Collective Action and Transnational Terrorism

Todd Sandler

1. INTRODUCTION

ON a clear, crisp morning, US peace and security was forever shattered by four hijackings on 11 September, 2001 (henceforth, 9/11) that resulted in the collapse of the World Trade Centre (WTC) towers, the destruction of a section of the Pentagon, and the passenger-induced plane crash on a rural Pennsylvania field. Within a mere 90 minutes, the potential threat of terrorism and the vulnerabilities of America became understood by a traumatised public. In today's technology-based society, an everyday object could be transformed into a weapon of mass destruction (WMD). Apparently, al-Qaida terrorists surpassed their wildest dreams of robbing Americans of their serenity and security. Their heinous attack captured headlines for months and will continue to do so for years to come on 9/11 anniversaries or as the perpetrators are brought to justice. By broadcasting much of the disaster live, including the toppling of the north and south WTC towers, the media unwittingly assisted in magnifying the potential risks that modern-day terrorism poses. This heightened state of anxiety probably induced the anthrax terrorist to act so as to capitalise on the insecurity and hysteria that had already gripped the nation. That is, the mailing of anthrax letters was a complementary incident for the 9/11 hijackings, thereby allowing the two incidents to have a greater influence than either would have had on its own. Although those responsible for the two sets of events surely differed, the timing of the anthrax letters was not coincidental.

The events of 9/11 marked the largest ever terror attack on US soil – or anywhere – and resulted in the deaths of just under 3,000 people. The second largest terrorist attack on US soil had been the bombing of the Alfred P. Murrah Building in Oklahoma City on 19 April, 1995, where 168 people died, while the third largest attack had been the bombing of Wall Street on 16 September, 1920,

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where 34 people died and 200 were injured.[1] The Wall Street time bomb, left in a horse-drawn carriage, had been technologically unsophisticated, similar to the Murrah building bomb and the 26 February, 1993, bomb at the north tower of the WTC. The 1993 WTC bombing resulted in a 100×100 foot crater in the underground parking garage (US Department of State, 1994); a slightly different placement of this bomb could have imploded the building with greater loss of life than 9/11. Based on these last two US incidents, we see that terrorism has been a threat for some time, while mass-casualty terrorism has been tried well before 9/11.

Terrorists bent on mass destruction only have to be 'fortunate' once, while society must be fortunate daily to avoid such catastrophes.[2] Another asymmetry between terrorists and the targeted society involves resources: society must protect everywhere to be secure, so that homeland security is very expensive, while terrorists can concentrate their best effort at a single vulnerable point, so that terrorism is a cost-effective activity. This is well-illustrated by the 1993 bomb of fertiliser, diesel fuel, and icing sugar at the WTC. Even though this bomb cost just $400, it caused $550 million in damages (Hoffman, 1998). Yet another asymmetry involves information, in which the terrorists know their own capabilities, unlike the targeted government, which is not fully informed about the terrorists' resources.

Terrorism is the premeditated use, or threat of use, of extra-normal violence or brutality to gain a political objective through intimidation or fear of a targeted audience. To qualify as terrorism, an act must be politically motivated; that is, the act must attempt to influence government policy at home or abroad. Incidents that are solely motivated for profit and do not directly or indirectly support a political objective are not considered to be terrorism. The political motives of terrorism are varied and may include Marxism, nihilism, religious freedom, racism, separatism, anti-capitalism, anti-US dominance, or other goals. Since the 1979 November takeover of the US Embassy in Tehran, some terrorism has been motivated by the establishment of an Islamic state.[3] To create an atmosphere of fear where everyone feels vulnerable, terrorists *simulate randomness* when choosing targets. As the authorities focus on a likely venue, the terrorists often strike elsewhere at less-watched targets. Frequently, terrorists direct their violence against a large audience, not directly involved with the political decision that they seek to influence. On 9/11, the plane that crashed into the Pentagon and

[1] On mass casualty bombings since 1946, see Quillen (2002a and 2002b). For Quillen, a bomb causes mass casualties if more than 24 people die.

[2] This asymmetry paraphrases what the IRA terrorists said in a letter after they learned that their 12 October, 1984, bombing of the Grand Hotel in Brighton had narrowly missed killing Prime Minister Margaret Thatcher. Their letter said, 'Today, we were unlucky. But remember we have only to be lucky once. You will have to be lucky always' (Mickolus et al., 1989, vol. 2, p. 115).

[3] The takeover of the US Embassy in Tehran is a watershed event, which marks the rise of religious terrorism in recent decades (Hoffman, 1998; and Enders and Sandler, 2000).

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the one that was intended for the US Capitol marked departures from this pattern by targeting decision makers. Extra-normal violence is employed not only to grab headlines but also to elevate anxiety levels, so that the general population overreacts to these low probability but high-cost events. As the public becomes desensitised to the violence, terrorists have escalated the lethality of their attacks.

Terrorism falls into two essential categories: domestic and transnational. Domestic terrorism is home grown and has consequences for only the host country, its institutions, people, property, and policies. In a domestic terrorist incident, the perpetrators and targets are from the host country. Through its victims, targets, institutions, supporters, or terrorists, *transnational terrorism* involves more than one country. If an incident begins in one country but terminates in another, then it is transnational terrorism, which would be the case for a hijacking of a plane in country A that is made to fly to country B. The toppling of the WTC towers was transnational, because victims came from many different countries, the mission was planned abroad, and the terrorists were foreigners. An incident may be transnational if its implications transcend the host nation's borders. Transnational terrorist incidents represent *transboundary externalities*, insofar as actions conducted by terrorists or authorities in one country may impose uncompensated costs or benefits on people or property of another country. In a globalised world of augmented cross-border flows, there is a blurring of the distinction between domestic and transnational terrorism.

When terrorist events have significant transnational consequences, numerous collective action concerns arise. Targeted countries may either work at cross-purposes or fail to cooperate to address the terrorist threat. For example, deterrence efforts by two or more countries to deflect an attack from the same terrorist network may create a deterrence race as each country overspends. In some instances, the deflection may result in a country's people or property being hit abroad, where the country has little say over terrorism-thwarting efforts. The absence of cooperation may involve a country single-handedly mounting a pre-emption on the terrorists and their bases. The purely public benefits, derived from the annihilation of a common terrorist threat, lead to free riding, especially when a powerful country is anticipated by other targeted countries to act. A similar retaliator's dilemma characterises actions to punish a state-sponsor of terrorism. Ironically, terrorists' ability to form global networks not only solves their collective action problem but exacerbates the collective action problem for the target countries.[4]

The purpose of this paper is to investigate the nature of transnational terrorism and some of the collective action issues that it poses in the aftermath of 9/11. In particular, rationality is investigated from alternative viewpoints that include the terrorist group's leaders, suicide bombers, and the targeted government.

[4] On terrorist networks, see Arquilla and Ronfeldt (2001).

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Additional difficulties, associated with the deterrence and pre-emption dilemmas of targeted governments, are discussed. These governments' cooperative failures are shown to play into the hands of networked terrorists, who utilise their collective strengths to augment these governments' inadequate and non-cooperative responses. Other collective action failures on the part of governments that involve intelligence and duplication of efforts are investigated. Another purpose is to identify what works and what does not against terrorism. Finally, the costs of terrorism are addressed for a globalising society.

2. A LOOK AT THE PAST

Table 1 provides a perspective on the nature of transnational terrorist incidents from data published by the US Department of State (1988–2002) or else made available by the Office of the Ambassador at Large for Counterterrorism, US Department of State. The coverage is the 1968–2001 period, which represents the era of transnational terrorism, which really began following the Arab-Israeli conflict in 1967 and the subsequent Israeli occupation of captured territory. The columns in Table 1 indicate the year, the number of transnational terrorist events, deaths from these events, wounded from these events, and attacks on US interests.

A number of essential insights can be drawn from these numbers. First, with the exception of 2001, transnational terrorism on average results in relatively few deaths, especially when compared with the annual 40,000 people killed on just US highways. In fact, the deaths on 9/11 are approximately equal to all transnational terrorist-related deaths recorded during the 1988–2000 period. Second, transnational terrorism follows a cyclical pattern with much of the 1990s being a relatively calm era.[5] Third, attacks on US interests account for a high proportion of events, even though relatively few transnational terrorist incidents took place on US soil. In 1998 and 2000, there were no such events, while, in 1999, there was just one such event (US Department of State, 1999–2001). This is especially noteworthy from a transnational externality perspective and underscores that US success in deflecting attacks abroad has *not* secured the safety of US interests. Fourth, some years may represent outliers in terms of deaths, wounded, or attacks on US interests. For example, a single noteworthy event – known in the terrorism literature as a 'spectacular' – may account for a spike in the number of dead or injured. Obviously, 9/11 is such an event regarding deaths. In 1998, the simultaneous bombings of the US Embassies in Nairobi, Kenya and Dar-es-Salaam, Tanzania, accounted for 291 deaths and almost 5,000 injuries (US Department of State, 1999). The presence of outliers means that statistical

[5] The cyclical nature of transnational terrorism is established with rigorous statistical analysis in Enders and Sandler (1995 and 1999), and Im et al. (1987).

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TABLE 1
Transnational Terrorism: Events 1968–2001

Year	*Number of Events*	*Deaths*	*Wounded*	*Attacks on US Interests*
2001	348	3,572	612[a]	219
2000	426	405	791	200
1999	395	233	706	169
1998	274	741	5,952	111
1997	304	221	693	123
1996	296	314	2,652	73
1995	440	163	6,291	90
1994	322	314	663	66
1993	431	109	1,393	88
1992	363	93	636	142
1991	565	102	233	308
1990	437	200	675	197
1989	375	193	397	193
1988	605	407	1,131	185
1987	665	612	2,272	149
1986	612	604	1,717	204
1985	635	825	1,217	170
1984	565	312	967	133
1983	497	637	1,267	199
1982	487	128	755	208
1981	489	168	804	159
1980	499	507	1,062	169
1979	434	697	542	157
1978	530	435	629	215
1977	419	230	404	158
1976	457	409	806	164
1975	382	266	516	139
1974	394	311	879	151
1973	345	121	199	152
1972	558	151	390	177
1971	264	36	225	190
1970	309	127	209	202
1969	193	56	190	110
1968	125	34	207	57

Note:
[a] Data on the number of wounded in the WTC attack is not available and, thus, is not part of this figure.

Source: US Department of State, *Patterns of Global Terrorism* (1988–2002) and tables provided to Todd Sandler in 1988 by the US Department of State, Office of the Ambassador at Large for Counterterrorism.

analysis must take them into account. Fifth, except for the casualty figures, transnational terrorism in 2001 does not appear to be different from other years. This lack of difference would be confirmed by examining other measures not displayed in Table 1 – for example, terrorist modes of attacks, venue for attacks, or worldwide distribution of attacks. Terrorist modes of attacks include bombings, kidnappings, assassinations, skyjackings, threats, and other kinds of events.

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Recent analyses show that the underlying motive behind transnational terrorism has become less driven by Marxist left-wing beliefs and more directed by religious fundamentalism.[6] Of course, a mixture of motives still justify transnational terrorism, but the dominant drivers have changed. With this shift to more religious-based terrorism has come a greater willingness on the part of terrorists to cause casualties. For example, religious groups that declare a Jihad or holy war against another nation consider its people, not just its officials, as the enemy and, thus, legitimate targets. Moreover, religious terrorist groups act out of a desire to satisfy their own goals (for example, ascent to heaven) rather than to win favour with an external constituency. Violence may be viewed as a purifying act, justified for its own sake, so that claims of responsibility or a list of demands are not issued. Even though the number of transnational terrorist events is generally lower in the post-Cold War era, the greater violence prediction is borne out by statistical analyses – the likelihood of death or injury for each event is now 17 percentage points greater per incident (Enders and Sandler, 2000).

3. SUICIDE ATTACKS

In recent times, the importance of suicide attacks has increased; 9/11 illustrates the carnage that a suicidal mission can wreak. The presence of suicidal pilots allowed the planes to be guided into the WTC towers and the Pentagon. A bomb placed on board these same flights is unlikely to have caused the same death toll and destruction on the ground. In addition, Hamas' use of suicide bombers against Israeli targets has increased greatly during 2002, thereby augmenting public awareness of such attacks. Suicidal missions are, of course, not new and can be traced back to Japanese kamikaze pilots during World War II. Kamikaze planes were loaded with explosives to create maximum damage to enemy targets such as ships.

One must ponder a rationality argument for suicide bombers. Alternative explanations have, however, been offered to justify suicide missions. Wintrobe (2001) characterises suicidal terrorists as rational individuals, who engage in an extreme trade-off between their autonomy and group solidarity. Wintrobe's simplistic analysis hinges on an individual's desperate search for group acceptance and cohesion as driving a suicidal terrorist into a *corner* solution, where group solidarity is more valuable than one's very existence.[7] Wintrobe, however,

[6] On the changing motives of terrorists, see Hoffman (1997 and 1998), Enders and Sandler (2000) and Wilkinson (2001 and 2002).

[7] Wintrobe's (2001) argument bears some similarity to Hardin's (1995) *One for All* theory to explain the logic of group conflict, where the collective action problem can be overcome through group identity that bolsters individuals' self-interest when engaging in extreme behaviour against members of a hated opponent group. Self-sacrifice is not a necessary outcome in Hardin's theory.

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rejects that rewards in heaven can motivate a rational self-sacrifice in a suicide mission.

To show that self-sacrifice is rational, one must demonstrate that the utility associated with the suicidal mission is at least as large as the utility of the status quo. If the utility of the status quo is sufficiently low owing to an absence of economic opportunities or to a sense of injustice, or if the utility of the suicide act is sufficiently high owing to group approval or other rewards, then a terrorist may rationally choose the corner trade-off of self-sacrifice.

There is no reason to dismiss heavenly rewards as one, but not the only, factor that can tip the utility comparison in favour of a suicide mission. Compensation paid by Iraq to the family of Palestinian suicide bombers can also tip the balance, especially when the status quo offers grim economic realities. If heavenly rewards, martyrdom, or family compensation are relevant, then an intertemporal utility comparison is necessary in which the decision maker places value on postmortem utility. Everyday acts of purchasing life insurance or church attendance suggest the relevancy of postmortem utility in individuals' decision calculus. The suicide mission can also be motivated by deceit, where the terrorist is not told the true nature of the mission. There is some evidence that the two terrorists, who drove a yellow Mercedes truck full with explosives into the US Marine barracks at Beirut International Airport on 23 October, 1983, were not informed about the suicidal nature of their mission (Mickolus et al., 1989, vol. 1). After setting the bomb to detonate, the bombers jumped from the cab of the truck and tried to run to safety, but did not get very far. In some instances, the terrorists may be forced to take the action because of threats made to their family. Thus, many considerations can induce a terrorist to make the ultimate trade-off, ending at a corner solution.

While poverty can play a role in limiting the operative's status-quo utility, there is no reason why poverty must be a factor if group identity or heaven's rewards are large. In a recent study of Hezbollah martyrs, an inverse relationship between poverty and participation in suicidal missions was found; this is contrary to what the media say (Krueger and Maleckova, 2002). Hezbollah suicidal terrorists did not tend to be poor nor poorly educated in the sample. The study did not, however, include the employment opportunities of these suicidal terrorists.[8] Education is a necessary, but not a sufficient, condition for obtaining a good job. Nevertheless, this study suggests that the size of the expected utility from carrying out the suicidal mission may have to be large, insofar as the utility of the status quo is not necessarily small.

Important participants in suicidal missions who have been left out of the analysis to date are the terrorist leaders and strategists – for example, Osama bin

[8] In the case of Israeli Jewish settlers, individuals who attacked Palestinians in the West Bank were generally from high-paying jobs. These settlers were not on suicide missions.

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Laden and Ramzi Binalshibh – who dispatch terrorists to their death. It is noteworthy that the higher echelon of al-Qaida, Hamas, and Hezbollah do not sacrifice themselves. Their calculus is impeccable – they preserve their organisation by employing low-cost resources in the form of dispensable young men (and sometimes women) to create maximum anxiety in a targeted audience. The inverse relationship between poverty measures and participation in suicide mission is probably due to these leaders choosing people to carry out the mission who possess the requisite intelligence for logistical success. Moreover, the attainment of a level of education is a signal of a person's determination to carry through on commitments. Suicidal missions can create particularly high anxiety in a targeted society, because a determined suicide bomber can not only mimic the identity of the target audience (for example, dress like a devout Jew), but can also create maximum damage by detonating the bomb at the most opportune moment. Such missions underscore both the determination of the terrorists and the vulnerability of the targeted audience.

A final participant is the targeted government, charged with protecting the lives of its citizens. Suicide missions present a real dilemma to these governments. In general, deterrence policies work best if they can create price changes associated with terrorist operations that induce terrorists to substitute from more harmful activities into less harmful ones. The presence of a corner solution for the terrorist operative and also for the terrorist leader implies that policies which reduce suicidal missions' probabilities of success have no influence whatsoever on these agents' choices (Enders and Sandler, 2003). This then implies that the government must either apprehend or kill suicidal terrorists for attacks to stop.

4. COOPERATION FAILURES AND THEIR COSTS

Unlike the governments that they target, terrorists have progressed in solving their collective action problem. From the early 1970s, terrorist groups engaged in transnational acts have been tied either explicitly or implicitly to networks consisting of left-wing terrorist groups united in their goal to overthrow democratic governments (Alexander and Pluchinsky, 1992), Palestinian groups united in their aim to establish a homeland or to destroy Israel, and fundamentalist terrorist groups united in their goal to create nations founded on fundamentalist principles (Hoffman, 1998; and US Department of State, 2001). Terrorist networks cooperate on many levels, including training, financial support, logistical help, intelligence, weapon acquisition, pooling resources, and the exchange of operatives – for example, operatives were exchanged in the 21 December, 1975, attack on the Organisation of Petroleum Exporting Countries ministerial meeting in Vienna, and in the 27 June, 1976, hijacking of Air France flight 139 (Alexander

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and Pluchinsky, 1992).[9] The al-Qaida network operates in upwards of 60 countries and stages their attacks worldwide. This network includes such groups as Abu Sayyaf (the Philippines), Egypt's Islamic Group, Harakat ul-Mujahidin (Pakistan), Islamic Movement of Uzbekistan, Al-Jihan (Egypt), and bin Laden's own group (US Department of State, 2001). Even left-wing groups and Palestinian groups have been known to train together and to have other ties (Hoffman, 1998; and Wilkinson, 1986 and 2001), so that separate networks have explicit links to one another. These networks' common hatred of the United States and Israel means that heightened attacks by groups in one part of the world can spark increased attacks in other parts of the world. This implicit coordination shows up as distinct cycles of peaks and troughs in transnational terrorist activities.[10]

The ability of terrorists to cooperate heightens the inefficiencies associated with governments' inability to cooperate, except episodically – for example, in building the coalition to defeat the Taliban and to attack al-Qaida camps and bases in Afghanistan. This inability of governments to cooperate is first illustrated for deterrence and pre-emption.

a. The Deterrence Race

In the top panel of Figure 1, a symmetric deterrence game is displayed for two countries – A and B – that are confronted by a common terrorist threat. Suppose that increased deterrence gives a private, country-specific gain of 6 to the deterring country at a *cost* of 4 to *both* countries. For the deterring country, cost arises from deterrence expense and the increased likelihood of experiencing damages abroad if the attack is deflected there. For the non-deterring country, the cost stems from the damages that it can suffer from attacks diverted to its soil. If there is a host-country disadvantage from damages, then this damage can exceed that of the other country. For simplicity, the damage and deterrence expense of the deterring country is equated to the damage cost of the non-deterring country – hence, the common cost of 4.

Based on country-specific gains of 6 and the public cost of 4 stemming from each country's deterrence, the payoffs listed in panel *a* arise, where country A's payoff is on the left and country B's payoff is on the right in each cell. If, for example, each country increases its deterrence, then each receives -2 ($= 6 - 2 \times 4$); if, however, only one country augments its deterrence, then the deterring country nets 2 ($= 6 - 4$) and the other country suffers the spillover cost of -4. The deterrence game has a dominant strategy since $-2 > -4$ and $2 > 0$, so that

[9] These specific incidents are described in Mickolus (1980) under their specific dates. The hijacking of Air France flight 139 is famous because of the eventual storming of the plane at the Entebbe airport in Uganda by Israeli special forces.
[10] See the statistical results in Enders and Sandler (1999).

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FIGURE 1
Deterrence and Pre-emption Games

		B: Increased Deterrence	B: Status Quo
A	Increased Deterrence	Nash –2, –2	2, –4
A	Status Quo	–4, 2	0, 0

a. Symmetric Deterrence Game

		B: Do Not Pre-empt	B: Pre-empt
A	Do Not Pre-empt	Nash 0, 0	4, –2
A	Pre-empt	–2, 4	2, 2

b. Symmetric Pre-emption Game

the payoffs associated with increased deterrence are larger than the corresponding payoffs associated with the status quo for each of two countries.[11] Each country plays its dominant strategy and augments deterrence, thereby ending up at the Nash equilibrium of mutual action where payoffs are less desirable than mutual inaction. The former is a Nash equilibrium, because neither country would *unilaterally* want to change its strategy and return to the status quo. The deterrence scenario in Figure 1 is a Prisoners' Dilemma, analogous to an arms race, where countries spend more but do not necessarily become more secure. With fanatical terrorists who will not be deterred from attacking some country, deterrence will not necessarily improve security, especially in a globalised world where a country's citizens can be attacked at home or abroad. Thus far, the deterrence analysis suggests *over-deterrence* in which each country does not account for the external cost that their efforts to deflect the attack generate for another country. For this scenario, the greater the number of countries, the greater the extent of over-deterrence.

[11] This analysis of deterrence is analogous to models presented in much greater detail in Sandler and Lapan (1988) and Sandler and Siqueira (2002).

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Under-deterrence may characterise the deterrence game for an alternative set of payoffs. Suppose that a country's people or property is most vulnerable abroad owing to secure borders at home. Further suppose that the host country experiences little collateral damage from an attack on its soil. In this case (not displayed in Figure 1), there will be under-deterrence, because the host country will not account for the external benefit that its deterrence confers on foreign visitors, targeted by host-country terrorists.[12]

In the general case, the deterrence scenario has both external cost and external benefit. External cost arises as deterrence deflects an attack abroad, while external benefit stems from either the protection afforded to foreigners or the elimination of an attack altogether. Thus, a wide range of strategic scenarios and results are possible depending on whether external cost or benefit is stronger.

b. Pre-emption Game

In the bottom panel of Figure 1, a canonical *pre-emption game* is displayed, in which each of two targeted countries must decide whether or not to launch a pre-emptive attack against a common terrorist or state-sponsor threat. The pre-emptive strike is intended to weaken the terrorists or their sponsors, so that they pose a less significant challenge. For comparison purposes, payoffs analogous to the symmetric deterrence game in Figure 1 are chosen. If a sole country pre-empts, then it confers a public benefit of 4 on itself and the other country at a cost of 6 to just itself. In the off-diagonal cells in the bottom matrix, the country doing the pre-emption nets -2 $(= 4 - 6)$, while the free rider receives 4. When neither country pre-empts, each receives 0, whereas mutual pre-emption gives 8 $(= 2 \times 4)$ in benefit at a cost of 6 for a net payoff of 2, as listed, for both countries. The dominant strategy is not to pre-empt, since $0 > -2$ and $4 > 2$. Mutual inaction results in the Nash equilibrium of this Prisoners' Dilemma game.

Even though in their most basic form, the deterrence and pre-emption games lead to Prisoners' Dilemma, there are essential collective action differences in these two collective action problems. First, the Nash equilibrium for the deterrence game requires mutual action, while the Nash equilibrium for the pre-emption game requires mutual inaction. Second, the matrix games are negative transposes of one another, in which the Nash payoffs are more damaging for the deterrence game.[13] Third, whereas the deterrence game has both over-deterrence and under-deterrence

[12] This scenario characterises the Greek authority's inability to deter 17 November terrorist attacks against US, NATO, and other foreign targets in Greece. In the summer of 2002, an accidental explosion – and not clever police work – led to the first arrests of 17 November members. Since 1973, 17 November carried out 146 attacks and murdered 22 people prior to these arrests (Wilkinson, 2001, p. 54).

[13] The deterrence game is analogous to the commons problem, while the pre-emption game is analogous to the pure public good problem (Sandler and Arce, 2002).

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scenarios, owing to the presence of external cost and benefit as the game is generalised, the pre-emption game involves too little pre-emption owing to the presence of just external benefits. Fourth, deterrence efforts may be complementary, while pre-emption efforts are always substitutable unless a threshold level of action is required. Thus, increased deterrence by one country should augment these efforts by the other country, whereas pre-emption actions by one country should limit these efforts by the other country.

c. A Maximal Externality

The deterrence and pre-emption dilemmas have plagued international efforts at a coordinated response for the last 35 years from the start of the modern era of transnational terrorism. The deterrence and pre-emption dilemmas are but two manifestations of the unwillingness of nations collectively to confront the terrorist threat. Similar dilemmas involve retaliation against a state-sponsor of terrorism or the pooling of intelligence. The application of game theory to the study of terrorism shows that there may be a rational basis – for example, the playing of a dominant strategy – for these collective action failures. Nevertheless, one must wonder why terrorists solve their collective action dilemma, but governments do not.

Governments place great weight on the importance of their autonomy over national security. Only during times of great threat (such as after 9/11) or war do nations eschew their autonomy and form tight alliances to present a united front against an adversary. In contrast, the terrorists are always at grave risks from a more powerful opponent, so that they have little choice but to pool their limited resources and rely upon one another. In addition, the terrorists are relatively united in their hatred of a few countries – the United States, Israel, and the United Kingdom. Countries perceive their risks differently – that is, some are worried about being the target of an attack and others are not – and possess economic interests that may be at odds with addressing the terrorist threat. If, for example, country *A* has lucrative contracts with a country that helps sponsor terrorism, then country *A* will not support hostile actions against this alleged state-sponsor. Moreover, terrorists take a long-term view of their struggle and consider their interactions with other groups as continual; in contrast, governments take a short-term view (limited by the election period) of the terrorist threat and do not necessarily consider their interaction with other governments as continual. As a consequence, the terrorists view the underlying game as infinitely repeated, while the governments do not, so that cooperation becomes a potential solution for the terrorists but not for the government.[14]

By forming a global network and exploiting targeted countries' uncoordinated responses, terrorists not only limit the effectiveness of these countries' efforts to counter terrorism, but are also able to maximise the externalities (and, hence,

[14] On such repeated games and cooperative solutions, see Sandler (1992, Ch. 3).

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inefficiency) that governments impose on one another. Uncoordinated responses on the part of governments mean that there is a weakest-link vulnerability for the terrorists to exploit. For example, by not maintaining airport security to an agreed-upon global standard, some airports present an easier target than others. Terrorists will probe airport security until these weakest links are uncovered and then direct attacks there. Such terrorist actions are no different from those of a virus that seeks out and attacks a more vulnerable host. In a globalised world where a country's citizens can be targeted anywhere, the consequences of terrorist cooperation coupled with government non-cooperation is that targets' true level of protection is very small. The external cost imposed by the most inadequate prophylaxis is exacerbated further, because the terrorist network dispatches its *best-shot* response in the form of its best placed and trained squad. Hence, terrorist targets experience the maximal external cost possible, while the terrorists gain the maximal external benefit. This nightmarish outcome continues today.

This combination of collective action success and failure on the part of terrorists and governments, respectively, highlights the unusual challenge that transnational terrorism really poses to the world. Today, a country cannot rely on its own efforts to ensure its citizens' safety. As Table 1 illustrates, the United States experiences the largest share of transnational attacks even though few occur at home. So what is the solution? The answer is easier said than accomplished. Unlike the terrorists, nations must also form a global network to face off against the terrorist networks. Short of terrorists using WMD, governmental networks on par with those of the terrorist will not be formed; instead, there will be partial cooperation – for example, sharing of select intelligence.

Ironically, partial cooperation can worsen the inefficiency as compared to non-cooperation. Suppose that countries are deciding whether or not to coordinate efforts on deterrence and intelligence. Further suppose that countries decide to share intelligence but not deterrence efforts, which is a common outcome. Among other things, the intelligence provides information as to the terrorists' preferred target – that is, which country it wants to attack. Knowledge of terrorists' preferences assists the would-be targets to better deflect the attack, so that an even greater level of over-deterrence results.[15] This 'second-best' outcome is not uncommon in economics when only one of two choice variables is controlled.

5. ANOTHER COLLECTIVE ACTION FAILURE

To date, nations have relied on their own commando forces to address hostage exigencies at home or abroad involving their citizens. Thus, the United States has Delta Force, while virtually every EU country maintains its own force. This

[15] This outcome is shown mathematically in Enders and Sandler (1995) and Sandler and Lapan (1988).

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failure to pool resources means that economies of scale are not exploited, so that the average cost of these squads is much higher than they need be. Moreover, since each country's force is dispatched less often when compared with a multi-country force, learning economies, which shift down the average cost per deployment, are not captured. The infrequent use of these commandos means that they do not acquire the experience to hone their skills in real deployments. Of course, the presence of parallel forces indicates that efforts are duplicated, which is an additional waste of resources. Because a squad may have to be dispatched some distance away to address a hostage mission abroad (for example, Delta Force was sent to the Mediterranean during the *Archille Lauro* ship hijacking), a country must either maintain a network of bases worldwide or else risk the news media alerting the hostage takers of the commandos' travel progress (as CNN did during the *Archille Lauro* incident). A multi-country squad can establish such a global network at a more reasonable per country expense than associated with a single country's effort. Once again, nations cherish their autonomy and balk at such cooperative approaches. Countries do not want to obtain other countries' permission to deploy such forces during a crisis. Consequently, anti-terrorist efforts remain expensive and generally independent among nations.

6. IS THE WORLD DIFFERENT AFTER 9/11?

Following the events of 9/11, the world better understands the threat that transnational terrorism poses. Before 9/11, only 14 transnational terrorist incidents involved more than 100 deaths and none had over 500 deaths (Hoffman, 2002, p. 304). Although the events of 9/11 have dramatically changed our lives in terms of our risk assessment of terrorism and governments' efforts to ensure our safety, terrorists' activities have not altered much because of 9/11. That the authorities had dismissed the use of a commercial airliner as a murderous bomb is rather incomprehensible given some earlier events. On 5 September, 1986, hijackers took over Pan American flight 73, a Boeing 747, at the Karachi airport with the aim of crashing it into an Israeli city (Mickolus et al., 1989, vol. 2, pp. 452–7). This plan was never executed, because commandos stormed the plane in Karachi while it was still on the tarmac. The true intentions of the terrorists were revealed during the 1988 trial of those captured. Another unmistakable omen was the 24 December, 1994, hijacking of an Air France passenger plane in Algiers by Armed Islamic Group (GIA) terrorists, dressed in Air Algerie uniforms. Their mission was to crash the Algiers-Paris flight into a crowded area of Paris with great loss of life. In a stopover in Marseille, a French anti-terrorist commando squad stormed the plane and killed the four hijackers before they could wreak death and destruction from the sky (Oklahoma City National Memorial Institute for the Prevention of Terrorism, 2002, website at http://db.mipt.org). Another portentous event was

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the capture of Ramzi Youssef, the mastermind of the 1993 bombing of the WTC and an al-Qaida associate, in the Philippines in 1996. At the time of his capture, he had plans to use a dozen commercial airliners to destroy a variety of targets including the Central Intelligence Agency (CIA) headquarters in Virginia.

These forerunners to 9/11 indicate that the threat of catastrophic incidents with massive casualties has been around since 1986. As such, 9/11 marked the day when the terrorists were very lucky and their target very unlucky. Although 9/11 was a watershed event of transnational terror, given its horrible consequences, it is better viewed as a reality check than the start of a new type of terrorism. Annual death tolls will remain like those of Table 1 with deaths well below 1,000 on average in any given year. There has been little change in the pattern of global terrorism since 9/11, except that the total number of events are somewhat smaller, but not greatly so, owing to the disruption in al-Qaida operations in Afghanistan. Given the massive casualties of 9/11, authorities are quite worried about terrorist use of WMD in the form of chemical, biological, radiological, or nuclear (CBRN) attacks. Nevertheless, many terrorist experts believe that greater vigilance should be directed toward conventional methods rather than CBRN attacks (Hoffman, 2002; and Wilkinson, 2002).

Global efforts to thwart terrorism have only changed marginally. The global response is still US-led, which is not surprising because US interests remain the favourite target of international terrorists. As such, the United States gains the most country-specific benefits from their anti-terrorism 'war.' With US actions in Afghanistan, the Philippines, and Iraq, US interests will continue to attract the lion's share of transnational terrorist attacks. Unlike other countries, the United States has the power-projection capabilities to move massive forces to troublespots quickly; as such, the United States affords free-rider opportunities for others.

Although the US-led retaliation against the Taliban on 7 October, 2001, for harbouring Osama bin Laden involved other nations as allies, the current fight against terrorist networks is mostly nation driven. Nations still refuse to extradite terrorists and to integrate their anti-terrorism efforts, except in terms of the sharing of intelligence. Concern for national autonomy still dominates against efforts to mount a united front against terrorists. Even international actions to freeze terrorist assets have not progressed much after some initial headway immediately following 9/11. International cooperation remains a collective action failure except for a few bright spots – for example, the capture in 2003 of an al-Qaida cell in Spain and US-UK cooperation.

7. WHAT WORKS AND WHAT DOES NOT AGAINST TERRORISM?

One possible recommendation as to what works is to eliminate the causes of terrorism under the presupposition that, with no grievances or perceived

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injustices, there will be no terrorism. There are some obvious difficulties with this quick fix. If terrorists can extort any political change that they desire by either threatening or performing violent acts, then democratically elected governments would lose their intended purpose, because the voters' choices can be circumvented by well-armed minorities. Obviously, the legitimacy of a liberal democracy, whose mandate rests on the protection of lives and property, would be greatly weakened. Part of these property rights is the ability of duly-elected officials to pursue policies that reflect the wishes of the electorate. If governments seek to correct any claimed injustice, then an aggrieved minority can induce sizeable redistributions of wealth to them by threatening terrorism unless such inequities are redressed. Such extortion-based redistributions undermine property protection. Once terrorists discover a causal link between alleged grievances and government actions, there will be no stemming the growth of terrorism as a tactic. Moreover, social discontent is a dynamic factor that is constantly changing; efforts to rectify one social wrong do not eliminate new injustices tomorrow. In fact, tomorrow's injustice may stem from addressing yesterday's injustice.

a. Barriers and Fortifications

Given the absence of a simple panacea for transnational terrorism, potential targets have relied on technological barriers to thwart a particular type of attack. The installation of metal detectors to screen airline passengers is, perhaps, the best instance of such barriers. These metal detectors were installed in US airports beginning 5 January, 1973. Shortly thereafter, these devices were placed in airports worldwide to monitor passengers and their carry-on luggage on domestic and international flights. Prior to January 1973, skyjackings worldwide averaged over 16 per quarter or 64 per year. Shortly after metal detectors were installed, there was an immediate and permanent drop of almost eleven skyjackings per quarter (Enders et al., 1990a). This is a rather dramatic impact that was long-lasting. A similar effectiveness was experienced following the fortification of US embassies and missions in October 1976: prior to the fortification, there were about eight attacks per quarter against US diplomatic targets; after the fortification, there were just over three attacks per quarter against US diplomatic targets (Enders et al., 1990b, Table 2).

But this is not the whole story. When one mode of attack is made more difficult or expensive to conduct, terrorists have substituted other relatively cheaper events. If, for example, skyjackings are more difficult due to metal detectors, then other hostage-taking events are now relatively cheaper. Similarly, recent efforts to secure commercial airliners from terrorists' attempts to use them as massive bombs will induce terrorists to look to the use of cargo planes to accomplish such missions. If the effectiveness of an anti-terrorism policy is to be analysed properly, then its influence on other related modes of attack must be investigated.

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When the impact of metal detectors is examined more closely, these detectors are seen to decrease skyjackings *and* threats, but to increase other kinds of hostage incidents and assassinations, not protected by the detectors. For example, Enders and Sandler (1993, Table 4) show that the installation of metal detectors in 1973 is associated with 14 fewer skyjackings per quarter, and almost 12 additional hostage incidents per quarter (not involving planes) and 7 more assassinations per quarter. Enhanced embassy security, while effective at reducing embassy attacks, had the unintended consequence of increasing assassinations of diplomatic and military personnel when they left secured compounds. This substitution is toward events that are more costly to society than those being protected. This outcome suggests that piecemeal policy, in which a single attack mode is considered when designing anti-terrorism action, is inadequate. Terrorist substitution among attack modes must be anticipated. Policies that decrease terrorist resources are particularly effective, because they should result in an across-the-board decrease in attacks.

Even when barriers and fortifications work and do not cause more costly substitutions, the authorities must be ever-vigilant to outguess the next terrorist innovation. There is, thus, a dynamic concern with such barriers and fortification, which are *static inhibitors* that invite the terrorists to invent novel circumventions. Hence, plastic guns replaced metal ones and bottles of inflammable liquids replaced hand grenades, because these innovations can pass undetected through metal detectors. Not only have the authorities failed to second guess the terrorists, but the authorities have been slow to respond to innovations. Media accounts of innovations allow terrorists to rapidly adopt the breakthroughs of others, making such innovations pure public goods.

b. What Kinds of Substitutions Are There?

Thus far, substitutions among attack modes have been stressed. Another type of substitution is across countries. As discussed earlier, more secured borders deflect attacks elsewhere. Terrorist attacks aimed at foreign direct investment influence the flow of capital and cause investors to transfer their capital to countries, where terrorist risks are smaller (Enders and Sandler, 1996). Thus, substitutions may characterise different agents associated with the terrorism problem. If, analogously, terrorist attacks put tourists at risk, then tourism may be negatively impacted (Enders et al., 1992), as in the case of the hijacking on TWA flight 847 on 14 June, 1985. This flight departed Athens enroute for Rome with 145 passengers and 8 crew before it was first diverted to Beirut. This protracted hijacking was not resolved until 30 June 1985, with the release of the remaining 39 hostages (Mickolus et al., 1989, vol. 2, pp. 221–5). Greek tourism suffered greatly as tourists chose alternative holiday venues, because this hijacking and others exposed security weaknesses at the Athens airport.

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An intertemporal substitution may involve terrorists' timing of incidents. For example, a retaliatory raid by a targeted government may unleash a wave of terrorist incidents against the retaliator(s) as terrorists move events planned for the future into the present to protest the raid (Enders and Sandler, 1993). Later terrorism may temporarily decline as terrorists replace expended resources. Consequently, the news media may mistakenly view the temporary lull as a positive result from the raid. These and other substitutions (for example, terrorists changing their target of opportunity from business people to tourists, as the former acquire bodyguards) highlight the interdependency of decisions of terrorists and authorities. If the analysis or policy is too focused, then important consequences and trade-offs will be missed.

c. Evaluation of Other Policies: Domestic Laws, International Conventions, and Retaliation

When dealing with domestic crime, nations have instituted laws with stiff punishments in the hopes of deterring crime by making would-be criminals weigh the consequences of their contemplated actions. If the society has the police force to bring criminals to justice and courts to impose harsh sentences, then offences may be reduced. Similar reasoning may persuade governments to rely on domestic laws and international conventions to curb transnational terrorism. Unfortunately, the anti-terrorism effectiveness of such laws and conventions are very disappointing, as shown by past empirical investigations. For example, the so-called Reagan get-tough laws with terrorism (Public Law (PL) 98-473 and PL 98-553 signed by President Reagan in October 1984) were shown to have no statistical effect whatsoever against US-directed terrorist acts (Enders et al., 1990a and 1990b).

PL 98-473 requires up to life imprisonment for individuals taking US hostages either within or outside of the United States. This law also raised penalties for destroying aircraft or placing a bomb aboard an aircraft. PL 98-553 authorises the US Attorney General to pay rewards for information leading to the apprehension or conviction, inside or outside the United States, of terrorists who targeted US interests (Pearl, 1987, p. 141; and Mickolus et al., 1989, vol. 2). These laws failed to deter terrorism for a number of reasons. First, because most terrorist acts against US people or property occur abroad, the United States must rely on foreign governments to extradite criminals, which for capital offences is highly unlikely. Second, by staging their events abroad, terrorists greatly discount the ability to be brought to justice. US successes in capturing terrorists abroad have been sufficiently few in number prior to 9/11 that there has been little influence on terrorists' anticipated probabilities of being brought to US justice. Third, fundamentalist terrorists, who are prepared to make the supreme sacrifice, are undeterred by policy-induced *marginal* changes in risks.

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Over the years, nations have formed international conventions and resolutions to thwart terrorist acts. Two early instances include the 1971 Montreal Convention on the Suppression of Unlawful Acts against the Safety of Civil Aviation (Sabotage) and the 1977 UN General Assembly Resolution 3218 on the Safety of International Civil Aviation.[16] Although well-intended, neither of these treaties appeared to have much effect on aviation's safety from terrorism. Other significant anti-terrorism treaties include the following: the UN Convention on the Prevention and Punishment of Crimes against Internationally Protected Persons, Including Diplomatic Agents (adopted by the United Nations on 14 December, 1973), the UN Security Council Resolution against Taking Hostages (adopted by a 15-0 vote on 18 December, 1985), the UN General Assembly Resolution 2551 on the Forcible Diversion of Civil Aircraft in Flight (adopted on 12 December, 1969), the Hague Convention on the Suppression of Unlawful Seizure of Aircraft (adopted on 16 December, 1970), and the UN General Assembly Resolution 2645 on Aerial Hijacking (adopted on 25 November, 1970). Conventions are more binding than resolutions, since resolutions are merely agreements in principle and do not imply any real commitment on the part of the adopters. Conventions, in contrast, require that the nations rely on their *own* judicial system to implement and enforce the agreement. But in neither case is there a central enforcement agency that can force the nations to comply. Without such an enforcement mechanism, signatories will do what is convenient from their viewpoints – a Prisoners' Dilemma is apt to underlie the pattern of payoffs, not unlike the pre-emption or deterrence games.

When the average number of attacks is examined both before and after the adoption of these conventions and resolutions, there is *no* statistically significant reduction in the post-treaty number of attacks for the relevant attack modes (crimes against protected persons or skyjackings) (Enders et al., 1990a). This is convincing evidence that these UN conventions and resolutions really had no impact. To acquire the requisite support from the world community, these anti-terrorism treaties were drafted so as to permit too many loopholes and too much autonomy on the part of the signatories. A more effective treaty-making process involved neighbouring nations agreeing to control a common terrorism problem that presented significant and localised effects. Thus, Spain and France have made progress in concerted efforts to control Basque terrorism.

Prior to the US 'war on terrorism,' retaliatory raids had very little long-run impact on terrorism. One study examines the impact that Israeli retaliatory raids had following significant terrorist incidents (Brophy-Baermann and Conybeare, 1994). Retaliations investigated included the raid on Palestine Liberation Organisation (PLO) bases in Syria following the Black September massacre of Israeli athletes during the 1972 Olympic Games; the attack on Palestinian guerrilla

[16] See Alexander et al. (1979) for the text of the treaties on the suppression of terrorist acts.

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bases in Lebanon following a March 1978 Haifa bus hijacking; and the bombing of Palestinian bases in Lebanon following a June 1982 assassination attempt against the Israeli ambassador in London. This study finds that such raids only temporarily suppressed terrorism: within three quarters, terrorism had returned to its old mean values. Another study shows that the US raid on Libya in 1986 had the unanticipated consequences of actually raising the level of terrorism in the immediate aftermath as terrorists lashed out against the United States and the United Kingdom (Enders and Sandler, 1993). Within a matter of months, terrorism was back to its old level.

The long-run effectiveness of the US-led retaliation against al-Qaida will not be known for years to come. Nevertheless, some conclusions seem self-evident. Given the sustained level of attack against al-Qaida and the unprecedented (but still modest) international cooperation, US-led actions to suppress international terrorism will be longer lived than in the past. The al-Qaida network has not only lost significant assets (for example, training camps, safe and inaccessible havens, and key strategists), but it has also had linkages within the network disrupted. Grievances against America will surely worsen, because of US actions, so that attacks have been returning as the network reconfigures itself. It is, however, anyone's guess as to the future effectiveness of a reconfigured al-Qaida compared with its capabilities prior to 7 October, 2001.

d. No-negotiation Strategy

One of the four pillars of US anti-terrorism policy is never negotiate and capitulate to hostage-taking terrorist demands. The logic behind this policy is that if a nation adheres to this stated no-negotiation policy, then would-be hostage takers would have little to gain. For the policy to work, the nation must preserve its reputation (Lapan and Sandler, 1988). Virtually every nation that confronts terrorism has, at times, violated its pledge never to negotiate with hostage takers. The Reagan administration's barter of arms for the release of Rev. Benjamin Weir, Rev. Lawrence Jenco and David Jacobsen during 1985–6 is a violation of this pledge that resulted in the 'Irangate' scandal (Mickolus et al., 1989, vol. 2). Even Israel, the staunchest supporter of the no-negotiation strategy, has made notable exceptions in the case of the school children taken hostage at Maalot in May 1974, and during the hijacking of TWA flight 847.[17] The effectiveness of the conventional policy never to negotiate with terrorists hinges on a number of crucial implicit assumptions. First, the government's pledge is completely credible to would-be hostage takers. Second, there is no uncertainty concerning payoffs. Third, the terrorists' gains from hostage taking only derive from ransoms

[17] These events are described in Mickolus (1980, pp. 453–4) and Mickolus et al. (1989, vol. 2, pp. 219–25).

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received. Fourth, the government's expenditures on deterrence are sufficient to deter all attacks. Each of these assumptions is tenuous in practice.

If the terrorist group realises a net gain from a negotiation failure, as it may if it values media exposure or martyrdom, then the government's proclamations and its level of deterrence cannot necessarily forestall an attack, so that hostages are abducted. Once hostages are taken, the government must weigh the expected costs of not capitulating against those of capitulating. Conceivably, the government may view the cost of not capitulating as too high for the right hostage, even when accounting for lost reputation. In such situations, the government reneges on its pledge. If would-be hostage takers believe that they can impose costs sufficient for a targeted government to renege on its stated policy, then they will abduct hostages, because the credibility of the government's pledge depends on an uncertain outcome. Each time a government caves in, the terrorists will update or raise their beliefs about future capitulations. That is, learning based on past actions allows terrorists (and the governments) to update their beliefs in an interactive fashion. When a government reneges and negotiates, it emboldens terrorists to take additional hostages. In so doing, a capitulating government imposes a public bad on future domestic governments and on governments worldwide. Constitutional constraints or congressional hearings, which impose huge costs on these officeholders who capitulate, may be only means of raising the cost of capitulation sufficiently to make a precommitment never to negotiate a policy without regrets, once hostages are captured. Such actions would severely restrict discretionary action for the good of the world community.

8. WHAT ARE THE ECONOMIC COSTS OF TERRORISM?

Given the annual number of people murdered by international terrorism, the associated security spending may appear excessive. President Bush's proposed budget for 2003 earmarks $37.7 billion to homeland security, which represents an $18.2 billion increase over 2002 (www.whitehouse.gov). This expenditure does not include the tens of billions spent to bring down the Taliban in Afghanistan and smash al-Qaida's operations there. One must wonder how many of the 40,000 lives lost each year on US highways would be saved if some of this money went to making US highways safer. If lives lost are the only consideration, then clearly margins have not been equated and more lives can be saved by a reallocation of spending. There is, however, the all-important political benefit from the security outlay that the government appears in control. When this security perception is achieved, there is the psychological benefit derived by a traumatised public from feeling safer. This security benefit is difficult to evaluate, but is certainly very high. The perception of security is arguably more important than the reality for such a political benefit.

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Homeland security is expensive, because terrorists force governments to protect myriad targets, insofar as an attack can take place almost anywhere. High-profile targets – bridges, monuments, government buildings, and public places – receive the most security. Deterrence expenditure is an *insurance* payment that must be paid regardless of the outcome – that is, it is not refunded when no terrorist attack ensues. Unfortunately, the enhanced security may not be all that effective despite great efforts, because the terrorists will merely look for a less-watched alternative target. If the attack is diverted to where both the symbolic value and lives lost are more limited, then there is a return on the deterrence investment. Of course, the alternative of doing nothing would just mean that the terrorists would succeed with the most damaging attack as they did on 9/11.

After 9/11, the stock markets took a precipitous drop owing to the initial shock, associated uncertainty, and dire consequences to select industries. Many people viewed this tremendous loss in equity values as a new cost to terrorism. Prior to 9/11, the economic cost from terrorism was documented in two areas: reduced foreign direct investment for *small* countries and reduced tourism.[18] The attacks on 9/11 suggest that equity cost may be great. While there is no question that some industries (for example, the airline and travel industries) suffered greatly, the interesting thing about 9/11 is that the drop in equity prices was temporary, with most stocks rebounding rather quickly in the ensuing months. A single act of terrorism, or even a sustained campaign, cannot really destroy confidence in an intricate and diversified economy as that of the United States or the global community. A massive attack can, however, temporarily shake confidence and cause stock prices to drop. An instructive exercise is to compare the impact on stock values of corporate fraud, as characterised by Enron and World.com, with the impact on these values of 9/11. With corporate fraud, equity prices have remained depressed for months and months, because corporate fraud strikes at the very confidence needed to hold equity shares.

9. CONCLUDING REMARKS

Modern-day transnational terrorism taxes the ingenuity of governments worldwide. Countries can limit their exposure at home by relying on barriers, fortification, and intelligence; but this protection comes at a great cost and will never make a society invulnerable. Given the pervasive transnational externalities associated with today's terrorism, the real global challenge relates to the need for greater international cooperation among governments that are loath to sacrifice autonomy. Cooperation is required in terms of deterrence, pre-emption, intelligence, and punishment of terrorists. Because these decisions are interdependent,

[18] These losses are documented in Enders and Sandler (1996) and Enders et al. (1992), respectively.

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partial or piecemeal cooperation may achieve little. Not all of the associated externalities are negative, so that governments may engage in too much of some terrorism-thwarting activities and too little of others. Consequently, global action *and* inaction may be problematic at times. As long as governments place more weight on their autonomy than on their effectiveness in confronting this common exigency, terrorists will succeed in maximising their effectiveness while limiting the effectiveness of the targeted governments. The entire dilemma has been made worse, because terrorists have successfully addressed their collective action problem through the formation of networks, while governments have not.

No matter the ultimate fate of al-Qaida, transnational terrorism will remain a threat. In the 1980s, the Abu Nidal Organisation was the most feared group, but now it poses a much diminished threat, especially with the death of Abu Nidal in Iraq during 2002. Dangerous groups will come and go, but terrorism will stay. More worrying, terrorists will continue to innovate and devise ghastly plots that will some day exceed the horrors of 9/11. Over the years, the escalation of the terrorist spectacular in terms of carnage reflects the need of the terrorists to shock, in order to capture headlines that publicise their cause. In addition, terrorists will continue to exploit technological innovations, such as the Internet, to their advantage. But the authorities can also exploit these technologies to the terrorist disadvantage by, for example, tracking their messages and disrupting their websites. Globalisation, and the increase in cross-border flows that it entails, will not only make it more difficult to protect against terrorism, but it will also create more vulnerable 'choke' points that terrorists can exploit to adversely affect international commerce.

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