RETALIATING AGAINST TERRORISTS

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ABSTRACT: This article asks whether retaliation reduces or increases terrorism. It attempts to answer the question by examining seven cases in which various terrorist attacks were conducted to achieve political goals, and governmental authorities responded in various ways to reduce or eliminate the terrorist threat. Data sets were constructed from public sources to summarize terrorist actions in Palestine, 1945-48; Morocco, 1953-56; Algeria, 1954-56; Northern Ireland, 1971-73; Spain, 1973-1983; Sri Lanka, 1983-87; and Peru, 1991-93. Molar analyses found no reliable evidence that retaliation either increased or decreased the average intensity of terrorist attacks. Analysis of successive incidents showed that the intensity of terrorist attacks immediately after retaliation increased with the intensity of retaliation in six of the seven cases. A review of international Al Qaeda attacks before and after retaliatory action by the USA against Afghanistan and Iraq suggests that the war on terrorism has not reduced the incidence of its conventional attacks. In the absence of evidence that retaliation decreases terrorism, authorities should refrain from violent retaliation after an attack and seek alternative approaches to reduce terrorist activity.

Key words: Terrorism, retaliation, punishment, Palestine, Morocco, Algeria, Spain, N. Ireland, Sri Lanka, Peru, Al Qaeda

Does retaliation reduce or increase terrorism? The question can be argued either way.

Retaliation may reduce terrorism in several ways. Arresting terrorists takes them out of action and trying them within the criminal justice system legitimizes authority. Targeted killings of the leaders of terrorist organizations disrupt their operations and buy time while the terrorists regroup. Finally, large-scale attacks on terrorist groups and their supporters, coupled with mass arrests, reduce their numbers and may deter potential recruits to their cause. On the other hand, retaliation in any form may increase terrorism in several ways. It may incite terrorists to escalate the level of violence, increase their support in the population, and make it easier to recruit new members to their cause.

Another line of argument derives from laboratory research on punishment. Although most of this research has studied the behavior of rats, pigeons, and monkeys, many of its findings have been confirmed with humans. To summarize: If a response is followed by an aversive event, other responses belonging to the same class are less likely to occur after that event, and the decrease in responding is directly related to the severity of the punisher. Thus, if a terrorist attack is followed by severe retaliation, future attacks by the same group should be less likely. However, laboratory research also shows that if punishment is discontinued,

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responding usually recovers to its pre-punishment level, implying that repeated retaliation may be required to maintain a low probability of terrorist actions. And there is another issue: Aversive events can also evoke aggression against other organisms. Thus, severe retaliation against a terrorist group may increase, rather than decrease, the likelihood of violent attack by that group. Sidman (2001) provides an accessible treatment of these findings and their implications.

At a symposium on terrorism in the spring of 2002, I invoked the current situation in Israel and Palestine to argue that retaliation increases, or at least does not decrease, terrorism. Since 2000, Israelis have endured frequent suicide attacks and shootings directed at randomly chosen civilians despite prompt and violent reprisals by Israeli forces. I asserted that if retaliation reduced terrorism, the Israelis would be the safest people on earth – which was clearly false. I was challenged, quite properly, by an Israeli who said that the situation in Israel and Palestine may be unique and I'd better look at other cases before making any general pronouncements.

A dramatic and, perhaps, effective case of retaliation against terrorism occurred in 1986 when the US military retaliated against Libya; my summary is based on accounts in the New York Times and the Encyclopedia of World Terrorism (1997). In March 1985, General Quaddafi, Libya's leader, proposed a pan-Arab command to conduct terror actions against the USA. Libya was linked, by US intelligence, to a series of terrorist attacks beginning in April of that year, the worst being simultaneous attacks by gunmen on airports in Rome and Vienna in December 1985 that killed 16 and wounded about 100 people. In response, the USA froze Libyan assets and sought international sanctions against Libya. Despite a lack of support by European allies, the US Navy staged exercises off the Libyan coast, culminating in March 1986 with exchanges of fire between US ships and Libyan patrol boats and shore missile bases. On April 5, 1986, Libyan-supported terrorists bombed a discotheque in Berlin that was popular with US soldiers. Two people including one US soldier were killed and 204 people including 79 US soldiers were wounded. On April 15, 1986, in explicit retaliation, US Navy and Air Force jets attacked Tripoli and Benghazi, killing 93 civilians.

However one may feel about this escalating retaliation and its consequences for innocent civilians, the question is whether the US military attack effectively reduced the incidence of terrorism directed at the USA and its allies. But that is not easy to answer because most high-profile terror operations in Europe, North Africa, and the Middle East during the late 1980s were conducted by groups with only tenuous linkages to Libya, and in many cases, no group claimed responsibility. In the year preceding April 15, 1986, there were 9 attacks, killing a total of 82 people, that were linked to Libya or to the Abu Nidal organization which operated out of Syria from 1983 to 1987 and subsequently set up headquarters in Libya. The most lethal episode was the killing of 58 passengers on an Egyptian Air flight that had been hijacked to Malta. After April 15, 1986, Lebanese terrorists in sympathy with Libya executed 1 US and 3 British hostages within a week, and in the year following that date, there were 6 attacks, killing a total of 22 people, that may have been indirectly supported by Libya. A 1987

analysis by the US State Department noted an apparent lull in international terrorism directed at the USA and its western allies after April 1986, so perhaps retaliation had the desired effect, at least for a year. However, there was no letup in terrorist activity in Israel, Lebanon, and elsewhere around the Mediterranean; and in December 1988, Pan Am Flight 103 was downed by a terrorist bomb, killing 259 on board and 11 on the ground. Libyan involvement was suspected, and two Libyans were eventually brought to trial. Thus, there is little reason to believe that retaliation against Libya reduced terrorist attacks in the long term.

A clearer picture of the effects of retaliation may emerge from cases where the terrorists and their support groups are clearly identified, and where their operations are consistently directed at a single group of civilians and a governmental authority. I will consider seven cases and attempt to evaluate the effects of retaliation quantitatively by aggregating over specific incidents and making comparisons across cases.

Case studies

Jewish terrorists vs. British authorities in Palestine, 1945-1948. At the end of World War II, the British army controlled Palestine under a mandate established by the League of Nations in 1922. At the same time, the Zionist movement was struggling to establish an independent Jewish state in Palestine, and thousands of Jewish refugees from eastern Europe were anxious to move to a new and safe homeland. Jewish militants, organized as Haganah, Irgun, and the Stern Gang, conducted terror operations against the British. Although British soldiers and police were the primary targets, many innocent civilians – mostly Palestinian Arabs – were also killed and wounded. The British responded with martial law, arrests, curfews, and violent retaliation. My analysis ends when the British mandate ended in April 1948.

Moroccan independence movement vs. French colonial authorities, 1953-1956. Morocco was one of several French North African colonies that sought independence from France after World War II. The Istiqlal movement for independence led to riots, rebellion, and terrorist attacks, which in turn led to repression and retaliation by the French. Terror attacks against French military forces, police, and pro-French Arabs, and reprisals by the French including largescale arrests and violent attacks on the rebels, continued until Moroccan independence was declared in March 1956.

Algerian independence movement vs. French colonial authorities, 1954-1956. Algeria was another French North African colony seeking independence from France under the leadership of the National Liberation Front (FLN). Beginning in 1954, the FLN conducted guerrilla and terror campaigns against French forces and pro-French Arabs; its tactics included open battles as well as ambushes and bomb attacks. The French responded with martial law, army and police retaliation, and a major buildup of its military forces resulting in a bitter war that lasted from 1956-57 until a truce was declared and an interim Algerian government was established

in March 1962. My analysis ends with the approach to full-scale war in December 1956.

Irish Republican Army vs. British authorities, Northern Ireland, 1971-1973. The seemingly endless conflict between the Catholic minority and the Protestant majority in Northern Ireland, with British forces attempting to suppress sectarian violence, protect themselves, and preserve the union of Northern Ireland and Britain, is extraordinarily difficult to analyze. Many IRA terror attacks were directed at Protestant groups as well as British forces; some radical Protestant groups also attacked the British; and many sectarian killings resulted from individual grievances, making it difficult to identify distinctively IRA attacks. For years, riots, shootings, and small-scale bomb attacks were at least weekly events. My analysis covers a fairly typical period from 1971 through 1973, thus bracketing January 30, 1972, known as Bloody Sunday. I have tried to limit it to actions against the IRA; however, both IRA and British actions also killed or wounded many innocent Irish civilians. A separate analysis of the IRA terror campaign against civilians in England is needed.

Basque separatists vs. Spanish authorities, 1973-1983. The Basque separatist movement gained strength in the late 1950s against a general background of unrest and repression by the Franco regime. ETA, its militant arm, was founded in 1959 and conducted a campaign of kidnappings and terror attacks that has only recently died down; Spanish army and police responded with arrests and violent reprisals. The ultimate goal of ETA was complete Basque independence. My analysis begins with an abrupt increase in terror incidents in November 1973 and ends with the recognition of Basque autonomy (i.e., home rule, but not independence) in January 1983, after which the Basque majority repudiated ETA violence.

Tamil separatists vs. Sri Lankan authorities, 1983-1987. In the early 1980s, Sri Lanka was noted for its democratic institutions, overall stability, and economic progress. However, tension between the Tamil minority in the north and the Sinhalese majority erupted into violence during elections in May 1983. Rioting was followed by a crackdown on separatists, and a coalition of guerrilla and terrorist groups known as the Tamil Tigers began a series of violent attacks on government forces and Sinhalese civilians. At the same time, there were many "disappearances" of Tamil sympathizers later attributed to the government and its paramilitaries. Terror attacks continued sporadically until 2002 when negotiations to end the violence and establish Tamil autonomy appeared to be making progress. My analysis ends in June 1987 when Indian peacekeeping troops, intended to protect Tamil civilians, became embroiled in the violence.

Shining Path guerrillas vs. Peruvian authorities, 1991-1993. The Shining Path sought to overthrow the Peruvian government, overwhelm the civil society, and build a Maoist state on the rubble. Beginning in 1980, its campaign of terror against villagers as well as government and business institutions killed about 25,000 people, and it was regarded as the most vicious Latin American terrorist group. My analysis begins in 1991 when Shining Path attacks in urban areas increased and President Fujimori instituted systematic crackdowns, including

establishment of a military government, dissolution of the Congress, and suspension of the constitution in 1992. Concurrently with police arrests and killings of suspected terrorists, there were many extra-judicial executions and "disappearances" attributed to the Peruvian military and associated death squads. I end with the discrediting of Fujimori's government and the waning of terrorist attacks in late 1993.

Quantification and Analyses

For each of the cases summarized above, I listed all terrorist attacks and retaliatory actions noted in *The New York Times Index* in order by dates given in the news reports. I then assigned a severity score based on the nature of the action and the numbers of casualties as summarized in Table 1.

Cumulative severity scores for the terrorists' actions and the authorities' responses are presented in the upper panels of Figures 1-7, where the x-axis is scaled in months. In these figures, the slope indicates both the rate and severity of incidents. A steep slope or a rapid local increase indicates more frequent or severe actions, and a horizontal line indicates the absence of actions.

To quantify trends over successive incidents, I summed the scores for five actions by either party and divided by the number of months (or fractions thereof) in which those actions occurred to characterize the frequency and severity of each side's actions over a fairly short time; I will call this the "intensity score." Table 2 presents an illustrative example from Palestine, November 1945 – February 1946. To reveal trends more clearly, I smoothed the data by calculating a running average of five successive means across incidents as shown in the example of Table 2. The results for all seven cases are plotted in the lower panels of Figures 1-7. I will comment briefly on each case.

Score	Terrorist	Authority		
-1	Release hostages	Release prisoners, commute sentences		
1	Attack, no deaths*	Curfew, search, seize weapons, arrests**		
2	1-10 killed*	1-10 killed*		
3	11-20 killed*	11-20 killed*		
4	21-40 killed*	21-40 killed*		
5	41+ killed	41+ killed		

TABLE 1. SEVERITY SCORES ASSIGNED FOR ACTIONS OF TERRORISTS AND GOVERNMENTAL AUTHORITIES.

* Add 1 for many wounded ** Add 1 for mass arrests

TABLE 2. ILLUSTRATIVE SEQUENCE OF ACTIONS BY JEWISH TERRORISTS (T) AND BRITISH GOVERNING AUTHORITIES (G), WITH CALCULATIONS OF INTENSITY SCORES. ALSO SHOWN ARE RUNNING MEAN INTENSITIES FOR FIVE EPISODES (THE FIRST IS SHOWN AT THE THIRD INCIDENT, WHICH IS THE MIDDLE OF THE FIRST BLOCK OF FIVE). THE RIGHTMOST COLUMN SHOWS DIFFERENCES BETWEEN INTENSITIES OF SINGLE INCIDENTS THAT IMMEDIATELY PRECEDED AND FOLLOWED GOVERNMENT ACTION. IF RETALIATION IS EFFECTIVE AS A PUNISHER, THE DIFFERENCE SCORE SHOULD BE NEGATIVE. CORRELATIONS BETWEEN THE MAGNITUDE OF DIFFERENCE SCORES AND THE INTENSITY OF RETALIATION WILL BE PRESENTED BELOW.

		Severity Score		Intensity (incident)		Intensity (5-incident running mean)		Intensity Difference (before-after)	
Date	Action	Т	G	Т	G	Т	G	Т	
11/2/45	T kill 6 wound 8	2			0				
11/14-16/45	Riots, G kill 3 wound 84		3	0	7.5				
11/27/45	T kill 8	2		6.7	0	4.1	3.5		
11/27/45	G kill 7 wound 75 in raid		3	0	60	3.6	5	3.5	
12/28/45	T kill 10 wound 12	3		3.2	0	3.7	2.1		
12/30/45	G cordon area/curfew		1	0	10	2.1	2.1	0.7	
1/21/46	T kill 1	2		2.5	0	4.7	1.3		
2/7/46	G fire on crowd, wound many		2	0	4			-17.5	
2/8/46	T kill 5	2	20	0					

In Palestine (Figure 1), the upper panel shows a high initial intensity of Jewish terrorist actions that was followed by a relative lull. Note, however, that terrorist actions continued during periods of inaction by the British at a, b, and c. The lower panel shows that the intensity of terrorism and retaliation generally covaried. The highest intensity of terrorist action followed shortly after the highest

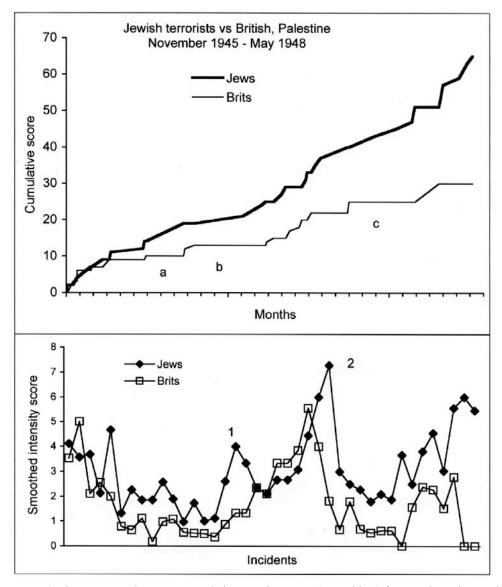


Figure 1. The upper panel presents cumulative severity scores (see Table 1) for terrorist actions and governmental responses over time, and the lower panel presents smoothed intensity scores over incidents. Letters and numbers designate features that are described in the text.

intensity of British action at 2, but other peaks in terror intensity did not always follow peaks in British action (e.g., 1).

In Morocco (Figure 2), the upper panel shows continuing terrorist action during periods of relative inaction by the French. There was a burst of intense retaliatory action by the French late in the sequence, at a, followed by a fairly high and stable level of terrorist action by the Moroccans. The lower panel shows that

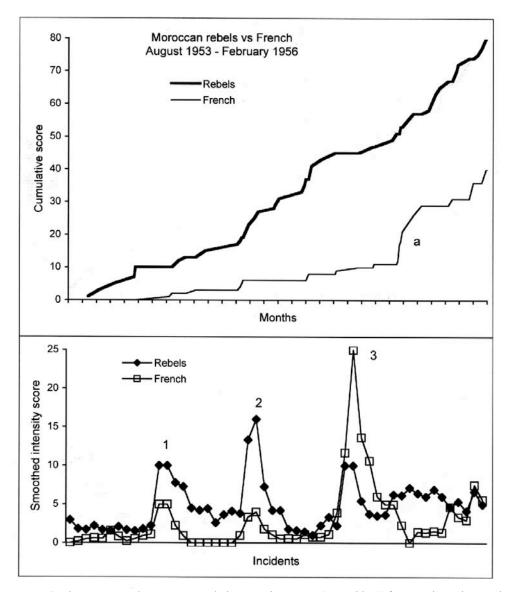


Figure 2. The upper panel presents cumulative severity scores (see Table 1) for terrorist actions and governmental responses over time, and the lower panel presents smoothed intensity scores over incidents. Letters and numbers designate features that are described in the text.

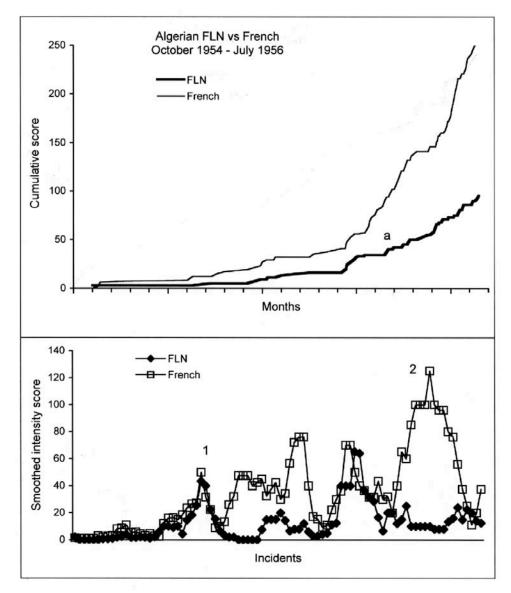


Figure 3. The upper panel presents cumulative severity scores (see Table 1) for terrorist actions and governmental responses over time, and the lower panel presents smoothed intensity scores over incidents. Letters and numbers designate features that are described in the text.

the intensity of terrorist actions that were followed by relatively smaller peaks in French action (1, 2) died down, but terrorist actions were sustained after the very high intensity of French action at 3.

In Algeria (Figure 3), the upper panel shows that initial low levels escalated rapidly to high levels for both parties, especially the French (a). The lower panel shows peaks in the intensity of actions by both parties at 1, and sustained terrorist activity despite the very high intensity of French action at 2.

In Northern Ireland (Figure 4), the upper panel shows essentially constant high levels of action by both parties after an initial period of relative calm. The lower panel suggests that periods of intense action sometimes coincided (e.g., 1) and sometimes were out of phase (e.g., 2, 3).

In Spain (Figure 5), the upper panel shows an increasing level of terrorist action accompanying and following an abrupt increase in Spanish action at a,

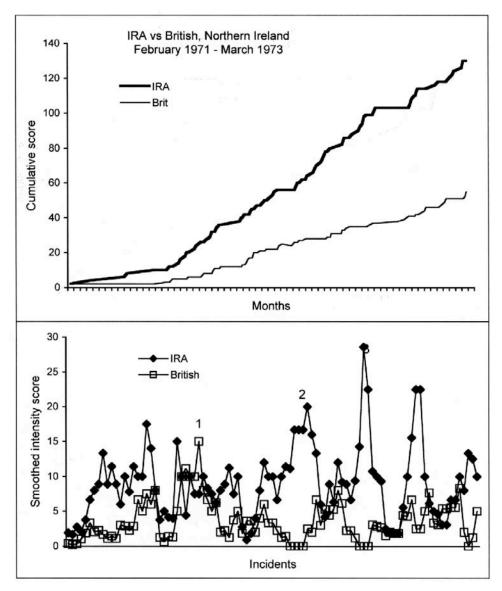


Figure 4. The upper panel presents cumulative severity scores (see Table 1) for terrorist actions and governmental responses over time, and the lower panel presents smoothed intensity scores over incidents. Letters and numbers designate features that are described in the text.

followed by an increasing level of terrorist action despite a relatively low and constant level of action by the Spanish. In the lower panel, these episodes appear as a spike at 1, where the intensity of terrorist action reaches a peak immediately after an extremely high peak of governmental action, and as sustained high levels of terrorist action at 2 despite relatively low-intensity governmental action.

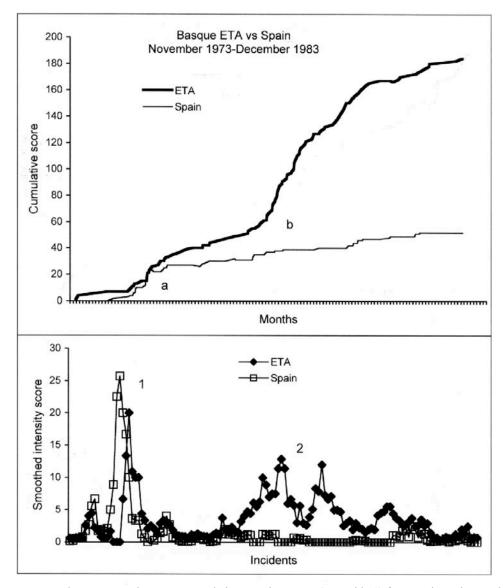


Figure 5. The upper panel presents cumulative severity scores (see Table 1) for terrorist actions and governmental responses over time, and the lower panel presents smoothed intensity scores over incidents. Letters and numbers designate features that are described in the text.

In Sri Lanka (Figure 6), the upper panel shows that terrorist and government actions generally occurred at a steady rate up to a, at which point there was a surge in terrorist action despite relatively lower government responses. The lower panel shows that spikes in the intensity of government action often followed spikes in terrorist action (e.g., 1, 2, 3), but the government response to the extreme terrorist spike at 3 was relatively small.

In Peru (Figure 7), the upper panel shows that actions by both parties occurred in bursts and pauses, with substantial bursts of terrorist actions at *a* and *b* occurring

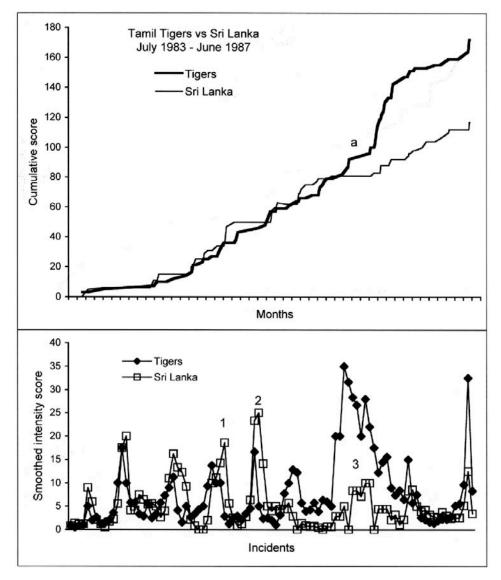


Figure 6. The upper panel presents cumulative severity scores (see Table 1) for terrorist actions and governmental responses over time, and the lower panel presents smoothed intensity scores over incidents. Letters and numbers designate features that are described in the text.

without comparable bursts in governmental action. There is no obvious pattern in the relative locations of intensity spikes in the lower panel.

Overall, there are no obvious patterns that appear to be consistent across the seven cases considered here. For every episode where governmental retaliation appears to reduce terrorism (e.g., Sri Lanka, 1), another episode illustrating the reverse can be found (e.g., Spain, 1). At this molar descriptive level, the question of whether retaliation increases or decreases terrorism remains unanswered.

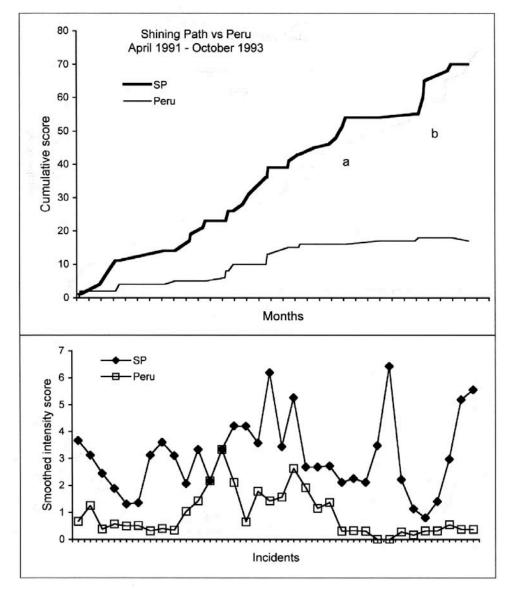


Figure 7. The upper panel presents cumulative severity scores (see Table 1) for terrorist actions and governmental responses over time, and the lower panel presents smoothed intensity scores over incidents. Letters and numbers designate features that are described in the text.

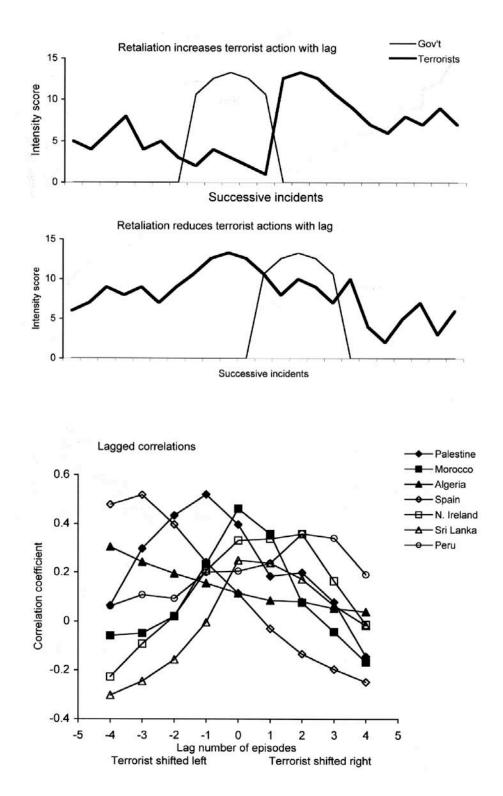
Quantitative analyses of the sequences in the lower panels of Figures 1-7 might reveal regularities that elude qualitative inspection. One way to reveal regularities is to calculate lagged correlations between the terrorists' and governmental authorities' running averages. For example, if terrorist actions tend to increase after government retaliation with some lag, shifting the terrorist averages to the left (a negative shift) should increase the correlation between the running averages. Conversely, if government actions tend to reduce terrorist actions with some lag, shifting the terrorist averages to the right (a positive shift) should increase to the right (a positive shift) should increase the correlation. The upper and middle panels of Figure 8 illustrate the analysis, and the bottom panel presents the results for all seven cases considered here.

By inspection, there is no common pattern in the lagged correlations. The strong positive correlations at negative lags for Spain suggests that retaliation increased terrorist action by the ETA with a delay; the positive correlations at positive lags for Peru suggest that retaliation reduced terrorist action by Shining Path with a delay; and the maximum at zero lag for Morocco suggests that government and terrorist actions were closely synchronized. Thus, there is no consistent evidence for delayed increases or decreases in the intensity of terrorist attacks following retaliation.¹

For a more detailed examination of successive incidents, I calculated the intensity of each terrorist action that immediately preceded (designated *before*) or followed (designated *after*) governmental retaliation. I then determined the median intensity scores of the terrorist actions in each of these sets, and the median intensity scores of government actions as well. These medians are displayed separately in the panels of Figure 9. In four cases (Palestine, Morocco, Sri Lanka, Peru), terrorist action after retaliation was less intense – less severe and/or more delayed – than before retaliation. There was no difference for Northern Ireland, and post-retaliation action was somewhat more intense for Algeria and Spain. In all cases but Algeria and Northern Ireland, government retaliation was more intense than either the preceding or following terrorist incident. The findings are

Figure 8. The upper panel shows a hypothetical case in which terrorist actions increase after governmental retaliation with a lag of several incidents. The coefficient of correlation between scores becomes strongly positive if terrorist scores are shifted four incidents to the left. The middle panel shows another hypothetical case in which terrorist actions decrease after retaliation, again with a lag. The coefficient of correlation between scores becomes strongly positive if terrorist scores are shifted four incidents to the retaliation. The between scores becomes strongly positive if terrorist scores are shifted four incidents to the right. The bottom panel presents the coefficients of correlation obtained when the terrorist scores in the lower panels of Figures 1 through 7 are shifted left (negative) or right (positive) through the range from -4 to +4 incidents.

¹ Because the severity scores are ordinal, it is improper to use the Pearson correlation coefficient, which requires interval-scaled data, to characterize relations within the present data sets. However, correlation coefficients are used here solely as descriptors, with no attempt at evaluating statistical significance.



summarized in the bottom right panel of Figure 9, which presents average terrorist intensity scores normalized to the intensity of retaliation to make them comparable across cases.

The four cases where retaliation apparently reduced the intensity of terrorist action support the notion that retaliatory punishment "worked" – i.e., it reduced undesirable behavior at least in some cases. However, a finer analysis suggests that it did not work as expected even in those cases. If punishment worked as suggested by laboratory research, the difference between *before* and *after* – the suppressive effect of punishment – should be positively related to the intensity of the intervening retaliation. To evaluate this possibility, I correlated the magnitude of the *before-after* difference with the intensity of the intervening retaliation; a positive correlation would be evidence that more severe retaliation was more effective in suppressing subsequent terrorism. Sample calculations are shown in Table 2, and the resulting correlations are presented in Table 3 for all seven cases. With the exception of Palestine, all correlations are negative, although only one (Peru) is substantial.²

I conclude that on a local incident-by-incident level, the median intensity of terrorist actions was sometimes lower immediately after retaliation than before, but in most cases it tended to be greater after severe retaliation than after lesser retaliation. On a molar level, graphical summaries and lagged correlations did not reveal any consistent effect of retaliation on the intensity of terrorist actions. With reference to the introductory question, then, it appears that governmental retaliation had no reliable impact on terrorism in the seven cases considered above.

In the post-9/11 environment, it is important to examine the timing and severity of terrorist attacks attributed to Al Qaeda under the leadership of Osama bin Laden to attempt to determine the effects of violent governmental retaliation by the USA.

In August 1998, bomb attacks on US embassies in Kenya and Tanzania killed a total of 257 people and wounded several thousands. Two weeks later, the USA retaliated with cruise missile attacks on a pharmaceutical plant in Sudan and a terrorist training camp in Afghanistan, killing a total of 21 people. In October 2000, after two years with little overt activity by Al Qaeda, a suicide attack on the USS Cole in Aden killed 17 sailors. Several people suspected of planning the attack were arrested, but there was no explicit violent retaliation. In September 2001, the Al Qaeda suicide attacks on the World Trade Center and the Pentagon killed about 3000 people. Planning the 9/11 attacks required many months, so it is unlikely that they were evoked by any specific US action; but US retaliation was swift and massive. From October 2001 through March 2002, the US-led war on Afghanistan killed more than 3000 Afghan civilians as it toppled the Taliban government and scattered the terrorists taking refuge in Afghanistan.¹

¹ Data on civilian casualties in Afghanistan and Iraq are available on two websites coordinated by Professor Marc W. Herold of the Department of Economics, University of New Hampshire, Durham, NH 03824. The website addresses are cursor.org/stories/civilian deaths and iraqbodycount.org.

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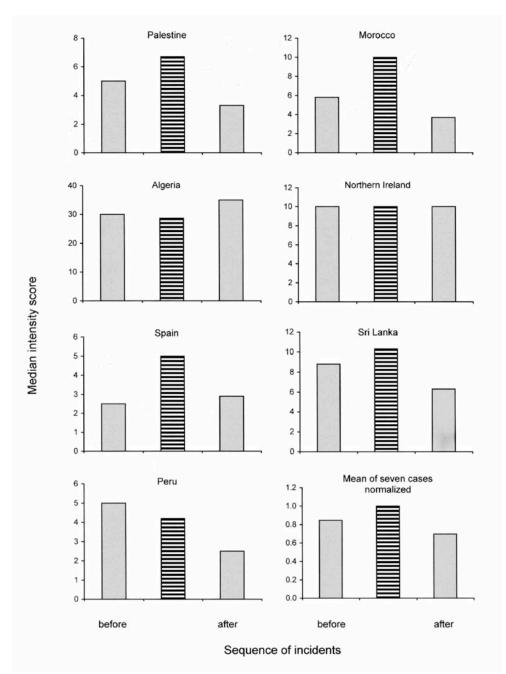


Figure 9. Median intensity scores for the terrorist attacks immediately preceding and following governmental retaliation for each of the seven cases examined; the median intensity of retaliation is also shown. Note that the *y*-axis scales differ across cases. The bottom right panel presents the mean of median scores for terrorist attacks normalized to the intensity of retaliation in each case.

TABLE 2 CORDEL ATIONS RETWIEN THE DIFFERENCE

TABLE 3. CORRELATIONS BETWEEN THE DIFFERENCE IN	
INTENSITY SCORES FOR TERRORIST ACTIONS BEFORE	
AND AFTER RETALIATION AND THE INTENSITY OF	
RETALIATION BY GOVERNMENTAL AUTHORITY.	

Palestine	+.10
Morocco	24
Algeria	07
Spain	17
N. Ireland	03
Sri Lanka	31
Peru	72

One can only speculate on the long-term effects of the war in Afghanistan on Al Qaeda-sponsored terrorism. In the short term, though, Al Qaeda was active. In October 2002, bombs at two nightclubs in Bali killed 202 and wounded 132, and in November 2002, a bomb attack on a hotel in Kenya killed 14 people. In March 2003, the USA attacked Iraq because of its alleged support for Al Qaeda as well as its purported weapons of mass destruction. The war, which was explicitly preventive rather than retaliatory, swiftly dislodged the government of Saddam Hussein. However, from March through June 2003, over 6000 Iraqi civilians died as a result of the war.³ In May 2003, Al Qaeda was implicated in separate bomb attacks in Riyadh and Casablanca, killing a total of 69 people.

Fortunately, at the time of this writing in June 2003, there are too few episodes for quantitative analyses of the sort described above. However, it is possible to calculate the death rates attributable to "conventional" Al Qaeda attacks before 9/11 and after the onset of war in Afghanistan from the numbers cited above. On average, 8 people died per month in bomb attacks before 9/11, whereas 13 people have died per month in similar attacks after the US war against Afghanistan. Retaliation may have been effective in that there has been no recurrence of anything approaching the catastrophic scale of the 9/11 attacks. However, the post-9/11 "war on terrorism" has not reduced Al Qaeda's conventional terror attacks despite the intensity of US military action and its devastating consequences for the people of Afghanistan and Iraq.

Discussion

Seven historical episodes of terrorist violence and governmental retaliation were selected for the lack of ambiguity in attributing actions to particular terrorist groups or governmental organizations. However, some ambiguities remain. Particularly disturbing are incidents where governmental agents were accused of conducting terror-like actions in order to increase popular revulsion for the terrorists' cause, or where terrorists were accused of wearing military uniforms so their killings would increase hatred for authority. My numerical evaluations would be altered only slightly by removing the few alleged incidents of this sort.

Overall, there was no evidence that violent governmental retaliation decreased the frequency or severity of terrorist attacks in the seven cases chosen for detailed analyses. If anything, there was evidence of the reverse: The intensity of terrorist actions increased, or decreased less, following more severe retaliation. All seven of these cases involved confrontations between violent movements for national independence and repressive governmental authorities. However, they appear to hold equally for Al Qaeda, a religious fundamentalist group attempting to weaken the influence of Western secular culture, or even to destroy it, rather than to achieve more limited political goals.

The seven cases studied here suggest that violent responses to terrorism do not reduce future terror attacks. However, violent retaliation adds to the overall sum of human misery for innocent civilians who happen to be in the way of a retaliatory attack, thereby creating potential recruits to the terrorists' cause. Why, then, has violent retaliation been so prevalent? Presumably, an ineffective governmental practice should give way to alternatives. However, there are no obvious alternatives, and striking back at one who has hurt you, regardless of the utility of doing so, is *revenge* – a powerful motive in human affairs throughout recorded history. It would be emotionally and politically difficult for any leader to refrain from revenge attacks after innocent civilians or government troops were killed by terrorists.

In principle, a government could refrain from violent retaliation without appearing to condone terrorism and without abandoning efforts to identify threats and prevent terror attacks before they happen. In the long run, however, more active steps are needed to reduce terrorism and encourage potential recruits to pursue alternative paths. One approach is suggested by the clinical treatment of a person who exhibits violent and dangerous behavior. Of course violence must be prevented, by physical restraint if necessary, but at the same time it may be possible to identify desirable behavior and reinforce it frequently in order to establish a strong, durable repertoire of nonviolent behavior. By analogy, consider the Palestinian terrorist group Hamas, which has been responsible for many lethal attacks on Israelis, including a number of suicide attacks, during the past few years. According to a recent report, Hamas has about 1,000 active militants, but it also has about 20,000 members who work through mosques, hospitals, and schools to improve the daily lives of their compatriots (*The Boston Globe*, 2003). If Hamas were to commit itself to refrain from violence (which seems likely in June 2003), the Israeli government might reciprocate by supporting its community activities.

Reciprocal unilateral actions of this sort can decrease the level of violence without entailing "negotiation with terrorists," which would be politically unacceptable. Instead, such actions could be described as mutual selective reinforcement without the rule-like constraints of negotiated agreements. Nevertheless, the Israeli government might reject this approach out of hand because it seems to reinforce Hamas by acknowledging its legitimacy despite its vicious attacks. From a behavioral perspective, however, reinforcers affect

responses, not organisms, and differential reinforcement of some response classes but not others is a well-established method for changing individual behavior. Analyses of historical episodes in which a government selectively reinforced a violent adversary's desirable behavior, rather than retaliating punitively in an effort to suppress its undesirable behavior, might reveal comparable changes at the group level.

Although it is extraordinarily difficult to envision a policy of nonviolent reciprocal action or selective reinforcement in dealing with Al Qaeda, the current US policy of preventive attack has killed thousands of innocent civilians and appears to be ineffective in suppressing conventional terrorism in the short run. In the long term, it may be counterproductive if preventive attacks encourage terrorist recruitment and evoke more violent terror attacks. Alternatives are desperately needed.

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The Boston Globe, June 21, 2003