

Economic Conditions and the Quality of Suicide Terrorism

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This article analyzes the link between economic conditions and the quality of suicide terrorism. While the existing empirical literature shows that poverty and economic conditions are not correlated with the quantity of terror, theory predicts that poverty and poor economic conditions may affect the quality of terror. Poor economic conditions may lead more able and better-educated individuals to participate in terror attacks, allowing terror organizations to send better-qualified terrorists to more complex, higher-impact terror missions. Using the universe of Palestinian suicide terrorists who acted against Israeli targets in 2000–06, we provide evidence of the correlation between economic conditions, the characteristics of suicide terrorists, and the targets they attack. High levels of unemployment enable terror organizations to recruit better educated, more mature, and more experienced suicide terrorists, who in turn attack more important Israeli targets.

Do poor economic conditions affect terrorism? A growing body of empirical literature shows that poverty and economic conditions are not directly correlated with the occurrence of terrorism (Abadie 2006; Drakos and Gofas 2006a; Krueger and Laitin 2008; Krueger and Malechova 2003; Piazza 2006). The lack of correlation between the frequency of terror attacks and economic conditions, combined with the privileged background of suicide terrorists found in earlier studies, suggests that economic conditions do not have a direct and straightforward effect on terrorism. However, economic conditions may affect terrorism through other, indirect, channels. While economic conditions are probably not root causes of terrorism and do not affect the level of terrorism, they may impact the nature and type of terror attacks.

In this article, we study the connection between the *quality* of terrorism and underlying economic conditions.¹ We believe this approach makes an important contribution to the related empirical literature, which has focused exclusively on the

relationship between economic conditions and the *quantity* or amount of terror.

The notion that economic conditions may correlate with the quality of terrorism has been suggested by Bueno de Mesquita (2005a). According to his theoretical analysis, individuals have to choose whether to work in a market economy or to volunteer to carry out terror attacks. Rational individuals become terrorists only if they gain more utility by carrying a terror attack than by working in the market economy. When economic conditions are good and unemployment is low, there are desirable opportunities for able individuals that choose to join the market economy. Therefore, only low-ability individuals who cannot find a job even under good market conditions join terror organizations. When market conditions deteriorate, the economic opportunities of able individuals deteriorate as well. Worsening economic conditions should ease the recruiting of more able and better-educated individuals by terror organizations, even if the launching of a terror campaign and the quantity of terrorism are

¹Data and supporting materials necessary to reproduce the numerical results are available at Klor's personal website (http://pluto.huji.ac.il/~eklor/ECQST_data).

driven by strategic decisions that terror organizations make irrespective of economic conditions. In other words, economic conditions should affect the supply of individuals who are willing to join terror organizations.² By screening volunteers and selecting only the most competent to commit attacks, terror organizations may be able to send more capable terrorists under recessionary economic conditions than otherwise. That is, we should observe that economic conditions affect the quality (rather than the quantity) of terrorism.³

This article offers a systematic analysis of the link between economic conditions, the quality of suicide terrorists, the characteristics of their targets, and the outcomes of their attacks. It combines a detailed data set on the universe of Palestinian suicide terrorists during the Second Intifada with data on earnings and labor-force participation in the West Bank and Gaza Strip and with data on Israeli counterterrorism measures. Our results suggest that there is a strong correlation between economic conditions and the characteristics of suicide terrorists and the targets they attack. Higher unemployment enables terror organizations to recruit more educated, mature, and experienced suicide terrorists who, in turn, attack more important targets. Furthermore, we show that poor economic conditions do not enhance the quality of terror equally among different organizations. In the spirit of the club model proposed by Berman and Laitin (2008), groups that provide excludable public goods increase their ability to commit terror attacks during difficult economic times while others groups do not.

²This does not necessarily imply that individuals choose to become suicide terrorists the same way they choose, for example, between enrolling in higher education or joining the labor market. Simply put, unemployed individuals spend more time socializing with their peers in places, such as mosques, where “enlistment officers” are more likely to recruit them. See Pape (2005) and Pedahzur (2005) for descriptions of recruiting for suicide missions by Palestinian factions.

³In addition to Bueno de Mesquita (2005a), there are other theoretical studies that rely on a similar intuition. A recent study by Rosendorff and Sandler (2010), for example, extends Bueno de Mesquita’s (2005a) model in two important regards: they add to the model the strategic considerations of the government as a third player (in addition to terrorists’ leaders and supporters); and they differentiate between suicide terrorism and other types of terror attacks. Using this model, they show that better economic conditions may lower the overall level of terrorism while increasing the proportion of suicide attacks. Becker and Posner (2005) also highlight the impact of market opportunities on suicide bombers. Unlike Bueno de Mesquita (2005a) and Rosendorff and Sandler (2010), Becker and Posner (2005) focus exclusively on individuals’ decision making and do not incorporate into the analysis the strategic considerations of terror organizations or the targeted government.

These results have important implications for the design of efficient counterterrorism policies. The most common counterterrorism policies aim to incapacitate terror organizations by cracking down on their members and enacting security measures that diminish the probability of success of a planned attack. The connection between economic conditions and the quality of terrorism suggests that policies intended to improve economic development and stimulate economic growth may reduce the quality, and thus the threat, of suicide terrorism. The suggested policy implications have, however, one important caveat. Institutions that provide economic aid geared to stimulate economic sustainability should pay particular attention to the ideology and political objectives of the local organizations that will be administering said aid. Even if these local organizations use the donors’ aid to provide important public goods (e.g., education and health), our analysis shows that this aid may allow terror organizations to coerce the local population into increasing violence and terrorism.

Data

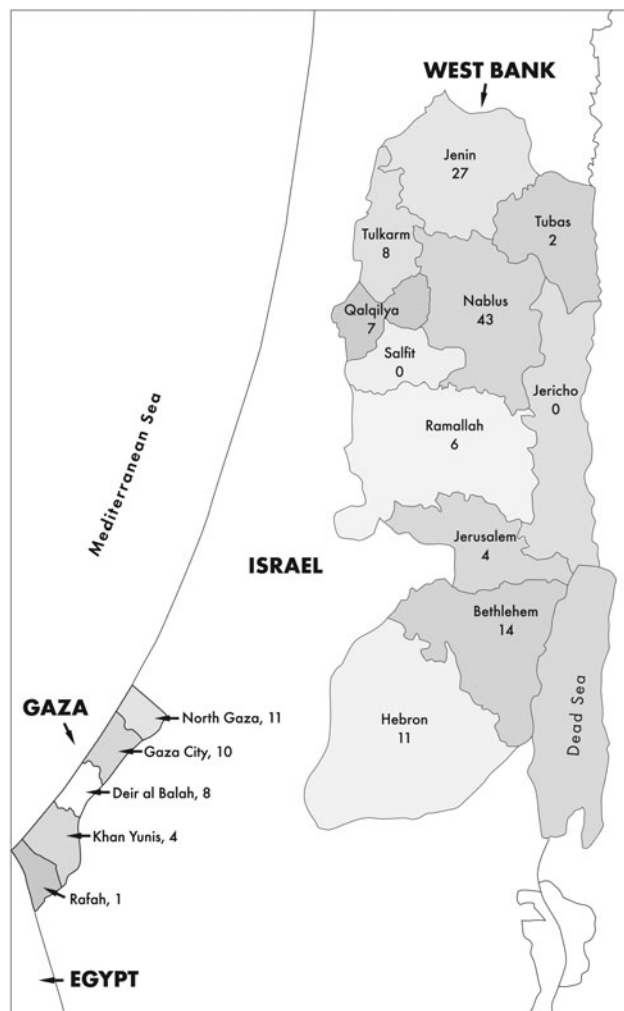
Data on Palestinian Suicide Terrorists

The data set on Palestinian suicide terrorists is an updated version of the one constructed by Benmelech and Berrebi (2007) from reports of the Israeli Security Agency (ISA). It includes the biographies of all Palestinian suicide terrorists who attacked (or attempted to attack) targets in Israel, the West Bank, and the Gaza Strip between September 2000 and December 2006. The data contain detailed information on terrorists’ characteristics, characteristics of the targets, and outcome of the attacks.

Our data set includes 157 suicide terrorists for whom we know names, membership in terror organization, age, city of residence, whether they had an academic degree or attended an institution of higher education, and whether they were previously on ISA’s most-wanted terrorists list, were incarcerated, or were detained by Israeli security forces.

Figure 1 displays the number of suicide terrorists who came from each of the 10 districts in the West Bank, the five districts in the Gaza Strip, and Jerusalem. The figure exhibits a high geographic variation with respect to suicide terrorists’ districts of origin, especially among districts in the West Bank. For example, whereas 45% of suicide terrorists

FIGURE 1 Districts of Origin of Suicide Terrorists



resided in Nablus and Jenin, only two suicide terrorists resided in the neighboring districts of Salfit, Tubas, and Jericho.

Table 1 reports detailed summary statistics on the characteristics of suicide terrorists and their targets. The top panel of the table focuses on the characteristics of suicide terrorists. Panel A shows that, at the time of their attacks, 31 terrorists were enrolled in an institution of higher education or had completed academic studies by that time. This rate is higher than the equivalent rate for the Palestinian population at large, which equals 8% (Berrebi 2007), and confirms findings regarding the relative privileged background of terrorists in other locations (Krueger 2007, 2008; Krueger and Maleckova 2003; Sageman 2004). The youngest suicide terrorist was 12 years old; the oldest was 64 and their average age was slightly over 21. Of the 157 suicide terrorists during this time period,

19 (12.1%) had prior known terrorist activity experience: they had been either previously detained in Israeli prisons or accused by ISA of involvement in terror activity before their attacks.

Panel B of the table focuses on two variables that measure target importance. The first measure is a dummy variable that equals one for localities with a population of over 50,000 residents and zero otherwise.⁴ The second measure of target importance is a dummy variable for localities that host an official bureau of the Ministry of Interior, effectively serving as district capital.⁵ Arguably, both variables are sensible proxies for the importance of the targeted localities. Table 1 shows that suicide terrorists tend to attack these types of localities. Large cities were targeted in almost 75% of the attacks, even though fewer than 10% of Israeli cities have over 50,000 inhabitants. Similarly, over 50% of the attacks (84 attacks) occurred in district capitals even though fewer than 15% of the localities serve in that capacity. These findings are consistent with previous results showing that city population and district-capital status are strongly and positively correlated with the frequency of terror attacks in Israel (Berrebi and Lakdawalla 2007). The findings are also consistent with claims in the related literature arguing that terror groups have strong incentives to attack populated areas to increase the media coverage and impact of their attacks (see, for example, Frey and Luechinger 2004; Hoffman 2006).

Finally, the bottom panel of Table 1 presents summary statistics on the outcome of the attacks. The first row of Panel C provides information on thwarted suicide terrorists. We classify suicide terrorists as “thwarted” if they failed to detonate their explosive devices, were apprehended or killed before they managed to detonate their explosives, blew themselves up before they reached their desired target, or “chickened out” (left without completing the attack). Our sample contains 39 suicide terrorists that are classified as thwarted, 27 of whom were killed or died during capture. We also report summary statistics on casualties (individuals killed or wounded) in the suicide attacks. While a suicide attack caused almost 30 casualties on average, several failed attacks resulted in no casualties and several others caused over

⁴Locality size refers to population of metropolitan area according to 2003 data from the Israeli Central Bureau of Statistics. Our analysis is robust to alternative cutoffs such as 100,000 or 150,000 residents.

⁵An official bureau of the Ministry of Interior includes the following: a National Election Inspection Bureau, a District Appeals Committee, a District Licensing and Supervising Bureau, and a District or Sub-District Population Administration Bureau.

TABLE 1 Summary Statistics on the Characteristics of Suicide Terrorists and their Attacks

	Number of Observations	Mean	Standard Deviation	Median	Minimum	Maximum
A. Characteristics of Suicide Terrorists						
Suicide Terrorist has Academic Education	157	0.197	0.399	0	0	1
Age of Suicide Terrorist	156	21.397	5.727	21	12	64
Suicide Terrorist Previously Involved in Terror	157	0.121	0.327	0	0	1
B. Characteristics of Targeted Locality						
Targeted Locality's Population above 50,000	157	0.745	0.437	1	0	1
Regional Capital	157	0.535	0.500	1	0	1
C. Outcome of Suicide Attack						
Thwarted Suicide Terrorist	157	0.248	0.433	0	0	1
Casualties from Suicide Attack	157	29.535	39.397	10	0	181

Notes: The summary statistics reflect authors' calculations based on Israeli Security Agency reports of suicide terrorists. The targeted cities population refers to their population within the metro area of the city according to the population figures for the year 2003 of the Israeli Central Bureau of Statistics.

150 casualties. Most of the attacks caused at least 10 casualties.

Our analysis below differentiates between suicide terrorists of high and low quality. We define a suicide terrorist as of high quality on the basis of information on his or her education, past involvement in terror activity, and age.⁶ Our data include 31 terrorists who had academic education, 19 terrorists who had previous involvement in terror activities, and 81 terrorists who were older than 20 at the time of the attack (63 were below that age).⁷ The three characteristics of suicide terrorists show similar correlations with other variables in Table 1. Suicide terrorists of high quality are associated with more complex terror attacks, more important targets, and better outcomes for the terror organizations (Benmelech and Berrebi 2007).

⁶We argue that previous involvement in terror activity is a quality marker for several reasons. Being previously involved in terror activity and being a member of a terror faction shows that the potential suicide terrorist is more likely guided by ideological motivation and political militancy rather than an impulsive urge to commit suicide or personal revenge. In fact, a nationalistic drive in the struggle against Israel was mentioned as one of the most important characteristics that operatives who organized suicide attacks look for on candidates to commit suicide terror attacks (Merari 2010, 158). Moreover, being "known" (and maybe wanted) by the Israeli security forces lowers the probability that the terrorist will be able to return safely to the Palestinian territories in case he decides to abort the mission. This works as an additional commitment device (on top of social pressure from fellow faction's members) that the terrorist will indeed complete his mission.

⁷The results below are robust to any other sensible age cutoff. We choose the cutoff of "older than 20" because the median and average terrorists were 21 years old, and 13 terrorists were exactly this age.

Data on Economic and Demographic Indicators of West Bank and Gaza Strip

The data on economic and demographic variables are culled from the Palestinian Labor Force Survey (PLFS) of the West Bank and Gaza Strip. We use these microlevel data from all quarterly surveys between 2000 and 2006—more than 620,000 observations in all—to calculate economic and demographic variables at the district-quarter level. The demographic characteristics of interest are the average years of education, percentage of population living in a refugee camp, average age, proportion of males in the local population, proportion of married population, and population size.

To calculate the economic variables of interest, we use the PLFS' information on individuals' labor-force status (employer, self-employed, salaried worker, unemployed, or out of the labor force). While the PLFS does not report individuals' income, it groups those individuals who earned strictly positive incomes into four bins of roughly equal size according to their earnings and reports the income group to which they are assigned. Using this information, we construct the local unemployment rate, our main treatment of interest, such that it includes not only individuals actively looking for work but also individuals out of the labor force, which yields a more appropriate measure of underlying economic conditions.⁸ We also use, as an alternative treatment, the same definition of unemployment but restricted

⁸Our results are qualitatively the same when we use the standard definition of unemployment.

only to males aged 15–35 years old. Given that 139 members of the sample of 157 suicide terrorists belong to this demographic group, this is arguably a more relevant variable than the overall level of unemployment.⁹

Finally, we examine the impact of income inequality on the quality of suicide terrorists. Although the theoretical model we examine does not directly link income inequality to the quality of suicide terrorism, and income inequality does not directly measure the opportunity costs associated with terror involvement, we include this measure as one of the main explanatory variables of interest because income inequality has been repeatedly mentioned in the related literature as one of the determinants of political violence and terrorism (see, e.g., Li and Schaub 2004 and Piazza 2006 among many others). Our conjecture is that greater income inequality leads to suicide terrorists and terror attacks of better quality. This is in accordance with the view that an increase in income inequality increases the economic grievances of large segments of the population and therefore should result in an increase in the supply of individuals willing to commit suicide terrorism. This increase should apply also to older, more educated individuals, who may actually find that their expectations of economic success and well-being are far from being satisfied, despite their efforts and investment in education. Moreover, some relatively well-off individuals may identify with the pain and suffering of the poor population and resort to terrorism for altruistic reasons (Azam 2005). Pape, for example, argues that “High levels of social integration and respect for community values cause otherwise normal individuals to commit suicide out of a sense of duty” (2005, 172). Accordingly, given that social integration and ingroup identification are inversely related to income inequality (Shayo 2009), the theory of “altruistic suicide terrorism” predicts that higher income inequality raises the quality of suicide terrorism.¹⁰

⁹We thus apply to our study of terrorism the recommendations of Gould, Weinberg, and Mustard (2002) with respect to crime. (Gould, Weinberg, and Mustard (2002) show that labor-market conditions for young unskilled men (rather than the general unemployment rate) correlate with the crime rate because crime is perpetrated mainly by this subpopulation of individuals.

¹⁰As already stated, the PLFS does not provide information on individuals’ actual earnings. Therefore, we compute a relative measure of income inequality by adding to the four groups of individuals who have strictly positive income the individuals whose incomes equal zero and then calculating the standard deviation of this variable. Although not the ideal measure of income inequality, it is the best we can compute given the available data, and it still captures the level of uniformity in the society.

We provide detailed summary statistics for the economic and demographic variables of interest in all districts during the entire period at issue in Table A.1 in the online appendix. As a first cut, the table displays a general overview of Palestinian economic and demographic conditions during the period of the Second Intifada. While we observe a high unemployment rate for both the general and the group-specific populations (the averages during the period at issue equal 0.591 and 0.370, respectively), we must keep in mind that our definition of unemployment is broad, including individuals not actively looking for work. Therefore, although they represent the prevailing economic conditions more accurately than the official unemployment rates published by the PCBS, these rates are considerably higher than those reported by the PCBS. The table also shows a relatively low average number of years of schooling, which is equal to 9.2 years during the entire period. The table masks, however, a significant increase in average schooling from 8.8 years in 2000 to 9.6 years in 2006.

Data on Curfews and Palestinian Fatalities

Our analysis includes data on Israeli security measures and district levels of violence. The available measures are the number of Israeli-induced Palestinian fatalities and the number of curfews days per district-quarter cell. The data on Palestinian fatalities during the second Palestinian uprising come from B’tselem, an Israeli human-rights organization. B’tselem’s data (considered accurate, reliable, and comprehensive) are widely used in studies focusing on the Israeli-Palestinian conflict (e.g., Gould and Klor 2010; Jaeger et al. 2008). The data on curfews was obtained from the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), which coordinates humanitarian action on behalf of the United Nations in various countries. Among its responsibilities, the OCHA office that operates in the West Bank and the Gaza Strip monitors closures and curfews imposed on the Palestinian population. OCHA provided us with their data on total hours under curfew by district by month between May 2002 and December 2006. Table A.2 in the online appendix reports summary statistics on the available data on Israeli security measures and district levels of violence.

Table A.2 shows how widespread the violence was during the Second Intifada. An average district originated one suicide terrorist every three quarters and 10.25 Israeli casualties every quarter (an average of 1.33 Israeli fatalities in suicide attacks per district-quarter cell). On average, every district suffered 8.73 Israeli-induced Palestinian fatalities and 3.89 days of curfews

every quarter. The table also illuminates the high level of variation in the level of violence. Although the median number of Palestinian fatalities was four, in 27% of observations the number of Palestinian fatalities was 10 or higher. Similarly, in almost 10% of observations the quarterly number of curfew days exceeded 21. This variation in the level of violence highlights the importance of including these variables in the empirical analysis to control for potential reverse causality. For example, Israeli responses to particularly violent suicide attacks may have affected local economic conditions. Without properly controlling for security measures one would adduce the occurrence of a high-quality terror attack to economic distress, whereas in actuality it may have been high-quality attacks that caused the economic distress (Benmelech, Berrebi, and Klor 2010).

The Impact of Economic Conditions on the Quality of Suicide Attacks

There is a growing body of literature on the macroeconomic determinants of terrorism. Most studies find that economic fluctuations in countries from which terrorism originates do not seem to affect the respective countries' level of terrorism (Abadie 2006; Drakos and Gofas 2006a; Krueger and Laitin 2008; Piazza 2006).¹¹ This does not imply that economic conditions do not affect terrorism at all. Whereas most of the literature focused on the direct relation between economic conditions and the quantity of terror, Bueno de Mesquita (2005a) proposes an indirect and subtler relationship between economic conditions and terrorism. Bueno de Mesquita (2005a) argues that poor economic conditions dampen individuals' opportunities in the labor force and, as a consequence, lower the opportunity cost of their participation in terror activities. Therefore, if terror organizations select suicide terrorists from a large supply of volunteers, they can choose better-qualified suicide terrorists under adverse economic conditions.¹²

¹¹These studies focus on transnational terrorism using data from a cross-section of countries. We show below that fluctuations in district levels of unemployment are not correlated with the frequency of suicide attacks that originate in the district. Hence, our results square with the conclusions of these studies.

¹²As mentioned in the introduction, the analysis of Rosendorff and Sandler (2010) also generates very interesting theoretical predictions about economic conditions and different types of terror attacks. We cannot test their model directly because we lack information on the districts of origins of perpetrators of non-suicidal terror attacks.

This section assesses the empirical validity of Bueno de Mesquita's (2005a) theoretical conclusions. The main necessary condition for Bueno de Mesquita's (2005a) theory to hold is that the supply of suicide terrorists exceeds demand. This condition holds for Palestinian terror organizations, as documented in the field study of Hassan (2001). Hassan (2001) reports that one of Hamas' biggest problems during the period at issue was how to select a few volunteers for suicide missions from the large quantity of candidates.¹³ Therefore, if poor economic conditions lead to an increase in the supply of suicide terrorists (but do not affect the frequency of attacks), then terror organizations are able to choose better-qualified suicide terrorists. Given that better-qualified terrorists lead to more desirable outcomes from terror faction's standpoint (Benmelech and Berrebi 2007), it follows that, conditional on originating a suicide attack, poor economic conditions indirectly lead to terror attacks of higher quality.¹⁴

Empirical Framework

To test the relationship between economic conditions and quality of terrorism, we focus exclusively on district-quarter cells that originated at least one suicide attack. We assign to every suicide terrorist the prevailing economic, demographic, and security conditions in his or her district in the quarter preceding the attack to further address the possibility of reverse causality. These data allow us to test the effect of poor economic conditions on the quality of suicide terrorists, their targets, and the outcomes of the attacks. Formally, our general specification is:

$$\begin{aligned}
 (\text{Quality of Suicide Terrorism})_{i,t} &= \alpha (\text{Economic Variables})_{i,t-1} \\
 &+ \beta (\text{Demographic Variables})_{i,t-1} \\
 &+ \gamma (\text{Security Measures})_{i,t-1} + \varepsilon_{i,t}
 \end{aligned} \tag{1}$$

where *(Quality of Suicide Terrorism)* are the proxies, presented in Table 1, associated with the characteristics of the suicide terrorists, their targets, and the

¹³This suggests that terror organizations are not constrained by a lack of volunteers to carry out attacks. Therefore, to explain fluctuations in suicide attacks we need to focus mostly on terror organizations' strategic considerations and their ability to surmount Israel's security obstacles.

¹⁴There are important differences between our analysis and that of Benmelech and Berrebi (2007). Benmelech and Berrebi (2007) studied terror groups' strategic assignment of suicide terrorists as a function of the importance of different targets. They did not address at all the determinants of suicide terrorists' quality, which is the focus of the current article.

outcome of each attack by each suicide terrorist i who committed an attack in quarter t . We focus alternatively on the district unemployment rate, the group-specific unemployment rate, and income inequality at the district of origin of the terrorist in the quarter before the attack as our main explanatory economic variable of interest. All the specifications control for demographic characteristics and Israeli security measures that vary across districts and time. These include average years of education, percentage of population living in a refugee camp, average age, proportion of males in the local population, proportion of married population, population size, and local Palestinian fatalities and local curfews. In addition, we include a West-Bank dummy to control for unobservable regional characteristics that are constant over time.¹⁵ Finally, $\varepsilon_{i,t}$ is an error term (clustered at the regional level) that captures nonsystematic determinants of the quality of a suicide attack.

Our detailed data set allows us to overcome some of the difficulties associated with the task of estimating the causal effects of economic conditions on the quality of suicide terrorism. First, our data set allows us to overcome serious concerns related to selection bias, whereby one reaches conclusions about the pool of terrorists while only observing a specially selected subgroup of that pool. Our study, based on the universe of suicide terrorists against Israeli targets between 2000 and 2006 does not suffer from a selection problem because we have information on all suicide terrorists—those that died while committing an attack and those caught by the Israeli Security Forces. With the available information on the entire pool of suicide terrorists, we are able to ascertain whether some of their characteristics are systematically correlated with economic fluctuations.¹⁶ Second, by focusing on districts under the control of the Palestinian Authority, we do not have to worry about common factors (like geography, colonial history, ethnic composition, political institutions,

and religion affiliation) that may be correlated with terrorists' characteristics.

In addition, we are able to control for counter-terror measures enacted by the Israeli government in the aftermath of an attack that may also affect economic conditions. Moreover, the longitudinal dimension of the data provides a sequential order of the events of interest, allowing us to observe the effects of past economic and demographic conditions on subsequent characteristics of suicide terrorists and their attacks.¹⁷ Finally, the time variation in the data allows us to include year fixed effects to control for events that are common to all districts, occurred at a particular point in time, and may simultaneously affect the quality of suicide attacks and economic conditions.

Results

Table 2 presents the estimated impact of economic conditions on the characteristics of suicide terrorists. Panel A of the table focuses on suicide terrorists' education, Panel B on their age, and the last panel on the level of their previous involvement in terror activities. All panels present the same specifications: for each panel, the left column reports the estimated marginal effects from a Probit model of the respective covariate on the dependent variable at issue. The general unemployment rate is the main variable of interest in the first three rows, the group-specific unemployment rate is the variable of interest in rows 4 to 6, and income inequality is the focus of rows 7 to 9;¹⁸ the middle column adds year fixed effects to the previous specification; and the specification on the right adds the number of curfew days to the regression in the middle column. Our preferred specification is the one in the middle column. This specification is preferred to specification (1) because

¹⁵Ideally, we would include district fixed effects instead of regional fixed effects. Unfortunately, the available data do not have sufficient variation to allow the inclusion of district fixed effects and still estimate the coefficients of interest at a satisfactory level of precision.

¹⁶To the best of our knowledge, there is not a similar data set covering the universe of individuals involved in terror activity, either in Israel or elsewhere. For the most part, data sets do not contain information on (nonsuicide) terrorists that successfully committed an attack and were not apprehended. As a consequence, these data sets suffer from selection bias, whereby the sample of terrorists in the data set is nonrandomly selected and may be correlated with the main explanatory variables.

¹⁷The results described below show the effects of our controls when we lagged them by only one quarter. When we added another lagged quarter to the specification, the conclusions were qualitatively the same. We chose to present a one-quarter lag specification because this specification delivers a similar goodness of fit (according to the Akaike and Bayesian information criteria) to that including two-quarter lags. Moreover, a one-quarter lag specification is also consistent with evidence showing that suicide terrorists are usually recruited only several weeks before being sent to their missions, in order to minimize the risk of their changing their minds or being denounced by family members to the Israeli authorities ahead of the attack (Moghadam 2003; Pedahzur 2005).

¹⁸In addition to the reported economic variable and security measures, the regression controls for each district proportion of males, married, average years of schooling, population size, and proportion of population living in a refugee camp.

TABLE 2 The Effect of Economic Conditions on the Characteristics of Suicide Terrorists

Dependent Variable	A. Education of Suicide Terrorist			B. Age of Suicide Terrorist			C. Suicide Terrorist Previously Involved in Terror		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Unemployment Rate	1.056 [0.827]	1.372*** [0.146]	0.613*** [0.137]	0.660*** [0.047]	0.616** [0.308]	-0.316 [0.661]	1.530*** [0.062]	0.806** [0.407]	0.496*** [0.248]
Palestinian Fatalities	-0.002*** [0.001]	-0.003 [0.002]	-0.005 [0.004]	-0.003*** [0.001]	-0.003 [0.003]	-0.004 [0.004]	-0.0002 [0.002]	-0.0002 [0.002]	0.0005 [0.001]
Days with Curfews			0.002 [0.002]			0.004 [0.002]			-0.0003 [0.0005]
Group Specific									
Unemployment Rate	1.419*** [0.260]	1.760*** [0.017]	1.593*** [0.478]	0.239 [0.565]	0.632*** [0.208]	0.169 [0.268]	0.217 [0.352]	0.452*** [0.125]	-0.085 [0.157]
Palestinian Fatalities	-0.002* [0.001]	-0.003* [0.001]	-0.002 [0.005]	-0.003*** [0.001]	-0.003 [0.003]	-0.002 [0.002]	0.00002 [0.002]	0.0001 [0.002]	0.0007 [0.001]
Days with Curfews			0.0003 [0.003]			0.002*** [0.000]			-0.0001 [0.001]
Income Inequality	-0.174*** [0.046]	-0.159 [0.375]	0.262 [0.293]	0.756*** [0.038]	0.474*** [0.014]	0.706** [0.346]	0.502*** [0.182]	0.566** [0.251]	0.219*** [0.043]
Palestinian Fatalities	-0.002*** [0.000]	-0.003 [0.002]	-0.004* [0.002]	-0.002** [0.001]	-0.002 [0.003]	-0.003* [0.002]	0.001 [0.001]	0.001*** [0.000]	0.001 [0.001]
Days with Curfews			0.002 [0.002]			0.003** [0.001]			0.0002 [0.001]
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Observations	156	141	64	143	143	74	156	143	79

Notes: Each column in each panel reports the estimated marginal effects of three separate Probit regression models in which the dependent variable is, respectively, an indicator of the education of suicide terrorists, an indicator of their age, and an indicator of their experience. In addition to the explanatory variables listed on the left, regressions in Columns 1, 4, and 7 add each district average years of education, population size over the age of 15, proportion of males, married, proportion living in a refugee camp and whether the district is in the West Bank as explanatory variables. We subsequently add to these regressions years fixed effects (regressions in Columns 2, 5, and 8) and days with curfews (regressions in Columns 3, 6, and 9). Robust standard errors (adjusted for clustering at the regional level) are in parentheses. *, **, *** denote statistical significance at the 10, 5, and 1% level, respectively.

it includes year fixed effects, which control for common fluctuations over time on the variables of interest. That is, the coefficients in specification (2) reflect districts' deviations of the variables of interest over their yearly averages, whereas specification (1) does not control for common effects across districts that may have an important effect on the estimated coefficients. Specification (2) is preferred to specification (3) because the inclusion of curfew days in the specification considerably reduces the number of observations.¹⁹

The results shown in the table support the hypothesis that poor economic conditions affect the quality of suicide terrorists. Higher unemployment rates (whether general or group specific) are associated with more educated, more mature, and more experienced suicide terrorists. In particular, our preferred specification shows that an increase of the unemployment rate (either general or group specific) significantly increases the quality of suicide terrorists for all three different outcomes. On the basis of our preferred specification, a 1 percentage point increase in the unemployment rate significantly raises the probability that next quarter's suicide terrorist (1) has some academic education, by 1.37 percentage points; (2) that the terrorist is more than 20 years old, by 0.62 percentage points; and (3) that the terrorist was previously involved in terror activities, by 0.81 percentage points. These effects are of an important magnitude. They imply that a standard deviation increase in the level of unemployment causes an increase of 34.3% on the probability that the suicide terrorist has some academic education relative to their mean education level. Similarly, for a standard deviation increase in the level of unemployment, they represent a 5.57% increase in the probability that the terrorist is more than 20 years old, and a 33.5 increase in the probability that the terrorist was previously involved in terror activities, relative to their unconditional means.²⁰

The impact of the other variables of interest on the quality of suicide terrorists is not consistently

significant across the different measures. The analysis suggests that higher income inequality raises the quality of suicide terrorists. Therefore, our results support the hypothesis that heightened identification with the grievances of the Palestinian population (as measured by income inequality) leads mature and experienced individuals to commit terror attacks. Security measures imposed by Israel do not have a consistent effect in terms of their sign or significance level.

Table 3 repeats the analysis in Table 2 but focuses on the characteristics of targeted localities. The results confirm that economic conditions have a significant effect on the importance of the localities targeted in suicide attacks. Higher unemployment rates and greater inequality significantly increase the likelihood that the targeted city has a large population. The estimated coefficients in Column 2 imply that a standard deviation increase in unemployment induces a 17.6% increase in the probability that the targeted city has a large population relative to the mean number of large cities. Similarly, a standard deviation increase in inequality causes a 25.7% increase in the probability of a large city being targeted. The probability that the targeted city is a district capital also increases in recessionary economies, though neither measure of unemployment has a statistically significant effect on all specifications. In line with the results regarding the characteristics of suicide terrorists, the impact of the other covariates is not consistently significant across specifications and proxies of the importance of targeted localities.²¹

Finally, Table 4 presents the effects of economic conditions on the outcome of suicide attacks. These results are not as conclusive as our previous findings. While the results in some of the columns suggest that higher unemployment rates significantly increase the probability that the suicide terrorist is thwarted, this outcome is not consistent across the three different specifications, casting doubts on the validity of the result. Similarly, neither measure of the unemployment rate consistently affects the number of casualties.

¹⁹Bear in mind that the data on curfews are available only from May 2002. Therefore, the specification including curfews as a covariate ignores all suicide attacks that occurred before that date, thus lowering the number of available observations by almost 50%.

²⁰At this point, it is important to remark that the changes in the magnitudes and significance levels of the estimates from the second to the third column of each panel are due to the shorter sample and not to the inclusion of curfews as a dependent variable. When we restrict the sample to May 2002 onward, the results are qualitatively the same whether or not the curfews variable is included in the model.

²¹We also analyzed the effects of economic conditions on the distance traveled by suicide terrorists to commit their attacks. The results show that bad economic conditions prompt terror organizations to attack localities that are closer to suicide terrorists' localities of residence and terror headquarters. These results are partly explained by terror organizations' choosing experienced suicide terrorists when unemployment is particularly high and by experienced terrorists' choosing closer targets to avoid the risk of being caught by the Israeli security forces. In particular, suicide terrorists previously involved in terror activities traveled on average 17.9 km to commit an attack, whereas inexperienced terrorists traveled on average 27.8 km.

TABLE 3 The Effect of Economic Conditions on the Characteristics of Targeted Cities

	Targeted City Population			Regional Capital		
	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment Rate	1.116 [1.517]	2.259*** [0.202]	2.728 [3.569]	1.914 [2.003]	0.010 [1.076]	1.316*** [0.279]
Palestinian Fatalities	-0.003*** [0.000]	-0.002*** [0.000]	-0.002 [0.002]	0.0002 [0.001]	0.001 [0.001]	-0.002 [0.001]
Days with Curfews			-0.001 [0.002]			0.005** [0.002]
Group Specific	0.470 [0.562]	0.773*** [0.047]	0.733 [0.820]	0.463 [0.943]	0.171 [1.141]	1.355 [1.960]
Unemployment Rate						
Palestinian Fatalities	-0.003*** [0.000]	-0.002*** [0.000]	-0.002 [0.003]	0.001 [0.001]	0.001 [0.001]	-0.001 [0.003]
Days with Curfews			-0.0011 [0.0016]			0.004** [0.005]
Income Inequality	0.789*** [0.276]	0.829*** [0.230]	1.866*** [0.504]	1.494*** [0.177]	1.529*** [0.360]	2.387*** [0.345]
Palestinian Fatalities	-0.001*** [0.000]	0.0002 [0.0002]	0.001* [0.001]	0.004*** [0.001]	0.005*** [0.001]	0.005 [0.005]
Days with Curfews			-0.004*** [0.000]			0.003 [0.004]
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
Observations	156	143	66	156	156	79

Notes: Each column in each panel reports the estimated marginal effects of three separate Probit regression models in which the dependent variable is, respectively, an indicator of the targeted city population (equals one for cities with over 50,000 inhabitants) or whether the city is a regional capital. In addition to the explanatory variables listed on the left, regressions in Columns 1 and 4 add each district years of education, population size over the age of 15, proportion of males, married, proportion living in a refugee camp and whether the district is in the West Bank as explanatory variables. We subsequently add to these regressions years fixed effects (regressions in Columns 2 and 5) and days with curfews (regressions in Columns 3 and 6). Robust standard errors (adjusted for clustering at the regional level) are in parentheses. *, **, *** denote statistical significance at the 10, 5, and 1% level, respectively.

If anything, the table suggests that higher income inequality leads to higher-quality terror attacks. That is, higher income inequality reduces the chances of thwarting the terrorist and raises the number of casualties. Finally, the table consistently implies that the outcomes of terror attacks are significantly affected by Israeli security measures. A stronger Israeli military presence (measured by the number of curfew days and the number of Palestinian fatalities) is effective in stopping suicide terrorists.²²

Summarizing, this section shows that there is a strong correlation between economic conditions, characteristics of suicide terrorists, and the targets

they attack. High unemployment allows terror organizations to recruit more educated, mature, and experienced suicide terrorists who, in turn, attack targets that are more important and closer to their district of residence. The outcomes of these attacks, however, are not consistently correlated with economic conditions, possibly because they are more random in nature than the other characteristics associated with suicide terrorism, which are mostly controlled by the terrorists or terror organizations. Having said that, it is important to remark that there is an indirect relation between economic conditions and the outcome of attacks. While we establish that higher unemployment rates enhance the quality of terrorists and the importance of their targets, previous work showed that higher-quality terrorists cause more fatalities and are less likely to be thwarted when assigned to important targets (Benmelech and Berrebi 2007).

²²Alternatively, in accordance with Rosendorff and Sandler (2010), it may be that a larger number of Palestinian fatalities causes a backlash effect that allows terror organizations to allocate more resources in conventional (nonsuicide) terror attacks.

TABLE 4 The Effect of Economic Conditions on the Outcomes of Suicide Attacks

	Thwarted Suicide Terrorist			Casualties from Suicide Attack		
	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment Rate	-0.710*** [0.279]	0.606** [0.296]	1.516*** [0.183]	2.551*** [0.349]	0.259 [0.316]	-8.716*** [0.233]
Palestinian Fatalities	0.006*** [0.001]	0.005*** [0.000]	0.010*** [0.002]	-0.007*** [0.002]	-0.003*** [0.001]	-0.006** [0.003]
Days with Curfews			-0.002* [0.001]			0.004 [0.004]
Group Specific	-0.385 [0.292]	-0.156* [0.092]	0.421 [0.629]	1.766*** [0.198]	0.747* [0.448]	-2.211** [1.042]
Unemployment Rate						
Palestinian Fatalities	0.006*** [0.001]	0.005*** [0.000]	0.010*** [0.001]	-0.007*** [0.002]	-0.003*** [0.001]	-0.003** [0.002]
Days with Curfews			-0.002*** [0.001]			0.002 [0.006]
Income Inequality	-0.516*** [0.059]	-0.620*** [0.195]	-1.206*** [0.121]	0.638*** [0.154]	0.579** [0.296]	0.942*** [0.032]
Palestinian Fatalities	0.005*** [0.001]	0.004*** [0.000]	0.007*** [0.000]	-0.005* [0.003]	-0.001 [0.002]	0.004 [0.003]
Days with Curfews			-0.001* [0.001]			-0.002 [0.005]
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
Observations	156	156	79	155	155	79

Notes: Each column in each panel reports the estimated effects of three separate regressions in which the dependent variable is, respectively, whether the suicide terrorist was caught (estimated using a Probit model), or the number of casualties from suicide attacks (estimated using a Poisson model). In addition to the explanatory variables listed on the left, regressions in Columns 1 and 4 add each district average years of education, population size over the age of 15, proportion of males, married, proportion living in a refugee camp and whether the district is in the West Bank as explanatory variables. We subsequently add to these regressions years fixed effects (regressions in Columns 2 and 5) and days with curfews (regressions in Columns 3 and 6). Robust standard errors (adjusted for clustering at the regional level) are in parentheses. *, **, *** denote statistical significance at the 10, 5, and 1% level, respectively.

Economic Conditions and Suicide Attacks across Factions

This section investigates the effect of economic conditions on the willingness of different Palestinian factions to carry out suicide attacks. Several theoretical studies analyze why different types of factions react differently to the same political environment.²³ The related literature focuses mostly on the peace process (Bueno de Mesquita 2005b; Kydd and Walter 2002), the timing of elections (Berrebi and Klor 2006 and 2008), and Israeli counterterrorism policies (Jaeger and Paserman 2008) as triggers of terrorism. In what follows, we investigate whether economic conditions may lead different factions to different

strategies in regard to the number of suicide attacks they commit.

Several Palestinian factions were involved in suicide terrorism during the Second Intifada. Each was closely associated with one of the three main Palestinian political organizations: Fatah, Hamas, and Palestinian Islamic Jihad (PIJ).²⁴ These groups differ in their level of religiosity, ideology, organizational structure, political objectives, and even their strategic responses to Israeli-induced Palestinian fatalities (Jaeger and Paserman 2006).

In conjunction with ideology, economic conditions play an important role in the level of terrorism that terror organizations choose. As argued by Bueno de Mesquita (2008), the factions' level of radicalization, although chosen to maximize political support, is affected by economic conditions. We expect a similar effect to play a role in the organizations at

²³See, for example, the theoretical analyses of Kydd and Walter (2002, 2006), Bueno de Mesquita (2005b), and Berrebi and Klor (2006), and their applications to the Israeli-Palestinian conflict. Piazza (2008) presents a similar analysis but for a cross-section of countries.

²⁴In our data set, 49 terrorists belonged to factions affiliated with Fatah, 61 to factions affiliated with Hamas, and 46 to PIJ.

issue. The theory of economic voting, for example, implies that the level of unemployment should affect support for Fatah, the political organization that stood at the helm of the Palestinian National Authority during most of the period analyzed.

Though in a different direction, economic conditions should also affect support for Hamas, an organization that provides excludable local public goods like education, welfare, and medical care (Mishal and Sela 2000). Naturally, the value of the goods provided by Hamas increases in recessionary economies. This should boost demand for membership in Hamas and make individuals willing to sacrifice more so that they, and their families, are accepted as group members (Berman 2000). Therefore, a combination of the club model and Bueno de Mesquita's (2005a) theory of the quality of terrorism implies not only that religious clubs are more likely to commit suicide attacks (Berman and Laitin 2008), but that religious clubs can conduct more attacks when economic conditions are bad.

The results of our analysis of the heterogeneous effect of economic conditions on suicide attacks across factions are reported in Table 5. The first column of the table presents the results of Probit regressions in which the dependent variable is an indicator for Islamic suicide terrorists (those affiliated with Hamas and PIJ), with the same set of covariates used in the models in Tables 2–4. The results show that unemployment has a positive and highly significant effect on the likelihood of Islamic organizations' committing a suicide attack, equal to an 8.16% increase (relative to its mean) in the probability of a suicide terrorist's belonging to an Islamic

organization for a standard deviation increase in the level of unemployment of the entire population. Income inequality and Israeli-induced Palestinian fatalities have a negative effect on suicide attacks by Islamic organizations.

The results in the first column of Table 5 seem to imply that religiosity plays an important role on the organizations' different responses to economic conditions. Aggregating suicide terrorists affiliated with Hamas and PIJ, however, masks important differences between these two religious groups. Most notably, while Hamas provided excludable social services during the period at issue, PIJ provided no social services at all. To address this issue, the remaining columns of the table present the results of the estimation of a multinomial logit model for a faction committing a suicide attack. The dependent variable takes on one of three values: Fatah, Hamas, and PIJ. To facilitate comparison with previous tables, we present the marginal effects of the relevant economic variable for each faction rather than the multinomial logit coefficients. The results confirm our hypothesis about the effect of economic conditions on religious factions that provide local public goods. We find that Hamas is the most sensitive of the organizations to the unemployment rate, with an increase of more than 4 percentage points in the number of suicide terrorists dispatched to Israel for every 1% increase in unemployment. The marginal effect of unemployment for Fatah is negative and statistically significant although of lesser magnitude than the decrease observed for PIJ.

The estimated coefficients in Table 5 provide an intuitive ordering of the different groups based on

TABLE 5 The Effect of Economic Conditions on the Organizational Affiliation of Suicide Bombers

	Islamic Suicide Terrorist	Multinomial Logit: Marginal Effects that Suicide Terrorist belongs to		
		Fatah	Hamas	Palestinian Islamic Jihad
Unemployment Rate	1.103*** [0.105]	-1.085*** [0.189]	4.019** [1.963]	-2.934* [1.774]
Group Specific	0.874*** [0.070]	-0.897*** [0.048]	2.352*** [0.012]	-1.456 [1.983]
Unemployment Rate				
Income Inequality	-0.474*** [0.106]	0.517*** [0.066]	0.743*** [0.076]	-1.261*** [0.142]
Year Fixed Effects	Yes		Yes	
Observations	156		156	

Notes: Each cell reports the estimated coefficients of a separate regression. The first column reports the estimated marginal effects of Probit regressions model in which the dependent variable equals one for suicide terrorists affiliated with Islamic groups (Hamas and PIJ) and zero otherwise. Columns 2 to 4 report the estimated marginal effects of multinomial Logit regressions in which the dependent variable is the group affiliation of suicide terrorists.

In addition to the explanatory variable listed on the left column, both estimations control for each district average years of education, population size over the age of 15, proportion of males, married, proportion living in a refugee camp, whether the district is in the West Bank and years fixed effects. Robust standard errors (adjusted for clustering at the regional level) are in parentheses. *, **, *** denote statistical significance at the 10, 5 and 1 percent level respectively.

the type of public goods that they provide (if at all). This ordering suggests that groups that provide excludable public goods (i.e., Hamas) are able to increase their ability to commit terror attacks during difficult economic times. The magnitude of the effect of economic conditions on the number of attacks by groups that provide nonexcludable public goods (i.e., Fatah) is not as important, whereas the ability to commit suicide attacks of groups not associated with the provision of any public goods (i.e., PIJ) decreases significantly during recessionary economies.

The Impact of Economic Conditions on the Frequency of Suicide Attacks

In this section we examine the correlation between economic conditions and the frequency of suicide attacks during the second Palestinian uprising. We adopt a similar approach to that in related studies on the macroeconomic determinants of transnational terrorism but focus on one particular case study.²⁵ We believe it is important to compare our analysis with the related literature because of several important differences. By focusing on the Israeli-Palestinian conflict, we alleviate concerns prompted by unobserved political, cultural, and institutional cross-country differences. By using our longitudinal data set, we are able to control for unobserved characteristics of each district that are constant over time and may affect the district's level of terrorism. By assembling a detailed data set that includes information not only on economic and demographic variables, but also on counterterrorism policies, we can control for socioeconomic characteristics as well as counterterrorism measures. Finally, since our data set contains information on all suicide terrorists during the period at issue, it does not suffer from any type of reporting bias or underreporting that is suspected to affect data on transnational terrorism (Drakos and Gofas 2006b).

Our general specification to analyze the relationship between economic and demographic conditions and the occurrence of suicide attacks focuses on three different proxies of terrorism: (1) the number of suicide attacks that originated in each quarter-district cell; (2) the number of casualties in suicide attacks that originated in each cell; and (3) an indicator that equals one if at least one suicide attack originated in district i in quarter t ,

and equals zero otherwise. The main specifications control for the same economic, demographic, and security variables as those specified in model (1).

Table 6, displaying the results of an estimation of the effects of economic conditions on the number of suicide terror attacks, uses a Poisson regression model because the dependent variable is a countable one that admits only nonnegative integers and is best described as a Poisson distribution. Each cell in the table presents the estimated coefficient of a separate regression between the variable of interest and the number of suicide attacks. The left panel of the table alternatively examines the correlations between the number of suicide attacks and the contemporaneous general unemployment rate, group-specific unemployment rate, or income inequality, whereas the right panel of the table examines the correlation between the number of suicide attacks and the prevailing economic and demographic conditions in the preceding quarter.

The first column in the table presents coefficients estimated using simple univariate regression models, each explaining the correlation between the number of suicide attacks and a different explanatory variable contemporary to the occurrence of attacks. The results suggest that current economic conditions are significantly correlated with the timing and district of origin of suicide attacks. Accordingly, unemployment is positively correlated with suicide attacks and income inequality is negatively correlated with attacks. The precision of the estimates declines after we add to each specification the demographic control variables detailed above (Column 2). The significant correlations completely disappear once we include year fixed effects in the analysis (Column 3). This implies that the statistically significant correlations observed in columns 1 and 2 are driven mainly by the similar fluctuations of these variables over time. The second panel of the table shows the correlations between the number of suicide attacks and the same control variables, with all controls lagged one quarter. The results shown in this panel lead us to the same conclusion, i.e., economic conditions do not appear to cause suicide attacks.²⁶

Summarizing, the findings in this section establish unambiguously that economic conditions have no consistent and statistically significant impact on the frequency of suicide terrorism. In addition, the

²⁵See Sandler and Enders (2008) for a comprehensive discussion of the related literature. Note also the recent contribution of Berman et al. (2009), who find a negative correlation between unemployment and attacks by insurgents in Iraq.

²⁶We performed a similar analysis using as dependent variables the number of casualties in suicide attacks that originated in each quarter-district cell and an indicator for the occurrence of a suicide attack that originated in each cell. The results of these analyses show a pattern similar to that in Table 6. Accordingly, some columns suggest a link between suicide terrorism and economic conditions. Once year fixed effects are included in the analysis, however, this link completely disappears or even changes sign.

TABLE 6 The Effect of Economic Conditions on the Number of Suicide Attacks

	Correlation of Number of Suicide Attacks with Current Conditions			Correlation of Number of Suicide Attacks with Conditions in Previous Quarter		
	Simple	Including	Including Year	Simple	Including	Including Year
	Correlation	Additional	Fixed Effects	Correlation	Additional	Fixed Effects
	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment Rate	13.222*** [2.393]	7.230*** [2.930]	2.808 [3.076]	6.691*** [2.589]	2.104 [3.032]	-1.843 [3.351]
Group Specific	4.727***	2.549	1.118	-0.610	-2.689	-3.033
Unemployment Rate	[1.495]	[1.814]	[1.909]	[1.596]	[1.933]	[2.126]
Income Inequality	-3.622*** [0.607]	-1.646* [0.891]	0.037 [1.057]	-2.024*** [0.595]	-0.169 [0.884]	1.243 [1.083]
Observations	448	392	392	432	378	378

Notes: Each cell reports the estimated coefficients of a separate Poisson panel regression model in which the dependent variable is the number of suicide attacks in each district for every quarter. The regressions in Columns 1 and 4 have as their only explanatory variable the variable listed in the left.

Regressions in Columns 2 and 5 add each district average years of education, population size over the age of 15, proportion of males, married, population working in Israel, proportion living in a refugee camp, number of Palestinian fatalities, whether the district is in the West Bank and district fixed effects as explanatory variables.

Regressions in Columns 3 and 6 add year fixed effects to the regressions in Columns 2 and 5. Standard errors are in parentheses. *, **, *** denote statistical significance at the 10, 5, and 1% level, respectively.

analysis demonstrates that inappropriate specifications (resulting mainly from limited data sets) may yield spurious correlations.

Conclusions

This article provided a systematic analysis of the link between economic conditions, the quality of suicide terrorists, the characteristics of their targets, and the outcomes of their attacks. We uncovered a strong correlation between economic conditions and the characteristics of suicide terrorists and targets they attack. In particular, we demonstrated that high unemployment and poor economic conditions allow terror organizations to recruit more educated, mature, and experienced suicide terrorists who, in turn, attack more important targets. We also show that poor economic conditions do not drive the quality of terror equally among different organizations, instead affecting groups that provide excludable public goods by increasing their ability to commit terror attacks during difficult economic times.

Our article focused on suicide terrorism and the Israeli-Palestinian conflict for a variety of reasons. Notably, by focusing on a particular case study, we were able to build an exceptionally rich longitudinal data set that allowed us to identify the causal connection between economic conditions and the quality of terrorism. We controlled for Israeli coun-

terterrorism measures and regional fixed effects and observed the effect of past economic, demographic, and security conditions on the current quality of suicide terrorism. In addition, by focusing on suicide terrorists we were able to observe the demographic characteristics of the universe of terrorists.²⁷ All these features are crucial to overcome concerns about selection bias and reverse causality, whereby successful terror attacks prompt Israeli retaliation and the ensuing worsening of economic conditions. We are aware that our focus on a particular conflict and form of terrorism raises concerns regarding the external validity of the results, and we hope that future research focusing on other conflicts and types of terrorism will shed more light on the connection between economic conditions and the quality of terrorism. The particularities of this conflict notwithstanding, we believe that the connection between economic conditions and the quality of suicide terrorism applies more generally to other conflicts and forms of terrorism.²⁸ Hence, the policy implications mentioned in the introduction should be taken into consideration in other conflicts as well.

²⁷These characteristics are not available for the universe of individuals committing a terror attack. In particular, the identities of successful terrorists, not caught by ISA, are not known.

²⁸Our results on the lack of a robust correlation between economic conditions and the quantity of terrorism, for instance, correspond to those obtained by most related studies using a cross-section of countries.

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TABLE A1 Economic and Demographic Characteristics of Districts (Quarterly Averages)

	Mean	Standard Deviation	Median	Minimum	Maximum
Unemployment Rate	0.591	0.049	0.589	0.419	0.728
Group Specific Unemployment Rate	0.370	0.078	0.368	0.157	0.654
Income Inequality	1.099	0.208	1.080	0.596	1.679
Years of Schooling	9.203	0.513	9.234	7.431	10.346
Refugee Camp	0.170	0.178	0.112	0	0.696
West Bank	0.688	0.464	1	0	1
Age	33.633	0.968	33.660	31.133	35.804
Male	0.502	0.013	0.502	0.460	0.539
Married	0.572	0.031	0.573	0.496	0.659
Population Size (over 15 years old, hundreds)	1,388	606	1,446	200	3,081

Notes: Entries in the table represent districts-quarters statistics of the respective variable. The number of observations equals 448 for all variables. Data source: Palestinian Labor Force Survey of the West Bank and Gaza Strip between the years 2000 to 2006.

TABLE A2 Israeli Security Measures and Districts' Level of Violence

	Mean	Standard Deviation	Median	Minimum	Maximum
Suicide Terrorists	0.348	0.914	0	0	8
Israeli Casualties from Suicide Terror Attacks	10.248	37.214	0	0	362
Palestinian Fatalities	8.732	14.210	4	0	121
Days with Curfew	3.889	12.413	0	0	89

Notes: Entries in the table represent districts-quarters statistics of the respective variable. There are 304 observations for days with curfew and 448 observations for all the other variables. The data on the number of Palestinian fatalities was obtained from B'tselem. The data cover the years 2000 to 2006. The data on days with curfew was obtained from the U.N. office for the coordination of humanitarian affairs. The information for this variable is available only from May 2002 to December 2006. The data on the number of suicide terrorists and Israeli casualties from suicide terror attacks was obtained from reports of the Israeli Security Agency. These data cover the years 2000 to 2006.

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