

# Australian Institute for Business and Economics (AIBE)



## What are the commercial effects of terrorism?

Yin Zi & Jake Sullivan

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## Abstract

This paper decomposes the commercial effects of terrorism in a systematic way. To achieve this, we integrate findings from the extant literature and develop our own framework for understanding the commercial effects of terrorism. We complement our theoretical work with insights from the September 11 terrorist attacks in New York.

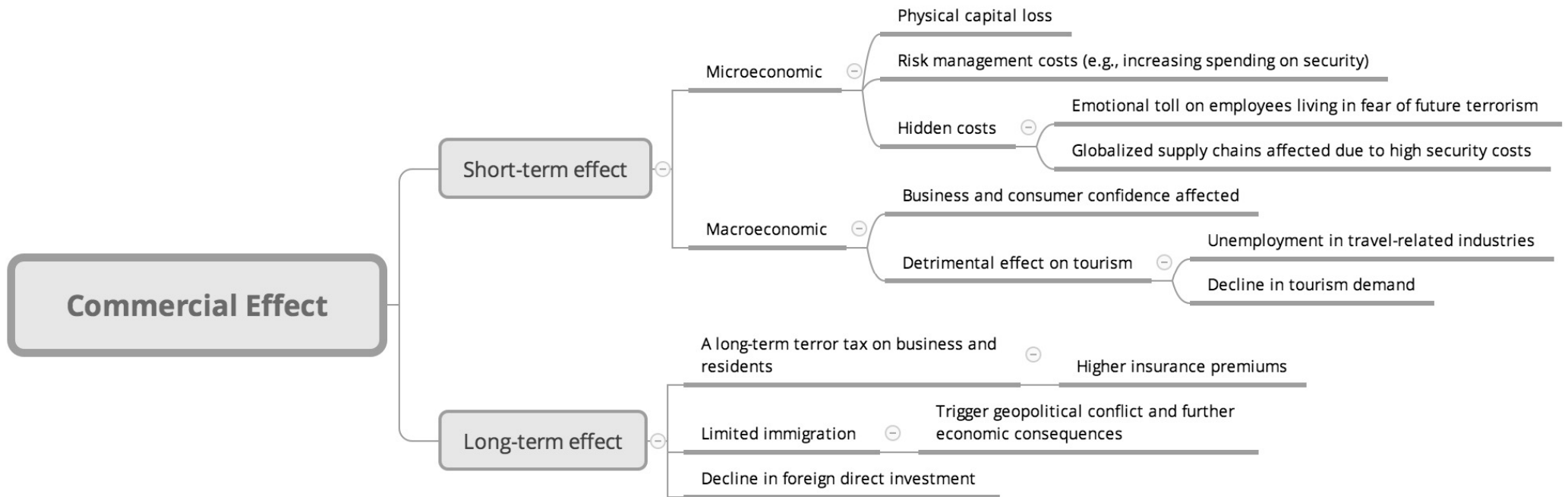
The theoretical elements of this article define terrorism and represent the various effects of terrorism on the commercial sector. We divide the commercial impact into both short- and long-term effects. Specifically, we consider the short-term macro- and micro-economic effects, the long-term effects resulting from “terror taxes” and other hidden costs. We present our framework in Figure (1). We provide empirical evidence for elements of this framework throughout, with a specific focus on the September 11 terrorist attacks and the consequences of these attacks for financial markets, uncertainty and consumer confidence.

## Economic Consequences of Terrorism

Terrorism is defined as the use, or threatened use, of violence by individuals or groups to attain a social or political objective through means of intimidating a large audience. This intimidation frequently extends beyond those individuals directly targeted by the violence. The actions of terrorists normally follow a pattern, manifesting themselves in common forms such as assassinations, bombings, airplane hijackings, kidnappings, and suicide attacks. Fundamentally, terrorist attacks are intended to exert significant pressure on governments and/or societies to grant political and/or social concessions. Concerningly, in recent years terrorism has developed a new pattern, with attacks shifting from military targets to civilians. These attacks target individuals and businesses and have significant negative impacts on the commercial sector; the U.S. Department of State (2003) reports that business facilities have represented by far the preferred target of international terrorist attacks since 1989. In assessing the consequences of terrorist attacks on businesses, we decompose the negative commercial effects into short-term direct effects and long-term productivity effects.

Figure 1: Framework of the Commercial Effects of Terrorism

Figure 1 presents our framework for assessing the negative commercial effects associated with terrorist attacks.



## Short-Term Effects

The direct economic costs of terrorism often include a devastating loss of life and property. These immediate negative effects give rise to a sequence of other short-term economic consequences which require the provision of emergency services and temporary living assistance as well as the rebuilding of systems and affected infrastructure. The direct economic costs associated with a terrorist attack are proportionate to the intensity of the attack and the size and characteristics of the economy affected. Larger, more developed, less frequently targeted economies are more robust to attacks than their developing counterparts. In analysing the short-term commercial effects of terrorism, we separate our analysis into an assessment of macroeconomic and microeconomic effects.

### Microeconomic Effects

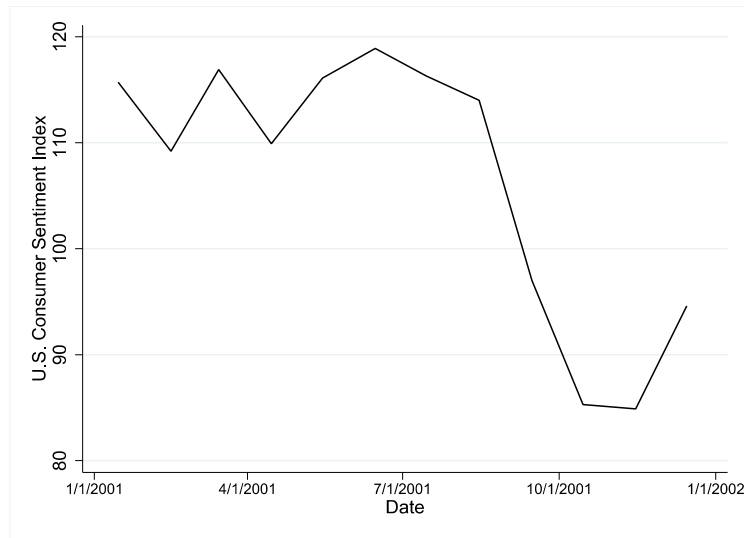
There are a number of cost distinctions that can be made regarding terrorism-related losses in the perspective of microeconomics. The most direct of these costs is the physical capital loss. This capital loss may include damaged goods, destroyed and damaged infrastructure as well as the reduction in labour capital through loss of life. Surprisingly, even though the physical capital cost is the most salient of the losses associated with a terrorist attack, it normally represents a small fraction of overall cost (London Chamber of Commerce and Industry, 2005). A cost which is less obvious yet relatively significant is the cost associated with increased risk management following large attacks. For example, Hobijn and Sager (2007) examine the increase in homeland security outlays in the wake of the September 11 terror attacks and estimate that expenditure of this kind rose from \$56.0 billion in 2001 to \$99.5 billion in 2005. In addition to increased expenditure at the federal level, one of the consequences of the September 11 attacks has been an increasing role for municipal governments in providing security for their citizens (Eisinger, 2004). The U.S. Conference of Mayors estimates that this additional responsibility cost American cities \$2.1 billion dollars in 2002 alone (U.S. Conference of Mayors, 2002b). Moreover, following the commencement of the war in Iraq, the aggregate security spending of cities of all sizes is estimated to have been in the order of \$70 million dollars per week (U.S. Conference of Mayors, 2003b).

One of the hidden short-term microeconomic costs of terrorism is the psychological trauma caused by a

terrorist attack. In a report examining the resilience of American cities to terror attacks, Harrigan and Martin (2002) find that the emotional harm on employees who live in fear of future terrorist attacks may reveal itself as a cost through increased stress-related absenteeism over time. In the same way that financial crises propagate from one market to another, these emotional influences also spread throughout an affected country facilitated by a rapid news cycle and integrated supply chains, significantly influencing consumer confidence. Although the individual psychological effects of terrorism are highly dependent on an individual's experience and level of psychological development at the time of the attack (Desivilya, Gal & Ayalon, 1996), evidence on the aggregate psychological effect of the September 11 attacks on the New York population suggest that such effects are transient, with probable negative psychological effects decreasing by more than 90% in the six months following September 11 (Gaeta et al., 2003).

Figure 2: Consumer Confidence and September 11

Figure 2 depicts monthly variation in the Conference Board's Consumer Confidence Index in 2001. Data obtained from Thomson Reuters.



A number of studies within the economics literature investigate the microeconomic consequences of sector-specific attacks (Chen & Siems, 2004; Drakos & Kutan, 2003; Eldor & Melnick, 2004; Enders, Sandler, & Parise, 1992; Nitsch & Schumacher, 2004). The majority of these studies focus on effects within the tourism sector and on trade. Focusing on the relationship between trade and terrorism, Nitsch and Schumacher (2004) estimate the effects of global terrorism on bilateral trade flows using a standard trade-gravity model. In their model, trade flows between trading partners depend on terrorist attacks, the distance between the two countries, an income variable, income per capita and several dummy variables. Nitsch and Schumacher find that incidents of terrorism occurring in the country of a trading partner reduce bilateral trade by almost 10% compared to trading partners unaffected by terrorism.

In addition to the negative impact of terrorism for international trade, attacks on tourist venues (e.g. hotels and attractions) or modes of transport also make terrorism a salient consideration for potential holidaymakers. Single acts of terrorism at popular tourist destinations, such as those in Nice in 2016, alter tourists' plans and encourage them to holiday at home or in a terror-free country. Estrada and Koutronas (2016) establish conceptual foundations of analysing the economic dimensions of terrorism by using an economic impact of terrorist attack model (EITA-Model). Using this model, the authors show that real gross city product for Paris decreased 38% following the Paris terrorist attacks in November 2015. In a similar vein, Enders and Sandler (1991) use monthly

data from 1970 to 1991 to study the relationship between terrorism and tourism in Spain. Employing time-series analysis to gauge the impact of terror on tourism both at the country and community levels, the authors estimate that a typical terrorist incident could lead to a reduction in the amount of tourist arrivals by approximately 140,000 per month, on average. Similarly, Drakos and Kutan (2003) use monthly data from 1991 to 2000 and relate a country's share of receipts from tourism to localised terrorism. The authors conclude that the Greek, Israeli and Turkish tourism industries contracted by 9%, 1% and 5% respectively due to localised terrorism over the sample period. Additionally, Drakos and Kutan find that 89% of lost European tourism was redirected to safer, non-terror affected regions.

Unsurprisingly, the attacks of September 11 on the World Trade Centre also had significant negative consequences for the U.S. tourism sector. In particular, the attacks were associated with a significant decrease in the number of international visitors to the United States, with visitor numbers falling by 8.4% in 2001 (Travel Industry Association of America, 2005). Moreover, the negative shock associated with the attack persisted until 2004. In aggregate, the number of international visitors to the United States decreased by 10 million between 2000 and 2003. This decrease was associated with a decline in tourism related employment in the United States of 5% between 2000 and 2004, a decrease 21 times larger than the benchmark decline in employment over the same period (Bonham, Edmonds, & Mak, 2006).

## Macroeconomic Effects

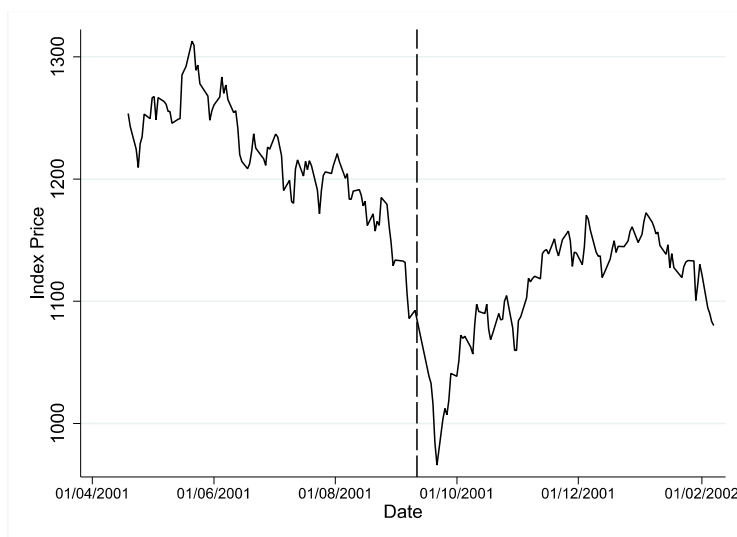
The immediate microeconomic costs associated with terrorist attacks are localized and, like ordinary crimes, do not vary significantly between developed and developing countries. By contrast, the macroeconomic effects associated with terrorism have heterogeneous impacts on countries at various stages of development. In most developed countries, terrorism is generally associated with a substitution from those sectors of the economy which are vulnerable to terrorism into relatively safe sectors. Given this substitution, the net effect on the economy is expected to be close to zero. For example, if airlines become a frequent target of terrorism, factors of production will shift from the airline sector to other relatively safe sectors such as ground transport. However, this substitution effect is only expected to be robust within a certain limit, with terror attacks of sufficient magnitude impacting stock markets, decreasing investor confidence and having ripple effects across the entire economy. In the event of a significant terror attack therefore, the net effect is expected to be significantly negative as was observed in the aftermath of the September 11 attacks.

The effect of the September 11 attacks on financial markets was catastrophic. In an effort to avoid a market collapse, trading was halted on September 11 and did not recommence until September 17. On the day trading recommenced, the market recorded the single largest decline for a single trading day in exchange history, shedding 684 points. Across the following week, the S&P 500 index decreased from 1092.54 to 965.8 on September 21, a staggering 11.6% loss (Figure (3)).

In addition to the immediate market downturn, the September 11 attacks significantly increased investor uncertainty. The increase in this uncertainty is captured in Figure (4) which depicts the Economic Policy Uncertainty Index (EPU) of Baker, Bloom, and Davis (2016) and the Volatility Index (VIX) produced by the Chicago Board Options Exchange (CBOE). The EPU is derived via news-text search whereas the VIX is derived from the implied volatilities of at-the-money SPX options. Both indices depict a significant increase following the September 11 attacks reflecting the increased uncertainty of market participants during this time.

**Figure 3: Market Response to September 11 Attacks**

Figure 3 depicts market closing prices of the S&P 500 index +/- 100 days of September 11, 2001. Data obtained from Bloomberg.



The negative consequences associated with the September 11 attacks therefore provide an example of a terrorist incident whose negative commercial consequences are too significant to net out in aggregate. However, in general, developed countries and countries which are affected by terrorism more sporadically are better positioned to take actions to limit the negative macroeconomic consequences of terrorism. This resilience is derived from a country's ability to allocate factors of production in response to terrorist activity. This capacity is increasing in a nation's level of development and decreasing in the frequency of terrorism related incidents. By contrast, less developed and high frequency terrorism countries such as Colombia, Israel and the Basque region of Spain have experienced an erosion of economic resilience to terrorist attacks due to prolonged terror campaigns and consequently, suffer significant negative macroeconomic consequences of terrorist activities. For these economies, terrorism can reduce GDP and curb economic development, especially during prolonged campaigns such as those observed in Israel. Protracted terrorism leads to the anticipation of future terror events. These expectations manifest themselves in increased risk premia which reduce the attractiveness of domestic investment in terror-prone sectors. Such events also increase the sovereign risk premium of the affected country which, in the absence of increased returns, may lead foreign investors to redirect their investments to other countries. Observing such economic contractions, terrorists may be further affirmed in their resolve to attack business targets in pursuit of their social and political objectives.

There is relatively little literature assessing the macroeconomic consequences of terrorism. Currently, this literature is comprised of two strands of research. The first examines the influence of various terror-related variables on real per capita GDP growth. The second strand comprises case studies compiled on those countries afflicted by long-term terrorist campaigns. For example, Blomberg, Hess, and Orphanides (2004) perform panel regressions to examine the impact of terrorism on the investment and government spending components of GDP. Using a rich panel data set on 177 countries from 1968 to 2000, the authors attempt to establish the mechanism through which terrorism affects economic growth. They find that terrorism increases government spending as a proportion of total GDP while decreasing the share of investment. Such a reallocation of funds within the economy can materially impact economic growth by diverting government resources from more productive

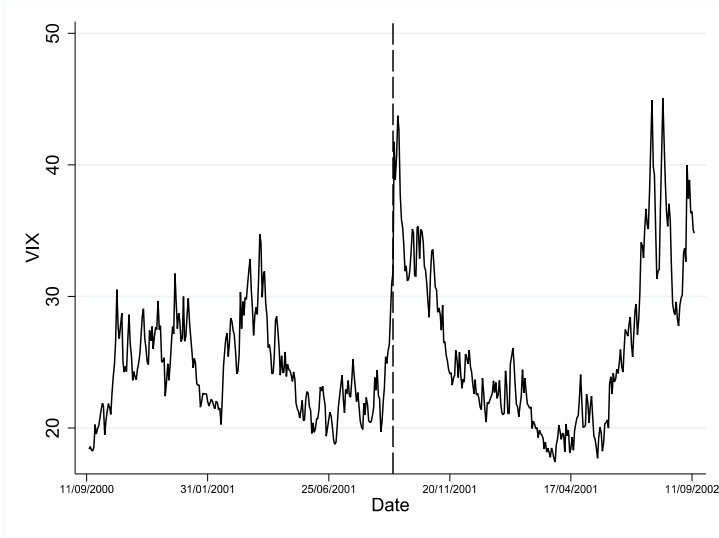
activities to the provision of security. In addition, the reduction of investment as a share of GDP directly limits growth as funds available for value-adding activities are reduced.

An interesting extension that is natural to consider in this context is to assess the different impacts of terrorism and natural disasters on economies. Certainly, the causation between both events is different; terrorist acts are wilful and deliberate while natural disasters like floods and earthquakes arise due to acts of nature, not intention. However, there are many similarities between these events, particularly relating to response and recovery (e.g., floods vs. dam sabotage, wildfires vs. arson). For example, Wooding and Raphael (2004) find that the psychological impact of natural disasters and terrorism on children and adolescents is similar. Similarly, Richardson, Gordon and Moore (2007) use three cases of negative urban shocks caused by natural disasters (hurricanes in Elmira, Homestead and New Orleans) and the September 11 attacks to demonstrate that the duration and magnitude of an event's negative impact depends more on geographic and place-determined business networks rather than the type of disaster. Furthermore, natural disasters reduce the resilience of economies to subsequent terror events and create exploitable vulnerabilities for terrorists. Berrebi and Ostwald (2011) confirm this intuition and find that natural disasters have a positive and significant effect on the level of terrorism. Taken together, evidence suggests that natural disasters and terror activities inflict similar consequences on regional economies. However, considered *ex-ante*, businesses and governments may be better positioned to mitigate the risks associated with terrorism than random natural disasters.

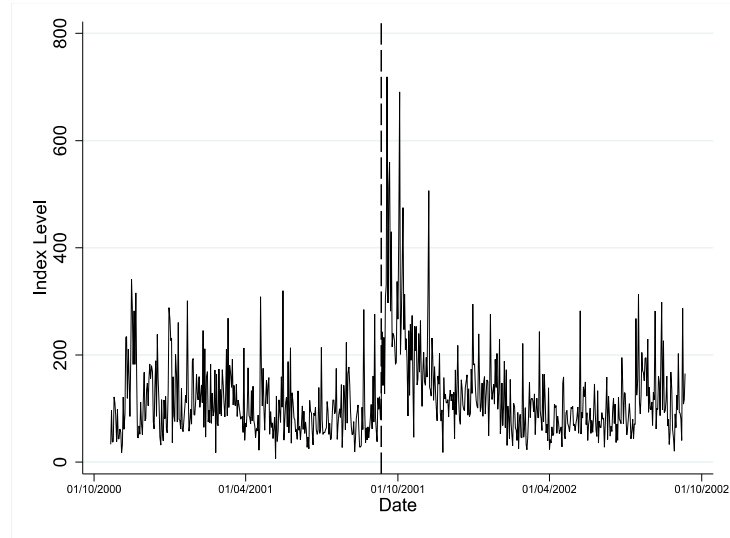


**Figure 4: Economic Uncertainty and the September 11 Attacks**

Figure 4 plots two uncertainty indices +/- 365 days of September 11, 2001. The Panel A displays daily values of the VIX and Panel B depicts the Economic Policy Uncertainty Index developed by Baker, Bloom and Davis (2016). Data for EPU and VIX are obtained from [www.policyuncertainty.com](http://www.policyuncertainty.com) and Wharton Research Data Services, respectively.



Panel A



Panel B

## Long-Term Effects

Acts of terror have significant personal and economic consequences. These negative consequences can persist beyond the short-term, undermining consumer and investor confidence into the medium- and long-term (International Monetary Fund, 1980; 2001). In particular, the deterioration of consumer confidence arising from a terrorist attack can reduce consumer's incentive to spend, reducing the flow of funds both to domestic and international markets. Similarly, falling investor confidence may trigger a generalized decrease in asset prices and a flight to quality, reducing market liquidity and increasing the cost of debt capital for riskier borrowers (Johnston & Nedelescu, 2006). The magnitude and distribution of the negative effects caused by terrorism both within and across markets depend on several factors, including the nature of the attacks, multiplier effects, the types of policies adopted in response to the attacks and the resilience of markets (Brück & Wickström, 2004). These events are also associated with a number of indirect effects at the macroeconomic level. In particular, terrorist attacks may give rise to increases in insurance premia in the affected region, increased security costs for businesses and greater compensation payments for those working in high risk locations. Other indirect costs may also include a reduction in GDP, tightened controls on immigration, increased unemployment and reductions in FDI.

### A Long-Term Terror Tax on Business and Residents

The long-standing threat of terrorism has commonly been likened to a "terror tax" on businesses and residents (Harrigan, 2002; OECD, 2002b). Terrorism raises the cost of doing business through higher insurance premia, expensive security precautions and larger wage costs to compensate at-risk employees. The OECD report that, following terror attacks, there is an increase in security expenditure by both government and businesses alike. Specifically, they observe increases in spending for employees, securing premises and information (OECD, 2002a). However, the OECD warns against a panic-led implementation of tight border controls, emphasising the need for a reasonable balance between efficiency and security to be found in maintaining both safety and positive economic growth. This consideration is particularly important in an age of increasingly integrated international supply chains which require timely and consistent delivery of products and services. Indeed,

the nature of our global system relies heavily on the 'speed and reliability of delivery' which is affected by national regulations influencing the efficiency of global transportation networks. Higher direct costs and longer delivery times caused by terrorism and the policy responses which it generates can therefore have real and detrimental long-term impacts on business.

### Immigration

For security reasons, terrorist attacks in developed countries give rise to a tightening of visa requirements and enhanced control of illegal immigration. For those workers from developing countries, these ex-post restrictions have the potential to restrict access to developed labour markets, affecting the level of remittances back to their country of origin. The fact that a disproportionate share of these immigrant workers is employed within the tourism industry only serves to compound the negative consequences of terrorism for this sector of the labour force. The remittances of immigrant workers are an important source of income for most Central American, Caribbean and South Asian countries as well as for some countries in the Pacific and Southeast Asia (Human Rights Watch, 2001). Although the exact level of transfers is difficult to determine (as a significant portion transit through unofficial channels), emigrant remittances are estimated to be larger than exports for several countries (OECD, 2002b).

### Foreign Direct Investment

Terrorist attacks generate negative economic consequences by diverting foreign direct investment (FDI). If a developing country loses sufficient FDI, an important source of savings, then its economic growth may stagnate. Just as capital may take flight from a country plagued by civil war (Collier et al., 2003), a sufficiently intense terror campaign may greatly reduce capital inflows (Enders & Sandler, 1996). A prominent example of this reduction in investment can be found in Pakistan which saw a 58.5% reduction in FDI in FY 2009 following terror activities on the Afghani border which displaced approximately 3 million people (Collins & Ashraf, 2010).

### Decay

A relevant consideration when assessing the long-term effects of terrorism is the extent to which the observed effects decay over time. As with the initial

effects themselves, the extent to which negative economic consequences decay across time will be related to the scale of the terrorist incident and an economy's level of resilience (which is a function of both its development and the frequency with which terrorist attacks have occurred in the past). In the case of the September 11 attacks, Richardson, Gordon and Moore (2007) find that the initial negative consequences to the New York economy decayed over a period of approximately 3 to 5 years. Specifically, the authors find that total city earnings, residential occupancy and employment improved after 2, 3 and 5 years respectively. The authors note that the level of interconnectedness amongst a city's business network is a key factor in determining its speed of recovery following a terrorist incident. Terrorist incidents of comparable scale to September 11 do not exist; however, evidence from Israel suggests that an "average" scale terrorist attack (corresponding to an average terror incident during the second Intifada) has significantly less persistent economic consequences, with the majority of GDP components recovering 9 months following a terror attack (Persitz, 2007). At an industry level, by contrast, recovery following a terrorist incident may be significantly faster. For example, Lai and Lu (2005) find that air travel demand in the United States increased only two months following the September 11 attacks.

Fundamentally, the heterogeneity amongst terrorist attacks makes determining the recovery from such incidents challenging ex-ante. However, given the increased frequency of terror related incidents in recent years, an important question for business and government moving forward will be how to accurately stress test business models and economies more broadly. We suggest that a starting point of such an analysis would be the development of broad-level indicators of terror resilience identified through empirical research.

## Conclusion

This paper provides a systematic approach to the analysis of the commercial effects of terrorism. Specifically, by developing a comprehensive framework we provide a structure for those wishing to assess the commercial consequences of terror attacks. By providing details and descriptions of several elements of our framework, we offer a guide as to how this tool may be operationalized. Moreover, by using the September 11 attacks as a reference point for our analysis, we demonstrate the economic significance of key elements within our framework. We posit that by understanding the costs associated with terror attacks, commercial decision-makers will be able to gain a firmer grasp on the potential fallout of future incidents and take proactive measures to mitigate these effects ex-ante. We suggest that this framework may be useful to those wishing to develop indicators of resilience to terrorism which could be used in stress testing business models and economies alike.

# References

- Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *Quarterly Journal of Economics*, 131(4), 1593.
- Berrebi, C. & Ostwald, J. (2011). Earthquakes, hurricanes, and terrorism: do natural disasters incite terror? *Public Choice*. 149: 383.
- Blomberg, S. B., Hess, G. D., & Orphanides, A. (2004). The macroeconomic consequences of terrorism. *Journal of Monetary Economics*, 51(5), 1007-1032.
- Bonham, C., Edmonds, C., & Mak, J. (2006). The impact of 9/11 and other terrible global events on tourism in the United States and Hawaii. *Journal of Travel Research*, 45(1), 99-110.
- Brück, T., & Wickström, B.-A. (2004). The Economic Consequences of Terror: A Brief Survey. IDEAS Working Paper Series from RePEc.
- Carl, J. (2006). Natural calamities and terrorism events have similar consequences. *INSIGHT*, 8(3), 19-21.
- Chen, A. H., & Siems, T. (2004). The effects of terrorism on global capital markets. *European Journal of Political Economy*, 20(2), 349-366.
- Collier, P., Elliott, V. L., Heger, H., Hoeffler, A., Reynal-Querol, M., & Sambanis, N. (2003). *Breaking the conflict trap: civil war and development policy*. Washington, DC: World Bank and Oxford University Press.
- Collins, C., & Ashraf, A. (2010). Financing the Taliban: tracing the dollars behind the insurgencies in Afghanistan and Pakistan. Counterterrorism Strategy Initiative Policy Paper (New America Foundation).
- Desivilya, H., Gal, R., & Ayalon, O. (1996) Long-term effects of trauma in adolescence: comparison between survivors of terrorist attack and control counterparts. *Anxiety, Stress & Coping*, 9(2), 135-150.
- Drakos, K., & Kutan, A. M. (2003). Regional effects of terrorism on tourism in three Mediterranean countries. *The Journal of Conflict Resolution*, 47(5), 621-641.
- Eisinger, P. (2004). The American city in the age of terror: a preliminary assessment of the effects of September 11. *Urban Affairs Review*, 40.1, 115-130.
- Eldor, R., & Melnick, R. (2004). Financial markets and terrorism. *European Journal of Political Economy*, 20(2), 367-386.
- Enders, W., & Sandler, T. (1991). Causality between transnational terrorism and tourism: the case of Spain. *Terrorism*, 14(1), 49-58.
- Enders, W., & Sandler, T. (1996). Terrorism and foreign direct investment in Spain and Greece. *Kyklos*, 49(3), 331-352.
- Enders, W., Sandler, T., & Parise, G. F. (1992). An econometric analysis of the impact of terrorism on tourism. *Kyklos*, 45(4), 531-554.
- Estrada, M.A.R., Koutronas, E., (2016). Terrorist attack assessment: Paris November 2015 and Brussels March 2016. *Journal of Policy Modeling*, 38(3), 553-571.
- Galea, S., Vlahov, D., Resnick, H., Ahern, J., Susser, E., Gold, K., Kilpatrick, D. (2003). Trends of probable post-traumatic stress disorder in New York City after the September 11 terrorist attacks. *American Journal of Epidemiology*, 158(6), 514-524.
- Harrigan, J. (2002). Terrorism and the resilience of cities. *Economic policy review*, 8(2), 97-116.
- Harrigan, J., & Martin, P. (2002). Terrorism and the resilience of cities. *Economic policy review*, 8(2), 97-116.
- Hobijn, B., & Sager, E. (2007). What has homeland security cost? An assessment: 2001-2005. *Current issues in economics and finance*, 13(2), 1-7.

- Human Rights Watch. (2001). World Report. Retrieved from [www.hrw.org](http://www.hrw.org)
- International Monetary Fund. (1980). World economic outlook : a survey by the staff of the International Monetary Fund. Retrieved from [www.imf.org](http://www.imf.org)
- International Monetary Fund. (2001). World Economic Outlook: The Global Economy after September 11. Retrieved from [www.imf.org](http://www.imf.org)
- Johnston, B., & Nedelescu, O. (2006). The impact of terrorism on financial markets. *Journal of Financial Crime*, 13(1), 7-25.
- Lai, S.L., & Lu, W.L. (2005). Impact analysis of September 11 on air travel demand in the USA. *Journal of Air Transport Management*, 11(6), 455-458.
- London Chamber of Commerce and Industry. (2005). The Economic Effects of Terrorism on London – Experiences of Firms in London’s Business Community. Retrieved from [uk.tcpvpn.com](http://uk.tcpvpn.com).
- Nitsch, V., & Schumacher, D. (2004). Terrorism and international trade: an empirical investigation. *European Journal of Political Economy*, 20(2), 423-433.
- OECD. (2002a). Economic consequences of terrorism. *OECD Economic Outlook*(71), 117-140.
- OECD. (2002b). *OECD Economic Outlook*. Retrieved from [www.oecd-library.org](http://www.oecd-library.org)
- Richardson, H., Gordon, P., Moore, J. (2007). *The economic costs and consequences of terrorism*. Edward Elgar Publishing: Cheltenham, Northampton.
- Travel Industry Association of America. (2005). 2004 Business and convention travelers report. Retrieved from [www.ntaonline.com](http://www.ntaonline.com).
- U.S. Conference of Mayors. (2002b). One year later: A status report on the federal-local-partnership on homeland security. Washington DC.
- U.S. Conference of Mayors. (2003b). Survey on cities’ direct homeland security cost increases related to war/high threat alert. Washington DC.
- U.S. Department of State (2003). *Patterns of Global Terrorism*. Retrieved from [www.state.gov](http://www.state.gov)
- Wooding, S., & Raphael, B. (2004). Psychological impact of disasters and terrorism on children and adolescents: experiences from Australia. *Prehospital and Disaster Medicine*, 19(1), 10-20.

## For more information, please contact

### Australian Institute for Business and Economics

**T:** +61 7 3316 0628

**E:** [enquiries@aibe.uq.edu.au](mailto:enquiries@aibe.uq.edu.au)

**W:** [aibe.uq.edu.au](http://aibe.uq.edu.au)

**A:** Level 3, GPN3 Building (39a)  
Corner Campbell Road and Blair Drive  
The University of Queensland  
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