

Suicide Bombing as a Strategic Weapon: An Empirical Investigation of Hamas and Islamic Jihad

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Using twice-yearly data from 1991 to 2003, we analyze the incidents of suicide attacks by Hamas and Islamic Jihad within Israel and the Palestinian territories of the West Bank and the Gaza Strip. Given the exploratory nature of the question, we have first estimated the relevant coefficients by using a Quasi-Maximum Likelihood Ratio and then checked their robustness by reestimating the model with the help of a Seemingly Unrelated Regression (SUR) as an interrelated system. The results indicate that the two groups deliberately use suicide bombings as strategic weapons within the larger Israeli-Palestinian political milieu. With the Western world locked in an armed struggle with the militant extremists of Islam based on millenarian ideologies, this study emphasizes the need to develop appropriate analytical capabilities to distinguish among terrorist groups and their motivations, ideologies, and tactics.

At times, Palestinian politics are dizzyingly incoherent... at times bloody, at other times perfectly clear.

—Edward W. Said

Introduction

It would elicit little debate to state that suicide bombings—more than any other single form of political violence—have left their deepest imprint on global politics, particularly during the past decade. Although acts of self-sacrifice for a larger cause have been around since the earliest times of recorded history, the events of September 11 riveted the world's attention to the unprecedented threat.¹ Facing the unconventional nature of the attacks, the popular press²—as well the political decision makers—quickly resorted to the image of irrational fanatics carrying out

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desperate acts. John Warner, chairman of the Senate Armed Services Committee, stressed the need for preemptive military action since “those who would commit suicide in their assault on the free world are not rational.”³ The purpose of this study is to empirically demonstrate that—contrary to popular belief—suicide attacks are carefully orchestrated, politically motivated events, reflecting the perpetrating group’s strategic goals and objectives. With the exceptions of Sri Lanka in the 1980s and 1990s⁴ and Iraq after the U.S. invasion, no country in the world has suffered more from a sustained campaign of suicide attacks than Israel. Therefore we have chosen to examine attacks by Hamas and Islamic Jihad within its political boundaries and those administered by the Palestinian Authorities (PA).

In keeping with the increased frequency and lethality of suicide attacks, the recent years have seen a torrent of scholarly work on the subject. A quick review of this nascent, yet rapidly burgeoning, literature reveals two broad methodological strands. The first group of studies examines the motivations of individual participants to engage in suicide attacks, while the second set of studies analyzes the attacks from the perspective of a group.

Acts of terrorism, particularly where the attacker accepts their demise as a certainty, assault our notion of human rationality to the core. Facing the conundrum, a number of scholars have attempted to understand this extreme behavior by looking for clues in the (a) psychological profiles of the suicide bombers, (b) external conditions of poverty or other economic woes, or (c) chaotic discourse of religious beliefs and ideology. These studies have often produced contradictory results.⁵ Those who attempt to develop a psychological profiles of the typical bomber often discover conflicting characteristics. For instance, while those examining the profiles of the suicide bombers in Israel find the typical suicide bomber to be from the lower levels of Palestinian socioeconomic and political strata,⁶ Sageman finds that the majority of Al Qaeda members come from upper-and middle-class backgrounds.⁷ Psychological analysis also produces a mixed bag of tangible outcomes. For instance, a noted Palestinian psychologist argues that the primary motivations behind suicide bombing are a mix of guilt, shame, and an overwhelming desire to avenge the perceived injustice wrought to their land by the Israeli authorities.⁸ Others find evidence of repressed sexual fantasies in the young men⁹ and women¹⁰ in their decision to participate in acts of self-immolation.¹¹ Even poverty, another suspect in the search for the “root causes” of terrorism, provides mixed results. For instance, Krueger and Maleckova¹² show that—contrary to the popular notion—poverty, lack of education, and other economic factors are not directly linked to terrorism—while Khashan¹³ arrives at the opposite conclusion. A number of scholars concentrate on religious teachings in preparing the mind-set of a prospective suicide bomber.¹⁴ Yet others argue that deeply felt hurt, humiliation, and a sense of utter hopelessness¹⁵ by Palestinian youth is channeled by the leadership of terrorist organizations into concrete actions of violence through an intense socialization process.¹⁶

In contrast to the microlevel studies—where researchers fail to find a stable set of demographic, socioeconomic, religious, and psychological variables causally linked to participation in self-immolation—those who study suicide attacks from the perspective of a group tend to agree on the general premise that these are the outcomes of strategic decisions by the dissident organizations. Thus, Pape demonstrates that suicide attacks are part of a calculated move by the terrorist organizations.¹⁷ He points out that these attacks are particularly directed toward liberal democratic regimes, since they are more apt to accede to the extremists’ demands.

Those who have used game-theoretic models also argue for purposive behavior on the part of the terrorist groups. For instance, the model of Kydd and Walters¹⁸ claims that the extremists stage these attacks as “spoilers” to thwart a peace process from taking root. Similarly, Bueno de Mesquita¹⁹ hypothesizes that a dissident group is comprised of moderates and extremists and argues that since the moderates are willing to negotiate, terrorist organizations become more militant following concessions to the government; the moderates leave the center stage of protest to cooperate with the authorities, while the resulting power vacuum is filled by the extremists. In an alternate approach, Figueiredo and Weingast²⁰ view conflict as a vicious cycle of revenge, with the government and the dissident group(s) becoming increasingly belligerent over time. From this perspective, suicide attacks are the outcome of Israeli provocations and the corresponding violent Palestinian response.

The problem with many of the game-theoretic models is that in order to find a stable equilibrium, these mathematical formulations are often unable to consider a multiplicity of goals. In contrast, Bloom’s detailed case studies take more of an eclectic view and show the complex process that has produced suicide bombings in Israel.²¹ However, none of the previously mentioned studies attempt to test their hypotheses by using statistical estimation techniques. In the past, a number of econometric inquiries have analyzed incident data concerning different forms of violent protest to peer into the strategic decision making mode of the dissident groups.²² However, these works do not include suicide attacks. The dearth of empirical research on suicide bombing can surely be accounted for by the paucity of systematic data, since suicide bombings as a form of sustained strategic action are of relatively recent origin.²³

Our study has two primary goals. First, we empirically test the three sets overlapping hypotheses outlined above: (a) suicide bombing as a “spoiler” for the peace process, (b) a reaction to Israeli provocation, and (c) an outcome of competition and cooperation among the major dissident Palestinian groups. Second, having developed a behavioral model, we seek reasons for the apparent preference for these groups for choosing suicide attacks over other forms of violent protest. The study examines the incidents of suicide bombings by the two leading Palestinian dissident organizations, Hamas and Islamic Jihad, covering the thirteen-year span from 1991 to 2003.²⁴ Since any explanation of the two groups in question requires an understanding of their history, the following section presents a thumbnail sketch of their political and ideological evolutions. The third section offers an empirical model and tests the relevant hypotheses. The fourth section seeks to explain reasons for the increasing preference by the Palestinian groups for suicide attacks over other forms of violence. The concluding section discusses political and policy implications of our findings.

Middle Eastern Politics and Political Profiles of the Dissident Groups

By most accounts, the history of Palestinian nationalism began with the rise of the Palestine Liberation Organization (PLO) in the mid-1960s as a distinctive nationalistic movement.²⁵ The early Palestinian struggle was subsumed within the broader Arab identity promoted by Gamal Abdel Nasser and the Ba’ath Party of Syria. However, the devastating war of 1967 and the success of a small band of fighters in inflicting heavy damage to a column of Israeli armed forces in the village of Karamah created an intense feeling of Palestinian pride separate from the wounded

Arab identity. As a result of the ensuing political dynamics, a number of groups such as Fatah, the Syrian-sponsored Sa'iqa, the Popular Front for the Liberation of Palestine (PFLP), and its offshoot the Popular Front for Liberation of Palestine, General Command (PFLP-GC)—all with diverse ideological orientations—merged under the umbrella of the PLO.²⁶

Among the various groups under the PLO, Fatah is the largest. Although the PLO is largely secular, Fatah's cultural ethos is distinctly Sunni. Fatah also carries the largest number of cadres and resources and, during the study period, was dominated by Yasir Arafat and his group of Palestinians who lived in exile before 1994 and then relocated to the Gaza Strip and West Bank regions.²⁷ Driven by a highly nationalist ideology, Fatah quickly charted a course distinct from the interests of other Arab nations. Thus, Fatah considers itself as the most mainstream Palestinian organization, and as such is entitled to "speak for the Palestinian question."²⁸

The PFLP is a Marxist-Leninist group founded in 1967 by George Habash. The PFLP sees itself as the representative of the working-class Palestinians and aims at liberating all of Palestine and establishing a democratic socialist state.²⁹ Although the PFLP was one of the original members of the PLO, it withdrew itself from the umbrella organization in 1993 to protest Arafat's peace accord with Israel. The PFLP then joined the Alliance of Palestinian Force to oppose the Oslo Agreement. However, this alliance proved to be short lived. In 1996 the PFLP split from the alliance and its ideological brethren, the Democratic Front for the Liberation of Palestine (DFLP).³⁰ After the breakdown of the Oslo Agreement and Arafat taking a more hostile approach toward Israel, the recent years of the study period saw a closer cooperation between the PFLP and the PLO.

The Palestinian national identity—similar to that of most other Islamic nations—collides and yet often comfortably coexists with the other overarching identity of Islamic *umma* (community). While the PLO strove for a secular Palestinian state as it rose in popularity, the prospect of a peaceful settlement with the Jewish state brought about violent disagreements within the Palestinian community. It pitted the largely secular and increasingly accommodating PLO against those holding a strong Islamic identity along with the ideology of not acceding even a "thimbleful" of Palestinian sand to Israel. Hence, challenges to the PLO (in general) and Arafat (in particular) came primarily from two groups, Hamas and Islamic Jihad. In January 1988 the PLO and the leadership of the intifada movement issued a fourteen-point declaration calling for a Palestinian state to coexist with Israel. A month later Hamas was officially founded.³¹

The name Hamas is an abbreviation of *Harakat al-Muqawama al-Islamiyya* (Islamic Resistance Movement). It emerged as an Islamic alternative to the PLO during the first intifada uprising in the Gaza Strip and the West Bank. In its ideology Hamas is opposed to the secular character of the PLO³² and its program of creating a separate Palestinian state in the Gaza Strip and the West Bank.³³ By giving the issue an Islamic context, meaning, and imagery, Hamas was able to successfully put together a mass political movement that directly challenged (and continues to challenge) the power and authority of the PLO. The rise of Hamas is further attributed to the frustration of the Palestinian populace regarding the inability of the PA to deliver a transparent, democratic, and efficient administration. Furthermore, since the peace process began in 1993, the PA emerged as the sole representative of the Palestinian people.³⁴ As the successive Israeli governments negotiated with the PA, Hamas saw itself being increasingly marginalized. Therefore, Hamas maintained

a delicate balance among its professed political radicalism, its myriad social service delivery programs, and its opposition to the PA through a shrewd use of violence that not only confronted the Israeli government but also challenged the PA's dominance among the Palestinians. In the process, inspired perhaps by the success of Hizballah in Lebanon, the tactic of suicide bombing emerged as a strategic weapon of choice for the group. Without being spontaneous expressions of frustration, Hamas learned to use them to further its own political agenda. In their comprehensive study of Hamas and its ideology, Mishal and Sela point out that "Hamas's decision-making processes have been markedly balanced, combining realistic considerations with traditional beliefs and arguments, emphasizing visionary goals but also immediate needs."³⁵ Hamas leaders orchestrated the sacrifices of their young followers through preaching in the mosques, publishing leaflets and directives, and through an intense socializing influence which permeates nearly every aspect of life in the stifling Gaza Strip and the West Bank.³⁶

Political ideology through the fundamentalist interpretation of Islam, however, is not a monopoly of Hamas. In fact, its espoused nationalism is in direct conflict with the pan-Islamic transnational identity professed in the Koran where all other identities are rejected in favor of an all-encompassing *umma* (the Islamic community).³⁷ Hence, it is no surprise that Hamas's mixture of the two identities (Palestinian and Islamic) would be in conflict with an even stricter interpretation of Islam. This came from the group Islamic Jihad.

Although both Hamas and Islamic Jihad trace their origins to the Islamic Brotherhood movement in Egypt, there is a clear distinction in the order of priorities set forth by the two groups—particularly regarding the question of jihad.³⁸ The Islamic Brotherhood, like many other fundamentalist Islamic movements, sees jihad as a general duty of all Muslims and proposed that first "proper Islam" should be established throughout the Muslim world. Only after this primary goal is achieved, violent jihad should be directed against Israel. In contrast, the irredentist Hamas movement switched the two priorities. It maintained that first jihad should be directed at liberating all of Palestine, and then Muslims should direct their attention to the goal of restoring the "true faith" to the rest of the Islamic world. However, both groups absolutely reject any political arrangement that would result in the relinquishment of any part of Palestine to the nonbelievers.

Although a number of small radical Islamic Palestinian groups have been active under the general title of the Islamic Jihad (*Harkat al-Jihad al-Islami al-Filastini*), the Fathi Shiqaqi faction is the most prominent among them. Dismayed by the lack of radicalism of the Islamic Brotherhood (specifically toward Israel), Fathi Abd al-Aziz Shiqaqi, a Palestinian-born physician trained in Egypt, along with Abd al-Aziz Odah and Bashir Musa established their own jihadi umbrella organization around 1979. The group was particularly inspired by the revolutionary success of Ayatollah Khomeini in Iran. Even though adherence to a single imam is inimical to the Sunni tradition, Shiqaqi penned an admiring tract profiling Khomeini, which prompted his expulsion from Egypt. Because of the Islamic Jihad's emphasis on pan-Islamic ideology, the group maintained close contact with the radical groups in Israel as well in Syria, Lebanon, and Iran. Over the years, Islamic Jihad has developed its base among intellectuals and students, primarily in the Gaza Strip. For Islamic Jihad, the assassination of Shiqaqi in October 1995 in Malta³⁹ meant the loss of a charismatic leader. After Hamas switched to suicide attacks, the two groups started cooperating closely with each other.⁴⁰

The byproduct of the Oslo Agreement was the strengthening of the PLO as the sole representative of the Palestinian people, a prospect that threatened its ideological rivals. In response, Hamas and Islamic Jihad stepped up their violent campaign against the Israeli government. In particular, they discovered the power of suicide attacks. These attacks succeeded in inflicting deep damage not only on Israeli politics but also, for the first time, the cruel equation of relative losses turned against the Israelis.⁴¹ Facing this unprecedented level of violence, Israel reacted sharply by imposing draconian measures of collective punishment, which further alienated and radicalized a large segment of the Palestinian population to whom any peaceful coexistence with the Jewish state lost its appeal.⁴² This process of disenchantment was also aided by the endemic corruption and ineptitude of the PA to set up an efficient government. Finally, its inability to secure an independent Palestinian state from the increasingly recalcitrant Labour Party government of Ehud Barak exposed the futility of the cooperative strategy of the PA and the fundamental weaknesses of the Oslo Agreement.⁴³ Heightened tension created by the symbolic incursion of Sharon to the Al Aqsa Mosque and the consequent spate of attacks by radical Palestinian groups dealt the final blow to the peace process. Ehud Barak's defeat and the election of Ariel Sharon saw the formal end of the process of negotiated peace. Seeing the prospect of losing the global recognition of being the sole representative of the Palestinian people as well as losing political clout among its constituents, a number of factions within the PLO umbrella organization (e.g., the Al Aqsa Martyrs' Brigade, the Fatah-Tanzim, and the PFLP) started following the path of Hamas and Islamic Jihad and decided to carry out the most successful of the violent strategies, suicide bombings.⁴⁴

Model of Suicide Bombing and Operationalization of Variables

Why does a dissident organization engage in acts of violence? Based on the standard rational-actor model of organizations, we can hypothesize that an organization takes decisions to maximize its ideological as well as political and organizational goals.⁴⁵ Thus, these actions reveal a group's preference for maximizing its ideological aim as well as its need to compete for power and prestige within the general client population. Specifically, we can hypothesize that a terrorist group's activities are the outcome of three broad categories of motivation: (a) retaliatory actions against its adversaries, (b) ideological aims of destroying the middle ground of compromise, and (c) competition for support within its prospective support groups. In the model, we have used the twice-yearly incidents of suicide bombings of Hamas and Islamic Jihad as our dependent variables.⁴⁶

However, at this point we should also make an important methodological note. Since the internecine conflict and cooperation within the Palestinian community involves the PLO, we must include its activities within the same system.

Retaliation to Israeli Action

We hypothesize that reaction to Israeli punitive action by Hamas and Islamic Jihad can be seen through three variables.

Firstly, rebel organization that engages in antisystemic activities in reaction to the actions taken by the authorities, in this case the Israelis, is a situation that has a long history in political science literature. Gurr, for instance, argued that to push back when pushed is part of the biological makeup of human beings. Since the

government also calibrates its actions to the dissident group by the group's action, we can see that it lends itself to a model based on simultaneous difference equations.⁴⁷ Thus, Gupta hypothesized that a dissident group's action in the current period (D_p) is a function of the government's action of the previous period (G_{p-1}), while the government's current action (G_p) is a reaction to the dissident group's actions in the previous period (D_{p-1}).⁴⁸ In symbolic terms, it can be written as:

$$D_p = \alpha + \alpha'(G_{p-1}); \quad (1)$$

$$G_p = \beta + \beta'(D_{p-1}). \quad (2)$$

By substituting (2) into (1), we obtain:

$$D_p = \alpha^* + \alpha^{*'}(D_{p-2}). \quad (1a)$$

Where $\alpha^* = (\alpha + \alpha'\beta)$ and $\alpha^{*'} = \alpha'\beta'$ and p = reaction period, or the time it takes for a rebel group or the authorities to mount a counterattack. Thus, the composite coefficient $\alpha^{*'}$ reflects the direction of this action-reaction interrelation between the rebel group and the authorities. If the size of the coefficient is positive and is greater than 1, the cycle of violence exhibits an explosive cycle, with the conflict moving into an ever-higher plane of violence. If it is equal to 1, the conflict remains at a constant level. This is typical of many low-level conflicts around the world, which fester in a rhythmic regularity of tit-for-tat violence, each careful not to broach the upper limits of tolerance of the other. A coefficient less than 1 signifies a slowly dissipating cycle of violence. A negative coefficient indicates the ability of the authorities to clamp down on the dissident activities.⁴⁹ In our model, we have therefore used the lagged values of the incidents of suicide bombings for the two groups (Hamas and Islamic Jihad) as the explanatory variable for this simultaneous relationship between the rebel groups and the Israeli authorities. However, there is no a priori way of determining the exact span of the reaction period (p). Therefore, we have treated it as an empirical question. The likelihood ratio test of the twice-yearly data indicates that 1 period lag provides the best results which is discussed later. Hence, for the model, we assumed the reaction period takes half of a period, or three months.⁵⁰

Secondly, we have approximated the provocation factor with the help of two variables: political and physical. The political provocation variable (Political Provocation) includes nonviolent yet highly significant symbolic gestures, which are either deliberately designed or have the effect of igniting passion within the Palestinian community against the Israeli authorities.⁵¹ We identified these incidents from the chronology of significant events provided by Smith⁵² along with a list of provocative events identified by Bloom.⁵³ We expect Political Provocation to be positively correlated with suicide attacks.

Lastly, the physical affront to the Palestinian community comes in the form of violent events perpetrated by Israeli citizens, such as the Hebron massacre and targeted assassinations by the Israeli authorities. Each of these well-publicized extrajudicial killings was inevitably followed by calls for revenge. We call this variable Violent Provocation and expect a positive correlation with suicide attacks.⁵⁴

Destroying the Middle Ground of Compromise: Israeli Elections

Drawing upon the work of Arrow,⁵⁵ we posit that the ideological aims of an extremist group—particularly one which does not command the support of the majority of

the population—can be advanced only through polarization and fragmentation of the polity, which without such radical actions might otherwise find a compromise solution. A corollary to Arrow's Impossibility Theorem demonstrates that a minority group can exert power far beyond its numerical strength by disrupting the process of choice, where the various groups in a society might have exhibited single-peaked preferences. These actions are, in fact, strategic moves designed to destroy the middle ground of compromise and split the prospective uni-modal national consensus into a multi-modal preference pattern typical of a divided society. Thus, radical groups attempt to achieve this goal in a democracy such as Israel by timing their campaign of violence to coincide with national elections. Furthermore, since a middle ground based on compromise is utterly unacceptable to the radical groups, their actions are designed to undermine the peace process; the more atrocious the acts, the more likely it is for the electorate to be radicalized and choose candidates who are least likely to compromise.⁵⁶ Hence, we can hypothesize that suicide bombings by Hamas and Islamic Jihad will be positively correlated with the Israeli elections (Election)⁵⁷ and the signing of each of the steps of the peace process (Peace Accord)⁵⁸. However, since the PA benefits from stability prior to elections and the peace process, we expect Election and Peace Accord to have a negative impact on the PLO's violent activities.

Rivalry and Cooperation among the Palestinian Dissident Groups

As we have discussed above, the number of incidents of suicide bombings are the outcomes of differing allegiance and alliances of the major Palestinian dissident groups among themselves. Thus, Hamas and Islamic Jihad are profoundly affected by the politics of the PA. Similarly, they themselves are competing for their own influence among their client groups within the Palestinian community. In order to capture this intricate interrelationship, we assumed that these three groups compete for influence among their potential clientele, and therefore we introduced lagged interactive terms to capture this aspect of their decision making process. Thus, we included the lagged incidents of Hamas suicide bombings as an independent variable in the equation for Islamic Jihad and vice versa. Similarly, we also hypothesized that the lagged values of these two groups will be influenced by the shooting incidents by the PLO-affiliated groups (PLOshoot), just as the activities by the PLO-affiliated groups will be influenced by the suicide bombings of Hamas and Islamic Jihad.

Empirical Analysis

The Dependent Variable

Data on terrorism are notorious for subjective assessments and are often accused of political manipulation.⁵⁹ Therefore, for this study we have developed a data series by combining information from Pape,⁶⁰ the Israeli-based think tank International Policy Institute for Counter Terrorism (<http://www.ict.org.il/>), the recently updated U.S. State Department's Web site (<http://www.state.gov/s/ct/rls/pgtrpt/>), and data collected by Professor Ariel Merari.⁶¹

Specification and Estimation

The estimation of equations explaining the incidents of suicide bombings by Hamas and Islamic Jihad poses several important methodological problems. Since these groups may compete and sometimes collaborate with one another, their actions are contemporaneously correlated. Furthermore, the activities of the two groups are intimately linked to the activities of the PLO. Therefore, any attempt at understanding the strategic use of suicide bombings by Hamas and Islamic Jihad must recognize that they are not only influenced by each other, but also by the PLO. Our key focus here is to investigate the effect of PLO terrorism activities on the suicide bombings by Hamas and Islamic Jihad. In order to capture the terrorist activities of the PLO-affiliated groups (Fatah, Fatah-Tanzim, PFLP, and the Al Aqsa Martyrs' Brigade) we decided to use the number of shooting incidents by these groups.⁶² The PLO-affiliated groups did not engage in suicide attacks until the Oslo Agreement was decidedly destroyed in 2001, and as a result we had limited observations of suicide attacks by the PLO-affiliated groups. The choice of using shooting incidents (PLOshoot) by the PLO-affiliated groups was dictated by the fact that for these groups, shooting was the most frequent type of violence. Hence we should keep in mind that in this interdependent system, we are using PLO shooting incidents only as a control variable for a fuller understanding of the suicide attacks by Hamas and Islamic Jihad.

Given the exploratory nature of the subject matter, we decided to test the robustness of our hypotheses with the help of two different econometric methods. First, the Poisson model predicts the expected suicide bombings by Hamas and Islamic Jihad for each time period. Second, we estimate a Seemingly Unrelated Regression (SUR) to explain the number of suicide attacks. Since the decision by a group to engage in suicide attacks is intertwined with the actions of other groups, such decisions are best estimated through a simultaneous system. Based on our above discussion, we can write the implicit model as:

$$\begin{aligned} \text{Hamas}_t = f(\text{Hamas}_{t-1}, \text{Election}_t, \text{Political Provocation}_t, \text{Violent Provocation}_t, \\ \text{Peace Accord}_t, \text{Islamic Jihad}_{t-1}, \text{PLOshoot}_{t-1}); \end{aligned} \quad (3)$$

$$\begin{aligned} \text{Islamic Jihad}_t = f(\text{Islamic Jihad}_{t-1}, \text{Election}_t, \text{Political Provocation}_t, \\ \text{Violent Provocation}_t, \text{Peace Accord}_t, \text{Hamas}_{t-1}, \text{PLOshoot}_{t-1}); \end{aligned} \quad (4)$$

$$\begin{aligned} \text{PLOshoot}_t = f(\text{PLOshoot}_{t-1}, \text{Election}_t, \\ \text{Political Provocation}_t, \text{Violent Provocation}_t, \\ \text{Peace Accord}_t, \text{Islamic Jihad}_{t-1}, \text{Hamas}_{t-1}). \end{aligned} \quad (5)$$

In outlining our hypotheses, we assumed that the three dissident groups influence each other's decisions to engage in violent activities. However, it is entirely possible that the arrows of causality run in only one direction. In order to test this line of causal connection, we used the Granger Causality Test among the three groups. We have presented our findings in Table 1.

The Granger Causality Test results present an intriguing picture of where the arrows of causality run—from the largest and the most influential groups to the least. Thus, we can see that the PLO's shooting incidents of the previous period (which

Table 1. Granger causality table, 1991–2000

Null hypothesis	F-Statistic	Probability	Result
Hamas does not cause Islamic Jihad	53.03	0.000	Reject at 1% level of significance
Islamic Jihad does not cause Hamas	0.818	0.376	Fail to reject
PLOshoot does not cause Hamas	24.785	0.000	Reject at 1% level of significance
Hamas does not cause PLOshoot	0.980	0.333	Fail to reject
PLOshoot does not cause Islamic Jihad	31.712	0.000	Reject at 1% level of significance
Islamic Jihad does not cause PLOshoot	0.005	0.943	Fail to reject

provides a measure of legitimacy to the client community by showing the “toughness” of the PLO leadership) prompt Hamas and Islamic Jihad to undertake suicide attacks, but not vice versa. Similarly, the previous period’s attack by Hamas followers causes attacks by those of Islamic Jihad in the current period, but not vice versa. However, after the breakdown of the peace process the picture of causality becomes less opaque as Hamas and the other PLO-affiliated groups begin to coordinate against a common enemy. In fact, in at least two suicide attacks in 2003⁶³ Hamas and the Al Aqsa Martyrs’ Brigade claimed joint responsibility. Furthermore, we should note that there have been agreed-upon cease-fires (*hudna*) called by Arafat (and honored by Hamas) to allow the peace process to take place.⁶⁴ Since statistical analyses can only point to association and cannot distinguish between incidents staged as a competition or cooperation, the results of the Granger Causality Test should be understood within the subtle nuances of the interrelationship among the three major Palestinian groups.

Based on the results of the Granger Causality Test, we can write our explicit model for a Poisson distribution as follows:

$$\begin{aligned} \log \lambda \text{ Hamas}_t = & \alpha_0 + \alpha_1 \text{ Hamas}_{t-1} + \alpha_2 \text{ Election}_t \\ & + \alpha_3 \text{ Political Provocation}_t + \alpha_4 \text{ Violent Provocation}_t \\ & + \alpha_5 \text{ Peaceaccord} + \alpha_6 \text{ PLOshoot}_{t-1} + \varepsilon_{Ht}; \end{aligned} \quad (3a)$$

$$\begin{aligned} \log \lambda \text{ Islamic Jihad}_t = & \beta_0 + \beta_1 \text{ Islamic Jihad}_{t-1} + \beta_2 \text{ Election}_t \\ & + \beta_3 \text{ Political Provocation}_t + \beta_4 \text{ Violent Provocation}_t \\ & + \beta_5 \text{ Peaceaccord}_t + \beta_6 \text{ PLOshoot}_{t-1} \\ & + \beta_7 \text{ Hamas}_{t-1} + \varepsilon_{It}; \end{aligned} \quad (4a)$$

$$\begin{aligned} \log \lambda \text{ PLOshoot}_t = & \gamma_0 + \gamma_1 \text{ PLOshoot}_{t-1} + \gamma_2 \text{ Election}_t + \gamma_3 \text{ Political Provocation} \\ & + \gamma_4 \text{ Violent Provocation}_t + \gamma_5 \text{ Peace Accord} + \varepsilon_{Pt}. \end{aligned} \quad (5a)$$

Suicide bombing by Hamas, Islamic Jihad, and shooting by the PLO is modeled as a Poisson process (y_t) for the time period 1991–2003 using twice-yearly data. The expected suicide bombings by Hamas and Islamic Jihad and the shooting attacks by

the PLO are expressed as: $\lambda_t = E(y_t)$. This equation can be written in a log-linear regression framework as follows:

$$\log \lambda_{kt} = \alpha_0 + \alpha'_1 x_{it} + \alpha'_2 y_{i,t-p} + \varepsilon_t; \tag{6}$$

$$k = 1, 3;$$

$$t = 1, \dots, 26.$$

Where

k represents the three groups Hamas, Islamic Jihad, and the PLO;

x_i is the set of contemporaneous variables (see above);

y_i is the set of predetermined lagged variables (see above).

The Poisson model (6) hypothesizes that a unit change in x_t implies a $(100 * \alpha_1)$ percent change in the number of expected suicide bombings.⁶⁵ The lag choice of the auto-regressive and cross-regressive terms are chosen by likelihood ratio test with $p = 1$. All the data series are stationary and the diagnostics on the above model included using Ljung-Box Q statistic to check for significant serial correlation in the residuals.

We estimate the above model by Quasi-Maximum Likelihood Ratio allowing the variance to be heteroskedastic.⁶⁶ We allow heteroskedasticity of the form where the $Var(y_t) = \phi E(y_t)$ and $\phi = \sigma^2$.⁶⁷ The estimated coefficients of the above specification are shown in Table 2 and the estimate of σ shows that there is overdispersion in Hamas and PLOshoot when the estimated $\sigma^2 > 1$. The models are good fit with the likelihood ratio $\chi^2 = 53.18, 46.11,$ and 322.68 , for Hamas, Islamic Jihad, and PLOshoot respectively, with p-values equal to 0 in all the cases.

Table 2. Poisson QMLE estimation (1991–2003)

Independent variables	Hamas (Suicide bombings)	Islamic Jihad (Suicide bombings)	PLOshoot (Shootings)
Intercept	-1.157 (0.548)*	-3.113 (0.953)***	-1.651 (0.967)*
One Period Lag of Hamas	-0.002 (0.118)	0.421 (0.069)***	
One Period Lag of Islamic Jihad		0.040 (0.051)	
One Period Lag of PLOshoot	0.075 (0.025)***	-0.009 (0.024)	0.118 (0.023)***
Election	0.829 (0.466)*	-1.416 (0.555)**	0.366 (0.379)
Political Provocation	0.853 (0.445)*	1.556 (0.539)***	2.283 (0.532)***
Violent Provocation	-0.072 (0.470)	0.031 (0.421)	-1.482 (0.431)***
Peace Accord	0.765 (0.473)	1.582 (0.528)**	0.088 (1.230)
Log-Likelihood Value	-30.67	-14.90	-33.16
$\hat{\sigma}$	1.347		2.773
Pseudo-R-squared	0.46	0.61	0.83

Note: The standard errors are in parentheses. * denotes significance at 5% level. T = 26. ** denotes significance at 10% level. *** denotes significance at 1% level. For Islamic Jihad the results are reported with no correction for overdispersion.

Table 2 reports the Quasi-Maximum Likelihood Ratio estimates and associated standard errors for models (3a), (4a), and (5a). The estimated coefficients tell an extremely interesting story. The reaction to Israeli counteraction estimated by the coefficients of the auto-regressive variables proposed by Gupta (1a) is insignificant for both Hamas and Islamic Jihad but is positive and highly significant for the PLO. These results indicate relative ineffectiveness of the Israeli counterterrorism measures against the two dissident groups in reducing the threat of suicide attacks. In fact, these measures may be adding fuel to the fire in case of the PLO. Since the lagged values of PLOshoot are highly significant as predictors of suicide attacks by Hamas and Islamic Jihad, we can deduce that the Israeli measures, which often affect the entire Palestinian community, have been largely ineffective at best—and at worst counterproductive.

Investigating the effect of cross-regressive terms we see that the number of suicide bombings by Hamas in the previous six-month period has a highly significant effect on the expected number of suicide bombings by Islamic Jihad. In particular, one suicide bombing by Hamas in the previous six-month period would increase the probability of an attack by the PIJ by 42% ($\pm 2.5\%$) in the current period. Similarly, shooting incidents by the PLO affiliated groups in the past six months would raise the possibility of a Hamas suicide attack by 8% ($\pm 2.5\%$) in the current period. These results lend strong support to the hypothesis that while the PLO did not participate in suicide attacks before the end of the Oslo Agreement, its actions were closely matched by Hamas and Islamic Jihad. Also, attacks by Hamas in the last six months have been strong predictors of attacks by Islamic Jihad in the current period.

The estimated coefficients of election (significant at 10 percent) also demonstrate the credence of the spoiler hypothesis proposed by Kydd and Walter.⁶⁸ Our results indicate that we can expect an 83 percent jump in the frequency of Hamas suicide attacks during the six-month period in which an Israeli election takes place.⁶⁹ It is interesting to note that Islamic Jihad attacks tend to go down during elections. This puzzling result may be accounted for by the fact that since Islamic Jihad is highly influenced by Hamas, the negative coefficient reflects the cyclic nature of their temporal relationship. The coefficient for the PLO is statistically insignificant, which makes intuitive sense since the PLO may have a stake in preserving stability before an election.

A number of studies have hypothesized that Hamas and Islamic Jihad also play a spoiler role with respect to the peace process.⁷⁰ Our results generally support this hypothesis. Although the coefficient for Peace Accord for Hamas is positive, it is insignificant statistically. In contrast, the coefficient for Islamic Jihad is positive and significant. However, it should be noted that the coefficient for Hamas may be influenced by the complexity of the relationship between the PA and Hamas. For instance, when the Oslo Agreement was signed in September 1995 and the election for Palestinian home rule took place in the beginning of 1996, Yasir Arafat was politically strong and public opinion, fueled by a pervasive sense of optimism, allowed him to effectively stop Hamas from carrying out an extensive campaign of suicide attacks.⁷¹ Similarly, Arafat appealed to Hamas to refrain from attacks after September 11 for fear of the Palestinian movement being associated with global terrorism. And in the last half of 2003, Hamas came to a *hudna* with Israel, brokered by Arafat, which was broken when there was a failed attempt on the life of Hamas leader Abdel Aziz Rantisi.⁷²

As for suicide attacks in response to Israeli action, our estimated model paints a remarkable picture. The Political Provocation is significant at 1 percent in predicting

the expected suicide bombings by Islamic Jihad and expected shootings of the PLO—and it is also significant at 10 percent for Hamas. This clearly predicts increases in the expected suicide bombings by the two groups and shooting incidents by the PLO by large magnitudes. For instance, political provocations draw instant reactions, which nearly doubles the probability of attacks by all three groups (85 percent increase by Hamas, 156 percent by Islamic Jihad, and 228 percent by the PLO). On the other hand, the acts of Violent Provocation, which are the targeted assassinations of group leaders by the Israeli Defense Force (IDF) is insignificant for Hamas and Islamic Jihad but negative and highly significant for the PLO.⁷³ This may be due to the fact that assassinations of Hamas and Islamic Jihad leadership at least temporarily weakens the two organizations.⁷⁴ And since the PLO is in competition with these two groups, it restrains its actions in the immediate aftermath of these events. These results point to the fact that suicide bombings are more in response to political provocations than driven by blind rage.

In sum, our estimated Poisson model does a credible job in explaining suicide attacks. Figure 1 and Figure 2 give the plots for the actual attacks and the expected suicide attacks over time. However, since this Poisson model does not take into account the contemporaneous correlations among the three groups' actions, we have tested the robustness of our results by jointly estimating the three equations as a part of a SUR system, given below:⁷⁵

$$\begin{aligned} \text{Hamas}_t = & \alpha_0 + \alpha_1 \text{Hamas}_{t-1} + \alpha_2 \text{Election}_t + \alpha_3 \text{Political Provocation}_t \\ & + \alpha_4 \text{Violent Provocation}_t + \alpha_5 \text{Peace Accord} \\ & + \alpha_7 \text{PLOshoot}_{t-1} + \varepsilon_{Ht}; \end{aligned} \quad (3b)$$

$$\begin{aligned} \text{Islamic Jihad}_t = & \beta_0 + \beta_1 \text{Islamic Jihad}_{t-1} + \beta_2 \text{Election}_t \\ & + \beta_3 \text{Political Provocation}_t + \beta_4 \text{Violent Provocation}_t \\ & + \beta_5 \text{Peace Accord}_t + \beta_6 \text{PLOshoot}_{t-1} \\ & + \beta_7 \text{Hamas}_{t-1} + \varepsilon_{It}; \end{aligned} \quad (4b)$$

$$\begin{aligned} \text{PLOshoot}_t = & \gamma_0 + \gamma_1 \text{PLOshoot}_{t-1} + \gamma_2 \text{Election}_t \\ & + \gamma_3 \text{Political Provocation} \\ & + \gamma_4 \text{Violent Provocation}_t + \gamma_5 \text{Islamic Jihad}_{t-1} + \varepsilon_{Pt} \end{aligned} \quad (5b)$$

Where $t = 1, \dots, T$ (26) for each equation Hamas, Islamic Jihad, and PLOshoot.

The estimated coefficients of the above specification are shown in Table 2. For the sake of brevity, we are simply reporting our results in Table 3 and not discussing them in detail. The estimated coefficients by using two different statistical techniques show a remarkably similar pattern, testifying to the robustness of our hypotheses.

Accounting for the Preference for Suicide Attacks

While our econometric model provides a comprehensive explanation of suicide attacks, it does not tell us the reasons for their preponderant choice by the Palestinian dissident groups. Figure 3 shows the increasing dependence on suicide bombings by Hamas and Islamic Jihad by plotting the number of Israeli killed or wounded on a yearly basis.

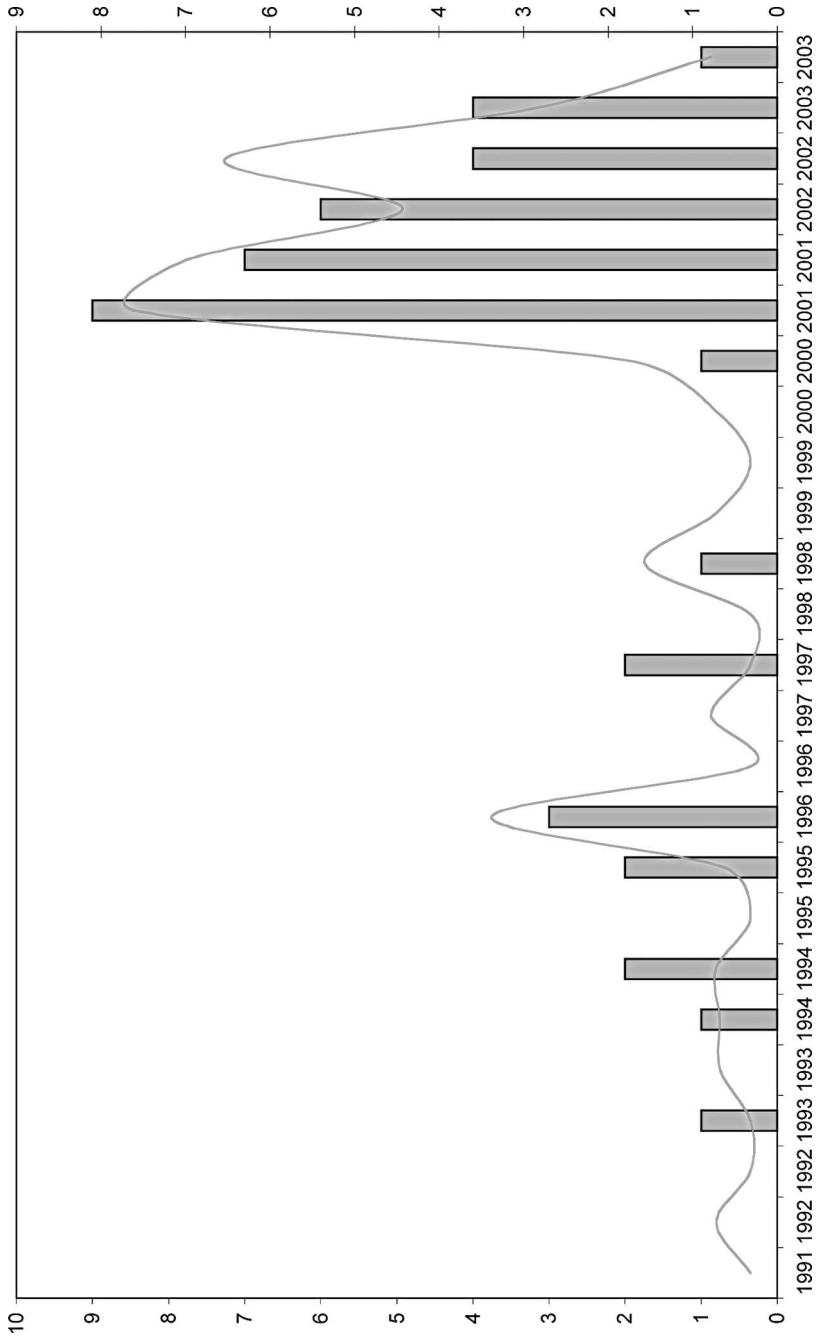


Figure 1. Half-yearly observed and expected suicide bombing for Hamas.

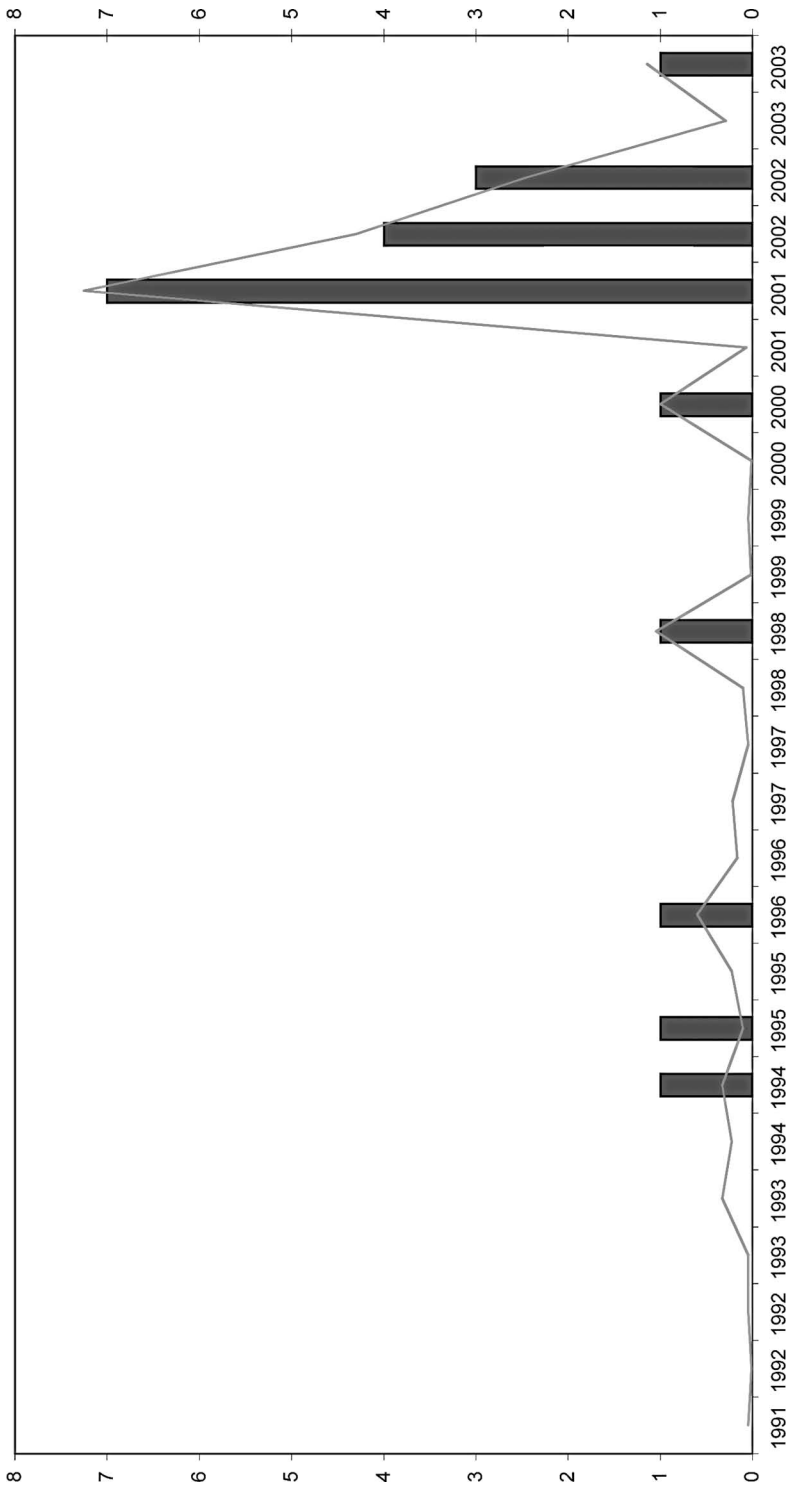


Figure 2. Half-yearly observed and expected suicide bombing by P.I.J.

Table 3. Estimated system of equations by seemingly unrelated regression (SUR) (1991–2003)

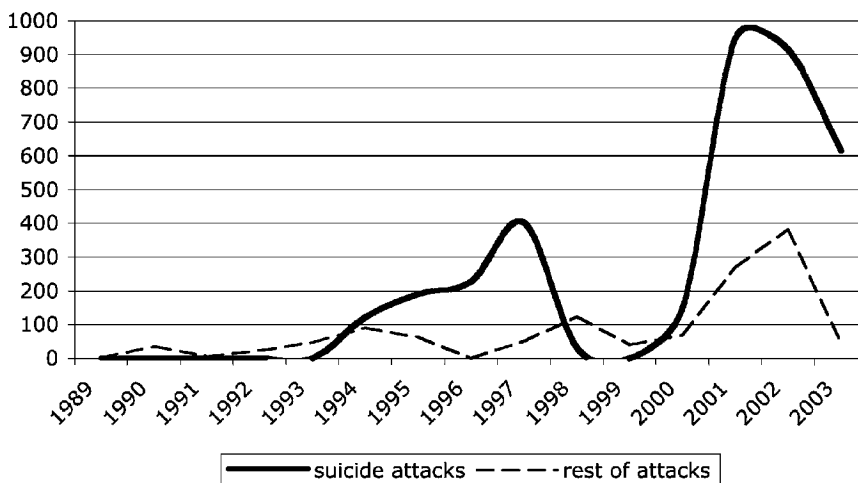
Independent variables	Hamas (Suicide bombings)	Islamic Jihad (Suicide bombings)	PLOshoot (Shootings)
Intercept	0.075 (0.377)	-0.180 (0.212)	0.155 (1.420)
One Period Lag of Hamas	-0.020 (0.144)	0.485 (0.092)***	
One Period Lag of Islamic Jihad			-0.269 (0.092)***
One Period Lag of PLOshoot	0.196 (0.037)***	0.067 (0.022)***	0.698 (0.120)***
Election	1.174 (0.554)**	-0.462 (0.309)	0.609 (2.204)
Political Provocation	0.927 (0.488)*	0.208 (0.270)	7.725 (1.970)***
Violent Provocation	-0.126 (0.633)	-0.322 (0.354)	-8.904 (2.521)***
Peace Accord	0.658 (0.471)	0.458 (0.262)*	1.495 (1.873)
R-squared	0.79	0.85	0.78
Adjusted R-squared	0.71	0.79	0.73
System observations = 75			

Note: The standard errors are in parentheses. * denotes significance at 5% level. ** denotes significance at 10% level. *** denotes significance at 1% level.

The variable PLOshoot is used as a control variable for the system.

Following the logic of the household production function used in the analysis of terrorist techniques choice developed by Landes⁷⁶ and later by Enders and Sandler⁷⁷, we can develop a simple model explaining the increased preference for suicide attacks over other forms of violence by Hamas and Islamic Jihad.

A terrorist group, like any other organization, strives to achieve the maximum level of efficiency.⁷⁸ Since neither Hamas nor Islamic Jihad aim for a military victory over Israel, their objective is to inflict the maximum amount of “pain” to the Jewish state within their resource constraints. Thus, we can assume that a dissident group

**Figure 3.** Number of killed and wounded.

maximizes the expected utility from terrorism (T), which is a function of the number of killed and wounded (ω) from a specific violent activity.⁷⁹ Let us assume that a terrorist group can choose among a large number of violent activities (V_{it}), of which suicide attacks (V_{st}) are one.

$$V_{st} \in V_{it}$$

Thus, in any given period (t), a group would maximize its objective function as

$$\begin{aligned} \text{Max } U(T_t) &= U\left(\sum_{i=1}^n p_i \omega_i V_{it}\right); \\ \text{Subject to } C_t &= \sum_{i=1}^n C_{it}. \end{aligned} \quad (6)$$

where

T = impact of terrorism on the intended groups of targets and clients;
 p_i = subjective assessment by the terrorist group of success of an activity i;
 ω_i = expected number of victims as a result of violent activity i;
 C_i = cost of a violent activity i.

For the sake of simplicity, let us assume that a group has only two activities (i = 2); suicide attack (V_{st}) and the rest (V_{rt}), in which case the maximizing function (subject to the budget constraints of the terrorist group) can be written as:

$$\text{Max } T_t = p_s \omega_s V_{st} + p_r \omega_r V_{rt} + \lambda(1 - C_{st} - C_{rt}). \quad (7)$$

We can hypothesize that:

$$\partial T / \partial p_i > 0; \quad \partial T / \partial \omega_i > 0; \quad \partial T / \partial C_i < 0.$$

That is, if the probability of success or the number of victims go up, the impact on the target will correspondingly go up—and hence the frequency of attacks will increase. In contrast, if the cost of terrorist activities increases, it will have a dampening effect on the frequency of terrorism.

By examining equation (7), we can see that the three determining factors for choosing one over the other are the relative values of p_s , p_r , ω_s , ω_r , C_s , and C_r . Without a priori knowledge, it is reasonable to assume that the probability of success is independent of the activity involved ($p_s = p_r$). In that case, the determining factor for substituting one activity over another are the values of ω_i and C_i . Hence, if suicide bombing has the higher potential for killing and wounding then, *ceteris paribus*, the group will choose suicide attack over other forms of terrorism. Our calculations show that during the study period, suicide attacks have killed or wounded 57.63 people on average. The corresponding figure for the rest of the activities is 15.3, signifying a ratio of $\omega_s / \omega_r = 3.8$. The implications of this disproportionate ratio were not lost on the Palestinian community or their leadership. The rationality of choosing suicide bombing over other forms of violence was very clearly stated by a prominent Palestinian academic, who notes that “Palestinians were no longer content with symbolic expressions of protest through stone throwing, as was the case during the 1987 six-year old *Intifada*. . . . With intensified Israeli policies of targeted assassination, brutalizing re-occupation, mass incarceration and starvation, Palestinians apparently were no longer willing to be the only recipient of death and terror. . . . The ratio of Israelis killed compared to Palestinians was narrowed dramatically,

to reach 1:3 during Sharon's rule, compared to 1:10 under Barak and 1:15 under Benjamin Netanyahu."⁸⁰

As for the cost, on the basis of a priori logic it would seem reasonable to assume that the cost of a suicide attack would be the highest among all other forms of violent activities. Although we cannot estimate the exact "cost" of each attack, we can discern its important components. The cost of an attack is imposed by the target group (in this case the Israeli government) in terms of the relative size and intensity of retribution. However, if these punitive actions *are* the desired outcomes, then the perception of cost of a suicide attack by the perpetrating group would go down. The other aspect of cost involves client support for the dissident groups. If a suicide attack on a civilian population reduces support for the group, then the perception of cost would go up and vice versa.⁸¹ By examining the reaction of the Israeli government to suicide attacks and by the measure of Palestinian support, it is not difficult to see the reasons for Hamas and Islamic Jihad's evident preference for suicide attacks.

Discussion and Policy Implications

Based on our group-level analysis we cannot comment on the rationality of the individual participants; however, the ability of our empirical model in explaining the large variance of the revealed preferences of the two groups firmly establishes that the campaign of suicide bombings is an integral part of a calculated strategic choice by Hamas and Islamic Jihad.⁸² In fact, the choice of suicide bombings, which does not aim at a military victory but takes aim at sowing the greatest amount of mistrust among Jews and Palestinians, appears to be "rational" to many in the Palestinian community.⁸³ Suicide bombings accomplish this in several ways. The randomness of the attacks inculcates a deep and universal sense of insecurity in the country. By sending young men and women to kill and maim noncombatant civilians, the two radical groups succeed in deepening the worst suspicions and prejudices held by the Jews about the Arabs, which eliminates any possibility of a compromise. The media coverage of the grisly scenes with panic and fear in the faces of the survivors and the rescue workers spreads anxiety and outrage, which strengthen those in Israeli politics who reject any compromise with the Palestinians. The resulting extreme actions by the Israeli authorities, in turn, further provoke the extremist sentiments among the Palestinians. A number of opinion surveys have consistently shown strong support for suicide bombings among the Palestinians, particularly after the end of the peace process. Thus, while public support for suicide bombing did not exceed 30 percent among the Palestinians prior to 1996, after November 2000 it jumped to over 65 percent. In May 2002, a survey revealed that nearly 70 percent of the Palestinians thought of attacks on Israeli targets in general, and suicide bombing in particular, as legitimate strategic action.⁸⁴

The discussion of the findings of this paper, however, must begin with a claim and end with a caveat. The rational choice models based on game-theoretic structure analyze occurrence of suicide attacks as part of a strategic action by the terrorist organizations. However, their rigid methodological orientation does not allow them to consider a multiplicity of goals. In contrast, descriptive case studies can ably capture the complexities of the root causes of suicide bombings, but do not test their hypotheses by using statistical methods. We believe that our regression model has the flexibility of considering multiple objectives and yet the methodological rigor of testing hypotheses. Our empirical investigation comes to the following conclusions.

First, contrary to the popular image and a number of prominent studies which see terrorism as the outcome of irrational religious fanaticism,⁸⁵ our analysis of the causes of suicide bombings by Hamas and the Islamic Jihad reveals that these attacks are parts of an intensely political series of moves by the two groups. As Bloom correctly points out, suicide bombings are not simply tit-for-tat violence, nor are they entirely the results of the peace process that marginalizes the extremist groups.⁸⁶ They are produced within a complex cauldron of political calculations, where the three major dissident groups sometimes compete and sometimes cooperate with each other with the specific objective of increasing their base of support within the Palestinian community. These attacks are well-timed strategic uses of human sacrifice for specific nationalistic and religious goals by the leadership of the dissident groups.

The second finding of our study is the pivotal role played by intra-Palestinian rivalry and cooperation in conducting suicide bombing. Hamas and the Islamic Jihad respond not only to the acts of Israeli retribution and provocation, but also to the threats arising from within the Palestinian community. When the PA appears to gain ground through compromise with Israel, suicide attacks take an indirect but definite aim toward Arafat and the PA leadership. Similarly, Arafat's actions at times revealed the fear of losing grounds to the more radical factions of the community.

Third, (perhaps the most surprising finding of our study), contrary to popular perception, the acts of political provocation are far better predictors of future suicide attacks than targeted assassination of the leadership of the dissident organizations. This may either indicate that the groups see their actions as purely political in nature or, in fact, they get weakened after a strong leader is eliminated.

Pape points out that any attempt at compromise with these radical groups that have irreconcilable goals will only encourage them into further attacks. Thus, he has called for the separation of Israelis and Palestinians by building the controversial wall. However, if the wall is built on Palestinian territory (as it is currently), it will only add to Palestinian frustration and anger. It may also weaken international support for Israel. Furthermore, if the wall encloses a large Arab population with the right to vote in Israeli elections, some fear that a demographic shift in favor of the minority group may threaten the current status of the Jewish state.⁸⁷

Since none of the Israeli punitive actions (with the possible exception of targeted assassinations) have been highly effective, the results point to the other policy option: to draw Hamas into a larger negotiation process. In fact, if we draw upon the experience of Sri Lanka, it appears that the only way the government in Colombo has been able to stop suicide attacks is by coming to a political accommodation with the Tamil Tigers. In the case of Israel, the problem is compounded by the fact that while the Tamil Tigers are pursuing their own irredentist agenda, which can theoretically be addressed by partitioning the country or granting autonomous status, the goals of Hamas and the Islamic Jihad leave no room for compromise with the Jewish state. In such a situation, the question of a political settlement becomes impossible. However, we may be reminded that before the Oslo Agreement even the PLO's constitution included the goal of the complete destruction of Israel.⁸⁸

Facing the cycle of escalating violence, the results of this study may support Horowitz's contention that the only way to resolve domestic political conflict in deeply divided societies is by nurturing the middle ground of moderation.⁸⁹ This may imply the resistance on the part of Israeli authorities to give into the temptation of carrying out immediate and severe punishments that affect the entire Palestinian

community. Similarly, it also requires the PA to make serious efforts at suppressing the lethal bomb factories and stopping suicide attacks. The death of Arafat may also open new possibilities for a negotiated settlement.

Finally, we present an important caveat. Regression models are limited by the availability of data. The amount of available information shackles even the most sophisticated econometric analysis. Today one of the greatest obstacles to terrorism research is the lack of publicly accessible quality data.⁹⁰ Our study, being no exception to this rule, suffers from the inevitable consequences of this shortcoming. The solution to this problem rests not in the collection of primary data by each individual researcher, but on the compilation of data by respected organizations for the use of researchers all over the world. However, we should note that the history of epistemological evolution shows that quality data almost never precedes innovative analyses. We hope that the current spate of quality research will pave the way for the collection and distribution of reliable empirical information on terrorism and other aspects of sociopolitical conflict.

Notes

1. Walter Laqueur *A History of Terrorism* (New Brunswick, NJ: Transaction Books, 2001).
2. Richard Cohen, "Palestinian Suicide Signal Desperation, Irrationality," *Washington Post*, February 6, p. A14, 2002.
3. Scott Atran, (2003) "Who Wants to Be a Martyr?" *New York Times*, May 5, 2003.
4. Dagmer Hellman-Rajanayagam, *The Tamil Tigers: Armed Struggle for Identity* (Stuttgart: F. Steiner, 1994); Narayan Swamy, Rajat Ganguli, and Ian McDuff, eds., *Ethnic Conflict and Secessionism in South and Southeast Asia: Causes, Dynamics, Solutions* (New Delhi: Sage, 2003); Narayan Swami, *Tigers of Lanka: From Boys to Guerrillas* (New Delhi: Konark Publishers, 2002).
5. For an excellent survey of current literature on the psychology of terrorism, see Jeff Victoroff, "The Mind of the Terrorist: A Review and Critique of Psychological Approaches." *Journal of Conflict Resolution* 49, no. 1 (2005): 3–42.
6. Lamis Andoni, "Searching for Answers: Gaza's Suicide Bombers," *Journal of Palestine Studies* 26, no. 4 (1997): 33–45; Ehud Sprinzak, "Rational Fanatics," *Foreign Policy* 79, no. 1, 66–75; (2000): Jerrold Post, Ehud Sprinzak, and Laurita M. Denny, "The Terrorists in Their Own Words: Interviews with 35 Incarcerated Middle Eastern Terrorists," *Terrorism and Political Violence* 15, no. 1, (2003): 171–184.
7. Marc Sageman, *Understanding Terror Networks* (Philadelphia: University of Pennsylvania Press, 2004).
8. On this also see Linda Butler, "Suicide Bombers: Dignity, Despair and the Need for Hope., An Interview with Eyad el Sarraj." *Journal of Palestine Studies*, 31 no. 4 (2002): 71–76.
9. Reuven Konet, "Sexual Fantasies of a Suicide Bomber," <http://www.israelinsider.com>. Accessed 16 August, 2001.
10. Robin Morgan, "The Demon Lover Syndrome," Ms, 2002, 17. Also see Lina Sagal Reyes, "Disempowered Palestinian Girls' Uncommon Death Wishes—Research Sheds Light." *Women in Action*. <http://www.isiswomen.org/pub/wia/wia3-04/lina1.htm>.
11. For an extensive discussion of repressed sexuality of the suicide bombers and Islamic imageries see Yotam Feldner, "72 Black-Eyed Virgins," MEMRI (The Middle Eastern Research Institute), October 30, 2001.
12. Alan B. Krueger and Jitka Maleckova, "Does Poverty Cause Terrorism? The Economics and the Education of Suicide Bombers," *New Republic*, June 24, 2002, 27–33.
13. Hilal Khashan, "Collective Palestinian Frustration and Suicide Bombings," *Third World Quarterly* 24, no. 6 (2003): 1049–67.
14. See, for example, Mark Juergensmeyer, *Terror in the Mind of God: The Global Rise of Religious Violence* (Berkeley: University of California Press, 2000). Also see Daniel Benjamin and Steven Simon, *The Age of Sacred Terror* (New York: Random House, 2002).
15. Edwin S. Shneidman, *Definition of Suicide* (New York: Wiley, 1985). Also see Edwin S. Shneidman, "Peturbation and Lethality," in ed. D. G. Jacobs, *The Harvard Medical School Guide to Suicide Assessment and Intervention*, (San Francisco: Josey-Bass Publishers, 1999), p. 83–97.

16. For one of the most comprehensive studies on individual motivations for taking part in suicide bombings, see Ariel Merari, "Social Organizations and Psychological Factors in Suicide Terrorism," in *Root Causes of Terrorism: Proceedings from an International Expert Meeting in Oslo, 9–11 June, 2003*, ed. Tore Borgo, 81–98 (Oslo: Norwegian Institute of International Affairs, 2003). Also see Nasra Hassan, "Letter from Gaza: An Arsenal of Believers," *The New Yorker*, November 19, 2001.

17. Robert A. Pape, "The Strategic Logic of Suicide Terrorism," *American Political Science Review* 97, no. 3 (2003): 343–61.

18. Andrew Kydd and Barbara Walter, "Sabotaging the Peace: The Politics of Extremist Violence," *International Organization* 56, no. 2, (2002): 263–96.

19. Ethan Bueno de Mesquita, "Conciliation, Commitment, and Counter-Terrorism: A Formal Model" (paper presented at the 2003 Annual Meeting of the International Studies Association under the title "An Adverse Selection Model of Terrorism," Washington, DC, September 2003).

20. Rui De Figueiredo and Barry Weingast, "Vicious Cycles: Endogenous Political Extremism and Political Violence," (paper presented at the annual meeting of the American Political Science Association, Chicago, September 1998).

21. Mia Bloom, *Dying to Kill: The Global Phenomenon of Suicide Terror* (New York: Columbia University Press, 2005). Also see Mia Bloom, "Palestinian Suicide Bombing: Public Support, Market Share and Outbidding," *Political Science Quarterly* 119, no. 1, (2004): 61–88. Mia Bloom, "Ethnic Conflict, State Terror and Suicide Bombing in Sri Lanka," *Civil Wars*, 6, no. 2, (2003): 54–84.

22. Walter Enders and Todd Sandler "The Effectiveness of Antiterrorism Policies: A Vector-Autoregressive-Intervention Analysis," *American Political Science Review* 87, no. 4 (1993): 829–44; Walter Enders and Todd Sandler, "What Do We Know about the Substitution Effect in Transnational Terrorism?" in *Research on Terrorism: Trends, Achievements, and Failures*, ed. Andrew Silke, 119–37 (London: Frank Cass, 2003); Walter Enders, *Applied Econometric Time Series* (New York: Wiley, 1995); Will Moore, "Repression and Dissent: Substitution, Context, and Timing," *American Journal of Political Science* 42, no. 3 (1998): 851–73; Dipak K. Gupta, Harinder Singh, and Tom Sprague, "Government Coercion of Dissidents: Deterrence or Provocation?" *Journal of Conflict Resolution* 37, no. 2 (1993): 301–39.

23. Suicide attacks for collective causes have been known since antiquity—see Walter Laqueur, "Terror's New Face," *Harvard International Review* 20 (1999): 48–51. He points out that "suicide missions have been carried out for as long as wars have been fought." For instance, the kamikaze attacks by Japanese pilots during World War II (see Albert Axel and Hideaki Kase, *Kamikaze: Japan's Suicide Gods*, (Harlow: Longman, 2002); Emiko Ohnuki-Tierney, *Kamikaze, Cherry Blossoms, and Nationalisms: The Militarization of Aesthetics in Japanese History*, (Chicago: University of Chicago Press, 2002)) are very well documented. However, few groups until recently have used suicide attacks as part of a sustained campaign.

24. We should note here that although the first suicide attack within Israel was carried out by Hamas on April 16, 1993, near Mekhola in the Jordan valley, we start our data from 1991. This is because we wanted to capture the full impacts of the independent variables, including the lagged ones.

25. Yasir Arafat, "A Discussion with Yasir Arafat," *Journal of Palestine Studies* 11, no. 2 (1982): 3–15; Issa Al-Shuaibi, "The Development of Palestinian Entity-Consciousness: Part II," *Journal of Palestine Studies* 9, no. 2 (1980): 50–70; Mamdouth Nofal et al., "Reflections on Al-Nakba," *Journal of Palestine Studies* 28, no. 1 (1998): 5–35; Avraham Sela and Moshe Ma'oz, eds., *The PLO and Israel: From Armed Conflict to Political Solution 1964–1994* (New York: St. Martin's Press, 1997).

26. See for example Jamal R. Nassar, *The Palestine Liberation Organization: From Armed Struggle to the Declaration of Independence* (New York: Praeger, 1991).

27. It is important to note here that in this article we are using the term PLO, although after 1994 the organization transformed itself into the Palestinian National Authority with commonly used acronym PA.

28. Edward W. Said, *The Question of Palestine* (New York: Times Books, 1970), 160.

29. Michael C. Hudson, "Developments and Setbacks in Palestinian Resistance Movements, 1967–71," *Journal of Palestine Studies* 1, no. 3 (1972): 64–84.

30. Although the DFLP was, like the PFLP, a pro-Soviet socialist group, it broke with the latter over its agenda of creating a class struggle among the poor and working-class Palestinians.

31. Before this date, Hamas was more of a charitable organization serving poor Palestinians primarily in the Gaza Strip.

32. Article 1 of its charter proclaims, "The basis of the Islamic Resistance Movement is Islam. From Islam it derives its ideas and its fundamental precepts and views of life, the universe, and humanity; and it judges all its actions according to Islam and is inspired by Islam to correct its errors." (Shaul Mishal and Avraham Sela. *The Palestinian Hamas: Vision, Violence, and Coexistence*. New York: Columbia University Press, 2000, p.177). And it adds the Islamic Brotherhood motto in Article 5, "Allah is its [Hamas's] goal, the Prophet is its model, and the Qur'an is its constitution" (178).

33. Article 11 states: "The Islamic Resistance Movement believes that the land of Palestine is an Islamic *waqf* [endowed] to all Muslim generations until the day of resurrection. It is not right to give it up or any part of it. Neither a single Arab state nor all Arab states, neither a king nor a president, not all the kings and presidents, nor any organization or all of them—be they Palestinian or Arab—have such authority, because the land of Palestine is an Islamic *waqf* [endowed] to all Muslim generations until the day of resurrection." (Ibid., 181).

34. It is interesting to note that at the beginning of Hamas, the Israeli authorities directly and indirectly encouraged its inception as a counterbalance to the PLO (Mishal and Sela, 36). There had been a persistent rumor among the supporters of the PLO that Hamas was a creation of Israel to divide and conquer the Palestinian community. In fact, Arafat claimed that "we must remember that these organizations were created by Israel, which also distributes arms to them." Quoted in Bloom, "Ethnic Conflict," chapter 2.

35. Shaul Mishal and Avraham Sela, *The Palestinian Hamas: Vision, Violence, and Coexistence* (New York: Columbia University Press, 2000), 3.

36. Judith Miller, *God Has Ninety-Nine Names: Reporting from a Militant Middle East* (New York: Simon and Schuster, 1996).

37. Mark Huband, *Warriors of the Prophet* (Boulder, CO: Westview Press, 1998).

38. Abu-Amr Ziad, *Islamic Fundamentalism in the West Bank and Gaza: Muslim Brotherhood and Islamic Jihad* (Bloomington: Indiana University Press, 1994).

39. Although the murder of Shiqaqi remains unsolved, there is a strong but unfounded suspicion within the Palestinian community that it was the work of the Israeli intelligence agency, Mossad.

40. See International Counter-Terrorism (ICT), <http://www.ict.org.il/>.

41. In terms of the calculation of costs and benefits, the jihadi groups all over the world have found suicide attacks to be the most cost-effective weapon. Thus Ayman al-Zawahiri, the close aide of Osama bin Laden, wrote, "The method of martyrdom operations [is] the most successful way of inflicting damage against the opponent and the least costly to the mujahidin [organization] in terms of casualties." Quoted in Benjamin and Simon, *Sacred Terror*, 28–29. Also see Dan Radlauer, "An Engineered Tragedy: Statistical Analysis of Casualties in the Palestinian-Israeli Conflict: September 2000–September 2002." ICT, <http://www.ict.org.il/>.

42. By this time, an overwhelming portion of the Palestinians were supportive of the suicide attacks against the Jewish state (see Gal Luft, "The Palestinian H-Bomb." *Foreign Affairs*. July/August, 2002, p. 2–7).

43. Although the PLO had officially eschewed violence against Israel, the entire time period saw continued armed attacks by PLO-affiliated groups, although they did not stage any suicide attacks before the peace process came to an end (see Ali Jarbawi, "Palestinian Politics at a Crossroad," *Journal of Palestine Studies* 25, no. 4 (1996): 29–39).

44. Any discussion of the Palestinian rebel groups must include the Syrian- and Iranian-backed radical Shiite group Hizbullah (Party of God). Established during the Lebanese political chaos of 1982 with the ideological guidance of Ayatollah Khomeini, Hizbullah quickly established its radical credentials through a series of spectacular acts. However, for our current study, Hizbullah holds limited interest since it has been involved in only one suicide attack within the political boundaries of Israel and the territories controlled by the PA during the study period—and also because of its history and ethnic composition, it follows a different cycle from Hamas and the Islamic Jihad, the central focus of this study.

45. Dipak K. Gupta, *Path to Collective Madness: A Study in Social Order and Political Pathology* (Westport, CT: Praeger, 2001). Gupta expands the utility maxim of a “rational” actor and suggests that rational actors maximize their self-utility as well as the utility of the groups in which the actor claims membership.

46. Although the estimated equations with quarterly data show very similar patterns, we decided to use biannual data since, in our judgment, it provided us with a clearer picture. The results of estimation with quarterly data are available from the authors.

47. Ted Gurr, *Why Men Rebel* (Princeton: University of Princeton Press, 1970). For the latest testing of Gurr’s hypothesis, see G. D. Saxon, “Repression, Grievances, Mobilization, and Rebellion: A New Test of Gurr’s Model of Ethnopolitical Rebellion,” *International Interactions* 31, no. 3 (2005): 87–116.

48. Dipak K. Gupta, *Economics of Political Violence: The Effects of Political Instability on Economic Growth* (Westport, CT: Praeger, 1990), 157–62.

49. Note that if this negative value of the composite coefficient α^{*} is the result of a negative value of the government reaction coefficient β' , then it may signify a mollifying effort by the government or its inability to mount a proper action following a terrorist attack. Neither of these are applicable to Israel.

50. Although it may appear as if suicide attacks are instantaneous in response to Israeli acts of provocation, their strategic use points to much more careful planning, which requires such activities as choosing (and surveillance of) the target, drawing up a detailed plan of action, manufacture of the bomb pack, selection and mental training of the attacker, transportation of the human bomb to its target, etc. Given such a complex process, it is difficult to determine a single time period for retaliation. Therefore we decided to treat it as an empirical question and allow the data to show the average time of retaliation. For a detailed discussion of the organizational steps leading up to a suicide attack, see Assaf Moghadam, “Palestinian Suicide Terrorism in the Second Intifada: Motivations and Organizational Aspects,” *Studies in Conflict and Terrorism* 26 (2003): 65–92. Also, as circumstantial evidence we may point out that on September 1, 2004, Hamas carried out two consecutive suicide bus attacks in Israel. Nearly six months after the assassination of Sheikh Ahmed Yassin (March 22, 2004) and four and a half months after Abdel Aziz Rantisi’s (April 17, 2004) killing, Hamas claimed the attacks in their names (see Steven Erlanger, “Twin Blasts Kill 16 in Israel: Hamas Claims Responsibility,” *New York Times*, September 1, 2004).

51. Richard N. Lebow. *Between Peace and War: The Nature of International Crisis*. Baltimore: Johns Hopkins University Press, 1981. Ma’oz (2004a, 2004b); Bloom, *Dying to Kill*. These all have argued that when national leaders cannot afford to launch a war for fear of being labeled as “aggressors,” they often initiate events which are designed to provoke others to react violently. The opposition’s reaction then provides justification for the authorities to launch a full-scale assault.

52. Charles Smith, *Palestine and the Arab-Israeli Conflict* (New York: St. Martin’s Press, 2001).

53. These incidents include the following: the spring 1996 opening of the Hasmonean tunnel under the Al Aqsa Mosque; in October 2000, Likud Party leader Ariel Sharon makes a symbolic visit to the Al Aqsa Mosque; from January 2001 to 2003, the end of the Oslo Agreement and the election of Ariel Sharon and his administration. We have used the entire period of the Sharon administration as political provocation because Sharon, more than anyone else in Israeli politics, is an object of nearly universal Palestinian derision. From his role as the officer in charge of the massacre at the Sabra and Shatilla refugee camps in Lebanon, Sharon’s political career has been a lightning rod for Palestinian opposition. See Bloom, *Dying to Kill*, chapter 2.

54. These include the following incidents: in February 1994 an Israeli settler killed 29 Palestinians in a Hebron mosque; the October 1995 assassination of Fathi Shiqaqi; the January 1996 assassination of Yahiyeh Ayyash (the “Engineer”); the July 2002 assassination of Salah Shehad and his family; and the June 2003 attempted assassination of the Hamas leader Abdel Aziz Rantisi.

55. Kenneth Arrow, *Social Choice and Individual Values* (New York: John Wiley and Sons, 1951).

56. Kydd and Walter, “Sabotaging the peace.”

57. Israeli elections took place in June 1992 and May 1996. Then an early election was called in May 1999, and Ehud Barak was elected. His government failed in February 2001, when a special election was held only to elect the prime minister. The Israeli citizens chose Ariel Sharon and his Likud Party. However, facing increasing challenges from the opposition Labour Party, Sharon called for a general election in January 2003.

58. The peace accord events in this variable include: in September 1993, the signing of the Oslo Agreement; in May 1994, the beginning of Palestinian self-rule; in September 1995, the implementation of the Oslo Agreement; in January 1996, the election of the Palestinian self-governing authority; in January 1997, the signing of the Hebron Deployment Agreement; in October 1998, the Wye Memorandum signed; and in December 1998, the PLO recognizing Israel.

59. See Alan Krueger and David Laitin, “‘Misunderestimating’ Terrorism,” in *Terrorism and Homeland Security*, ed. Dipak K. Gupta, 38–44 (Belmont, CA: Wadsworth, 2005).

60. See Pape, “Strategic Logic.”

61. The complete dataset used in this article can be obtained from Dipak Gupta.

62. It is important to keep in mind that the PA and Arafat consistently denied having any role in attacks against the Jewish state and its citizens, while the Israeli government held them responsible. Without taking any stand in this controversy, we are simply referring to these groups as “PLO affiliated.”

63. The Granger Causality Test for the periods 2001–3 show statistically insignificant results. However, since this period contains a limited number of observations, we are not discussing the results.

64. See Bloom, *Dying to kill*, chapter 2.

65. Accurate discrete change in the expected value from 0 to 1 is given by $\exp(\alpha_1) - 1$.

66. See A. Colin Cameron and Pravin K. Trivedi, *Regression Analysis of Count Data* (Cambridge: University of Cambridge Press, 1998).

67. It is well known that the Poisson distribution is determined entirely by its mean, in particular the conditional variance is equal to the conditional mean, which is often violated in many applications. A common correction for the heteroskedasticity is that the variance is proportional to the mean, requiring the procedure of Quasi-Maximum Likelihood for estimating the model. See Jeffrey M. Wooldridge, *Econometric Analysis of Cross Section and Panel Data* (Cambridge, MA: MIT Press, 2002).

68. Kydd and Walter, “Sabotaging the Peace.”

69. For a detailed discussion of suicide attacks and Israeli elections, see Bloom, *Dying to kill*, chapter 2.

70. Kydd and Walter, “Sabotaging the Peace”; Bueno de Mesquita, “Conciliation, Commitment, and Counter-Terrorism.”

71. Hillel Halkin, “Bye, Bye Bibi,” *New Republic*, June 7, 1999. Also see Bloom, “Palestinian Suicide Bombing.”

72. Zeev Maoz, “The Unlimited Use of the Limited Use of Force: Israel and Low Intensity Warfare, 1949–2004” (paper presented at the annual meeting of the International Studies Association, Montreal, March 17–20, 2004). Also see Zeev Maoz, *Defending the Holy Land? A Critical Assessment of Israel's National Security and Foreign Policy, 1949–2004* (Ann Arbor: University of Michigan Press, 2004).

73. On March 22, 2004, (outside of the period under consideration in this article) Israeli Defense Forces assassinated Sheikh Ahmed Yassin, the spiritual leader of Hamas, outside a Gaza mosque. An enraged Hamas declared that Israel had “opened the gates of hell” and promised to kill “hundreds of Zionists.” It renewed its menacing promise after the killing of Abdel Aziz Rantisi a month later. Yet the threats failed to materialize immediately (see Erik Shechter, “Where Have All the Bombers Gone?” *Jerusalem Post*, August 5, 2004, 4).

74. Gal Luft explained the absence of suicide attacks in the aftermath of these two extremely high profile targeted assassinations by stating that these and other such acts had a cumulative effect on the command structure of the terrorist organizations (Ibid., 4).

75. The error for the system is given by $\varepsilon = [e'_H, e'_I, e'_P]'$ where the mean of the ε is 0, hence $E(\varepsilon) = 0$ and the covariance is given by $E(\varepsilon\varepsilon') = V$. In the above SUR specification the errors are considered to be heteroskedastic and contemporaneously correlated so that the covariance

matrix of the above system is given by

$$V = \begin{bmatrix} \sigma_{HI}I_t & \sigma_{HI}I_T & \sigma_{HP}I_T \\ \sigma_{IH}I_T & \sigma_I I_T & \sigma_{IP}I_T \\ \sigma_{PH}I_T & \sigma_{PI}I_T & \sigma_P I_T \end{bmatrix}.$$

In the covariance structure above there is heteroskedasticity because $\sigma_H \neq \sigma_I \neq \sigma_P$. The contemporaneous correlation between Hamas and Islamic Jihad is σ_{HI} , where $E(\varepsilon_{HI}\varepsilon_{It}) = \sigma_{HI} = \sigma_{IH}$ for all t . Similarly, contemporaneous correlation between Hamas and PLOshoot is $\sigma_{HP} = \sigma_{PH}$ and contemporaneous correlation between PLOshoot and Islamic Jihad is $\sigma_{PI} = \sigma_{IP}$. It is well known that in the SUR structure above each equation is auto-regressive of order 1 and hence ε is treated to be serially independent—in other words, we rule out any serial correlation for Hamas, Islamic Jihad, and PLOshoot. In the SUR methodology we do nonlinear least squares at the first stage to estimate ε and then construct an estimate of \hat{V} and perform nonlinear Generalized Least Squares. These iterations are repeated until the coefficients and the error weights converge. See Arnold Zellener, “An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests of Aggregation Bias,” *Journal of the American Statistical Association* 57 (1992): 500–9; Ernst R. Berndt, *The Practice of Econometrics: Classic and Contemporary* (New York: Addison-Wesley); William H. Greene, *Econometric Analysis* (Upper Saddle River, NJ: Prentice Hall, 2003).

76. William Landes, “An Economic Study of US Aircraft Skyjackings, 1961–1976,” *Journal of Law and Economics* 21, no. 1 (1978): 1–31.

77. See Enders and Sandler, “What do we know?”

78. Martha Crenshaw, “The Logic of Terrorism: Terrorist Behavior as a Product of Strategic Choice,” in *Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind*, ed. Walter Reich, 7–24 (New York: Cambridge University Press, 1990). This points out that “efficiency is the primary standard by which terrorism is compared with other methods of achieving political goals.”

79. Although there is no explicit mention of an objective criterion for terrorist activities, which aim at maximizing the number of killed and wounded, it may be worth recalling that facing unconventional warfare in Vietnam, the U.S. military under Secretary of Defense Robert McNamara accepted “body count” as its goal.

80. Hisham H. Ahmed, “Palestinian Resistance and ‘Suicide Bombing’: Causes and Consequences,” In *Proceedings from ‘Root Causes of Terrorism’: An International Expert Meeting in Oslo, 9–11 June*, Tore Bjorgo, ed., 124 (Oslo: Norwegian Institute of International Affairs, 2003).

81. For a discussion of cost effectiveness of suicide bombings from the perspective of the dissident groups, see Benjamin and Simon, *Sacred Terror*.

82. John F. Muth, “Rational Expectations and Theory of Price Movements,” *Econometrica* (1961): 413–29. Muth defined “rationality” as the ability to explain actual behavior with a set of independent variables.

83. For a discussion of the Palestinian view of suicide bombing as a strategic instrument of protest, see Lori Allen “There Are Many Reasons Why: Suicide Bombers and Martyrs in Palestine,” *Middle East Report* 32, no. 223 (2002): 34–37.

84. Palestinian Center for Policy and Survey Research <http://www.pcsr.org>. Also see Gal Luft, “The Palestinian H-Bomb,” *Foreign Affairs*, 81, no. 4 (2002): 5–7.

85. National Commission on Terrorism, *Countering the Changing Threat of International Terrorism: Report of the National Commission on Terrorism* (Washington DC: GPO, 2000). This report concluded that fanaticism, rather than political interest, is more often the motivation for terrorism. A similar conclusion was reached by Laqueur, “Terror’s New Face.”

86. Bloom, *Dying to kill*.

87. The perceived threat of a “demographic bomb” has created a lively debate in Israel and elsewhere. For a discussion of the “threat,” see Linda S. Head, “Arab Demographics Worry Israel,” *Gulf News*, August 25, 2004. For the perspective of those who see the entire debate as masked racism against the Arabs, see Samah Jabr, “What Does Israel’s ‘Demographic Balancing Act’ Hold in Store for Palestinians?” *Washington Report on Middle East Affairs*, March 2004, 19–20; Donald G. McNeil Jr., “Demographic Bomb Is Fizzling to a Pop,” *International Herald Tribune*, August 30, 2004.

88. Sara Roy, " Hamas and the Transformation(s) of Political Islam in Palestine," *Current History* (no. 102, 660 (2003): 13–20). This author points out that the Hamas leadership is well aware of their central role in Palestinian politics, particularly in view of the weakening role of the PA. Roy argues that while an Islamic alternative is still unacceptable to the majority of Palestinians, the Islamic movement has shown pragmatism—which may allow its inclusion in the peace process.

89. Donald L. Horowitz, "Making Moderation Pay: The Comparative Politics of Ethnic Conflict Management," in *Conflict and Peacemaking in Multiethnic Societies*, ed. Joseph V. Montville, 451–76 (Lexington, MA: Lexington Books, 1990). Furthermore, by using cross-national data, Gupta, Singh, and Sprague ("Government Coercion") have argued that while dictatorships are sometimes able to suppress rebellion by the use of brutal force, conflicts within democratic nations are best solved by finding political solutions.

90. For a fuller discussion see Dipak K. Gupta, "Tyranny of Data: Linking Data to the Advancements in the Theoretical Understanding of Terrorism" (paper presented at the Social and Psychological Factors in the Genesis of Terrorism Conference at Il Ciocco, Castelvechio Pascoli, Italy, September 2005).