure are provided in Table 8, below.

### TABLE 8 THE PER CAPITA EXPENDITURE ON VIOLENCE CONTAINMENT IN IRAQ

The majority of per capita violence containment expenditure is a result of military expenditure.

IRAQ	VIOLENCE CONTAINMENT EXPENDITURE (PER CAPITA)
MILITARY EXPENDITURE	\$389
HOMICIDES	\$143
GDP LOSSES FROM CONFLICT	\$110
INTERNAL SECURITY	\$93
TERRORISM	\$43
DEATHS FROM INTERNAL CONFLICT	\$18
PRIVATE SECURITY	\$8
IDPS AND REFUGEES	\$4
INCARCERATION	\$4
FEAR	\$2
<b>TOTAL DIRECT COST</b>	<b>\$814</b>

**The two steepest falls in Iraqi GDP per capita history have both coincided with the Gulf war in 1990 and the Coalition invasion in 2003, both putting Iraqi GDP per capita below 1970 levels**

## Case study: the costs of conflict in Afghanistan

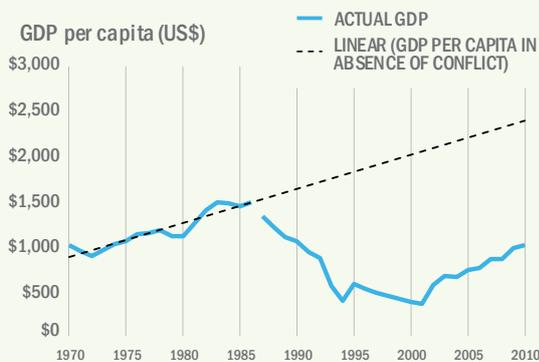
The Afghan Civil War began with the withdrawal of the occupying force of the Soviet Union in 1989. In 1992, after several years of civil war, the Afghan government succumbed to a coup. Although this was followed by a temporary recovery in economic growth, this was short lived, with a return to civil war. This continued until September 1996 when the Taliban established the Islamic Emirate of Afghanistan.

Economic growth remained stagnant over this period, until 2001, when the United States'-backed Karzai government came to power. Although this coincided with an improvement in economic performance, much of this was related to the influx of funds relating to the war effort. A consequence of this is that per capita GDP figures are likely to underestimate the true costs of the conflict.

Details of Afghanistan's GDP since 1970 have been provided in greater detail in Figure 13. The figure illustrates actual GDP before, during and after the conflict. The dark line also provides a linear projection of what GDP would have been, based on past growth, had the conflict not occurred.

**FIGURE 13 GDP PER CAPITA IN AFGHANISTAN (1970 TO 2010)**

The economic loss as a consequence of continued conflict amounts to approximately \$39 billion, which is greater than Afghanistan's current annual GDP.



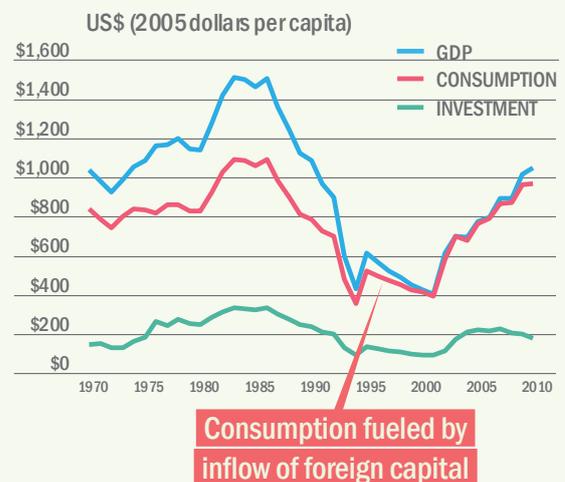
SOURCE: PENN World Table 7.1

The economic impacts of conflict were clearly significant, with a projection of GDP growth suggesting that the per capita GDP in 2010 would have been \$2,400, or almost double what was actually achieved. As a point of comparison, Afghanistan's per capita income was approximately as high in 1970 as it was in 2010, implying that conflict has cost the country at least 40 years of economic growth. Overall, IEP estimates this at \$39 billion, more than Afghanistan's entire 2010 GDP.

**Afghanistan's per capita income was approximately as high in 1970 as it was in 2010, implying that conflict has cost the country at least 40 years of economic growth.**

**FIGURE 14 THE IMPACT OF CONFLICT ON AFGHANISTAN'S GDP PER CAPITA, CONSUMPTION AND INVESTMENT**

Conflict resulted in a significant impact on GDP per capita, consumption and investment.



SOURCE: PENN World Table 7.1

Apart from the economic losses experienced due to the conflict, it is also worthwhile considering the impact on development. Afghanistan makes an interesting case study due to the focus of international donors in trying to stabilise the country through aid. For instance, according to the OECD, in 2011, Afghanistan received 4.9 percent of all development assistance, or the equivalent of approximately \$6.7 billion. As a point of comparison, this amounts to more aid than received by the entire region of South America.

It needs to be noted that Afghanistan also received substantial development aid in the form of military and judicial assistance, as well as other forms of aid that have not been included in the ODA figure. These transfers dwarf the size of the official ODA figures. In addition, much of the growth in GDP per capita has been fuelled by foreign inflows of capital and aid. This appears to have fed through to higher consumption, as opposed to longer-term investment. Although there have been some notable successes<sup>2</sup> (Sandefur, 2013) in human development, as measured by the United Nation's Human Development Index, it is still below both the world and regional average.

Violence containment expenditure in 2012 represented approximately 21 percent of Afghanistan's GDP. Of this, the three highest were found to be military expenditure, homicides and the GDP losses from conflict, accounting for \$109, \$42 and \$19 per capita. This excludes the military costs of other countries such as the U.S. More detailed results have been provided in Table 9.

### TABLE 9 THE PER CAPITA EXPENDITURE ON VIOLENCE CONTAINMENT IN AFGHANISTAN

In 2012 violence containment expenditure in Afghanistan was estimated at \$7.28 billion or 21 percent of GDP.

AFGHANISTAN	VIOLENCE CONTAINMENT EXPENDITURE (PER CAPITA)
MILITARY EXPENDITURE	\$109
HOMICIDES	\$42
GDP LOSSES FROM CONFLICT	\$19
INTERNAL SECURITY	\$15
TERRORISM	\$9
DEATHS FROM INTERNAL CONFLICT	\$5
IDPS AND REFUGEES	\$4
PRIVATE SECURITY	\$1
INCARCERATION	\$1
FEAR	\$1
TOTAL DIRECT COST	\$206

# HOW THE COST OF GLOBAL VIOLENCE CONTAINMENT IS CALCULATED

It has been well established that violence has a marked negative impact on economic activity and social development. Many studies have demonstrated the direct and indirect economic impacts of criminal violence, organised conflict and outright war, as well as the costs of state responses to violence in the form of policing, incarceration and maintenance of justice and rule of law. However, in spite of the multitude of methodological approaches to counting the costs of crime and violence, there is no universally agreed method to holistically aggregate the current and future financial effects of conflict. To complement the available literature, IEP has developed a new and novel method of estimating the cost of violence to the global economy, through calculating what is termed 'global violence containment costs'. ***IEP defines violence containment costs as economic activity that is related to the consequences or prevention of violence, where the violence is directed against people or property.***

This approach uses ten indicators from the GPI and three additional key areas of expenditure to place an economic value on these 13 different dimensions. This process has been developed so that the costs could be estimated by country, as well as globally. To enable relative comparisons between countries at different levels of economic development, GDP per capita adjusted for relative prices (PPP) has been used to scale the cost of containing violence for each country. In both the U.S. and the U.K. a number of robust analyses have been conducted on the cost of various types of violence and crime. Where data was not available for a country these studies were then scaled according to a country's GDP per capita.

Expenditure related to the prevention and alleviation of violence can divert resources from other, more beneficial, causes such as health, education or public infrastructure. That is, the costs imposed on the wider society for having to respond to greater levels of violent crime, homicide or terrorism could potentially be invested in programs that

proactively encourage a more peaceful and prosperous society. Violence can also have a range of less tangible impacts, such as increased morbidity, mortality and emotional disorders for victims and their social networks (Buvinic, Morrison, & Shifter, 1999). Therefore, to truly estimate the economic impact of violence, a multiplying factor was used to estimate the trapped economic activity that would be unleashed by reductions in violence.

Many existing approaches to counting costs of crime and conflict tend to be fixed on specific categories of violence, such as the cost of terrorism, armed conflict, violent crime or homicide. In contrast to these approaches, IEP has developed a methodology that aims to comprehensively count both the direct and indirect costs of violence, covering the costs of prevention, protection and consequences. By identifying different dimensions of violence containment spending it is possible to develop a fuller picture of the proportion of global economic activity related to the prevention of and dealing with the consequences of violence. By aggregating these total costs it is possible to illustrate the potential economic benefits of a more peaceful global economy.

There are at least two types of economic gains associated with increases in peace:

- 1 **The direct benefits** may be those associated with the absence of violence and the loss due to asset destruction that can occur in war, organised conflict or armed violence. Importantly, the direct benefits also accrue in terms of lowering the costs of preventing violence and the risk abatement required to mitigate violence via incarceration, justice expenditure, policing and the military. Tangible examples of direct costs include: medical costs from violence; lost wages from violence-related incapacitation or death; insurance premiums paid by business to protect against the consequences of asset destruction and private security guards.

2 **The indirect benefits** generated from the additional economic activity gained from the more productive use of expenditure as well as the flow-on effects from economic activity trapped by violence. Very large indirect benefits may accrue when one considers the loss of human capital when labour or capital is displaced by violence, when it could be productively transferred to other more economically efficient and positive investments.

The analysis is also complemented by previous research commissioned by IEP and conducted by Professors Jurgen Brauer and John Tepper-Marlin, who developed a methodology to analyse the economic value of peace to the global economy. This methodology found that the total economic effect of violence in 2012 on the global economy was US\$8.99 trillion, or approximately 13.1 percent of gross world product.

## CATEGORIES USED TO COUNT THE YEARLY COST OF VIOLENCE CONTAINMENT

In calculating the total global size of violence containment costs, the GPI has been used as an initial point of reference for specifying the indicators that most accurately reflect the level of violence in a nation. Financial costs were determined by first measuring the level of specific types of violence and multiplying these by estimates of their likely cost.

Types of violence that were included as part of the analysis include:

- The number of deaths from internal conflict
- The number of deaths from external conflict
- The level of violent crime
- The level of expenditure on the military
- The number of refugees, stateless and internally displaced persons
- The number of homicides
- The number of internal security officers and police
- The extent of the jailed population
- Private security forces
- The costs of terrorism
- The economic cost of conflict to the economy
- The costs associated with fear from violence
- The cost of funding UN peacekeeping missions.

## METHODOLOGY

Because the GPI comprises a range of both quantitative and qualitative measures that are scaled and weighted as part of creating the index, the analysis was based on the original underlying data, or 'raw scores', where possible. That is, the data underlying the index, such as the number of homicides

that have occurred in a country was used. Individual raw scores were then multiplied by the 'unit cost' of a particular type of violence to provide a total cost for each type of violence. For instance, the total cost of homicide was estimated by multiplying the number of homicides by estimates of the cost of a homicide.

The final value therefore provides an indication of the annual cost of violence to a country. Where unit costs were unavailable, estimates from the literature were 'scaled' in order to provide a reasonable approximation of the domestic costs per occurrence of violence for each category. Typically this was conducted using the ratio of the GDP per capita between the estimate country and the country being examined. An example of the scaling methodology is provided below in Figure 15. As can be seen, countries such as Somalia and Thailand whose GDP per capita is one percent and 18 percent of the United States respectively have their costs of violence scaled accordingly. For example, based on relative incomes and purchasing power it is assumed that the cost of violence in Somalia is 1.4 percent of the cost in the United States or \$1,703 (US\$ PPP).

Although a range of methods were considered by IEP, this method was preferred as it simply provides a proxy for averaging differences in living standards and the likely direct and indirect costs of violence containment across nations. In order to adjust for differing price levels across countries, 'Purchasing Power Parity' estimates were used, unless otherwise mentioned. Because estimates were often unavailable for the current year, past estimates were inflated to 2012 dollars, according to the relevant change in consumer prices, sourced from the U.S. Bureau of Labor Statistics.

### FIGURE 15 SCALING VIOLENT CRIME BY GDP PER CAPITA (PPP)

The cost of violence for Thailand and Somalia when scaled by GDP per capita (PPP) is \$1,703 and \$21,677 respectively.



SOURCE: Institute for Economics and Peace

When qualitative indicators used in the GPI were identified as being crucial for determining the extent and therefore the cost of violence, alternative data was used. For instance, UNODC data on violent crimes was substituted for the qualitative 'Extent of Violent Crime' indicator. A more detailed overview of the methodology employed for individual components has been provided below.

### Calculating the cost of internal security officers

To provide estimates of likely costs for security personnel, a review of the literature was conducted to provide a credible estimate of the cost of an internal security officer. Where direct estimates were unavailable for a country, the available estimates were 'scaled' by GDP per capita (PPP). That is, if a country's average GDP was lower than the country in which the cost estimate was sourced from, the cost for that country would be reduced proportionally to account for this.

Data on the number of officers were sourced from the United Nations Office on Drugs and Crime, the United Nations Surveys of Crime Trends and Operation of Criminal Justice Systems and the Economist Intelligence Unit. Importantly, because these are reported in the numbers of personnel per one hundred thousand people, the raw estimates were multiplied by the relevant population statistics to arrive at an absolute number of internal security personnel for each country.

### Calculating the global costs of violence and loss of life

Estimates of the costs attributable to deaths and violence were based on studies by McCollister (2010) who used a range of methods to estimate both the tangible and intangible costs attributable to violence and homicides. Specifically, their analysis used the 'cost-of-illness' and extent of 'jury compensation' to estimate the costs of crime in the United States. Because the jury compensation method attempts to comprehensively take into account both the direct costs of violence and its associated pain and suffering, it is considered to be a more comprehensive measure. This method does not include punitive damages that may be awarded by U.S. courts in civil cases.

These estimates were therefore used as the underlying assumption for the cost of a homicide, violent assault, death from external conflict and a terrorism-related fatality or injury. Specifically, a homicide was assumed to cost \$8,888,692, while each violent assault and terrorism-related injury was \$120,622. Because it was assumed that many of the costs related to deaths from conflict would be accounted for in military expenditure, only direct costs were included, that is the cost was assumed as \$1,370,449 (McCollister, French, & Fang, 2010). It is important to note that these estimates are considered to be relatively conservative, being located near the middle of estimates

by similar studies (Aos, Phipps, Barnoski, & Lieb, 2001; Cohen, Rust, Steen, & Tidd, 2004; Cohen, 1988; Miller, Cohen, & Rossman, 1993; Miller, Cohen, & Wiersema, 1996; Rajkumar & French, 1997).

### Calculating the costs of homicide

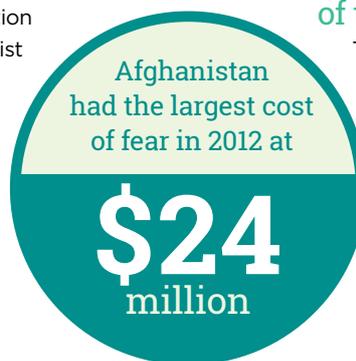
The total costs of homicide were determined by multiplying the aforementioned cost per homicide by the number of homicides that occurred in the most recent year. Data was sourced from the United Nation's Survey of Crime Trends and Operations of Criminal Justice Systems for 2013. The dataset provides intentional homicide data for 198 countries and territories and has been elaborated by UNODC from a number of sources, including data provided to the Crime Trends Survey and other national and cross-national criminal justice and public health sources. For countries where the cost estimates of homicide did not exist, available estimates were used and 'scaled' according to their GDP per capita (PPP), relative to the source of the estimate.

### Calculating the costs of terrorism

The costs of terrorism were estimated using data from the Global Terrorism Database (GTD), which is collated by the National Consortium for the Study of Terrorism and Responses to Terrorism (START). The database is currently the most comprehensive unclassified database on terrorist events in the world and has been developed from a range of sources, including wire services, government reports and major international newspapers.

The database, which includes individual terrorist attacks back to 1970, provides a range of variables such as estimates of the infrastructure damage, ransom paid, type of attack and the number of injuries and fatalities per attack. The costs of deaths and injuries from terrorism were estimated by multiplying the number of deaths by the costs of homicide or injury using the values previously described as the cost of a violent injury or death and then scaled for an individual country's GDP per capita (GDP PPP) relative to the source of the estimate. Because not all terrorist attacks in the terrorism database include an estimate of the extent of property damage and extortion, the average damage was used for each attack according to the type of attack, income level of the country and the recorded 'range' of damage. From this analysis, a table was developed with estimates of the cost of a terrorist attack according to the type of attack, income-level of the country and an estimate of the likely damage resulting from the attack.

Estimates of the average level of infrastructure damage and ransom payments made by attack type were then multiplied by the number of each type of attack experienced by a country in 2011, the most recent year available in the GTD.



## Calculating the costs of incarceration

The numbers of prisoners per country were sourced from the World Prison Population list, which has been based on figures from the national prison administration of each country. This was then multiplied by an estimate of incarceration costs per capita. Prisoner costs were based on the average cost per prisoner from the United States Bureau of Justice Statistics (BJS). This estimate was then scaled according to relative GDP per capita (PPP) so as to account for differing price levels across nations.

Because the original BJS figures do not count the full public expenditures that may relate to maintaining the correctional services and administrative functions related to a prisoner, this is considered to be a conservative assumption.

## Calculating the costs of violent crime

Because the level of violent crime is a qualitative indicator, estimates of violent crime were based on the United Nations Office on Drugs and Crime's (UNODC) statistics regarding violent assault. The estimates include police-recorded physical attacks against another person resulting in serious bodily injury but exclude indecent/sexual assault, threats and slapping/punching and assault which led to death. As previously discussed, costs for each violent crime were based upon estimates provided by McCollister (2010).

Because the level of violent crime is generally under-reported, estimates based on this are likely to underrepresent its true cost.

## Calculating military expenditure

Data from the Economist Intelligence Unit and the International Institute for Strategic Studies' (IISS) 2013 Military Balance as well as the Stockholm International Peace Research Institute (SIPRI) was used to provide a direct estimate of the level of military expenditure for each country. In order to account for differing price levels across countries, GDP, which accounts for relative purchasing power, was applied (PPP). Previous research by IEP has found that the level of military expenditure for the U.S. is significantly underreported. Consequently, it was revised upwards to \$1,203 billion as per the report *Violence Containment Spending in the United States* (IEP 2012).

## Calculating the cost of UN Peacekeeping

In order to account for the costs of maintaining peace through peacekeeping missions, data on United Nations peacekeeping missions was collected from the UN Committee on Contributions. Because the financial costs of peacekeeping missions reflect the requirement for violence containment in a specific country, the costs of missions have been attributed to the country in which they hold a base of operations. Importantly, because these funds are provided by the international community, they

are expected to hold a similar level of purchasing power as U.S. dollars. They have therefore not been adjusted for the relative price levels of countries.

## Calculating costs of deaths from internal and external conflict

The cost of deaths from external and internal conflict was determined for each nation by multiplying the most recent number of battlefield deaths from conflict by the estimated cost of homicide.

Data on deaths from external conflict was sourced from the Uppsala Conflict Data Program. Deaths from external conflict were defined as those which occurred during a contested incompatibility that concerns government and/or a territory where there is the use of armed force between two parties, of which at least one is the government of a state, resulting in at least 25 battle-related deaths in a year.

Deaths from internal conflict were sourced from the International Institute for Strategic Studies Armed Conflict Database. Conflict deaths were defined as deaths which occurred from a contested incompatibility that concerns a government and/or a territory where there is use of armed force between two parties, of which at least one is the government of a state and the conflict results in at least 25 battle-related deaths in a year.

Although it is likely that the costs of deaths from conflict vary, homicide estimates were considered to be the most representative estimate of both the intangible and tangible costs of death. For individual countries, these estimates were then scaled according to relative GDP per capita (PPP).



## Calculating the cost of the fear of violence

In order to provide an estimate of the intangible cost of fear, Gallup World Poll data was used to estimate the number of people who are fearful of crime. Specifically, the poll question used asked "Do you feel safe walking alone at night in the city or area where you live?" When a person answered 'no', they were considered to be in fear of violence. The proportion who answered 'no' was then multiplied by a nation's population to determine the number of people who could be considered to be fearful of crime.

A review of the literature suggested that in the UK the average annual health costs of being fearful of crime are £19.50 per capita (Dolan & Peasgood, 2007). The cost of the fear of violence was therefore estimated by multiplying the number of people fearful of a crime by the annual cost of being fearful. Where necessary, the estimates of the cost of fear were scaled according to a country's relative GDP per capita (PPP).

## Calculating the cost of displacement and refugees

The costs of refugees, internally displaced and stateless persons were determined using the most recent budget allocations of the United Nations High Commissioner for Refugees (UNHCR) for individual countries. Because the UNHCR is the UN agency mandated to support and protect the displaced, their budgetary allocations are expected to reflect the level of financial support required to respond to displacement. Importantly, because these allocations are not likely to encompass all costs associated with refugees, such as contributions by the state, they are also expected to be conservative.

## Calculating loss of production from conflict

For those countries currently experiencing conflict, the cost in terms of lost output was estimated by applying estimates of the impact of war to the GDP of countries currently in conflict. A review of the literature suggested that the immediate impact of conflict was between two and eight percent of GDP (Collier & Hoeffler, 1998; Hess, 2003).

The issue of 'double counting' was also addressed. Specifically, because many studies take a top-down approach to estimating the impact of conflict on GDP, there is a possibility that their estimates will also count costs that have been individually estimated, such as the costs of violence or fear. However, the risk of this was considered low due to the methodology employed by the chosen studies being sufficiently detailed to account for this.

It was therefore decided to use two percent, as this represented the most conservative assumption and was considered to minimise the chances of overestimating the costs of conflict. This choice also appeared to be confirmed by recent research on 'Arab Spring' countries, where the reduction of GDP was two percent on average (Middlebrook, Hajaj, Miller, Stellman, Stewart, Bennamou, Ahmed, 2011).

Conflict-affected states were identified from the Uppsala Conflict Data Program, which identified 22 countries currently in conflict as of 2012. In total these countries represent a GDP (PPP) of \$4 trillion. The total cost of conflict was therefore estimated as being \$82 billion for these countries. Individual estimates of being in conflict were therefore determined by multiplying a country currently in conflict's GDP (PPP) by two percent.

## Calculating the cost of private security guards

The number of internal security officers was estimated using collated estimates from the 2011 edition of the Small Arms Survey (GIIDS, 2011). Data was available for 68 countries. Because estimates were often not current, they were inflated by multiplying the current number of internal security personnel with the ratio of private security to internal security from the Small Arms Survey. Essentially, this assumes that the number of private security personnel

would grow at the same rate as internal security.

To determine the overall financial cost of private security, the number of officers were then multiplied by \$49,500, which represents a high estimate of the starting salaries for internal security officers in the U.S., from the U.S. Bureau of Justice Statistics. The upper starting salary was used to account for the other costs not reflected in the starting salary, such as overheads. This is also considered a relatively conservative assumption given that this represents a little under 40 percent of the assumed cost of a government employed internal security officer. Where necessary, these unit costs were then scaled according to relative GDP per capita (PPP) to proxy differences in living standards and prices in individual countries

Where estimates on the level of private security were not available, no cost was attributed to this country. Again, when combined with the conservative unit cost of a security officer, this suggests that we are likely underestimating the true costs of private security for a number of countries.

# RESEARCH IMPLICATIONS

IEP has developed a new and groundbreaking method of estimating the cost of violence to the global economy. While quantifying the economic costs of violence containment in its own right is useful, one of the most powerful outcomes from this study is the ability to provide a means of making relative comparisons of the cost of interventions against their likely economic benefit. Through the use of economic analysis, combined with estimates of the likelihood of success, it may be possible to better target peacebuilding initiatives.

Unfortunately, the potential short and long-term economic ramifications of conflict are often poorly understood prior to conflict. The U.S. interventions in Iraq and Afghanistan underline how immediate political or strategic imperatives are more often the major determinants of the decisions surrounding conflict.

In calculating the likely impact of war, the spill-over effects are also potentially large and extend beyond that of immediate neighbours, with the disruption of markets and resource access impacting regional trade and the global economy. For instance, the 2003 invasion of Iraq resulted in sharp increases in the world price of oil, increasing energy costs for households and stunting world economic growth (Salameh 2009). This is a clear example of how the price of one conflict can be borne by the global community, providing a powerful argument for the benefits of global cooperation to secure peace and prosperity.

The research also provides greater clarity to the cost and benefits of a range of pre-emptive policy interventions. Simple and unambiguous examples of this are the powerful economic case for negotiated settlements to disputes such as those that occurred in Indonesia with the 'Free Aceh Movement' or in Northern Ireland with the Irish Republican Army (IRA). This is simply because the direct costs of engaging in a peaceful settlement, through processes such as mediation, are relatively inexpensive particularly when compared to the significant costs of conflict. Tangible demonstrations of the mutual economic benefits that can flow to all actors from peaceful settlement can provide a powerful material incentive to advance the willingness of combatants to cease conflict and seek peace.

Nepal provides a clear example of the economic benefits of peace agreements, where the human and economic costs of conflict clearly dwarf the small costs of seeking peace. For instance, up until the end of the armed conflict in 2006 there were an estimated 13,347

killings, which, following the methodology outlined in this study, would suggest an economic cost of over \$3 billion dollars. This is in stark contrast to recent estimates of the total cost of the peace process in Nepal, which suggest expenditure of approximately \$207 million, or less than 10 percent of the costs of the conflict (NIPS 2013). Crucially, this simple estimate also excludes the many other costs that accompanied the conflict, such as the destruction of property, human displacement and fear. Consequently, the benefits of peace are likely to be much greater.

Another example is the payback from improved police and judicial training. Through more effective policing and the effective prosecution of homicides, violent crime can be reduced. For instance, in a population of two million people with a per capita income of \$10,000, if homicides could be reduced by five per 100,000 people, the country could stand to gain \$209 million per annum.

As a point of reference, achieving such a reduction in crime is entirely possible through the employment of more effective approaches to policing. For instance, in Brazil the 'Dial Denounce' program encouraged the wider community to report crime via a 24-hr call centre, allowing information on the location and nature of crimes to be more quickly disseminated to law enforcement personnel, aiding in crime prevention efforts (OECD, 2011). The potential effectiveness of such programs was also confirmed by analysis of policing in Los Angeles, which found that savings of upwards of \$474.9 million could be achieved through investments of approximately \$150 million (RAND, 2010).

This was similarly demonstrated in the Dominican Republic with the implementation of the 'Democratic Security Plan'. The plan, which was aimed at reducing crime in the city of Capotillo, involved a range of interventions designed to reduce crime and violence. Interventions included increased police patrols, improved street lighting and investments in education infrastructure. The program was allocated \$1.6 million<sup>4</sup> (UNODC, 2007).

Early indications suggested that after its implementation, homicides were reduced by 70 percent, resulting in 21 fewer deaths in the area. As outlined in this study, for each death avoided, the Dominican Republic would stand to benefit as a result of lower medical costs and higher wages for those who would have been victims as well as greater productivity as a result of the avoided fear, pain and suffering. Importantly, this would suggest that even on a purely financial basis the program would be

worthwhile, provided the community is willing to pay at least \$76 thousand<sup>5</sup> to avoid each homicide.

When this is analysed through the methodology in this report, this would suggest savings of upwards of \$38 million as a consequence of avoiding the lost productivity, pain and suffering that come from a homicide. Although this research recognises the difficulty in ascribing financial costs to the individual impacts of violence, it is clear that the potential savings from programs aimed at reducing violence can be significant and make economic sense.

Similarly in Mexico, the government has recently allocated \$9.1 billion to programs designed to curb violence in 220 of the most violent neighbourhoods. Specifically, the program seeks to achieve reductions in crime through expanding schooling, developing public recreational areas and creating jobs (Economist, 2013).

Aside from the evident positive value of education and employment in their own right, the indirect benefits of reducing violence would potentially cover the cost of the program.

For instance, the methodology used in this study would suggest this program would be economically viable provided it is able to result in 2,640 fewer homicides, 54,000 less violent crimes and result in 4.5 million people no longer living in fear. To put this in a national perspective, over a five-year period, this would represent a reduction in fear, homicide and violent crime of 1.4 percent in Mexico. Although evaluating the potential impact of the program is not possible, due to it only recently being launched, it does illustrate how the use of this methodology can practically help expand the evidence base of the 'peace dividend' that reductions in violence can bring.<sup>5</sup>

These findings also demonstrate to the international community the important economic necessity of investing in peace with respect to international development frameworks, such as the UN's post-2015 Development Agenda. This research clearly shows many of those countries with the highest expenditure on violence are also some of the poorest, such that spending on violence often dwarfs official development assistance.

This study provides a powerful starting point for future research by providing one of the most comprehensive estimates of the costs of violence containment. While the approach has attempted to comprehensively account for the economic cost of violence containment there are many costs which, due to incomplete or insufficient data, have not been included suggesting that the true economic benefits of peace are likely to be much larger than estimated.

This research clearly shows many of those countries with the highest expenditure on violence are also some of the poorest, such that spending on violence often dwarfs Official Development Assistance.

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## Endnotes

- 1 A previous study from the Institute for Economics and Peace (IEP) on US violence containment spending shows that public sector spending in national defence was the largest contributor to the country's total violence containment spending. The levels were also higher than reported. Reflecting this, estimates for the US have been adjusted. Details of this adjustment have been provided in the methodology.
- 2 Sandefur, J., 'Here's the Best Thing the U.S. Has Done in Afghanistan', *The Atlantic*, <http://www.theatlantic.com>
- 3 All the aforementioned figures are presented in 2012 dollars.
- 4 This figure has been inflated to represent 2012 dollars.
- 5 Crime statistics sourced from Mexico's Executive Secretary of the National System for Public Security. Figures have been adjusted for underreporting using the 2012 'Victimization Perceptions of Security Survey' (ENVIPE) survey.

# Appendix 1

## ECONOMIC COST OF VIOLENCE LITERATURE REVIEW

Violence can be described as “an intentional use of force or power with a predetermined end by which one or more persons produce physical, mental (psychological), or sexual injury, injure the freedom of movement, or cause the death of another person or persons”, including him or herself (Concha-Eastman, 2002). The sources of violence are diverse, ranging from different types of crimes to terrorism and armed conflicts. While the social impact of violence is well understood, there is no agreement regarding the economic impact of violence for the world economy and its quantification.

A review of the crime-costing literature reveals multiple sources, including published articles and government reports, which collectively represent the alternative approaches for estimating the economic losses associated with criminal activity.

Most of the studies identify different types of costs associated with crime, placing emphasis on the existence of tangible and intangible costs and their measurement methods. One influential paper regarding the cost of crime was written by Cohen (2000), who reviewed some of the methodologies to measure society’s responses to crime and its cost. He identified a number of different approaches to measuring society’s response to the costs of crime, and classified costs as either tangible or intangible, and measurement methods as either direct or indirect. He defined tangible costs as those that involve monetary payments such as medical costs, stolen or damaged property, wage losses, prison cells, and police expenditures. On the other hand, he classified as intangible or non-monetary those costs not normally exchanged in private or public markets, such as fear, pain, suffering and lost quality of life.

Since intangible costs are relatively harder to identify and measure, there are several approaches that have been used to estimate their monetary value. A recent trend in cost of crime estimates has been towards a ‘willingness to pay’ methodology (Webber A, 2010). This involves asking the public what they would be willing to pay to reduce the likelihood of becoming a victim of a specific crime and then combining this with information about the risk of victimisation to calculate the implied cost of one crime from the results. However, one limitation to “willingness to pay” measures is that the methodology assumes that people are well informed about the risks of crime. If there are misperceptions regarding crime in the community,

then “willingness to pay” estimates may not be completely accurate (Mayhew, 2003). Even though the willingness to pay method has been used in recent studies, there is a methodology developed by Cohen M. (2000) for the estimation of the intangible costs of crime which is the reference for many of the studies in the field. He used the “jury compensation method”, which is based on jury award data to estimate the monetary value of pain, suffering and lost quality of life for non-fatal injuries.

Another recent study by McCollister et al (2010) distinguished between tangible and intangible costs. Their analysis followed a two-pronged approach that employs both cost-of-illness and jury compensation methods to estimate the costs of crime for the U.S. The cost-of-illness approach estimates the tangible costs of crime, including lost productivity for the perpetrator and victim as well as short-term medical expenses, lost earnings and property damage/loss for the victim. As part of the tangible costs, they also include a “crime career cost” that has not always been explicitly measured in previous studies, defined as the opportunity costs associated with the criminal’s choice to engage in illegal rather than legal and productive activities. The intangible costs for victims were estimated based on the difference between the jury’s total award and the direct economic loss to the victim including medical expenses and lost earnings incurred by the victim, which are determined during the trial. Considering only tangible costs, such as victim cost, crime career cost, and justice system cost their figures were as follows: for murder \$1,278,424, rape/sexual assault \$41,247, aggravated assault \$19,537 and robbery \$21,398. Their total cost estimations, tangible and intangible, were much higher with murder being estimated at nearly \$9 million per offense, rape/sexual assault at \$240,776 per offense, aggravated assault at \$107,020 and the average robbery leads to a societal burden of \$42,310. These figures clearly show the significance of intangible costs in determining the totals.

Following the same line of research, Mayhew and Adkins (2003) assessed some of the major costs in Australia for a range of offences, using similar methodologies as other studies in the U.S. and U.K. That is, they considered tangible and intangible costs, but clarified that measuring the full impact of crime requires an estimate of the actual number of crimes that occur rather than the number recorded by police. Their approach was to use victimisation survey figures to estimate the “real” level of crime. They then

constructed a multiplier for each crime which was the ratio between the survey-estimated number of crimes in 1997-98 and the number recorded by the police over the same period. The methodology follows current work in the U.S. and the U.K. insofar as estimates are made of medical costs, lost output and intangible costs. It is worth noting that many studies use homicide data as a starting point and then estimate other crimes with reference to the homicide figure and because the estimate represents the value of a life, estimates of the value of a statistical life (VSL) from other fields, such as health or road safety, can be used for comparison (Miller, 2000).

In addition to all these tangible and intangible costs identified in most of the literature, crime and violence have significant “multiplier” effects on the economy by depressing savings, investments, earnings, productivity, labour market participation, tourism and ultimately, growth. Morrison et al (2003) presented a typology of many of the costs that may be associated with violence, which not only reflect direct monetary and non-monetary costs, but also other so-called economic multiplier effects including macroeconomic, labour market, intergenerational productivity effects and social multiplier effects, that refer to the impact on interpersonal relations and quality of life. As an example, they mentioned a case study of Colombia, which suggested that for every additional ten homicides per 100,000 residents, the level of investment falls by approximately four percent, or alternatively, if homicide rates in Colombia had remained unchanged since the 1960s, total annual investment in Colombia today would be around 20 percent higher.

Building further on the existing body of literature related to violence, there are other studies that have attempted to measure the cost of violence resulting from terrorism and conflicts. For instance, Crain & Crain (2005) estimated the macroeconomic consequences of terrorism on GDP, investment, consumer spending and tourism, showing that a reduction in terrorism could potentially yield large economic benefits depending on the country's demographics, base level of output and investment.

Following the same line of research, Blomberg et al. (2004) examined the macroeconomic consequences of international terrorism in 177 countries from 1968 to 2000 and found that terrorism has a negative effect on growth but was considerably smaller and less persistent than external wars or internal conflict. Their data indicated that terrorism had a negative impact on investment to the extent that terrorism resulted in a decline in the ratio of investment to GDP of 0.5 percent. Furthermore, the study found that the economic consequences of terrorism are visible only in the short term and dissipate quickly, even after one year, while the effects of external wars take up to three years and internal conflict takes up to six years to dissipate.

Regarding the effects of internal and external conflicts and the cost for the countries involved, several studies have attempted to quantify the extent of the damage

imposed on the societies by this type of violence. De Groot et al. (2009) pointed out that one overlapping feature of most studies is that they tend to express the economic consequences of conflict as a proportion of Gross Domestic Product (GDP) and many of them only include effects that are directly attributable to the conflict and omit the indirect costs. The literature presents two main lines of research, in terms of the methodology used, to estimate the cost of conflicts: one is an accounting technique, while the other uses counterfactual analysis. The first tries to calculate the total value of goods destroyed as a result of conflict, whereas the latter estimates a conflict-free counterfactual and considers the gap between such counterfactual and the actual situation as the cost of the conflict.

Most studies rely on counterfactual regression analyses such as the study from Abadie & Gardeazabal (2003) who investigated the economic effects of conflict using the terrorist conflict in the Basque Country as a case study. Their methodology used a combination of other Spanish regions to construct the “synthetic” control region, which resembles relevant economic characteristics of the Basque Country before the outset of Basque political terrorism. They compared the economic evolution of a Basque Country without terrorism to its actual experience and found that, after the outbreak of terrorism, per capita GDP declined about ten percentage points relative to the synthetic control region.

Similarly, Kelegama (1999) analysed Sri Lanka and attributed the opportunity costs in terms of GDP forgone as a result of the conflict to specific channels. They used data on military expenditure to calculate the amount of forgone investment and calculated the influence of forgone investment on the growth rate of GDP. Additionally, they analysed temporary losses in production on the basis of destroyed assets and the losses due to forgone tourism. Finally, they even included the rehabilitation costs of displaced persons as a cost of the conflict. Even though case studies are valuable, there is little consistency across them. In addition, studies that use a cross-country perspective generally assume the consequences of conflict adhere to a common pattern across countries and time periods (de Groot et al, 2009).

One of the most influential studies in the literature to survey the economic consequences of conflict is from Collier (1999), who focuses on civil war. He argued that civil wars affect growth through the destruction of resources, the disruption of infrastructure and social order, budgetary substitution, dissaving and portfolio substitution of foreign investors, highlighting that the first four of these channels are expected to influence an economy only during conflict, whereas the final one is likely to continue having an effect after the restoration of peace. In particular, he argued that long-running conflicts are more likely to be followed by an increase in growth, whereas short-lasting conflicts will suffer reduced growth rates over a longer period of time. He supported his argument using data on all civil wars since 1960 and running an Ordinary Least Squares (OLS)

regression model, concluding that during civil conflict, the annual growth rate is reduced by 2.2 percent. After a one-year conflict, the five post-conflict years will have a growth rate 2.1 percent below the growth path in absence of conflict. On the other hand, after a 15 year conflict, the post-war growth rate is 5.9 percent higher.

Hess (2003) presented an interesting methodology to measure the economic welfare cost of conflict, very different from the standard Collier-style regressions. He sets out to estimate how much income people would be willing to give up to live in a peaceful world. He employs a technique developed by Lucas (1987) and compares the actual consumption path of the world's citizens with a hypothetical consumption path in a world in which there is no conflict at all. He found that individuals who live in a country that has experienced some conflict during the 1960-1992 period would permanently give up to approximately 8 percent of their current level of consumption to live in a purely peaceful world.

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