

Does Democracy Matter?

Regime Type and Suicide Terrorism

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This article conducts quantitative tests on the relationship between regime type and suicide terrorism for 1980 to 2003. We present the recently popularized argument that democracies are more likely to experience suicide terrorism and a new hypothesis that mixed regimes are especially likely to experience suicide terrorism. We offer several improvements in research design, including using more controls, the nation-year as the unit of analysis, and more appropriate statistical techniques. Using both Freedom House and Polity data, we find that in general, regime type is uncorrelated with suicide terrorism. We do find that there is a statistically significant interaction between regime type and the number of religiously distinct minorities at risk (MARs) with suicide terrorism, but the statistical significance of this finding is limited, and its substantive impact is marginal. We also find that national size, Islam, national experience with suicide terrorism, and global experience with suicide terrorism affect the likelihood of suicide terrorism.

Keywords: *terrorism; suicide terrorism; democracy; democratic peace; violence; conflict*

Suicide terrorism is a grave and global threat. Scholars are beginning to develop frameworks for understanding the sources of suicide terrorism and terrorism more generally (on suicidal behavior in combat, see Reiter forthcoming). Robert Pape (2003, 2005) developed one provocative, widely discussed hypothesis, proposing that suicide terrorists are especially likely to attack democracies. He proposed that they do so primarily out of nationalist rather than religious motivations and that they target democracies because they perceive democracies to be especially sensitive to suffering casualties. Pape conducted empirical tests, examining the sources of suicide terrorism during the 1980 to 2003 time period, finding that suicide terrorists almost exclusively attack democracies that are perceived to be occupiers.

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This article offers more sophisticated empirical tests of the hypothesized relationships between regime type and suicide terrorism, with particular focus on Pape's work. It provides a number of contributions over past suicide terrorism scholarship. First, it expands Pape's theory, developing and testing the new hypothesis that mixed regimes (partly free states) may be significantly more likely than democracies (free states) or autocracies (not free states) to experience suicide terrorism. Second, it employs a more comprehensive data set of suicide terrorist attacks over this same period, 1980-2003. Third, the empirical sample suffers less selection bias, since it includes all states for all years over this period. Relatedly, it allows more precise measurement of variables by using the country-year rather than the suicide terror campaign as the unit of analysis. Fourth, it differentiates between two dependent variables, one which explores the factors that make it more likely that a state will be the location of a suicide terrorist attack and another which explores the factors that make it more likely that a state or its interests will be the target of a suicide terrorist attack. Fifth, it includes an array of important control variables, including level of economic development, Islam, the size of the country, past experience with suicide terrorism, and political instability. It also employs a number of different measures of regime type. Sixth, it employs more sophisticated and advanced econometric techniques, including negative binomial and rare events logit.

Our results establish important empirical limits to Pape's propositions. We test the hypotheses that regime type in general affects suicide terrorism and that there is an interactive effect between regime type and perceived occupation on suicide terrorism. We find that regime type generally has no statistically significant effect on the occurrence of suicide terrorism for states that do not have religiously distinct minorities at risk (MARs), our proxy for perceived occupation. We do find an interaction of limited statistical significance between regime type and the number of religiously distinct MARs within a country. Specifically, for states that are fully democratic (free) or have some democratic aspects (partly free), the more religiously distinct MAR groups they possess, the more suicide terrorism they experience. For autocratic (not free) states, there is no relationship between the number of religiously distinct MARs and suicide terrorism. However, this interaction is substantively small in comparison to larger magnitude effects of control variables such as the size of a country, whether it is a majority Muslim state, and its past experience with terrorism. These results emerge using both Freedom House and Polity data on regime type. We also found that the effects of economic development and regime durability were mixed and that past suicide terrorist attacks globally made suicide terrorism more likely.

The remainder of this article proceeds in five parts. In the first section, we summarize the theory on the sources of suicide terrorism, with a focus on Pape's proposition that suicide terrorists target democratic occupiers. In the second section, we summarize Pape's research design and empirical results. In the third section, we discuss our improvements on Pape's research design. In the fourth section, we present our empirical findings. In the fifth section, we conclude and offer directions for future research.

Theories of Suicide Terrorism

Definitions of terrorism vary widely (see Bloom 2005, 3). For our purposes, “terrorism involves the use of violence by an organization other than a national government to intimidate a target audience . . . a suicide terrorist . . . does not expect to survive the mission and often employs a method of attack . . . that requires his or her death in order to succeed” (Pape 2005, 9-10). Understanding the sources of terrorism is of great policy interest because of the grave threat suicide terrorism poses to international stability and security and of great scholarly interest because terrorism is a theoretically distinct and intriguing category of political behavior and conflict. The surface irrationality of suicide terrorism makes it in turn an important and interesting component of terrorism as a broader category of behavior (for background on suicide terrorism, see Pape 2005; Bloom 2005; Pedazhur 2005). The use of terrorist tactics is best understood as a rational and arguably effective but highly costly strategy of a relatively weak group in an asymmetric conflict with high stakes (Crenshaw 1981; Wilkinson 2001). Because suicide tactics can make terrorist attacks more destructive and more likely to succeed (because suicide attackers need not plan for postattack escape, anonymity, or concealment) and because by definition, suicide attacks require much greater self-sacrifice by the terrorist than nonsuicide attacks, the determinants of suicide terrorism may differ from the determinants of terrorism more generally.¹ Scholars have also begun to analyze the causes of other tactical subsets of terrorism, such as assassination (Iqbal and Zorn 2006).

Theories of terrorism in general and suicide terrorism in particular abound. In this article, we focus on one particular area, the effect of regime type on suicide terrorism. Scholars have laid out an array of different ideas about how regime type affects terrorism, most of which fall into either the “political access school” or the “strategic school,” although neither is specific to suicide terrorism. Joseph Eyerman (1998) and Quan Li (2005) describe the divergent predictions of these two schools. The first argues that the availability of greater political representation in democracies provides alternative means of political action to terrorism. The second perspective posits a number of specific reasons why democracies should be more prone to terrorism, including that the free press in democracies attracts publicity-hungry terrorists (see Nacos 2002), that the emphasis on personal liberties and freedom of expression and organization lowers the cost of conducting terrorism (Engene 2004, 34), and that the protection of civil liberties in democracies constrains counterterrorism measures (Wilkinson 2001). Most of the hypothesized linkages in the second school can be conceptualized as permissive or enabling preconditions for terrorism rather than as immediate precipitants of the event (Crenshaw 1981). Studies testing the above propositions have produced a wide array of empirical findings (for a review, see Li 2005; see also Drakos and Gofas 2006b).

We focus here on Pape’s (2005) theory as to why democracies are more likely to be targeted by suicide terrorists (for critiques of Pape, see Bloom 2005, esp. 83-85;

Moghadam 2006; Asal 2006). Pape (2005, 44-45) makes three arguments why democracies ought to be especially likely to experience suicide terrorism, either as the target or the location of attacks. Pape notes that “nearly all suicide terrorist attacks have . . . a specific secular and strategic goal: to compel democracies to withdraw military forces from territory that the terrorists consider to be their homeland” (p. 4). Terrorist groups attack democracies because they are perceived to be “especially vulnerable to coercive punishment” (p. 44). In other words, democratic publics are unlikely to tolerate the costs imposed by suicide terrorist attacks and are likely to push for changes in state policy that will lessen the likelihood of future attacks. Second, nationalist groups that utilize suicide tactics must have a reasonable degree of confidence that the state that they are targeting will be “somewhat restrained” in its response, and terrorists may believe that democracies will exercise this restraint when contemplating retaliation (Pape 2005, 44; see also Wilkinson 2001). Third, “attacks may be harder to organize or publicize in authoritarian states,” because such states have greater monitoring of groups and individuals, greater restraints on movement, and greater restrictions on the media (Pape 2005, 45). In other words, it is relatively less costly and more beneficial to conduct terrorist activity in democratic than authoritarian states (Eyerman 1998).

Pape (2005, esp. 4) asserts that suicide terrorism is not the product of irrationality or other-worldly fundamentalism but rather an essentially strategic act. He argues that democracies are especially likely to experience suicide terrorism if they are perceived to be occupiers, meaning that suicide terrorism should be understood as a strategic response to perceived occupation by a democracy rather than as the product of any ideology or religion. He does, however, argue that a religious difference between the “occupier” and the “occupied” increases the likelihood of a suicide terrorist campaign. He argues that religious difference makes the conflict zero-sum and allows for the demonization of the opponent. Both of these dynamics serve to encourage suicide terrorism (Pape 2005, 89-90). Pape also proposes that rebellion is an important factor in encouraging suicide terrorism, but rebellion appears to be an intervening variable between deeper causal forces such as nationalism, occupation, and religious difference and the dependent variable of suicide terrorism (e.g., see diagram in Pape 2005, 96).

Pape’s theory generates these hypotheses:

Hypothesis 1a: Democracies are more likely to be the targets of suicide terrorism than are other states.

Hypothesis 1b: Democracies are more likely to be the locations of suicide terrorism than are other states.

Hypothesis 2a: Democracies are especially likely to be the targets of suicide terrorism if they are perceived as occupiers, and if there are religious differences between the democracy and the group that perceives occupation.

Hypothesis 2b: Democracies are especially likely to be the locations of suicide terrorism if they are perceived as occupiers, and if there are religious differences between the democracy and the group that perceives occupation.

There may be other, more subtle relationships between regime type and suicide terrorism, however. The theoretical and empirical literature on internal and interstate conflict has long recognized that to truly understand the relationship between regime type and conflict, it may be necessary to abandon a simple, linear conception of regime. Many scholars have employed some version of a three-category taxonomy of regimes: highly democratic, highly autocratic, and mixed, that is, states that have both democratic and autocratic aspects (these states are sometimes called “anocracies”). Scholars have found nonmonotonic relationships between regime type and internal conflict, since mixed regimes may be more likely to experience civil war (Hegre et al. 2001) and to inflict genocide on their populations (Harff 2003).

The theoretical work on internal conflict may be particularly instructive here. It posits that there is an inverted U-shaped relationship between regime type and internal violence, such that democratic and authoritarian regimes experience less internal violence than mixed or anocratic regimes, which contain some democratic and some authoritarian elements. Democratic states are sufficiently open such that citizens feel they can pursue peaceful means of political change and expression and eschew violence. Highly authoritarian states inspire resentment from the population, but these states have enough tools of repression available to undercut violence before it happens, most particularly through preventing the formation of antiregime groups. Mixed regimes, on the other hand, inflict enough repression to incite citizen anger, are not sufficiently open to permit citizens enough outlets for political expression and participation, and are not sufficiently repressive to be able to crack down with complete effectiveness on potentially violent groups and individuals.

The U-shape theory generates its own hypotheses:

Hypothesis 3a: Mixed regimes are more likely to be the targets of suicide terrorist attacks.

Hypothesis 3b: Mixed regimes are more likely to be the locations of suicide terrorist attacks.

Hypothesis 4a: Mixed regimes are especially likely to be the targets of suicide terrorism if they are perceived as occupiers, and if there are religious differences between the mixed regime and the group that perceives occupation.

Hypothesis 4b: Mixed regimes are especially likely to be the locations of suicide terrorism if they are perceived as occupiers, and if there are religious differences between the mixed regime and the group that perceives occupation.

Existing Empirical Suicide Terrorism Research

Systematic empirical research on the causes of suicide terrorism has only recently become prevalent (e.g., see Asal 2006; Berman and Laitin 2005; Hafez 2006; Moghadam 2006; Horowitz 2006). Pape’s work most directly speaks to our question of interest, the relationship between regime type and suicide terrorism, so we focus on it here. He presented some initial results in a 2003 *American Political Science Review*

article and more extensive analysis in his 2005 book, *Dying to Win*. The analysis here focuses on the book, since it builds on the article.

Pape compiled a list of 315 suicide terrorism attacks around the world from 1980 to 2003. He conducted two empirical analyses of this data set. He first notes (Pape 2005) that “the target of every modern suicide campaign has been a democracy” (p. 45). These targets include the United States, France, Israel, India, Sri Lanka, Turkey, and Russia. His next battery of tests explored the relationships between occupation, religious difference, nationalism, and suicide terrorism. Pape (2005, 265-7) created a data set listing foreign, democratic occupations from 1980 to 2003. A democratic occupation is defined as when “a democratic state controlled the homeland of a distinct national community (other than the majority of the democratic state)” (p. 97). He also collected data on the years during this time period in which violence occurred. Pape did not collect data for when each occupation started and ended during this time period but instead used the years of violence as a proxy for the perceived occupation.² Most (fifty-six of fifty-eight) of Pape’s democratic occupations are examples of a minority group being oppressed by its national government. The other two occupations are foreign military interventions.

Pape’s two independent variables are the presence of a rebellion and religious difference between the occupier and the occupied. His dependent variable is a suicide terrorism campaign, which occurs nine times in the fifty-eight democratic occupations. His hypothesis is that suicide terrorism within democratic occupations is most likely when there is both a rebellion and a religious difference between the occupier and occupied. He notes that seven of the nine suicide terrorism campaigns occur when there is both religious difference and rebellion (p. 99). He also conducted a logit regression (although results are not formally reported) and finds a statistically significant relationship between an interaction variable of religious difference and rebellion and the occurrence of suicide terrorism (p. 294n). Seven suicide terrorism campaigns are explained by the interaction of rebellion and religious difference, while in seven other instances in which there were religious differences and rebellion, no suicide terrorism campaigns occurred. The two positive cases of suicide terrorism campaigns that are not predicted by the interaction of the independent variables are the Kurdistan Workers Party (PKK) in Turkey and al-Qaeda. Note that the findings demonstrate that rebellion and religious difference among democratic occupations are neither necessary nor sufficient causes of suicide terror campaigns.

Berman and Laitin (2005) provide a more rigorous test of the determinants of suicide terrorism. They examined the causes of suicide terrorist attacks for all states from 1945 to 1999. Their dependent variable is whether a country produced a suicide terrorist attack in a given year; that is, they code the nationality of the terrorists’ organization rather than the country in which the attack took place or the target of the attack. Their results indicate that neither gross domestic product (GDP)/capita nor mountainous terrain is significantly correlated with suicide attacks.³

Asal (2006) explored the societal preconditions for ethnic suicide attack campaigns. In contrast to Pape, he argued that there are no deterministic societal causes for suicide campaigns. Instead, he found that while nationalism and occupation do increase the likelihood of suicide attack campaigns, democracy has no significant effects, although like Pape, Asal found that ongoing rebellion has a significant impact. He also found that ongoing governmental discrimination, a factor dismissed by others, increases the likelihood of suicide attack campaigns (e.g., see Hoffman and McCormick 2004).⁴

A New Research Design

Many of the components of Pape's research design deserve closer scrutiny. A first issue is the suicide terrorism data set itself. Pape's data set of 315 events is drawn from his Chicago Project on Suicide Terrorism, which utilizes both international and local media sources and open source information distributed by the governments and terrorist groups involved in a particular incident. To be included in the data set, information on an attack must be available from multiple sources.⁵ The data set provides the date, weapon (e.g., belt bomb), target (e.g., naval vessel, Jaffna), and number killed. Pape divides the universe of attacks into discrete campaigns (e.g., Liberation Tigers of Tamil Eelam vs. Sri Lanka), thus indicating both the group that perpetrated the attack and the country whose interests were targeted by the attack. There is no clear coding rule indicating how attacks are classified as part of a campaign. For the majority of attacks, the larger campaign to which it belongs is straightforward. However, for some more recent attacks, the coding seems to follow from the hypotheses, rather than the other way around. For example, while al-Qaeda attacks on the U.S. embassies on foreign soil and on the World Trade Center obviously targeted American interests, it is less obvious why al-Qaeda attacks on a Tunisian synagogue in 2002 or on an upscale complex housing Arabs in Riyadh in 2003 should be considered attacks against America, as Pape has coded them.

For this article, we constructed a data set of 443 attacks from 1980 to 2003 that combines the Pape data set and Ami Pedahzur's (2005) data set of 604 suicide terrorist events from 1980 to June 2005.⁶ Our broader data set provides a more comprehensive record of all suicide terrorist attacks across this period than is available with Pape's data set alone. Because the two authors include slightly different aspects of suicide terror attacks, combining the two data sets increases our knowledge about each incident. This enables us to code both the location of the attack and the country whose interests were targeted by the attack for most episodes.

We first provide some descriptive analysis of our data. Table 1 breaks down the attacks by regime type, analyzing both state as target and state as location of attack and providing data on frequency and on deaths.

Table 1
Suicide Terrorist Incidents by Regime Type, 1980-2003

Regime Type of Targeted State	Number of Attacks	Average Number Killed per Attack	Regime Type of Location State	Number of Attacks	Average Number Killed per Attack
Not free	10	17.15	Not free	65	12.84
Partly free	130	12.32	Partly free	204	15.89
Free	241	20.49	Free	174	22.3
Unknown	62	20.08	Unknown	n/a	n/a
Total	443	17.96	Total	443	17.96

Note: The specific target of each attack (based on the Pape [2005] and Pedahzur [2005] data) was used to determine which state was targeted by the attack. We conservatively chose not to assume that a particular group always targeted a particular state or that the location of the attack was indicative of the target of the attack. Therefore, the targeted state remains unknown for any attack in which the tactical target is not reported by either Pape or Pedahzur.

Pape uses the occupation as his unit of analysis. So, a single case for him is the Basques in Spain from 1980 to 2003, and the dependent variable is whether there were any suicide terrorist attacks against the occupier during this period. One problem with this approach is that the independent and dependent variables likely vary over time within a single state, and using a single occupation as unit of analysis misses this variance.

We instead use the country-year as unit of analysis for all states from 1980 to 2003. Using the country-year rather than the terrorist campaign as the unit of analysis allows for the independent and dependent variables to vary over time, and the inclusion of all country-years rather than just, for example, democratic occupations, reduces possible selection bias. We employ two dependent variables. The first is a count of the number of suicide terrorist attacks that occur against a country or its interests during a particular year. Across our 3,633 nation-years, there were no suicide terrorist attacks in about 98 percent of the cases (3,558). Among the other 2 percent, the count of suicide attacks in a country-year ranges from one to thirty-six. Our second dependent variable measures attacks that take place within a particular country during a particular year. The distribution for this second variable is basically similar. These two variables have a correlation of .83.

We test hypotheses about factors that may make a suicide terrorist attack in a country more likely in a given year. An alternative approach would be to test why countries experience suicide terrorist attacks in comparison to nonsuicide terrorist attacks or no attacks. Doing so would require employing a data set of all terrorist events and then coding some subset of them as suicide attacks. Unfortunately, no existing data set of all terrorist events lends itself to this application for our time period. The Institute for Counter-Terrorism (ICT) database⁷ only goes back to 1986 (and we wish to go back

to 1980 to replicate the scope of Pape's analysis), and its coverage seems spotty since it codes the occurrence of only 107 suicide attacks. The Memorial Institute for the Prevention of Terrorism (MIPT) Terrorism Knowledge Base⁸ database's inclusion of domestic as well as international incidents begins only in 1998 and does not have the breadth of coverage of suicide attacks that Pape and Pedahzur do. The International Terrorism: Attributes of Terrorist Events data set (ITERATE; see Enders and Sandler 2006) includes only international terrorist events, while many suicide terrorist attacks are domestic (an internal group attacking its government).

All the hypotheses require a measure of regime type. Pape (2005) does not indicate the precise criteria for including a country as a democracy, although he (p. 205n) seems to view the Przeworski et al. (2000; see Cheibub and Gandhi 2004 for an update through 2002) data set, which codes states as either democratic or dictatorial, as definitive.⁹ There are a few odd codings. Specifically, several countries Pape labels as democratic occupiers were dictatorships for some portions of the time periods in question, including Nicaragua, Pakistan, Ghana, South Korea, Thailand, Bangladesh, Philippines, Guatemala, and Peru.

Our primary regime type measure is provided by Freedom House, which codes on an annual basis all states for this period as not free, partly free, or free. This three-category variable is built on two 0-7 point scales produced for each country, one of political rights and one of civil liberties. Each of these 7-point scales is in turn generated by answering ten political rights questions and fifteen civil liberties questions.¹⁰ Employing a measure that draws on a combination of political rights and civil liberties matches well with the theory, since the theory draws on a range of different aspects of regime type to make predictions about effects on suicide terrorism: casualty sensitivity gets at electoral institutions; terrorism as an antidote to political frustration gets at the openness of the political process; unfettered media as a possible magnet of terrorism gets at free press and speech; protections of individual liberties gets at whether domestic counterterrorism efforts can control internal movement and detain suspects without legal constraint. About a third of the country-year cases fall into each of the three categories.

As a second measure of regime type, we use the Polity data set. We used version 4 of the Polity data set,¹¹ which includes data up to 2003 (see Marshall and Jaggers 2002).¹² Polity has a variable called democracy, which can take values from 0-10 (higher scores indicating higher levels of democracy) and is a composite of three subcomponents: executive recruitment, constraints on the executive, and the competitiveness of participation. Christian Davenport and David Armstrong (2004) used the democracy score in their study of the determinants of human rights violations, searching for the salient cutpoint on the 0-10 scale in terms of effects on human rights violations. They found that states with a 1-7 score on the democracy scale did not have significantly lower levels of state repression than states scoring 0 but that states in the 8-10 range did have significantly lower levels. Following their lead, we create three categories with the 0-10 scale, in which states in the 0-2 range are coded

authoritarian (48 percent of the sample), states in the 3-7 range are coded as mixed (16 percent), and states in the 8-10 range are coded as democratic (33 percent). Notably, Davenport and Armstrong did not find evidence in favor of a U-shaped relationship between democracy and repression and provide no specific guidance as to what the cutpoint should be between authoritarian and mixed regimes.¹³

Hypotheses 2a, 2b, 4a, and 4b predict that perceived occupations make suicide terrorism more likely. Unfortunately, using Pape's occupations data is problematic. As noted, most of Pape's occupations (fifty-six of fifty-eight) are instances of a minority at risk within a democracy listed in the MAR data set. However, Pape did not code all MAR listed groups in all democracies as perceiving occupation. For example, MAR lists five groups within France for this period, although Pape includes only two as perceiving occupation, the Corsicans and Basques, omitting Bretons, Muslims, and Roma. It is not clear how Pape coded some groups as perceiving occupation and others not. The other two occupations of the fifty-eight total occupations are military interventions. However, there are other interventions during this period that are not coded by Pape as occupations. For example, he codes Israel, France, and the United States as occupiers of the Shia in Lebanon, following the 1982 Israeli invasion of Lebanon and the deployment of the Multilateral National Force (MNF) there later that year. However, Italy is not included, even though Italy sent as many troops as did the United States as part of the MNF, and its forces were in Lebanon for the same time period as the United States and France. Nor does he code the United States as a perceived occupier following its 1983 invasion of Grenada, its 1989 invasion of Panama, or its 1995 deployment of troops to Haiti. Neither NATO, the United States, nor the UN is coded as an occupier following the deployment of peacekeepers to the Balkans in the 1990s.

To measure perceived occupation, we created a dummy variable that counts the number of MARs within a single country during a particular year for those minorities that experience a significant differential in religions. A minority at risk is defined as an "ethnopolitical group (nonstate communal group) that collectively suffers or benefits from systematic discriminatory treatment vis-à-vis other groups in a society; and/or collectively mobilizes in defense or promotion of its self-defined interests" (Davenport 2003, 5). We only include those that score a 2 on the MAR different religion variable, which indicates significant differential.¹⁴ Across our 3,633 country-years, there are no religiously distinct MARs in 49 percent of the cases and one religiously distinct MAR in 29 percent of the cases; from there, the distribution tails off, ending with a maximum of twelve religiously distinct MARs. While this measure is an imperfect proxy for perceived occupation by a religiously different group, it closely approximates the concept that Pape intends to measure, and it follows Pape's own use of the MAR data. We do not use military intervention as a proxy for perceived occupation. Exploring the effects of intervention on suicide terrorism for this period would be difficult, since there is no systematic evidence on overt military intervention past 1996,¹⁵ and perhaps unnecessary for the replication of Pape's design,

since in practice, nearly all of Pape's fifty-eight examples of democratic occupation from 1980 to 2003 are instances of repressed minorities.

To capture all possible interactions between our three-category regime variable and our count variable of minority groups, we include five different terms: a partly free dummy, a not free dummy, a partly free times minorities interaction, a not free times minorities interaction, and a count of the total number of minorities (by "minorities," we always mean religiously distinct MARs).

We also include a number of control variables.¹⁶ Some have proposed that suicide terrorism is a primarily Muslim phenomenon, arguing that Islam serves as a precondition that makes the use of suicide terrorism more likely (Israeli 2002; Kushner 1996). Others, including Pape, argue that religious or cultural difference rather than Islam specifically increases the likelihood of suicide terrorism (Bloom 2005, Juergensmeyer 2003, Pape 2005, Asal 2006). There is also the possibility that if most suicide terrorist groups are Muslim, then attacks may be more likely to be located in Muslim states, because terrorist groups are more likely to find sympathizers who can facilitate activity, or that attacks may be launched by fundamentalist Muslims against nonfundamentalist Muslim governments. We include a variable indicating whether the targeted state or location state contains a majority Muslim population. This variable is coded 1 if more than 50 percent of the population is Muslim and 0 otherwise. Data come from Barrett (1982).

We next code a variable measuring the size of the country, following the supposition that larger states provide more targets and more areas against which to launch suicide terrorist attacks. We use Correlates of War (COW; Singer, Bremer, and Stuckey 1972) data, version 3.02,¹⁷ on population, taking the log of a state's total population.¹⁸ We also include a variable measuring economic development, since perhaps rich states present more inviting targets and locations (Krueger and Laitin 2003). Using GDP/capita is problematic, because of missing data problems and the difficulties of making comparisons to communist countries. We instead use logged energy consumption per capita, which has been shown to correlate with logged GDP/capita (Jackman 1973). We use COW data.

We also want to model more directly (that is, beyond using robust standard errors) the possibility of temporal autocorrelation within a single country. Following Li (2005), we develop a variable that is the annual average of the number of suicide terrorist attacks a country has experienced since 1980. To explore the possibility that there is a worldwide demonstration or contagion effect of suicide terrorism, that is that past suicide terrorist attacks make future attacks more likely, we also include a variable that counts the total number of previous suicide attacks worldwide since 1980 (see Horowitz 2006).

Following Li (2005), we include a measure of the durability of the regime. This is a Polity variable measuring the number of years since a regime change, where a regime change requires a change in a state's -10 to +10 Polity score by at least 3.

Last, Pape (2005, 99) includes nationalist rebellion in his tests, finding that within democratic occupations, suicide terrorism is much more likely when there is both

rebellion and religious difference between the occupier and the occupied. We do not include rebellion as an independent variable for two reasons. First, as noted, Pape himself views rebellion as an intervening variable between occupation, religious difference, and nationalism and suicide terrorism. Second, although Pape does not describe exactly how he measures the presence of rebellion, including rebellion as a right-hand-side variable, may introduce falsifiability problems, since a suicide terrorist campaign may itself be a rebellion.

Empirical Analysis

Our dependent variable is a count with a very high percentage of zeroes. We employ two statistical techniques. The first is negative binomial regression (with robust standard errors clustered on country), which is appropriate for a count-dependent variable but is perhaps ill-equipped to handle the large fraction of zeroes. The second is rare events logit. For this technique, we truncated the dependent variable to a dichotomous variable, coded 1 if any attacks occurred during the year in question within or directed at the country in question, and 0 otherwise. Rare events logit is well-equipped to handle dependent variables with lots of zeroes, although the necessary truncation of the dependent variable means that information is lost (King and Zeng 2001; Tomz, King, and Zeng 1999). We view each method as avoiding the weaknesses of the other and employ both to assess the robustness of our results. An alternative approach would be to use a zero-inflated negative binomial distribution (ZINB) model. However, a Vuong test revealed that ZINB is not preferable to a negative binomial, and the instability of ZINB estimation leads us to prefer negative binomial (see Greene 2003, 749-52).

Table 2 presents our results. We are interested principally in the effects of regime type and the interaction of regime type with the number of religiously distinct MARs. Again, we include five different terms to capture this array of effects across our three categories of regime type and the count of minorities: a partly free dummy, a not free dummy, an interaction of partly free times the minority group count, an interaction of not free times the minority group count, and the minority group count by itself. We also include an array of control variables.

Table 2 includes five models: model 1 uses the target dependent variable and rare events logit; model 2 uses the location dependent variable and rare events logit; model 3 uses the target dependent variable and negative binomial regression; model 4 uses the location dependent variable and negative binomial regression. The results in Table 2 are generally consistent across different specifications. The interpretation of the five related terms (partly free dummy, not free dummy, partly free times minorities, not free times minorities, and minorities) requires care. Across these models, most of these terms are not statistically significant at the .05 level, using one-tailed tests. The only variable that is consistently significant is the not free times minorities interaction term, although its negative sign is opposite to the predicted direction. If we conduct

Table 2
Causes of Suicide Terrorism, 1980-2003

Method	Model 1	Model 2	Model 3	Model 4	Model 5
	Rare Events Logit	Rare Events Logit	Negative Binomial	Negative Binomial	Rare Events Logit
Dependent variable	Target	Location	Target	Location	Target
Partly free (dummy)	1.00 (.666)	.671 (.477)	2.04** (.762)	.445 (.648)	—
Not free (dummy)	.516 (.617)	.640 (.446)	1.13 (.825)	.226 (.595)	-.186 (.450)
Energy/capita	.296* (.130)	.185* (.102)	.213 (.160)	.150 (.112)	.248* (.134)
Population	.618*** (.153)	.517*** (.121)	.574*** (.177)	.401** (.136)	.618*** (.159)
Islam	1.08** (.370)	1.08*** (.284)	.931 (.485)	1.29*** (.372)	1.38*** (.382)
Past attacks, within country	2.96*** (.818)	2.42*** (.537)	2.60*** (.764)	3.69*** (1.19)	3.01*** (.976)
Past attacks, global count	.00483*** (.00156)	.00567*** (.00103)	.00347* (.00172)	.00502*** (.00128)	.00462** (.00153)
Partly free x minorities	-.0404 (.119)	-.134 (.105)	-.118 (.0815)	-.173 (.282)	—
Not free x minorities	-.270• (.147)	-.488• (.206)	-.550• (.178)	-.610• (.355)	-.247• (.115)
Minorities	.167 (.109)	.268*** (.0885)	.280*** (.0861)	.368 (.297)	.153** (.0645)
Regime durability	.00873• (.00504)	.00181 (.00436)	.0134• (.00629)	.00450 (.004823)	.00596 (.00384)
Constant	-12.5*** (1.71)	-10.9*** (1.42)	-12.5*** (2.06)	-9.62*** (1.64)	-12.0*** (1.78)
ln alpha	—	—	1.36 (.359)	2.15 (.182)	—
n	3,607	3,607	3,607	3,607	3,607
Log pseudo-likelihood	—	—	-346.8831	-435.12828	—

Notes: Negative binomial regressions employ robust standard errors, clustered on country. *sig at .05 level; **sig at .01 level; ***sig at .001 level; •sig at .05 level but not in predicted direction. All significance tests except for the Islam variable are one-tailed.

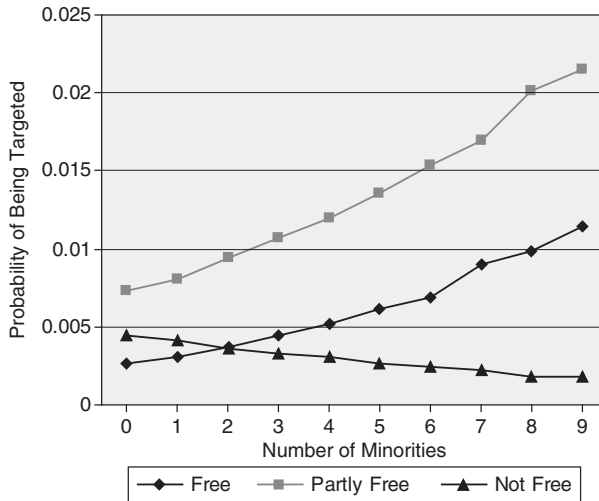
joint tests of statistical significance, the set of variables is statistically significant at the .05 level in models 1, 2, and 3 but not in model 4. Among the control variables, we found that population, past national history of suicide terrorism, and past global suicide terrorist attacks are positively correlated with being targeted by suicide terrorists and the location of attacks. We also found that Muslim states were significantly more likely to be targeted in one of the two models and more likely to be the location of attacks in both

models (using two-tailed tests of significance for this variable). Although Pape does not discuss it, some have speculated that there may be an important interaction between Islam and democracy, since democratizing Muslim states may make them less prone to terrorism. We explored this possibility by including a regime type interaction, coded 1 if a state was either free or partly free and Muslim and 0 otherwise (there are very few Muslim free states, and the rest of our empirical analysis suggests combining partly free and free states). We found (results not shown) the interaction not significant when used with the location dependent variable, but with the target dependent variable, it was significant, negatively signed, and smaller in absolute magnitude than the Islam variable. Hence, for the target dependent variable, all Muslim states are more likely to be targeted by suicide terrorists, although this effect is larger for not free states than for free or partly free states. This effect suggests that democracy may be a partial palliative for suicide terrorism among Muslim states, a finding that stands in contrast to Pape's results. Beyond Islam, the effects of development were mixed, and regime durability had no statistically significant effects in the predicted direction.

We present the aggregate substantive effects of regime type and minorities in Figure 1, which uses the estimates from model 1. This figure should be judged with great caution, given the very limited statistical significance of the five regime type/minorities variables. The y-axis is the estimated probability of a country in a particular year being targeted by suicide terrorists. The x-axis is a count of the number of religiously distinct MARs, ranging from 0 to 9. There are three lines, one for the estimated effects on not free regimes, one for the estimated effects on partly free regimes, and one for the estimated effects on free regimes. Two patterns are salient. First, partly free regimes experience more suicide terrorism than free or not free regimes, regardless of the number of minorities. However, the coefficient on the partly free dummy is statistically insignificant and remains so even if the not free and partly free times minorities variables are dropped. The variable is statistically significant only for model 3, providing strong evidence against hypothesis 3b (mixed regimes are the location of attacks), and only mixed evidence favoring hypothesis 3a (mixed regimes are the targets of attacks). The results generally provide evidence against hypotheses 1a and 1b (democracies are the target and location of attacks). These results are stable if we collapse free and partly free states into a single category by dropping the partly free and partly free times minorities interaction variables (displayed in model 5 of Table 2).

The results provide perhaps more supportive evidence for a version of hypotheses 2a and 2b (democratic occupiers are the target and location of attacks). Across all four models, as free and partly free states accrue more MARs, they become more likely to suffer suicide attacks than not free states. This is a bit different from the thrust of Pape's argument, since in the explanation of the argument, he focuses on democracies as being more prone to terrorism, although he does code some partly free states as free (e.g., 1990s Russia). How substantively significant is this effect? If a free or partly free state moves from one minority group (about the mean) to four

Figure 1
Effects of Regime Type and Minorities on Being Targeted by Suicide Terrorists, 1980-2003, Freedom House Data, Using Model 1 of Table 1



Note: On the x-axis, values range from 0 to 9.

Source: Freedom House

minority groups (almost two standard deviations above the mean), the increase in its predicted likelihood of terrorism goes up about .25 percent, from .35 percent to .59 percent for a free state. By contrast, if a state goes from being non-Muslim to being Muslim, its likelihood of experiencing a suicide terrorist attack increases from .37 percent to 10.7 percent. Size also has a much bigger effect, since moving from the mean to two standard deviations above the mean increases the likelihood of suicide attack from .46 percent to 2.98 percent (mean = 9.11; size = 1.52). The effects of past global terrorism are also larger, since moving from the mean to two standard deviations above the mean increases the likelihood of suicide terrorism from .47 percent to 1.2 percent (mean = 92, s.d. = 98).

Our Freedom House three-category scale of not free/partly free/free is constructed from two 7-point scaled subcomponents: political rights and civil liberties. These two scores are closely correlated (.93). As a robustness test, we reran the analysis using two separate models to focus on just the subcomponents (we did not include them together in the same model because of their high correlation). For each, a state scoring 6-7 on the 1-7 scale was coded as not free, 3-5 was coded as partly free, and 1-2 as free (on the subcomponents, repressive states earn higher scores). For the political rights subcomponent, the results were generally similar, except that

in three of the four models (negative binomial/location being the exception), the partly free variable was positive and significant, offering support to hypotheses 3a and 3b. The results for the civil liberties variable were more unstable. In three of the four models, neither interaction term was significant, and for both models with the location dependent variable, both the partly free and not free dummy variables were positive and significant, although tests revealed that in both cases, the magnitudes of the coefficients were statistically indistinguishable. This latter finding is the opposite of that predicted by hypothesis 1a.

Models 1 through 5 employ Freedom House data for regime type. To test the robustness of the results, we reran the analysis with Polity data, using the same models as in Table 2 but exchanging the Polity authoritarian/mixed/democracy categories derived from the 0-10 democracy variable for the Freedom House not free/partly free/free categories. The results (not shown) are very close to those in Table 2, the only difference being that with the rare events logit/location model, the mixed times minorities interaction is also significant. This confirms the robustness of our results.¹⁹

Conclusions

We found very limited support for the hypothesis that democracies are more likely to be the victims of suicide terrorism. Using a research design that offers several important improvements over past scholarship, we found that there is no relationship between regime type and suicide terrorism for states without religiously distinct MARs. We did find an interactive relationship with some statistical significance, that as free and partly free states (or democracies and mixed regimes) acquire more religiously distinct MARs, those states became more likely to be the target and location of suicide terrorist attacks. However, this relationship was substantively quite modest when compared to the substantively much larger effects of control variables such as size, Islam, and past global experience with suicide terrorism. If recent research speculating that terrorist events tend to be underreported in nondemocracies because of greater press restrictions there is correct (Drakos and Gofas 2006a), then this boosts our confidence in our results, since this media bias would tend to skew the analysis toward finding that democracies experience more suicide terrorist events than other states.

This analysis reveals that our knowledge of the causes of suicide terrorism remains limited. The striking hypothesis that democracies are especially likely to attract suicide terrorism found little empirical support. The mixed results on the relationship between economic development and suicide terrorism leaves open the question of whether solving global poverty will alleviate terrorism. The finding that larger states experience more suicide terrorism is not terribly surprising, although the finding that Muslim states experience significantly more suicide terrorism casts doubt on the simple cut that the current wave of suicide terrorism is simply a tool used by Islam against the West.

Regarding broader international relations debates, the findings offer two caveats to conventional wisdom. First, they shed light on the debate over whether actors seek to exploit democratic casualty sensitivity. Although the evidence that democracies are casualty sensitive is relatively strong, the evidence that actors attempt to exploit democratic casualty sensitivity is more mixed, regarding, for example, the question of whether democracies are more likely than other states to be targeted by other states by threats or the use of force (see Reiter and Stam 2002, 2003). Our finding that democracies are generally not especially likely to be targeted by suicide terrorists is consistent with the null claim that alleged casualty sensitivity does not make democracies more likely to be attacked than other states. Second, our evidence casts doubt on the general inverted U proposition about the relationship between regime type and internal violence. We found that mixed regimes as a category of states are not more likely than all other states to experience suicide terrorism, regardless of the number of MARs.

One remaining question is the relationship between suicide and nonsuicide terrorism. Future research should endeavor to build a single data set of terrorist attacks and then code in which of these attacks the terrorists used suicide tactics. This would help shed light on the choice terrorist groups make between suicide and nonsuicide tactics.

Notes

1. Not all agree that suicide terrorism is a significantly distinct subset of terrorism. See, for example, Moghadam (2006).

2. Personal communication with Robert Pape, March 7, 2006.

3. Although their data set goes back to 1945, their data on suicide terrorist attacks go back only to 1988. Other than gross domestic product (GDP)/capita and terrain, their only other variable is a time variable coding the year. They appear to use logit.

4. There are some important differences between our research design and Asal's research design. First, his temporal range goes back to 1990, and ours goes back to 1980. Second, his population includes only MARs. We include all states and include MARs in our independent variables, thereby reducing possible selection bias. Third, we use Freedom House and Polity data, and he uses only Polity data. Fourth, we use a wider array of control variables than he does, including country size, past terrorism, political instability, and development. Fifth, he does not conduct analysis that allows the dependent variable to be a count of the number of suicide terrorist events in a single year, as we do. Sixth, he does not explore the interaction effects between religious distinction and suicide terrorism, as we do. Seventh, he does not explore for possible curvilinear effects between regime type and suicide terrorism, as we do.

5. Comments made by Robert Pape at "Dying to Kill, Dying to Win: Understanding Suicide Terrorism" Symposium, Emory University, March 7 and 8, 2006.

6. Pedahzur (2005, 253) drew on a number of media sources as well as the Institute for Counter-Terrorism (ICT) database, the Memorial Institute for the Prevention of Terrorism (MIPT) Terrorism Knowledge Base, and the U.S. State Department. The combined data set that we analyze contains 129 more incidents than were included in the Pape data set. The number of events ($n = 443$) in the combined data set is less than the total number of events in the Pedahzur data set ($n = 604$), because the Pedahzur data extend past 2003 to June 2005, while we maintain Pape's temporal focus of 1980 to 2003. Drakos and Gofas (2006a) express concern that regime type may be systematically related to the underreporting

of terrorist events. We speculate that our data set suffers from less underreporting than is experienced in some other data sets, because suicide terrorist attacks are often more spectacular and difficult to conceal, even in an autocratic regime. Also, if suicide terrorism is systematically overreported in democracies, then this would bias the analysis toward finding a significant relationship between democracy and suicide terrorism. This makes our finding of almost no relationship between democracy and suicide terrorism even more surprising.

7. ICT data available at <http://www.ict.org.il> (accessed on February 12, 2007).

8. MIPT data available at <http://www.tkb.org/Home.jsp> (accessed on February 12, 2007).

9. He also refers to an unpublished article and Huntington (1991), although the latter's coverage only goes to 1990. There is a passing, generally favorable mention of Freedom House (Pape 2005, 45). There is no mention of the Polity data set.

10. Freedom House data available at <http://freedomhouse.org/template.cfm?page=35&year=2005> (accessed March 28, 2006).

11. Polity data available at <http://www.cidcm.umd.edu/polity/> (accessed on February 12, 2007).

12. Li (2005) uses two other measures of regime type: democratic participation and type of electoral system (proportional, majority, and mixed). However, data on these two factors are unavailable after 2000, and we elect to omit them to permit testing the full temporal range rather than include them and restrict the temporal range to 2000, given that many suicide terrorist attacks in the 1980 to 2003 period (152 out of 315 in Pape's data set) occurred after 2000.

13. Another approach would be to use the 1-7 scaled variable Executive Constraints variable, which is a component of Polity's democracy score. Davenport (2004) finds this measure to be significantly and negatively correlated with repression. However, this variable is very highly correlated with the 0-10 democracy score (.95). We prefer using the 0-10 democracy score, since Davenport and Armstrong (2004) provide some guidance as to where to establish cutpoints for establishing regime categories, whereas Davenport (2004) does not explore the issue of cutpoints for the Executive Constraints variable. Gleditsch and Ward (1997) also find that Polity's democracy and executive constraints variables are very closely related.

14. We filled in missing data using interpolation from years just before and just after the missing scores.

15. Pickering (1999) provides overt military intervention data only up to 1996.

16. We elect not to include regional dummy variables as Li (2005) does. We instead aim to include more theoretically motivated controls (e.g., Islam, development, and regime durability), which should capture the same kinds of dynamics that regional dummies capture.

17. <http://cow2.la.psu.edu/> (accessed February 12, 2007).

18. COW capabilities data go up to 2001, and we use 2001 population and energy data for 2002 and 2003.

19. An alternative approach for using Polity data would be to follow the example of international conflict scholarship, much of which uses the -10 to 10 Polity scale, in which states with 7 or higher are democracies, and -7 or lower are nondemocracies. Our approach is better grounded in the repression literature, as we note in the text. If we do run the analysis with this -10 to 10 approach, the results do change somewhat, such that some of the mixed regime and mixed regime interaction variables become statistically significant, although their substantive significance remains minimal. These changes are probably because four states, post-1999 Russia, Turkey, India in the 1990s, and Pakistan, all experience suicide terrorism and are coded as partly free by Freedom House and as democracies with the +7 cutoff on the -10 to 10 scale by Polity.

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