Moving Beyond Deterrence: The Effectiveness of Raising the Expected Utility of Abstaining from Terrorism in Israel

Laura Dugan[a] and Erica Chenoweth[b]

Abstract

Rational choice approaches to reducing terrorist violence would suggest raising the costs of terrorism through punishment, thereby reducing the overall expected utility of terrorism. In this article, we argue that states should also consider raising the expected utility of abstaining from terrorism through rewards. We test effects of repressive (or punishing) and conciliatory (or rewarding) actions on terrorist behavior using the newly developed GATE-Israel dataset, which identifies events by Israeli state actors toward Palestinian targets on a full range of counterterrorism tactics and policies from 1987 to 2004. Results show that repressive actions are either unrelated to terror or related to subsequent increases in terror, and conciliatory actions are generally related to decreases in terror, depending on the tactical period. Findings also reveal the importance of understanding the role of terrorists' constituencies for reducing violence.

Keywords

conciliation, counterterrorism, deterrence, expected utility, Israel, Palestine, rational choice theory, terrorism

Rational choice approaches have long suggested that reducing unwanted behavior requires raising the costs (or perceived costs) of a behavior through the threat of punishment—a process commonly referred to as deterrence. In the eighteenth century, Beccaria ([1764] 1983) argued that the state should punish law-breakers just enough so that the burdens of punishment outweigh any pleasure derived from perpetrating the crime—an idea that directly informs U.S. criminal law, military strategy, and a host of other social policy domains. Scholars have since applied the notion of deterrence to a range of areas, including nuclear doctrine (Brodie 1959), as well as a broad range of offending behaviors (Matsueda, Kreager, and Huizinga 2006; Nagin 1998; Paternoster 1987), including terrorist violence (LaFree, Dugan, and Korte 2009). The clear appeal of deterrence theory is its parsimony, as well as the fact that punishment can be imposed with relative ease.

[a]University of Maryland
[b]University of Denver

Corresponding Author:
Laura Dugan, University of Maryland, Department of Criminology and Criminal Justice, 2220 LeFrak Hall, College Park, MD 20742
E-mail: ldugan@umd.edu

All the theory requires is that punishment be calibrated in such a way that specific behaviors are no longer appealing.

Despite the popularity of deterrence, two important problems remain. First, empirically, unwanted behaviors continue—and indeed often increase—despite the threat of punishment. Second, theoretically, implications of rational choice theory are broader than simply deterring unwanted behavior through punishment. As Becker (1968) demonstrates, actors choose whether to break the law by comparing the expected utility of committing a crime with the expected utility of making a different choice. Deterrence-based policies are naturally directed toward lowering the anticipated gains of illegal behavior by raising its costs, but relatively little attention has been given to raising the anticipated value of *legal* behaviors relative to illegal ones.

In this article, we argue that raising the expected utility of abstaining from an unwanted behavior may be an effective policy choice in certain circumstances. To support this argument, we use a newly developed dataset that documents specific terrorism-relevant actions by the Israeli government directed toward substate actors in the Palestinian Territories to assess effects of repressive actions (which raise the costs of terrorism) and conciliatory actions (which raise the benefits of abstaining from terrorism) on terrorist activity during three decision regimes: the First Intifada, the Oslo Lull, and the Second Intifada (Brym and Andersen 2011; Kuperman 2007; Rasler 2000).

We find that during the First Intifada and the Oslo Lull, small numbers of conciliatory tactics led to increases in terror; however, as Israel initiated more conciliatory actions, the number of terrorist attacks declined. During the Second Intifada, conciliatory tactics had a much stronger and linear effect on reducing Palestinian terrorist attacks. Furthermore, despite the conventional confidence in deterrence approaches, repressive actions have never led to decreases in terrorism and have sometimes led to increases in terrorism. Our study is the first to show empirically that whereas solely repressive tactics tend to backfire, conciliation toward Palestinians can yield lower levels of subsequent Palestinian violence, even when the primary targets are religiously inspired terrorist groups, emphasizing an important—yet understudied— dimension of rational choice approaches. In summary, Israeli policymakers should consider conciliatory tactics as potentially viable in reducing terrorism and disempowering extremists within the Palestinian Territories. Scholars should study more carefully the conditions under which conciliatory policies may be effective in reducing terrorism.

RATIONAL CHOICE PREDICTIONS OF TERRORIST BEHAVIOR

Any application of rational choice theory assumes that actors make decisions designed to optimize their own well-being while minimizing costs (Bentham [1781] 1996). We argue that terrorist actors, despite the gruesome nature of their crimes, can be considered rational actors (Crenshaw 2001; LaFree and Ackerman 2009). Kruglanski and colleagues (2009) characterize the reasons for violent participation as a quest for personal significance; other scholars highlight the common terrorist goal of recognition and fame (Hamm 2004). These views suggest that terrorists are generally less concerned about being punished and more concerned about their role in ensuring the well-being of their movement and its constituency, so strategies that successfully deter common criminals may be ineffective for terrorists (for an example of this difference among airline hijackers, see Dugan, LaFree, and Piquero 2005). Therefore, we deliberately adjust the costs and benefits of perpetrating terrorist attacks so that they also relate to the larger goals of the terrorist movement as well as to any personal fame (LaFree and Dugan 2004).

We illustrate this point by examining the equation for the expected utility of perpetrating a terror attack (Equation 1). Here, the expected utility for person i, $[E(u_{terror})_i]$, is a function of the perceived costs of and benefits from perpetrating the act:

$$E(u_{\text{terror}})_i = p_i \, U(y_i - F_i) + (1 - p_i) \, U(y_i), \quad (1)$$

where p is the perceived probability of being punished, y is the anticipated benefits of perpetrating the act, and F is the perceived penalty for the act.[1] Thus, the decision to perpetrate an act of terror for person i depends on whether $E(u_{\text{terror}})_i > E(u_{\text{nonterror}})_i$. The value of this expectation varies across individuals depending on their unique preferences, propensities toward violence, and other individual differences (see Tibbetts and Gibson 2002). For terrorists, y typically advances the movement's progress toward its larger goals and improves their personal status, so any penalty directed toward individual i has less of an impact on the overall expected utility. This disproportion between y and F is well illustrated when we consider suicide attacks. Even when F is death, the expected utility is clearly higher for some individuals than are any alternative actions (see Hafez 2006). It naturally follows that to deter terrorism, F must affect more than just the individual.

For this reason, and because policy is designed to influence the population as an aggregate—not just specific individuals—we generalize Equation 1 by averaging across all individuals to produce Equation 2:

$$E(u_{\text{terror}}) = p \, U(y - F) + (1 - p) \, U(y) \quad (2)$$

This naturally leads to a policy strategy designed to reduce the overall expected utility of terror by increasing the certainty (p) and severity (F) of punishment. Rational choice theory predicts that when states are able to raise the cost of perpetrating terror high enough so that the overall expected utility of terror is lower than that for abstaining from terror, rates of terrorism will drop.

Raising the Costs of Perpetrating Terror

Many studies have evaluated the effectiveness of raising the costs of illicit behavior, such as drunk driving and sexual assault (Nagin 1998; Nagin and Paternoster 1993; Paternoster 1987). Research consistently finds that fewer people report intentions to engage in illicit behaviors when they perceive a high risk of detection (Nagin 1998), illuminating the importance of the perceived certainty of being punished (or p_i from Equation 1). Evidence supporting the importance of severity (or F_i from Equation 1) is mixed (Nagin 1998; Paternoster 1987). Nagin (1998) cautions, however, that empirical support for deterrence based only on individual-level perception studies is insufficient to conclude that policies can deter crime—other than perhaps policies designed to alter perceptions. Instead, because policies are designed to change the behavior of aggregate groups of people, informative research should also be conducted at the aggregate.

Aggregate studies of deterrence often take the form of interrupted time-series analyses that estimate the impact of a specific intervention on crime, or ecological studies that assess the natural variation between sanction levels and crime rates (Nagin 1998). The appeal of interrupted time-series analysis is that it allows researchers to evaluate the effectiveness of specific types of interventions or policies, such as stricter laws or police crackdowns, on the particular behaviors these policies are trying to affect (Goldkamp and Vilcica 2008; Ross 1982; Sherman 1990). Efforts to reduce terrorist behavior include terrorist apprehension and extended prison sentencing (Landes 1978), passage of anti-terrorism laws (Enders and Sandler 1993), assassination (Byman 2006; Hafez and Hatfield 2006; Jaeger and Paserman 2008; Maoz 2007; Plaw 2008; Zussman and Zussman 2006), curfews and containment strategies (LaFree et al. 2009; Maoz 2007), deportation (Maoz 2007), home demolitions (Benmelech, Berrebi, and Klor 2010), violent repression and military retaliation (Brophy-Baermann and Conybeare 1994; Brym and Araj 2006; Enders and Sandler 1993; LaFree et al. 2009; Maoz 2007; Testas 2004), and indiscriminate repression (Lyall 2009). Some scholars have also examined effects of containment policies, such as installation of metal detectors (Cauley and Im 1988; Dugan et al. 2005; Enders and Sandler 1993; Landes 1978).

The second category of aggregate research includes ecological studies that examine the natural variation between intervention levels and illegal behavior to more clearly identify a causal link (Nagin 1998). This methodology measures interventions continuously rather than by a single shift in a discrete value before and after its implementation. Continuous measures are far superior because they portray a more accurate measure of authorities' level of effort, such as increases in the prison population or the number of police on the street (Levitt 1996, 1997). Ecological studies must be methodologically sophisticated in order to identify any causal relationship between sanctions and crime and avoid issues of reverse causality (e.g., more police are hired in response to increases in crime [Nagin 1998]). Although studies have examined effects of repression on protest (Della Porta 1995; Khawaja 1994; Koopmans 1993; Lichbach 1987; Moore 1998) and effects of annual human rights violations on subsequent terrorist attacks (Piazza and Walsh 2009), no studies to date have examined both repressive and conciliatory tactics and their effects on terrorism.[2] Until now, the only information available on state actions describes discrete interventions. These data are usually gleaned from case studies or well-publicized media reports (e.g., the killing of Osama Bin Laden), yielding data that are ideal for models of interrupted time series but not for ecological studies.

Ours is thus the first published ecological study, of which we are aware, that estimates the effects of aggregate measures of state repression and conciliation on terrorism. Before we continue, we consider two important components of deterrence: the nature of the targets and the possibility of backlash.

Targets of deterrence (or repression). Deterrence is indiscriminate when it targets individuals who have not yet broken the law (general deterrence) and discriminate when it targets known offenders (specific deterrence) (Andenaes 1971; Gibbs 1975). For example, the British government behaved discriminately when it treated jailed, suspected Irish Republican Army (IRA) terrorists as criminals rather than political prisoners (LaFree et al. 2009). In contrast, Britain behaved indiscriminately when it imposed a 36-hour military curfew in Northern Ireland and searched all homes for evidence of IRA membership and weaponry (LaFree et al. 2009).

We expect discriminate and indiscriminate repression to have different effects on the expected utility of terrorism (E[u_{terror}] in Equation 2) because indiscriminate repression affects the larger constituency, on whose interests terrorists generally base their goals. In other words, indiscriminate repression likely raises the costs of terrorism much higher than any penalty directed toward a specific offender. For instance, Lyall (2009) finds that indiscriminate violent repression reduced the number of insurgent attacks in Chechnya over a three-month period by about 24 percent.

Possible backlash. Despite the popularity of deterrence theories, research shows that punishment sometimes fails to deter and can even lead to more crime. For example, label theorists argue that when states impose punishment, offenders will begin to identify more thoroughly with their role as law-breakers and will then fortify their criminal (or terrorist) lifestyles (Becker 1963; Farrington 1977; Schwartz and Skolnick 1962). Other scholars claim that when punishment compromises the perceived legitimacy of the punisher, it could elicit acts of defiance (Sherman 1993; Tyler 2006). Indiscriminate repression, often viewed as illegitimate, may lead to defiance and increased violence. For instance, although Benmelech and colleagues (2010) find that home demolitions that targeted suicide terrorists' families reduced subsequent Palestinian suicide attacks during the Second Intifada, incidental or preventive home demolitions resulted in a sharp increase in suicide terrorist attacks.

Other research also finds that state repression exacerbates terrorism, or at least mobilization in general. Peroff and Hewitt's (1980) analysis of Northern Ireland indicates that

between 1968 and 1973, an increased British troop presence led to more rioting, a finding that White (1989) corroborates. Similarly, LaFree and colleagues (2009) find that three of six British interventions in Northern Ireland led to increases in the risk of Republican terrorist attacks. Khawaja (1993) finds that repressive acts by Israel increased the rate of collective action by Palestinians in the West Bank. In her study on protest events during the Iranian Revolution, Rasler (1996) finds that repression decreased protests in the short run but increased them in the long run. Testas (2004) concludes that political repression may be negatively associated with levels of terrorism over the short term, but that continued use of repressive policies will eventually increase terrorist activity. Piazza and Walsh (2009) corroborate these findings on a global scale, finding that countries that violate human rights are more likely to suffer terrorism than are countries that adhere to human rights—particularly rights that affect physical safety. Furthermore, Brym and Araj (2006) and Araj (2008) argue that terrorism emerges as a response to perceived injustices, such as government repression, that inspire groups to mobilize in retaliation.

Another less evident form of backlash results when offenders substitute one prohibited activity for other illegal acts. For example, despite finding that metal detectors led to a reduction in airline hijacking, Enders and Sandler (1993) note a subsequent increase in hostage taking events. Displacement thus occurs when the expected utility of committing one type of offense (e.g., hijacking) drops below the expected utility of a different offense (e.g., hostage taking) (see Cornish and Clarke 1987).

One could conclude that policies must be designed to lower the expected utility of *all* reasonable offenses. But this would be prohibitively costly for any state. Instead, we argue that by focusing efforts only on reducing the expected utility of perpetrating an act (i.e., $E[u_{terror}]$), we ignore a potentially important component of the rational choice decision: the utility of abstaining from crime (i.e.,

$E[u_{nonterror}]$). Therefore, we next consider how raising the benefits of abstaining from terror might reduce subsequent incentives to engage in terrorism.

Raising the Benefits of Abstaining from Terror

Equation 3 presents the expected utility of nonterror, which parallels that for the expected utility of terror in Equation 2:

$$E(u_{nonterror}) = q\,U(x + G) + (1 - q)\,U(x) \quad (3)$$

Here, q represents the probability of receiving rewards for abstaining from terrorism, x represents the value of the current situation (i.e., the status quo), and G represents the anticipated rewards of abstaining from terrorism. Aside from the different meanings attributed to each component of the equation, the primary difference between Equations 3 and 2 is that G (anticipated rewards) adds to the value of x in Equation 3, whereas F (anticipated punishment) detracts from the value of y in Equation 2. This small contrast establishes that this is a carrot, rather than a stick, approach to countering terrorism (Frey 2004).

We can better appreciate the role of $U(x + G)$ when we take a closer look at x. By representing the status quo, x directly relates to the grievances that motivate people to commit acts of terror. For example, if we consider the case of ETA (Euskadi Ta Askatasuna), the nationalist terror organization in the Basque region of Spain, the status quo (x) is that the Basque region remains under the sovereignty of Spain, despite ETA's intent to establish an independent reunified Basque state (Clark 1990; Mees 2003). If the Spanish government offered rewards (G) to ETA or its Basque constituency (e.g., allowing the Basque people greater freedoms to practice their cultural traditions), then the utility to ETA and the Basque people, if Spain were to follow through on these rewards, would be $U(x + G)$ (note that q is the probability that Spain actually does follow through on these rewards). In

other words, for ETA and the Basque people, the utility would be a function of the advantages of the rewards in addition to the status quo (i.e., more freedoms while still under Spain's sovereignty). Although these rewards might not offset their grievances, they would indeed improve upon the status quo. If the incentive to behave according to the law is *only* the status quo (despite the absence of punishment that deterrence promises), it may not prevent rational actors from executing their illegal prerogatives. Quite simply, by raising the overall $E(u_{nonterror})$ to be greater than the $E(u_{terror})$, a country may be more likely to experience a drop in terrorism.[3]

With a few exceptions (Bueno de Mesquita 2005; Kydd and Walter 2002; Lapan and Sandler1988; Neumann 2007), little research explicitly assesses effects of conciliation on crime or terrorism. Our interest is not limited to bargaining with terrorists, but also includes rewarding nonterrorist behavior. For example, many programs (e.g., after-school programs) provide legal alternatives to crime, which inherently raise the expected utility of leading crime-free lives (Gottfredson et al. 2004; Newman et al. 2000). Governments have also attempted to provide alternatives to terrorist violence. Small movements in this direction include the establishment of the Basque Autonomous Community in the post-Franco Spanish constitution, which improved the status quo for the Basque people (Clark 1990). The Turkish army attempted to improve the status quo for Turkish Kurds in the mid-1990s by opening educational and health facilities to the Kurdish population in the southeast (Cornell 2001). Such actions raise the expected utility of not engaging in terrorism, and in these contexts they can be considered conciliatory rather than repressive. Although these actions fall short of compensating for the original grievances, they do reward nonviolent behavior and may encourage people to refrain from terrorism.

Notice that these efforts target individuals who have engaged in illegal behaviors as well as those who were only at risk of such behavior. Just as repressive actions can affect both the innocent (general) and known offenders (specific), conciliatory actions can also target indiscriminately and discriminately.

Targets of rewards (or conciliation). Neumann (2007) and others suggest that governments can win the legitimacy battle in part by approaching terrorists' constituents with a more conciliatory tone and set of actions (i.e., indiscriminate conciliation). Through improved legitimacy, governments offer fair treatment (*G* in Equation 3) that could be lost after a terrorist attack. Yet patience and consistency are required for conciliatory actions to influence terrorist behavior, because these actions rely on trust that can only develop over time.

Many scholars note the importance of appealing to terrorists' constituencies. The Armenian terrorist group ASALA reduced attacks quickly after losing the support of its primary constituency, the Armenian diaspora (Dugan et al. 2008). Terrorist organizations rely on their constituencies for financial support and as an ongoing recruitment pool. Indeed, Crenshaw (2001) explains that the key component for group survival is recruiting and maintaining a strong membership. To preserve the loyalty of their constituencies, some terrorist organizations provide social services to accommodate their needs. Poor constituencies are especially dependent on terrorist organizations when they are the only service provider (Flanigan 2010). This strategy has paid off for Hamas, which developed a network of charitable organizations and services for the Palestinian people and then won a majority of the Palestinian parliamentary seats in January 2006 (Malka 2007). Hezbollah, which is better equipped to provide services to Southern Lebanon and the southern suburbs of Beirut than is the Lebanese government (Flanigan and Abdel-Samad 2009), also won electoral victories. Constituencies' dependence on terrorist organizations demonstrates the strategic importance of governments providing competing social support through overt conciliatory actions. We expect that when governments are able to improve the status quo (*G*) for indiscriminate yet relevant populations, terrorist

organizations will have difficulty maintaining strong membership and will subsequently lose the capacity to inflict harm.

Conciliatory actions can also be discriminate when they target known offenders. Deradicalization programs engage convicted terrorists in religious dialogue to dismantle the ideological beliefs that justify terrorism. Concurrently, these programs work closely with detainees' families to prepare them to lead normal, nonviolent lives by providing financial support to educate the children, training wives, and helping to reintegrate detainees into the community (Kruglanski, Gelfand, and Gunaratna 2010). Similar conciliatory efforts took place in Europe in the 1980s when Spain pardoned imprisoned ETA members after they publicly renounced the organization and its use of violence. This reinsertion policy allowed ETA members to live normal lives, free from ETA (Mees 2003). The Italian government offered leniency to members of the Red Brigades when they provided information that led to the apprehension of other members (Crenshaw 2001; Cronin 2006). In all of these examples, governments strategically raised the expected utility of choosing a violence-free life for known terrorists. Although some of these efforts show promise (Kruglanski et al. 2010), we expect conciliatory efforts that target the broader constituency will be more effective in reducing terrorism in the long term, because they will eventually shift popular opinion away from terrorism, depleting terrorist groups of public support.

TACTICAL REGIMES AND THE ISRAELI–PALESTINIAN CONFLICT ENVIRONMENT

Much can be said about Israel's relationship with its contentious neighbors,[4] but our primary goal is to explore Israel's objective of reducing Palestinian terrorist attacks. The modern terrorist environment can be traced to the Palestine Liberation Organization (PLO), a secular, nationalist, umbrella organization

created in 1964 consisting of four main factions: Fatah, the Democratic Front for the Liberation of Palestine (DFLP), the Popular Front for the Liberation of Palestine (PFLP), and the Palestinian Communist Party (PCP). A core group of exiled Palestinian Fatah members, including Yassir Arafat and Khalil Al-Wazir (Abu Jihad), dominated the PLO. The group's leadership looked to other anti-colonial movements, such as the Algerian Liberation Front, for inspiration and adopted armed struggle as the sole method of confronting the Israeli occupation in the late 1960s (see Article 9 of the Palestinian National Charter, drafted in 1968) (Kadi 1969). Early examples of armed actions include multiple airline hijackings, high-profile assassinations, and the famed Munich Massacre, a high-profile kidnapping and murder of 11 Israeli athletes at the 1972 Munich Olympic Games by the Palestinian group Black September. However, due to popular backlash against the latter incident, Palestinian groups refocused their efforts on armed struggle against Israel within Israel itself.

We now turn our focus to the three time periods under inquiry. Scholars typically describe the First Intifada, the Oslo Lull, and the Second Intifada as distinct periods in which the Israeli government adopted fairly uniform approaches to managing the terror environment (Brym and Andersen 2011; Kuperman 2007; Rasler 2000). Previous studies have sought to explain the *causes* of these regimes, whereas we are more interested in the *effects* of Israeli policies during these periods. We note that, importantly, different terrorist groups predominated during each of the distinct regimes. Moreover, despite adoption of particular regimes, we observe a mix of conciliatory and repressive tactics during each of these periods, demonstrating that the tactical regimes were not as uniform as is often suggested.

The First Intifada (1987 to 1993)

Although the PLO endorsed and pursued violent methods of resistance against Israeli

occupation, the first Palestinian Intifada that began in December 1987 was initially a nonviolent popular uprising that erupted in a Gaza refugee camp and spread throughout the Gaza Strip and the West Bank (King 2007). The uprising succumbed to factional divisions and violence by mid-1990 (Pearlman 2008/2009). Although secular Palestinian nationalists dominated the campaign and the consequent Oslo Accords, two offshoots of the Muslim Brotherhood, Islamic Jihad and the Islamic Resistance Movement (Hamas), emerged as important players in the latter part of the First Intifada. These two religious groups aspired to create an Islamic Palestine governed by sharia law and refused to recognize Israel as a legitimate state (Brym and Andersen 2011; Kydd and Walter 2002). The coexistence of multiple Palestinian groups undermined the unity of Palestinian resistance during the First Intifada, and by spring 1990, Palestinians were killing more fellow Palestinians than Israeli soldiers were (Pearlman 2008/2009; Rigby 1991).

Nevertheless, popular opinion in Israel began to turn against Israeli occupation of the Palestinian territories, and in October 1991, Israeli and Palestinian negotiators met for bilateral talks at the Madrid Conference. After more than eight months of talks, key issues—such as the status of the Jewish settlements inside the Palestinian Territories—remained unresolved. But in 1993, Israeli and PLO officials began to meet in secret in Oslo, Norway, paving the way for a series of agreements known as the Oslo Accords.

The Oslo Lull (1993 to 2000)

As part of the Oslo Accords, negotiators established the Palestinian Authority (PA), a semi-independent governing body that assumed limited control over parts of Gaza and the West Bank. In return, Arafat and the Palestinian leadership agreed to recognize Israel's territory within the 1967 borders. Brym and Andersen (2011) write that a new decision regime began to dominate Israel at this point: a regime that privileged political solutions over military ones with regard to the Palestinian Territories, and

that turned the focus to defending against threats from regional rivals, such as Iran.

Commentators often point out that neither side has lived up to its Oslo obligations (Marshall 2009). Israeli settlements continued to expand throughout the 1990s, and the PA failed to maintain security in the Palestinian Territories, mismanaged economic affairs, and engaged in widespread corruption. Palestinian extremist groups—particularly Hamas and the Palestinian Islamic Jihad (PIJ)—continued to launch sporadic violent attacks against Israeli civilians after the Oslo Accords were signed, and Jewish extremists carried out violence against Palestinian civilians as well. Yet Israel responded to these incidents with considerable restraint until the Second Intifada began (Brym and Andersen 2011).

The Second Intifada (2000 to 2004)[5]

In September 2000, tensions erupted when then-Defense Minister Ariel Sharon visited the Temple Mount. Viewed as an affront to Islamic faith and a dishonor to Palestinian traditions, Palestinian extremist groups initiated a sustained violent campaign that became known as the Second Intifada, also known as the al-Aqsa Intifada (Beitler 2004). In contrast to the First Intifada, the Second Intifada was primarily violent.

Religious groups (Hamas and PIJ) carried out the majority of terrorist attacks during this period, which became distinctive for the suicide bombing campaigns perpetrated against Israeli civilians and occupation forces. From 2000 to 2005, suicide bombing was the favored tactic of Islamist Palestinian groups such as Hamas and PIJ. Secular groups such as the Popular Front for the Liberation of Palestine (PFLP), the Democratic Front for the Liberation of Palestine (DFLP), and the Al-Aqsa Martyrs Brigades, a collection of Fatah-affiliated cells, deployed this tactic as well (Bloom 2004; Hafez 2006), but not to the same extent as religious groups.

Israel responded by intensifying occupation of the West Bank and Gaza Strip, initiating programs such as bulldozing suicide bombers'

homes, increasing curfews, assassinating militant leaders, and constructing a highly controversial concrete and barbed-wire barrier that weaves between Israeli and Palestinian occupied land. Although Israel's military occupation of the West Bank ended in 2005, Hamas won the 2006 elections to become the legitimate government of the PA. Hamas has refused to negotiate with Israel or recognize Israel's right to exist, and indeed has continued to support the use of violence against Israelis. At the same time, Israeli elected leaders have also become increasingly hawkish, adopting provocative policies such as further settlement expansion. In 2009, Israel launched Operation Cast Lead, a war in the Gaza Strip that resulted in thousands of deaths. With no resolution in sight, Israel continues to face attacks from within the Palestinian Territories, and the Israeli government continues to rely overwhelmingly on force to attempt to deter yet more violence.

Israel continues to experience violent attacks by Hamas, PIJ, and Fatah-affiliated organizations—all of whom are sensitive to and dependent on sympathy and support from the Palestinian population, the vast majority of whom would not engage in terrorist activities as their default choice (Bloom 2004; Hafez 2006). As mentioned earlier, most terrorist groups rely on willing recruits to survive (Crenshaw 2001). Moreover, these groups are much more likely to endure when the surrounding population is either complicit in their activities, sympathetic toward them, or convinced that informing Israelis will result in swift retaliation from the terrorist groups themselves (Kalyvas 2006; Kocher and Kalyvas 2007; Lyall and Wilson 2009). As many analysts have noted, the civilian population is the central fulcrum of any protracted civil conflict (Kalyvas 2006; Lyall and Wilson 2009), and the Israeli–Palestinian conflict is no exception.

APPLYING RATIONAL CHOICE TO THE ISRAELI–PALESTINIAN CONFLICT

Within the context of Israel, raising the costs of terror is akin to initiating repressive actions against the Palestinians; and raising the benefits of abstaining from terrorism is akin to initiating conciliatory actions by the Israeli government toward Palestinians. Israeli actions may target known Palestinian terrorists (discriminate) or Palestinian civilians in general (indiscriminate).

Hypotheses

As a guide to the hypotheses we present a final equation that combines Equations 2 and 3 into one inequality. When

$$E(u_{terror}) < E(u_{nonterror}), \qquad (4)$$

we expect less terrorism. We now present three hypotheses that follow directly this inequality condition, and two hypotheses that relate to specific components of the expected utility of terror and nonterror.

> *Hypothesis 1:* Any Israeli action leads to fewer terrorist attacks by Palestinians.

We present this hypothesis because whether Israel lowers the expected utility of terrorism through repressive actions or raises the expected utility of nonterrorism through conciliatory actions, the result should produce a higher utility for nonterrorism, thus leading a rational actor away from terrorist behavior. The next two hypotheses are specific to each type of expected utility.

> *Hypothesis 2:* Conciliatory actions lead to fewer terrorist attacks by Palestinians.
> *Hypothesis 3:* Repressive actions lead to fewer terrorist attacks by Palestinians.

These hypotheses allow effects of the specific type of action to behave independently from effects of the other type. Because both punishment and reward are expected to tilt inequalities in favor of nonterrorism, we predict that both types of actions will lead to fewer attacks.

The two secondary hypotheses are generated from other components of rational choice.

> *Hypothesis 4:* Indiscriminate repressive actions lead to more terrorist attacks.

Here, we expect repressive actions that affect the Palestinian people in general will cause a backlash of violence. Prior literature has found evidence of backlash (Benmelech et al. 2010), and an important source of backlash is the Israeli government's compromised legitimacy. Without legitimacy, Palestinians have little reason to trust that the Israeli government will behave fairly in times of peace (Braithwaite 2005).[6]

This reaction by the larger constituency can favor Israel if it provides peaceful alternatives to violence. This leads to the next secondary hypothesis:

> *Hypothesis 5:* Indiscriminate conciliatory actions lead to a larger decrease in terrorist violence than do other actions.

Quite simply, if Israel builds legitimacy and trust through conciliatory actions, the Palestinian people will be more reluctant to sabotage the possibility of peace by supporting terrorism. Without their support, terrorists will be unable to maintain an ongoing campaign of violence.

RESEARCH STRATEGY

The study of counterterrorism has long been constrained by a lack of high-quality data with which to evaluate these approaches in a robust way (Chenoweth and Dugan 2011). To test our hypotheses, we provide several empirical innovations. First, we focus on relational data between state and Palestinian actors in Israel. Second, we include a wide range of state actions under the category of "counterterrorism." Many studies focus exclusively on repression or concessions, but we collected data on thousands of types of state actions—from raids and arrests to allowing telephone lines to be built in refugee camps—so that we can explore the relative effects of different types of interactions. This allows us to move away from misleading characterizations of conflict as a series of dichotomous choices and to consider a wider range of conflict actions (Chenoweth and

Dugan 2011). Third, we use newly collected event data on the specific actions taken by the state of Israel directed toward substate actors relevant to the Israeli conflicts with Palestinian populations. This allows us to aggregate the data to any temporal unit. For this research, we chose to aggregate to the month because the Israeli–Palestinian conflict is highly dynamic, and information is outdated after a few months. Finally, we adopted a method that allowed us to estimate effects of various tactics on terrorist attacks while accounting for reciprocal effects that terrorist attacks may have on counterterrorism actions.

Data

Data for these analyses come from two sources. The dependent variable, Palestinian terrorist attacks, comes from the Global Terrorism Database (GTD), which was collected by scholars at the Center for the Study of Terrorism and Response to Terrorism (START) (LaFree and Dugan 2007). The independent variables, Israeli state actions, come from a new database collected by the authors called Government Actions in a Terrorist Environment-Israel (GATE-Israel) (Chenoweth and Dugan 2011). The current analysis is constrained to the years covered by this dataset, June 1987 through December 2004. This collection is part of a larger effort to document tactics used by states to reduce terrorist threats (Chenoweth and Dugan 2011).[7]

Palestinian terrorist attacks. The GTD is an event-based database that documents all terrorist attacks across the globe from 1970 through 2010.[8] The collection was originally compiled by the Pinkerton Global Intelligence Services (PGIS) from 1970 through 1997, and then cleaned and updated by START staff and contractors (Dugan 2012; LaFree and Dugan 2007). Regardless of the collecting agent, all cases came from open sources available through media and other reporting agencies. The reliance on open sources produces some strengths and some weaknesses (see

LaFree and Dugan 2007). The most relevant concern for this research is that open sources are biased toward the most noteworthy events and are likely to underrepresent attacks on more remote parts of the globe. However, because the Israeli–Palestinian conflict has been central to the international arena, we are not very concerned about missing events. Furthermore, because it is inevitable that some events might have missed public scrutiny, we have no reason to believe this issue would be systematic.

Two nuances in GTD data are relevant to the current analysis. First, all events from the year 1993 are missing. Boxes that held the original data for that year were lost while still under the control of PGIS. All analyses thus exclude the months of that year. We note that 1993 spans the tactical regimes of the First Intifada and the Oslo Lull. Second, although the original data were collected prospectively by PGIS, data since 1998 were collected retrospectively, inevitably undercounting attacks that were documented only in sources that are no longer available. To adjust for this, all models include an indicator variable that distinguishes the retrospective period from the prospective period (*GTD2* = 1 if year > 1997 and 0 otherwise).[9] We expect the coefficient for this estimate to be negative, absorbing the undercounting for the retrospective data collection.

Dependent variables for all analyses come from the GTD and are counts of Palestinian terrorist attacks for each month. We used only GTD cases that involved at least one Israeli target in Israel or the Palestinian territories. Furthermore, because the GTD provides some information about the perpetrator in nearly 70 percent of these attacks, and because the majority of attacks are Palestinian related, we included in the current analysis all attacks by unknown perpetrators (30.2 percent) and excluded attacks by non-Palestinians (e.g., Lebanese or Israeli terrorists). Although it is possible that some of the unknown attacks were by non-Palestinians, we doubt that any error is systematic. After filtering attacks by these criteria, we found 1,208 terrorist attacks by Palestinians against Israelis from June 1987 through December 2004, the months used in the current analysis.

Israeli state actions. The GATE-Israel Database includes all Israeli actions toward substate actors from June 1987 through December 2004. Our focus is on actions directed toward Palestinian terrorists or civilians. We collected data using Textual Analysis by Augmented Replacement Instructions (TABARI), which searches news articles and identifies observations that match the criteria of an extensive set of dictionaries designed to capture international and domestic activity (Schrodt 2001, 2006).[10] TABARI is an automated text-coding program that codes news articles based on noun and verb pattern recognition. This method is surprisingly accurate and considerably more efficient than human coding of entire stories (Schrodt 2001, 2006).[11] For other recent applications of TABARI, see Clauset and colleagues (2010); Shellman (2008); and Shellman, Hatfield, and Mills (2010).

In our study, we used TABARI to code 243,448 Reuters articles downloaded from Factiva using the word "Israel*" as the search criterion for the period January 1, 1987 to December 31, 2004. Reuters' archives begin in June 1987, delineating the beginning point of this research. We determined the end date at the time we wrote the original grant proposal. We chose Reuters over other wire services because of its consistent editorial control and its tendency to use a simpler sentence structure and vocabulary than alternative news sources such as the *Washington Post* and the *New York Times* (Schrodt, Davis, and Weddle 1994; Schrodt and Gerner 1994).

After TABARI identified relevant news articles, we filtered the output to keep only actions that the Israeli government implemented toward substate targets. We chose not to select on the types of actions (or verbs) to make sure that all unexpected actions would be captured. This method ensures that we captured a wide range of actions that may not immediately seem like counterterrorism but

Table 1. Seven-Point Guide for the Conciliatory–Repression Scale

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1 = Accommodation/Full Concessions
    Appeasing or surrendering to adversary
    Making full concessions to opponent's demands
    Action required

2 = Conciliatory Action
    Making material concessions
    Taking action that signals intention to cooperate or negotiate with opponent

3 = Conciliatory Statement or Intentions
    Expressing intention to cooperate or showing support
    Verbal expression short of physical action

4 = Neutral or Ambiguous
    No clear moves toward or away from resolution of conflict
    Includes all attempts to ask for help from a third party to resolve the conflict
    Requires more context to determine whether it is conciliatory or repressive
    Includes all infighting over Palestinians within the Israeli government

5 = Verbal Conflict
    Express intent to engage in conflict or threaten
    Decline to cease ongoing conflict; maintain the status quo during conflict
    Short of physical action

6 = Physical Conflict
    Physical or violent action aimed at coercing opponent
    No apparent intention to kill

7 = Extremely Deadly Repression
    Physical action exhibiting intent to kill
    Torture or severe violence (such as severe beatings), which could easily kill someone

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are relevant to the overall conflict, such as allowing developers to build better water wells in the Palestinian territories.

Furthermore, we autocoded each action according to several additional criteria. Relevant to this study, we established a Conciliatory–Repression scale for each action, illustrated in Table 1. We based all codes on the Palestinian perspective. The scale features distinctions in the intensity of the action as well as its relative placement of the action on a conciliation–repression spectrum, similar to the Goldstein (1992) scale. Table 2 lists specific actions found in our data that commonly fell into each category. We also autocoded each observation for whether the action's target was discriminate or indiscriminate. Discriminate actions attempt to single out guilty or suspected parties from uninvolved parties. Indiscriminate actions directly affect uninvolved

people (i.e., individuals who are not suspected of involvement in terrorist activity).

Following the autocoding stage, research assistants hand-checked each observation to ensure that TABARI coded each story correctly and to mark for removal any irrelevant cases. During this cleaning process, we also attributed each government action to politicians, the military, the judiciary, or the police. This process revealed a relatively high degree of error (about 30 percent). Research assistants corrected these errors, and both authors checked their coding to ensure intercoder reliability. The resulting file contains the lead sentence to the article, the actor, action, target, the new codes mentioned earlier for 6,070 Israeli government actions, and other variables not relevant to the current study. This dataset gives an action-by-action view of Israeli attempts to resolve conflicts with various non-state actors, including Palestinian, Israeli,

Table 2. Examples of Common Actions for Each Scale Item

Accommodation/Full Concessions
  Withdrew from town
  Signed peace accord
  Handed town to Palestinians

Conciliatory Action
  Met to discuss
  Released
  Lifted curfew
  Pulled out
  Investigated abuse

Conciliatory Statement or Intensions
  Expressed optimism
  Agreed to hold talks
  Praised Palestinians
  Expressed desire to cooperate
  Admitted mistake

Neutral or Ambiguous
  Infighting over
  Failed to reach agreement
  Hosted a visit
  Appealed for third-party assistance
  Investigated

Verbal Conflict
  Made pessimistic comment
  Dismissed
  Blamed for attack
  Denied Responsibility
  Threatened military force

Physical Conflict
  Demolished
  Barred
  Sealed off
  Imposed curfew
  Arrested

Extreme Deadly Repression
  Shot dead
  Fired missiles
  Clashed with
  Raided
  Helicopter attack

and Lebanese militants. Over 90 percent of actions were directed toward Palestinians or Palestinian terrorists (Chenoweth and Dugan 2011). For the current analysis, we retained only actions relevant to the Israeli–Palestinian conflict.

Analysis

We combined the GTD and GATE-Israel data into four monthly time-series datasets. The first includes most of the 211 months from June 1987 through December 2004. We omitted all months from 1993 (211 − 12 = 199) because the GTD data are missing; we dropped the first four months of the set due to the lagged dependent variable, which we describe below (199 − 4 = 195). Furthermore, because 1993 is missing, we also dropped the first four months of 1994 from the models due to the lagged dependent variable (195 − 4 = 191). The second dataset includes only the

months during the First Intifada (December 1987 through August 1993), noting that the eight months in 1993 are missing. The third dataset includes only the months during the Oslo Lull (September 1993 through August 2000), with the four months of 1993 and the first four months of 1994 missing. The final dataset includes only the months during the Second Intifada (September 2000 through December 2004). We conducted all analyses using the three smaller datasets to assess the robustness of the findings to the different tactical regimes.

We used a two-step methodological approach—one parametric and the other non-parametric—to assess the robustness of the findings and to provide a visual representation of the relationship between government actions and terrorist attacks. First, we parametrically tested these relationships by modeling them using a negative binomial regression (NBR). Because the relationships

can be nonlinear (i.e., the effect of government actions on terrorism depends on the number of actions), we tested for both linear and nonlinear relations using squared terms. We used NBR because the dependent variable is a count of the number of attacks in the current month, which is a relatively rare event. Furthermore, because there is a chance that the variance is over-dispersed, we chose the more flexible negative binomial over the more restrictive Poisson model (Greene 2008).

The nonparametric approach, Generalized Additive Models (GAM), allows us to visually examine relationships between government actions and the number of terrorist attacks during the next month, while controlling for all the same variables that are in the NBR. Because the dependent variable is a count, we used a log link function for a Poisson distribution. This methodology uses a smoothing function to isolate the relationship between actions and attacks without imposing assumptions about linearity (Hastie and Tibshirani 1990). The method produces graphs that show partial predictions of our independent variables with confidence intervals, allowing us to visually examine the nature of the relationships for consistency with our hypotheses (Xiang 2001). Using both methods to examine these relationships allowed us, first, to test the robustness of the findings with and without parametric assumptions and, second, to visually examine the nature of the relationship in the absence of statistical significance.

The general format of all NBR and GAM models follows the form shown in Equation 5,

$$Attacks_t = f(Actions_{t-1}, Regimes, GTD2, Attacks_{t-1}, Attacks_{t-2}, Attacks_{t-3}, Attacks_{t-4}), \quad (5)$$

where the vector *Regimes* is included only in the model for all months and includes an indicator variable for each Intifada (First and Second). These are important controls because levels of terrorist activity and the Israeli decision regime differed substantially depending on the tactical regime (Brym and Anderson 2011).[12] *GTD2* is an indicator variable depicting the years of

Table 3. Primary Independent Variables Measuring Israeli Government Actions

Model 1.	All Actions (Hypothesis 1)
Model 2.	Conciliatory and Repressive Actions (Hypotheses 2 and 3)
Model 3.	Conciliatory-Discriminate, Conciliatory-Indiscriminate, Repressive-Discriminate, and Repressive-Indiscriminate (Hypotheses 4 and 5)

retrospective data collection (1998 to 2004), *Attacks* represents the number of Palestinian attacks directed toward Israelis for the current month (*t*) and the four previous months (*t – 1* through *t – 4*).[13] By including measures of lagged attacks in the models, we are better able to isolate the effect of actions in the previous months on attacks in the current month. Without controlling for lagged attacks, the estimated relationship between actions and attacks would likely be distorted because it would include any effects that earlier attacks had on both government actions and current attacks.

For each dataset, we ran three models, measuring government actions according to the several dimensions listed in Table 3. Most apparent is that models go from least granular (All Actions) to most granular, where repressive and conciliatory actions are partitioned by whether they were discriminate or indiscriminate. We ran each set of independent variables using NBR and GAM for all four datasets, totaling 12 models.

RESULTS

Because this research presents a new dataset, we begin our analysis by presenting descriptive statistics for the primary dependent and independent variables for all months specified to the tactical regime (see Table 4). For each regime, we present the means, standard deviations, and proportion of months that have a value of zero. We included only the months that are in the analyses, so we lagged all actions by one month, excluded the first

Table 4. Means, Standard Deviation, and Proportion of Zeros

Variable	All Months (*n* = 191)			First Intifada (*n* = 61)		
	Mean	SD	*P*(0)	Mean	SD	*P*(0)
Attacks	5.84	5.84	.13	7.72	5.09	.07
All Actions	27.90	16.33	.00	19.57	9.30	.00
Conciliatory	7.55	5.91	.07	4.03	3.16	.16
Repressive	17.95	12.17	.00	14.38	7.25	.00
Conciliatory-Discriminate	1.47	1.51	.32	1.38	1.29	.31
Conciliatory-Indiscriminate	6.04	5.31	.09	2.61	2.49	.21
Repressive-Discriminate	4.13	4.17	.08	3.23	2.65	.10
Repressive-Indiscriminate	13.82	9.53	.01	11.13	5.58	.00
	Oslo Lull (*n* = 76)			Second Intifada (*n* = 52)		
Attacks	3.07	3.92	.26	7.79	7.98	.00
All Actions	25.42	11.44	.00	42.00	19.76	.00
Conciliatory	10.16	6.57	.03	8.12	5.28	.00
Repressive	12.92	7.62	.00	29.89	14.21	.00
Conciliatory-Discriminate	1.63	1.73	.33	1.38	1.42	.31
Conciliatory-Indiscriminate	8.46	5.79	.03	6.73	4.88	.02
Repressive-Discriminate	3.01	2.39	.12	6.85	6.11	.00
Repressive-Indiscriminate	9.91	6.13	.01	23.04	11.17	.00

Note: We generated all statistics from the data used to estimate the models. This means the first four months of each series (and in 1994) were excluded due to the lagged dependent variable, and all months from 1993 were excluded.

four months of each series (and in 1994), and omitted all 1993 months. Turning first to the dependent variable, we see that over the entire period, there were, on average, almost six attacks per month with only 13 percent of months free of terrorist attacks. When we turn to the three tactical regimes, we see, as expected, that terror attacks were higher in the First and Second Intifada compared to the Oslo Lull (7.72 and 7.79 versus 3.07, respectively). Similarly, more than a quarter of the months during the Oslo Lull saw no terror attacks, whereas every month during the Second Intifada had at least one attack and almost every month in the First Intifada had an attack.

Turning to the statistics describing Israel's actions, we see that over the entire period, Israel initiated an average of nearly 28 actions a month toward Palestinians. By scanning the averages for actions partitioned by type, we see Israel's actions were most often repressive and indiscriminate; averaging nearly 14 indiscriminate acts each month. In fact, according to the data, in all but one month there was at least one repressive-indiscriminate action (shown by *P*(0) = .01). The table also shows there were more than twice as many repressive acts (scale items 5, 6, and 7) as conciliatory acts (scale items 1, 2, and 3) each month, and both actions were more often indiscriminate than discriminate. Conciliatory-discriminate acts were rare, averaging 1.47 each month. More revealing is that in 32 percent of months, Israel offered no discriminate conciliatory actions.

Although these patterns generally hold over all three tactical regimes, there are important differences worth noting. First, Israel's average number of total actions increased over time. It was smallest during the First Intifada (19.57); it rose during the Oslo Lull (25.42); and it reached a peak during the Second Intifada (42.00). Israel most frequently relied on conciliatory actions
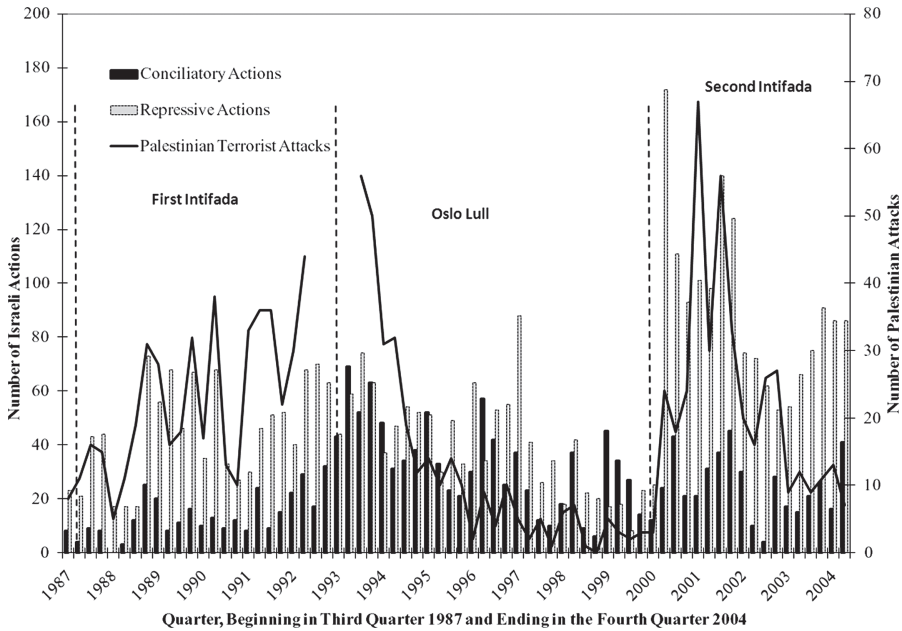
Figure 1. Quarterly Repressive and Conciliatory Actions by Israel and Palestinian Terrorist Attacks

during the Oslo Lull (10.16) and most frequently relied on repressive actions during the Second Intifada (29.89). Finally, almost every month saw a wide range of types of actions by Israel—excluding conciliatory-discriminate, of course.

Because we are interested in the temporal relationship between government actions and terrorist attacks, we now map the quarterly counts of repressive and conciliatory actions onto the quarterly count of Palestinian terrorist attacks directed toward Israelis over time.[14] This comparison is especially important because both measures come from different sources that were collected independently of one another. Because we expect both government actions and terrorist attacks to vary with the intensity of the Israeli–Palestinian conflict, we would also expect these measures to track one another. Figure 1 presents a bar chart of Israeli actions with a line depicting Palestinian attacks mapped over it.[15] Note that actions are scaled by the left axis and attacks are scaled by the right axis. Repres-

sive actions are marked with a light color and conciliatory actions are shown with a solid black bar. The three tactical regimes are separated by vertical dashed lines. Figure 1 shows that both repressive and conciliatory actions appear to track terrorist attacks rather closely ($r = .49$ and $r = .24$, respectively). The frequency of terrorist attacks and the number of conciliatory actions rose during the First Intifada, and repressive government actions show no distinct pattern. Having said that, all three series peaked around the time of the Oslo Agreement and then declined until the beginning of the Second Intifada. During the Second Intifada, all three trends rose dramatically and then declined at different rates.[16]

We now turn to results for the NBR and GAM models that used data for all months from June 1987 through December 2004. Table 5 presents coefficients and standard errors from the NBR models. Although we tested all nonlinear relationships, this table includes only squared terms if the tests concluded nonlinearity. Table 5 also includes

Table 5. Negative Binomial Coefficients and (SE), June 1987 through December 2004, $n = 191$

	Model 1	Model 2	Model 3
Government Actions			
All Actions	.005		
	(.004)		
Conciliatory		.048	
		(.031)	
Conciliatory^2		−.003*	
		(.001)	
Repressive		.009	
		(.006)	
Conciliatory-Discriminate			−.006
			(.041)
Conciliatory-Indiscriminate			.051
			(.036)
(Conciliatory-Indiscriminate)^2			−.003*
			(.002)
Repressive-Discriminate			.016
			(.015)
Repressive-Indiscriminate			.005
			(.008)
Tactical Regime			
First Intifada	.732**	.626**	.660**
	(.156)	(.185)	(.191)
Second Intifada	1.263**	1.120**	1.153**
	(.264)	(.277)	(.278)
Controls			
GTD2	−1.023**	−1.032**	−1.028**
	(.255)	(.252)	(.253)
First Lagged Attacks	.023*	.025*	.025*
	(.011)	(.011)	(.011)
Second Lagged Attacks	−.001	.004	.002
	(.010)	(.010)	(.010)
Third Lagged Attacks	.035**	.035**	.034**
	(.011)	(.011)	(.011)
Fourth Lagged Attacks	.018	.020	.020
	(.011)	(.011)	(.011)

*$p \leq .05$; **$p \leq .01$ (two-tailed tests).

results for the tactical regimes and control variables. These findings confirm what we expected: attacks were highest during the Second Intifada—as evidenced by the large and significant coefficient estimates in all three models corresponding to the Second Intifada—and second highest during the First Intifada (compared to the Oslo Lull). Further-more, terror attacks during the retrospective data collection period (*GTD2*) were lower than when data were collected prospectively. Finally, coefficients for the lagged attacks show that the first and third lagged attacks were most important.[17]

Turning now to the hypotheses, Model 1 in Table 5 shows the parametric estimate of the
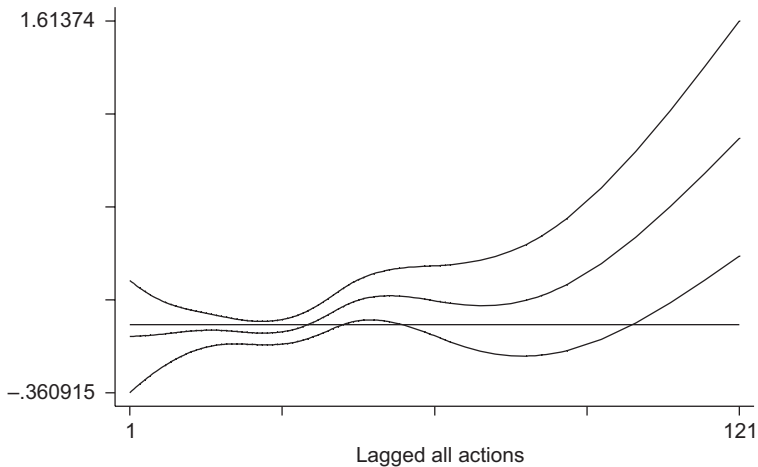
Figure 2. Partial Predictions of All Actions from the Past Month on Terrorist Attacks in the Current Month
Note: Smoothing component of lagged actions has three degrees of freedom.

relationship between *all* government actions and Palestinian terrorist attacks. Accordingly, the value of the coefficient is positive but statistically null (p = .26). Figure 2 presents partial predictions (with 95 percent confidence bands) of all government attacks for the past month on terrorist attacks during the current month. We include a horizontal line to mark zero (or no relationship). Also, because the *x*-axis is the number of actions in the previous month, any nonlinear relationship suggests that the effect of actions depends on the quantity of actions by the Israeli government in the previous month. This graph suggests that the number of Israeli actions in the past month is unrelated to the number of Palestinian terrorist attacks targeting Israelis. The increase at the end of this graph is negligible because it is driven entirely by one month that had 121 actions; all other months had fewer than 90 actions. We conclude, therefore, that Hypothesis 1 is unsupported.[18]

Turning now to findings related to our second and third hypotheses, the NBR coefficient estimates presented in Table 5 under Model 2 suggest that when Israel initiated eight or fewer conciliatory actions there was more terrorism the following month (the main effect is positive yet less than marginal,

p = .12);[19] however, when Israel initiated more than eight conciliatory actions, terror attacks appeared to drop (the quadratic term is negative, p = .024). Conversely, the NBR suggests a positive relationship between repressive actions and terror attacks the following month, although the significance is less than marginal (p = .15).

Figures 3a and 3b present partial predictions of conciliatory and repressive actions from the past month on terrorist attacks in the current month, respectively. Both figures mimic the NBR findings. Figure 3a shows that with a low number of conciliatory actions, attacks appeared to increase; however, as Israel initiated more conciliatory actions, the expected number of attacks in the next month dropped—supporting the prediction of Hypothesis 2. In fact, Israel initiated more than eight conciliatory actions in 38 percent of months, suggesting that the drop in Figure 3a is not driven by outliers. As we examine the repressive actions in Figure 3b, a small number of actions seem to have produced no effect on attacks. However, as Israel initiated more repressive actions, the expected number of attacks rose. We interpret this finding with caution because in most months (87 percent),
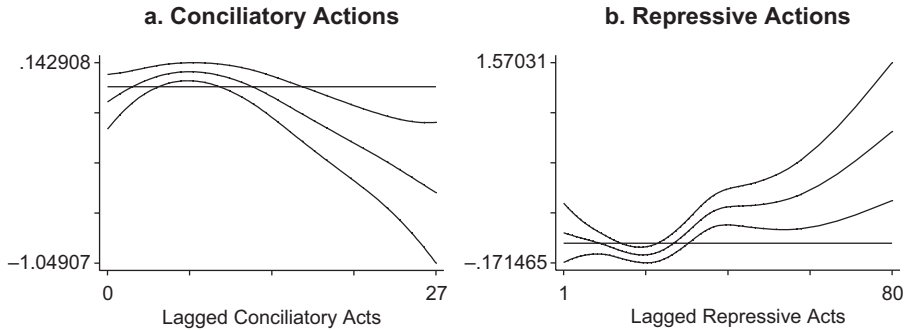
Figure 3. Partial Predictions of Conciliatory and Repressive Actions from the Past Month on Terrorist Attacks in the Current Month
Note: Smoothing component of lagged actions has three degrees of freedom.

Israel initiated 30 or fewer repressive actions, suggesting that the increase at the end of the graph is driven by only 13 percent of the months. At best, Hypothesis 3 is unsupported, and at worst it is opposed, suggesting some support for Hypothesis 4 (backlash).

We now turn to results for Model 3 in Table 5, which evaluates effects of discriminate and indiscriminate actions. We expect a positive and significant coefficient for repressive-indiscriminate actions (Hypothesis 4) and a negative and significant coefficient for conciliatory-indiscriminate actions (Hypothesis 5). Results show some support for Hypothesis 5, but no support for Hypothesis 4. Like results for conciliatory actions in general, conciliatory-indiscriminate actions seem to affect terrorism only after months in which Israel initiated relatively large numbers (more than 8.5) of such actions.[20] The GAM partial predictors for all four variables presented in Figure 4 conform to the findings from Table 5. The drop below zero in Figure 4b is driven by more than a quarter of the months, suggesting it is sound.[21] Figure 4c seems to suggest some backlash from repressive-discriminate acts; however, that increase appears to be driven by relatively few months, as suggested by the wide confidence bound.

To investigate whether relationships differ across the three tactical regimes, we re-estimated Models 1, 2 and 3 for the First Intifada, the Oslo Lull, and the Second Intifada months

and present the results in Tables 6a, 6b, and 6c, respectively. These tables include the original findings from all months, for comparison. We included controls in the estimation, but we omit them here for parsimony. Due to space constraints, partial predictions from the GAM models are excluded, but they are available in the online supplement.

Table 6a presents NBR coefficients for the effect of all actions on Palestinian terror attacks. We see that the relationship is null, regardless of the period. Yet coefficients are positive during the First and Second Intifada and negative during the Oslo Lull, suggesting that different dynamics were at play during different tactical regimes. Regardless, it is safe to conclude that these data do not support Hypothesis 1, but a closer look at each of the tactical regimes is in order.

Table 6b presents coefficient estimates for Model 2, testing the relationship between conciliatory and repressive actions separately on terror attacks across each of the three regimes. Recall that Hypotheses 2 and 3 predicted negative relationships between all coefficients. Table 6b shows that only the Second Intifada provides clear support for Hypothesis 2. Here the relationship between conciliatory actions and terror attacks is unambiguously negative. Interestingly, this finding is contrary to much conventional wisdom, in that the period when suicide missions
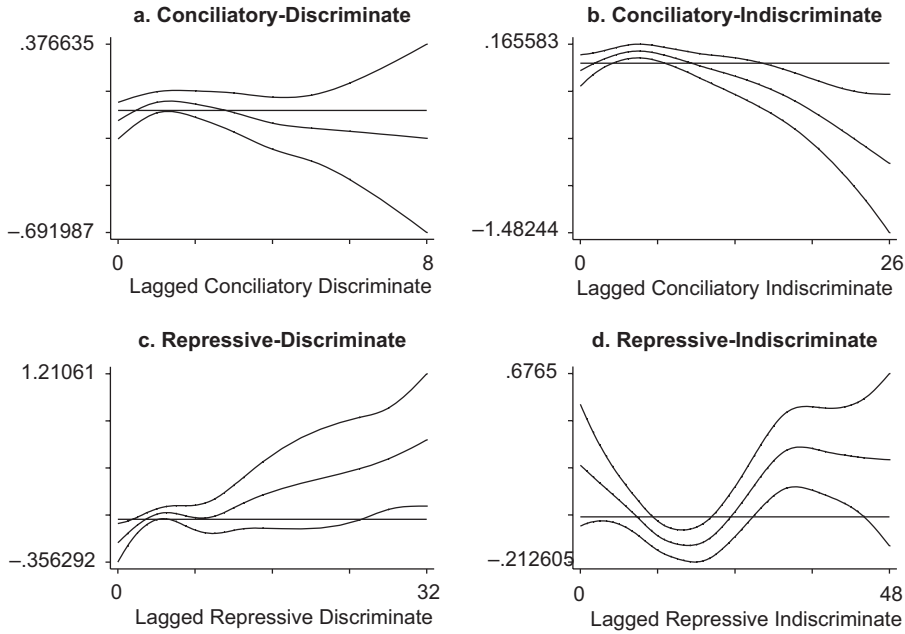
Figure 4. Partial Predictions of the Past Month's Actions—Conciliatory or Repressive and Discriminate or Indiscriminate—on Terrorist Attacks in the Current Month
Note: Smoothing component of lagged actions has three degrees of freedom.

Table 6a. Negative Binomial Coefficients and (SE) for Government Actions in Model 1 for Each Tactical Regime

	All Months ($n = 191$)	First Intifada ($n = 61$)	Oslo Lull ($n = 76$)	Second Intifada ($n = 52$)
All Actions	.005 (.004)	.015 (.011)	−.020 (.012)	.007 (.005)

Note: Control variables were included in the estimation but excluded from this table.
*$p \le .05$; **$p \le .01$ (two-tailed tests).

dominated the terrorist environment was also the period when conciliatory tactics had the most powerful effect on reducing Palestinian terrorism.

In contrast, during the First Intifada and Oslo Lull, small numbers of Israeli conciliatory actions led to increases in Palestinian terror attacks, but the negative coefficient of the squared term shows that larger numbers of conciliatory actions reduced terrorist attacks. The GAM partial predictions, found in the online supplement, show this effect was more dramatic during the Oslo Lull. In summary,

Hypothesis 2 is directly supported only during the Second Intifada and receives only qualified support during the other two regimes. Conciliatory actions seem to have reduced terrorist attacks only when Israel initiated larger numbers of conciliatory actions during the previous month.

Hypothesis 3 also finds no support in Table 6b. Repression did not decrease Palestinian terrorism during any of the regimes. In fact, the positive and significant estimate during the Second Intifada suggests that during that period, Israel experienced backlash when

Table 6b. Negative Binomial Coefficients and (SE) for Government Actions in Model 2 for Each Tactical Regime

	All Months ($n = 191$)	First Intifada ($n = 61$)	Oslo Lull ($n = 76$)	Second Intifada ($n = 52$)
Conciliatory	.048	.280**	.173**	−.054*
	(.031)	(.100)	(.064)	(.023)
Conciliatory^2	−.003*	−.019*	−.007**	
	(.001)	(.008)	(.002)	
Repressive	.009	−.002	−.011	.021**
	(.006)	(.014)	(.015)	(.008)

Note: Control variables were included in the estimation but excluded from this table.
*$p \le .05$; **$p \le .01$ (two-tailed tests).

Table 6c. Negative Binomial Coefficients and (SE) for Government Actions in Model 3 for Each Tactical Regime

	All Months ($n = 191$)	First Intifada ($n = 61$)	Oslo Lull ($n = 76$)	Second Intifada ($n = 52$)
Conciliatory-Discriminate	−.006	.476*	−.063	−.041
	(.041)	(.217)	(.045)	(.077)
(Conciliatory-Discriminate)^2		−.107*		
		(.051)		
Conciliatory-Indiscriminate	.051	.030	.172**	−.055*
	(.036)	(.042)	(.059)	(.024)
(Conciliatory-Indiscriminate)^2	−.003*		−.009**	
	(.002)		(.002)	
Repressive-Discriminate	.016	.033	.490**	.021
	(.015)	(.037)	(.154)	(.017)
(Repressive-Discriminate)^2			−.065**	
			(.017)	
Repressive-Indiscriminate	.005	−.011	.009	.020*
	(.008)	(.019)	(.013)	(.010)

Note: Control variables were included in the estimation but excluded from this table.
*$p \le .05$; **$p \le .01$ (two-tailed tests).

they initiated repression, partially supporting Hypothesis 4.

To look for further evidence for Hypotheses 4 and 5, we turn to Table 6c, which lists estimates for conciliatory and repressive actions partitioned by whether they were discriminate or indiscriminate. Again, these hypotheses are directly supported only in findings from the Second Intifada. During that regime, conciliatory-indiscriminate actions were associated with fewer terror attacks, and repressive-indiscriminate actions were associated with more. Findings related to conciliatory acts during the First Intifada and the Oslo

Lull provide insight into results from Table 6b. During the First Intifada, conciliatory-discriminate actions, where Israel gave concessions to terrorists rather than to the Palestinian population, seem to have led to more terror. Conciliatory-indiscriminate actions did not. This means that during that regime, there was often more terror following the months when Israel offered concessions to terrorists. However, during the Oslo Lull regime, terror was more frequent after Israel offered a few concessions to Palestinians in general, but the effect reversed as the number of conciliatory actions accumulated (see GAM results in the

online supplement for a graphical depiction of this relationship). During that regime, we also find evidence that attacks were more frequent after months when Israel targeted repressive actions toward terrorists.

These differences in findings across regimes demonstrate some support for the notion that effects of counterterrorism tactics may shift during different time periods, but not in the directions commonly expected. The Second Intifada, often thought to be among the most extreme periods of Palestinian violence, is the period when conciliatory actions had the most direct effect on reducing terrorist attacks. These findings suggest that instead of demonstrating irrational behaviors, groups like Hamas and PIJ may be far more sensitive to opinions and demands of the Palestinian constituency than is often suggested—perhaps even more so than secular Palestinian groups. This implication echoes previous findings that emphasize the hypersensitivity of religious organizations to public opinion (Iannaccone and Berman 2006).

Moreover, our findings directly contest the claim that repression reduces terrorist attacks by raising the cost of terrorist activity—a claim that receives no support in any of the tactical regimes examined. Instead, we find that during the First Intifada and the Oslo Lull, reductions in terrorist attacks followed months with relatively high numbers of conciliatory actions, although small numbers of conciliatory actions were associated with a modest increase in terrorist activity. Perhaps during these periods, adopting only a handful of conciliatory actions made Palestinians question Israel's sincerity, thereby making the Palestinian public less responsive to potential rewards of nonterror and emboldening terrorist groups to push for more conciliation. Importantly, however, in months where conciliatory actions were more forthcoming and frequent, the credible benefits of nonterrorism were clearer. During the Second Intifada, effects of conciliatory actions on reducing terrorism were more immediate, indicating, perhaps, that during this particularly violent period, rewards for nonterrorism were accepted more swiftly.

CONCLUSIONS

In this study, we found that governments can often influence the number of terrorist attacks perpetrated against their people. Our argument expands beyond traditional strategies of deterrence by incorporating actions that raise the expected utility of refraining from terrorist behavior. This strategy paid off, as we found that this often-overlooked dimension seemed to significantly reduce terrorist attacks. Had we only measured effects of traditional deterrence, the analysis would have appeared inconclusive at best, and the policy implications would have been misleading: we conclude that repressive actions by the Israeli government are unlikely to deter Palestinian terrorism and may lead to a backlash of terrorist violence. This backlash effect is especially prominent if repression is directed toward Palestinians in general.

Considering that the utility of terrorist violence is much greater than the self-interest that typically motivates common criminals, this makes sense. Without additional conciliation, the only value offered to terrorists and their constituencies for disengaging from terrorism is an absence of punishment—which is really just the status quo. Had the status quo been sufficient to avert terrorism, no terrorism would occur in the first place. Furthermore, terrorist organizations are invested in ensuring that the status quo remains unsatisfying to their constituencies (Malka 2007; Yaalon 2007). Thus, one important contribution is demonstrating the value of offering concessions to Palestinian people that reward alternatives to violence. Constituent populations need evidence that opposes terrorist propaganda rather than evidence that reinforces it.

Results also suggest that conciliatory actions must be sustained if they are to effectively reduce terrorist violence. A few conciliatory efforts are unlikely to show an effect; and in fact, they could lead to increased violence, as we saw in the First Intifada and the Oslo Lull. However, an ongoing and consistent campaign of conciliation can lead to a drop in terrorism as early as the following

month. This is good news, but Israeli repression can easily dismantle such progress, as the backlash can be swift—especially if the repression affects innocent Palestinians.

Moreover, according to the results, the scope of concessions matters. Indiscriminate conciliatory actions—such as making gestures toward peace talks, announcing plans to withdraw troops, and criticizing abuses against Palestinians—may decrease subsequent terror attacks because they reward nonterrorist behavior. On the other hand, actions that single out particular terrorist actors for conciliation (e.g., releasing prisoners) benefit terrorism rather than nonterrorism—and therefore, unsurprisingly, may not reduce terrorism. Indeed, whereas indiscriminate conciliatory actions reduced terrorism during two of the three periods (as conciliatory actions accumulated and appeared more credible), discriminate conciliatory actions reduced terrorism only during the First Intifada. This indicates that discriminate conciliatory actions typically yield fewer benefits in counterterrorism than do more indiscriminate actions that reward nonterrorist behavior among the constituent population.

Combined, the full set of findings reinforces Braithwaite's (2005) speculation that terrorist organizations may even benefit from repressive actions, and that they likely strategically elicit repressive responses that will sabotage any goodwill that might be developing between Israel and the Palestinians. If the Palestinian people begin to trust that Israel is sincere about a mutually sustainable resolution to the conflict, terrorist organizations will lose their base of support. Paradoxically, Palestinian terrorists probably rely on Israel's hawkish policies to preserve their longevity.

This article is the first to empirically demonstrate the important role that conciliatory actions can play in reducing terrorist violence. The importance of providing lawful alternatives to violence is mirrored in the criminological literature. Indeed, many programs that research shows positively affect the lives of those most at risk require consistent and long-term exposure to healthier alternatives (Olds et al. 1986; Rich and Jacoby 1999; Schweinhart 2005). Similarly, nurturing the relationship between a government and a terrorist organization's constituency also requires consistency.

Having said this, we do not recommend that governments adopt purely conciliatory policies. It is likely still important to punish individuals who break the law, even if it produces no obvious deterrence benefits. In fact, our analysis cannot speak to what would happen if Israel practiced only conciliatory behavior, because every month had at least one repressive action by Israel. Instead, our hope is that this research provides alternatives to solely focusing policy efforts on reducing the expected utility of bad behavior by also considering the value of raising the expected utility of good behavior.

Notes

1. This notation was partially borrowed from Piliavin and colleagues (1986).

2. An important piece of scholarship by Sharvit and colleagues (2012) estimates effects of Israel's coercive and conciliatory policies on Palestinian terrorist violence from 2000 through 2006.

3. Like backlash, it is possible that conciliatory acts could lead to increased terrorism if they lead terrorists to perceive the state as weak, thereby emboldening terrorists to use still more violence (Iyengar and Monten 2008). Some scholars also argue that conciliatory tactics may create incentives for extremist elements to sabotage efforts toward peace, depending on the perceived strength of the negotiating partner (Kydd and Walter 2002).

4. Some useful sources on the Israeli–Palestinian conflict include Bloom (2004), Gelvin (2005), Hafez (2006), Jamal (2005), Pearlman (2008/2009), and Tessler (1995).

5. Although some scholars argue that the Second Intifada persisted until 2007 (Brym and Andersen 2011), we limit our study to 2004 because of data availability.

6. According to some arguments, conciliation may make the opposing government look weaker, therefore emboldening terrorists (Iyengar and Monten 2008; Kydd and Walter 2002).

7. Access to the data, statistical commands, and supplemental analysis is available in an online supplement (http://asr.sage pub.com/supplemental).

8. These analyses used GTD data that were downloaded on August 25, 2010. Because the GTD is continuously being updated, newer versions of data could produce slightly different results. Having said that, we know of no systematic changes to Israeli or Palestinian related terrorist attacks for the years in the current analysis.

9. Before the earlier (1970 to 1997) GTD data were synthesized with the later data, the GTD data since 1997 were called GTD2. Since both collections have now been synthesized, the data are called GTD as a whole (Dugan 2012).

10. In our case, we used the CAMEO coding scheme.

11. Schrodt (2006) estimates that TABARI codes 33 million times faster than the average human coder.

12. Note that the reference category is Oslo Lull and the five months prior to the First Intifada. Furthermore, because we lagged the dependent variable by four months, only one month prior to the First Intifada is included in the estimation. That one month would make an inadequate reference period, and there are no compelling theoretical reasons to distinguish it from the Oslo Lull.

13. We use the population in thousands for Israel in a given year as the exposure measure for both the GAM and negative binomial models.

14. A graphical representation of monthly counts is too cluttered for the reader to easily interpret.

15. Terrorist attacks are missing in the months during 1993, the period for which the GTD is missing data.

16. We have considered the possibility that the increase in Israeli actions over time might be driven by an increase in reporting rather than an increase in actual events. Although we cannot entirely resolve this problem here, our strategy was to select the most impartial and extensive coverage available (Reuters) and to carefully analyze each observation for intercoder reliability. Furthermore, we examined the actions very closely to make sure that each is distinct from the others, ensuring that each action is counted only once in the GATE Database.

17. Adding additional lags provided no additional benefit; all statistical tests were null.

18. Granger tests confirm the findings in the tables. When government actions are statistically significant, Granger tests favor the more flexible model. When government actions are statistically null, Granger tests favor the model that excludes government actions.

19. We estimated eight as the maximum number of attacks using this equation: $-.048/(2 \times -.003)$.

20. This finding is unsurprising because the relatively few discriminate-conciliatory acts (e.g., release of terrorist prisoners) suggest that results for Model 2 were driven by indiscriminate acts.

21. Twenty-eight percent of months had more than eight conciliatory-indiscriminate actions. We chose eight actions because the maximum number of attacks followed 8.5 conciliatory-indiscriminate actions $[-.51/(2 \times = .003)]$.

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Laura Dugan is an Associate Professor in the Department of Criminology and Criminal Justice at the University of Maryland. She is a lead investigator at the National Center for the Study of Terrorism and the Response to Terrorism (START). Her research examines the consequences of violence and the efficacy of violence prevention/intervention policy and practice. She also