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Kto Kogo?: A Cross-Country Study of the Origins and Targets of Terrorism

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I. Introduction

A popular wisdom in the burgeoning literature on terrorism focuses on the economic motivations of terrorists. “We fight against poverty,” President George W. Bush explained in Monterrey Mexico on March 23, 2002, “because hope is an answer to terror.” Stern (2003) also draws a direction connection between poverty and terrorism. While poverty is an attractive answer to the question of “why terrorism?” the data do not lend much support for it. Macroeconomic shifts generally fail to map on to changes in the amount of terrorism. For example, in the late 1990s and 2000, when terrorism reached new heights against Israeli citizens, the typical Palestinian was reporting a rosier economic forecast and unemployment was declining. Using a longer time-series, Berrebi (2003) finds little correlation between economic conditions in the West Bank and Gaza Strip and the number of terrorist incidents against Israel. An even more perplexing problem for the poverty thesis arises on the micro-level. Several studies of individuals have failed to find any direct connection between education, poverty, and the propensity to participate in terrorism (Russell and Miller, 1983; Hudson, 1999; Krueger and Maleckova, 2003; Berrebi, 2003, Atran, 2003). If anything, those who participate in terrorism tend to come from the ranks of the better off in society.

Poverty theorists could respond that at least on the micro level, well-to-do citizens become terrorists out of public spiritedness for their impoverished fellow citizens, and they are chosen by organizations to perform these tasks due to their reliability and skill. Consider the anecdotal findings of Nasra Hassan (2001), for example. She interviewed 250 militants and their associates involved in the Palestinian cause from 1996-99. One Hamas leader told her, “Our biggest problem is the hordes of young men who beat on our

doors, clamoring to be sent [on suicide missions]. It is difficult to select only a few.” And whom did they choose from these hordes? She reports that, “None of them were uneducated, desperately poor, simple minded or depressed. Many were middle class and, unless they were fugitives, held paying jobs.” She also found, “two were the sons of millionaires.” Thus a “Robin Hood” connection might be made linking poverty to terrorism. Individuals can become terrorists because of poverty in their country, even if they are themselves not impoverished. Moreover, the fact that terrorist organizations actively screen and recruit members, perhaps choosing the elite from a long queue of applicants, may mask the role that individuals’ personal economic circumstances play in the supply of terrorists (see Bueno de Mesquita, 2003). That is, poverty may cause more individuals to want to be terrorists, but the organizations may not select them. If this is the case, then the available micro evidence, which reflects both supply *and* demand factors, may paint a misleading picture of the role of economic factors on the supply of terrorists.

Cross-national studies of terrorism have the potential to identify the effect of national economic conditions on terrorism, reflecting both the role of supply-side factors (i.e., determinants of who volunteers) and demand-side factors (i.e., terrorist organizations recruiting and screening participants). A small literature has examined the correlates of participation in terrorism at the national level, either using the country of origin of the terrorists (Krueger and Maleckova, 2003) or the country where the event occurred (Piazza, 2003) as the unit of observation. Both types of studies have found little correlation between economic factors, such as GDP per capita or GDP growth, and the incidence of terrorism. In this paper, we extend those studies by linking both the country

of origin *and* the target country of the terrorist event. As Lenin often reminded those who briefed him on revolutionary affairs, the key pair of questions to ask is: “*Kto kogo?*”, or “Who to whom?” Relying on our coding of the US State Department’s data on international terrorism, and a new dataset on suicide attacks, we look not only at the attacker, but also at the target. We find that controlling for political regime, there is little economic foundation for terrorist origins (the *kto*). Rather, the economic story for terrorism is in the characteristics of the target (the *kogo*). The data suggest that the origins of terrorism are in countries that suffer from political oppression; the targets are countries that bask in economic success.

II. Datasets and Description of Terrorist Events

A. The Dataset on International Terrorist Incidents

We rely on two distinct datasets. The first is on international terrorism. In its annual report, *Patterns of Global Terrorism*, the U.S. State Department tracks terrorist incidents. According to the State Department, 9,737 international terrorist events took place since 1981, with 1,953 of them occurring from 1997-2003.¹ Specific information is provided on 781 “significant” events from 1997 to 2003; the other events in that period are judged to be insignificant.² To qualify as “significant”, an event must be judged by the US Government’s Incident Review Panel to result “in loss of life or serious injury to persons, abduction or kidnapping of persons, major property damage, and/or [be] an act or attempted act that could reasonably be expected to create the conditions noted.” We

¹ . Descriptive statistics are available at their website:
<http://www.state.gov/s/ct/rls/pgtrpt/2002/html/19997.htm>.

² There were actually 785 events, but 4 were excluded in our analysis because of missing information on the suspected origins of the perpetrators.

have coded the 781 significant events into a dataset on the origins and targets of terrorist attacks.

To define terrorism, the State Department relies on guidance from Title 22 of the United States Code, Section 2656f(d), where terrorism is defined as “premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents, usually intended to influence an audience.” The State Department further restricts its statistical efforts toward the identification of "international terrorism," which means terrorism involving citizens or the territory of more than one country.

Yet international terrorism is a tricky concept to define. The State Department *Global Terrorism* report recognizes some of these problems. For example, in its early years of reporting, Palestinians were defined as stateless people, and therefore their attacks on other Palestinians in the territories occupied by Israel were counted as international terrorism; but in later years, consistent with criteria for other intra-ethnic violence, these events were re-coded as domestic terrorism, and were therefore retroactively deleted from the earlier annual reports.

But there are several coding problems that are not acknowledged. Colombia since 1997 has had the second highest exposure to international terrorism according the State Department data. However, many of these events appear from their description in the State Department files as tactics to control the drug traffic rather than “politically motivated violence” to “influence an audience.” A different problem arises with India, the country with the largest number of incidents since 1997. Ninety percent of these incidents are connected with an insurgency in Jammu and Kashmir against Indian claims

to sovereignty. To code these incidents as international terrorist events implies (without full justification) that the perpetrators are from Pakistan.³ Most are surely from Jammu and Kashmir, which the international community recognizes as India, and thus these events do not quite properly fit into a dataset on *international* terrorism. A third problem arises in West Africa. The long-standing civil wars in Sierra Leone and Liberia have spilled over borders, especially into Guinea, and into Ivory Coast as well. Attacks by armed bands from one of these countries, terrorizing villagers from another, is rarely counted as international terrorism by the State Department. If they were counted as assiduously as are FARC atrocities in Colombia, the regional breakdown of terrorism (and perhaps UN budgets seeking its eradication) likely would be quite different.⁴

The data clearly have their limits. Nevertheless, we have some reasons to be confident in our results. For one, these data correlate well with an independent data source, Todd Sandler's "Iterate" dataset. The correlation between our dataset and the Iterate dataset aggregated to the level of the country where the event took place is 0.52. The largest outlier is that the State Department codes many Indian events as international, while Sandler's dataset does not. Excluding India (which we will do as part of our robustness tests) the State Department data and Sandler's correlate at .90 at the level of the place of the attacks, and at 0.89 at the country of origin. However, our reading of the State Department vignettes and assigning a nationality to the target correlates only at .41 with Sandler's place-based data.⁵ The latter correlation suggests the importance of

³ It is also possible (but not noted in the descriptions) that non-Indians were injured in the attacks, which would qualify them as international terrorism.

⁴ . For three examples of these African events -- only one of which is counted as international terrorism in the US Department of State dataset -- see US Committee for Refugees, September 13, 2000, at <http://www.reliefweb.int/w/rwb.nsf/0/e59f7718ab26c29785256959006ccc16?OpenDocument> (downloaded October 30, 2003).

⁵ This correlation is for a sample that excludes India. If India is included, the correlation falls to 0.23.

disaggregating by target as well as origin. Nonetheless, the general similarity of the two independently collected datasets gives some confidence in their external validity. Second, to address the questions of “*Kto, kogo?*” (and not the question of which regions are most susceptible to terrorism), we see no obvious systematic biases in the State Department dataset, and feel confident in relying on it to capture the differences between the perpetrators and targets of terrorism.

We consequently rely on the US State Department dataset to analyze the “Who, whom?” of international terrorism. Specifically, for each event, we coded the country of origin of the terrorists, the name of the organization (if any) involved, the country where the event occurred, the country of the primary target, whether the event involved a suicide attack, and whether multiple perpetrators were involved.⁶ Thus, at the most basic level, the unit of observation is a terrorist event, but we can aggregate the data to the country of origin level, to the country of target level, or the cross-tabulation between all potential origin and target countries. For example, the terrorist attacks of September 11, 2001 were coded as four separate events that occurred in the United States, that were carried out mostly by Saudis, and that targeted Americans.⁷ We added to the dataset several variables describing the country, such as GDP per capita, GDP growth, and measures of terrain, religious affiliation and literacy. These variables can be attached to the dataset based on either the country of origin or target country.

⁶ We infer the target from the primary country of the victims. For 187 events, we also collected information on the “secondary target,” defined as the country of the second largest number of victims, but we do not analyze those data here.

⁷ We attributed three of the events to Saudi Arabia and one to the United Arab Emirates, because it is believed that 15 of the hijackers were from Saudi Arabia, two were from the United Arab Emirates, one was from Egypt and one from Lebanon. Attributing one of the events to people from the UAE was a judgment call that could be disputed, but we tried to adhere to a rule that assigned responsibility based on the country of origin of those directly involved in carrying out the attack. In the suicide database, the events of September 11 were coded as one attack originating from Saudi Arabia because *al Qaida* is mainly a Saudi-run terrorist organization.

Table 1 summarizes the State Department data, aggregated to the suspected country of origin of the perpetrators. The data are presented in order of the raw number of events due to people from each country. The number of events per population in the origin country is also provided. (Most events involved multiple perpetrators, but we do not take that into account in this table.) Many countries are not associated with international terrorist events, and they are not show in the table. India clearly has the largest number of events, but on a per capita basis India is close to the mean, which is 0.26 per million people. Israel, Sierra Leone, and Angola are associated with the largest number of terrorist attacks, per capita.

In 87 percent of incidents, the country where the event took place was also the suspected country of origin of the perpetrators. In only 46 percent of cases, however, were the origin and the target countries the same, and in only 52 percent of cases were the target country and the country where the event took place the same. In 44 percent of cases, the target, place, and origin were all the same. Thus, perpetrators of international terrorism tend to stay local, finding targets from foreign countries close to home. Events like September 11th are the exception, not the rule; the murder of *Wall Street Journal* reporter Daniel Pearl in February 2002 perpetrated in Pakistan, or the suicide attacks on foreign housing in Riyadh, Saudi Arabia on May 13, 2003 are more typical of the terrorist incidents in our database. The frequent disconnect between origin and target is one reason why looking separately by origin and target provides a valuable perspective.

B. Suicide Attack Dataset

The second dataset is exclusively on suicide attacks since 1980. A suicide attack is a tactic in an insurgency in which the perpetrator of the attack will die with a probability of one if the attack is a success (Berman and Laitin, this volume). In this paper, to produce a broad set of cases that qualify as suicide attacks, we merge two suicide datasets. The first is from Pape (2003, 357-60). The second is from the International Policy Institute for Counter-Terrorism (ICT), at the Interdisciplinary Center Herzliya. In the combined dataset, there are 236 recorded suicide attacks in eleven countries.⁸

As with the case of the State Department data archive on international terrorism, this dataset is not without coding issues. Consider the case of Palestinian attacks on Israelis, amounting to 42 percent of the events. Most datasets (including the State Department's) classify the perpetrators as coming from "the West Bank". However, the Palestinians are under the *de facto* control of Israel, and are fighting an insurgency either to take control over all of Palestine (capture the center) or to build a Palestinian state on some portion of current-day Israel. Suicide bombing is a tactic in the pursuance of one of these goals, and the Palestinian attackers are therefore coded as having Israel as their country of origin. Israel is also the country in which these events have taken place and the target. This decision seems well-justified, though not unambiguous (as it is possible to view the suicide attackers coming from the incompletely sovereign Palestinian Authority).

⁸ . This is available on the web at: [<http://www.ict.org.il/>]. The version we use was downloaded Sept. 12, 2003. For coding rules that went into the construction of this combined dataset, see Berman and Laitin, this volume.

However, unlike terrorism which is often mired in ambiguities, suicide attacks are rather simple to code, without much disagreement as to whether a particular incident qualifies. While many could debate whether FARC kidnappings of Italian businessmen or Liberian gangs shooting up Sierra Leonian villagers constitute international terror, there is no dispute that FARC and the gangs associated with Charles Taylor do not perpetrate suicide attacks.

For purposes of our “*Kto, kogo?*” questions the two datasets focus on somewhat different contexts, but nonetheless complement each other. By definition, the dataset on international terrorism will have an individual or group (the “who”) from one political unit attacking a target (the “whom”) from another political unit. By contrast, in the suicide attack dataset nearly all (187 out of 210) events involve a perpetrator and target from the same country. In these cases, the relevant differences are in the ethnicity or religion of the attackers as compared to the targets.

C. Brief Description of Events

Of the 781 terrorist events and the 236 suicide attacks in the two datasets, several patterns are worth noting (see Table 2). First, as shown in row 1, terrorism and suicide attacks are both mainly the product of organizational strategy rather than the efforts of individual zealots or madmen.⁹ Therefore, explanations for terrorism cannot be adequate without an account of why leaders in a hierarchy would send their cadres on such missions. Organizations staff terrorist events, and seek to accomplish their goals through the use of high-quality cadres, who would be more reliable to carry out the planned

⁹ See Kydd and Walter (2002), Gupta and Mundra (2003) and Berrebi and Klor (2003) for empirical and theoretical analyses of suicide bombings as strategic behavior on the part of Palestinian terrorist organizations.

missions than less skilled cadres. They are able to recruit even suicide missionaries successfully, and here the explanation is consistent with Emile Durkheim's classic study of suicide, in religious organizations and armies, that is in places where "social integration is too strong." The result is what Durkheim calls "altruistic" suicide. People prone to suicide are a constant across societies. Suicide rates vary, however, based on both a social condition of low network solidarity (anomic suicide) and one of high network solidarity (altruistic suicide). In this latter case, with socially dense networks, all too many volunteer to give up their lives for the glory of their organizations.¹⁰

Second, as shown in rows 2 and 3, symbolic attacks on foreign property (embassies or international organizations) are not everyday occurrences, but nor are they rare. It is interesting to speculate as to why (at least up till 2003 in Baghdad) suicide missions had not been directed at international organizations at all, while these organizations are subject to a significant number of terrorist events. We suggest that since international organizations are immensely "soft" targets, it is not necessary to sacrifice the life of a cadre in order to "hit" them.

Third, as indicated on row 5, the probability that the perpetrator and target will be from different religious groups is clearly different for international terrorism than it is for suicide bombing. Taking a rough estimate of the world population for the world's four major religions (Muslim, Christian, Hindu and Buddhist) and a single category of Other (that includes nearly all Chinese and all Jews), the probability that any two randomly selected individuals in the world (with replacement) will be from different religions is 77.2%. Therefore, other things equal, international terrorism is only trivially more likely

¹⁰ Emile Durkheim [1897 (1951)] Suicide (New York: The Free Press), Book 2, chapter 4. See Azam (2003) for a recent attempt to model suicide bombers as being motivated by inter-generational altruism.

to involve intra-religious parties than if it were randomly determined throughout the world.¹¹ By contrast -- but consistent with Berman and Laitin (this volume) -- suicide attacks are more likely to be inter-religious than would be expected from random selection of pairs from the world's population. Because suicide attacks in our data set often involve people from the same country, arguably a better benchmark might be to compute the chance of two randomly selected people *within each* country being from different religions. In the average country in the world, 27.3% of people are from different religions, so suicide attacks are far more likely to involve parties from different religions than would be expected from randomness. This does not mean, however, that religious differences are necessarily a motivation for suicide attacks.

Finally, as illustrated on row 6, the origin countries for terrorism and suicide attacks are different, with only Israel in the top five of both datasets. The suicide origin countries are richer. The mean log GDP per capita for the five leading terrorist sources in 1980 was 7.56; and for the five leading suicide sources, it was 8.40.¹² An examination of the top five origin countries suggest a great amount of concentration and low level of diffusion to other insurgencies of these technologies of warfare. The top five origin countries account for 57% of the total cases in the terrorist dataset; they account for 96% of the cases in the suicide dataset.

As to questions of “*Kto, kogo?*”, in the international terrorism dataset, as noted earlier, in less than half of the cases (44%) is the country of origin, the place of the attack, and the citizenship of the target the same. (By definition, this should be zero, but the

¹¹ The State Department dataset contains 28 suicide attacks. All of these involved religious differences between the parties. Therefore, eliminating suicide attacks would make the data show even higher rates of intra-religious killing than would be expected if it were random.

¹² . Compare this to 7.0 for the mean logged GDP per capita in 1985 dollars (lagged by one year) for all countries that had a civil war onset. See Fearon and Laitin, replication dataset.

State Department describes Kashmir attacks as perpetrated by Indians, taking place in India, and targeting Indians; similarly, attacks by Palestinians against Israelis are coded as originating in and targeting Israel.) In less than half of the events, the citizenship of the perpetrator and that of the target are the same.

Suicide attacks have a different profile, at least in part because the international terrorist dataset purposefully excludes domestic terrorism. For the suicide attacks, in a full 90% of the cases, the country of the attack, the country of the attacker, and the country of the victims are the same. The perpetrators and the targets were of the same country in 90% of the suicide events; the target and the country of attack were the same in 92% of the events; and the perpetrator performed the suicide mission in his or her own country in 95% of the cases.

III. Country-Level Analyses

In this section we analyze terrorism using the country of origin of the perpetrator, country of the target, or the country where the event took place as the unit of observation. This could be thought of providing an analysis of the margins of the matrix describing the events: who, to whom and *where*, or as Lenin might ask, *Kto? Kogo? Gde?* We defer an analysis of the joint probabilities – who, to whom – to section IV.

As an initial way to summarize the characteristics of the countries of those involved in terrorism, Table 3 assigns country-level attributes to each terrorist incident, and computes the average across incidents, using the country of origin, country of the primary target, or country where the event occurred to match on the country attributes. For example, in column (2) we merged on data based on the country of origin, and

computed the mean across incidents. This amounts to a weighted average of characteristics -- such as GDP per capita, illiteracy, ethnic fractionalization, and political and civil rights -- across countries, where the weights are the number of international terrorist incidents attributed to citizens of each country. Column (3) presents the same statistics excluding incidents originating in India and Colombia from the sample. Column (4) presents results based on the target country of the attack, and column (5) based on the country where the attack occurred. For a point of reference, column (1) presents the weighted mean of the country attributes, using as weights the population of the country.

To more easily spot the discrepancies between terrorists and the world population, Figure 1 presents a “radar chart” depicting the ratio of the mean of the indicated variable for terrorists based on their country of origin and the weighted-average person in the world. Figure 2 presents the analogous ratio of the target country to the weighted-average world population. If the terrorists come from countries that are on average no different than the world population, the ratio would be one and the point would lie on the unit circle in Figure 1. If the country characteristics differ between the terrorists’ home and the world population, then the ratio will exceed one or be less than one. These radar plots are just meant to be descriptive: they clearly have analytical problems. For example, for some variables a ratio of 1.2 may indicate a more significant divergence than a ratio of 2.4 for other variables. More importantly, the charts and table break down the population on an endogenous variable – by conditioning on whether the individual was a terrorist, rather than on the country characteristic – so in a real sense these charts are equivalent to sampling on the dependent variable. Nevertheless, they still provide a

quick description of how terrorists differ from the world population, or of how the targets of terrorism differ from the world population, in terms of country-level characteristics.

Compared to the world population, the results indicate that terrorists are more likely to come from low-income countries with low GDP growth (from 1990 to 2000). The pattern is not monotonic in terms of income, however, as terrorists are over represented among the poorest quartile of countries and the third quartile of countries.¹³ The terrorists are also more likely to come from countries' characterized by anocracy and political instability.¹⁴ Insofar as targets are concerned, the targeted individuals tend to live in wealthier countries that are more stable, less anocratic, and more democratic than the average person in the world. As for country of occurrence, it is a profile far closer to that of the perpetrator's country – poor, high illiteracy, and high infant mortality. In many cases (Kashmir and Jammu, Bosnia, Kosovo, West Bank and Gaza, and Afghanistan), the attacks occur against armies or army installations of what are perceived to be foreign or “occupying” powers. When the attacks against American installations in Iraq in 2003 are analyzed, this pattern will be reinforced.

Table 4 and Figures 3 and 4 present the same information using data on suicide attacks. (Recall that the suicide attacks span a longer time period. Nevertheless, for comparison we have attached the same country characteristics used in Table 3.)¹⁵ The figures for perpetrators and targets look remarkably similar because the target of most of the suicide attacks resided in the same country as the perpetrator. The suicide attacks

¹³ The quartile GDP per capita cutoffs were not weighted by population.

¹⁴ Based on the coding of Fearon and Laitin (2003), using the Polity IV dataset, instability is a dummy variable that takes a value of 1 if the country had a three-or-greater change on the regime index in any of the three years prior to the country-year in question. Anocracy is another dummy variable that takes a value of 1 if the regime index for that year is between a -5 and a +5, on an index that spans from -10 (full autocracy) to +10 (full democracy).

¹⁵ The dataset spans the period from 1980 to 2002, with the most recent suicide attack on November 22, 2002.

tend to involve (both as targets and origins) people from wealthier countries than the world average. In addition, people from stable, democratic countries are more likely to be represented in suicide attacks, either as target or perpetrator, than the average person in the world. Notice also that because Sri Lanka is primarily a Buddhist country, Buddhism is over represented among both the country of perpetrators and targets.

Table 5 summarizes the data in a more conventional way, broken down by country characteristics rather than the outcome variable. Specifically, using origin or target countries as the unit of analysis, we computed the average number of terrorists per person (in either the origin country or target country) by the indicated country characteristic. In addition, we report the p-value from a chi-square test of the null hypothesis that the characteristics are unrelated to participation in terrorism.¹⁶ These results differ from the results underlying the radar charts in two important respects: first, it conditions on the explanatory variable; second, the unit of observation is a country, rather than a person.

The results often give a different picture than the radar charts. Consider first results for all international terrorist events by country of origin. A country's GDP per capita is unrelated to the number of terrorists originating from that country. A country's degree of civil liberties, by contrast, is associated with participation in terrorism: countries with a lower level of civil liberties have a higher participation rate in terrorism, on average. Thus, in contrast to the radar plots, low civil liberties are associated with

¹⁶ These tests require a word of explanation. Because the modal country has 0 events, a conventional test of the equivalence of the means is inappropriate. Consequently, we computed each test by estimating a separate Negative Binomial regression, where the dependent variable was the number of incidents attributable to each country and the independent variables were dummies for the indicated categories and log population, constraining the coefficient on log population to equal 1. Because the dependent variable in the Negative Binomial should be interpreted as the log of the number of events, these results do not correspond directly to the means reported in the table, but they do provide a valid test of the statistical significance of the characteristics.

greater participation in terrorism, while economic factors are unrelated. If one is looking for country characteristics that are causal determinants of terrorism, we think the Table 5 results are more relevant, although it is of course possible that the associations revealed in the table do not represent causal relationships.

When the results are tabulated by the target country's characteristics, a different picture emerges. In column (2) we see that countries with higher GDP per capita are more likely to be the target of terrorism (on a per capita basis), and civil liberties in the target country do not bear a monotonic relationship with terrorism. In terms of political rights, the contrast is even greater: countries that afford a low level of political rights are more likely to be the springboards of terrorism and less likely to be the targets of terrorism. A country's terrain, ethnolinguistic fractionalization, religious fractionalization, and political stability are all unrelated to the incidence of terrorism per capita, either as a target or origin.

The right-hand part of Table 5 presents corresponding results for suicide attacks. Because suicide attacks originated in only ten countries and targeted only 14 countries – in a sample of 159 countries -- these results should be taken with a large grain of salt, and the results by origin and target hardly differ.¹⁷ Nevertheless, the results provide a formal comparison of what is often compared informally. These results clearly indicate that wealthy countries are involved in suicide attacks, as either origins or targets. That there are no countries in the bottom quartile of countries for GDP per capita shows powerfully that (as argued by Berman and Laitin, this volume) suicide attacks are employed where the standard conditions for insurgency (as adumbrated by Fearon and Laitin 2003) are

¹⁷ In addition, the chi-square tests in some instances are very sensitive. For example, the differences by civil liberties are very similar for origin and target countries, yet the chi-square tests are very different.

disfavored. By contrast, the origins of terrorism are more randomly distributed across the quartiles of GDP per capita. This suggests that terrorism as well differs from standard insurgency, though less so than suicide attacks. Countries that are not likely targets of insurgencies (e.g., high-income countries) are likely targets of terrorism, however. The right side of Table 5 shows as well that fast growing, stable countries are more likely to be the origin and target of suicide attacks.

The influence of Sri Lanka, a majority Buddhist country, is again evidence on the results by religion. Similarly the influence of Israel, a majority Jewish country (classified here in Mixed/Other), has a high proportion of both origin and target. But as with Sri Lanka, the perpetrators are not of the same religion as the majority in the country. Religious fractionalization in a country, however, is unrelated to the incidence of suicide attacks, although, as noted, a high proportion of the suicide attacks involve perpetrators and victims from different religions.

Regression Models

We extended the bivariate comparisons in Table 5 by estimating a series of Negative Binomial regression models, simultaneously controlling for several possible determinants of terrorism. A sampling of our results is reported in Table 6. The dependent variable is the number of international terrorist events traceable to each country. The unit of observation is the country of origin in columns 1-2, the target country in columns 3-4, and the country where the event took place in columns 5-6. The explanatory variables in the first model are just log GDP per capita and log population; in the second model we also include per capita GDP growth, the Freedom House Index of

Civil Liberties, and the percent of the population belonging to each of the world's four largest religions. The explanatory variables correspond to the country that defines the unit of observation. We selected the variables shown in the table because, for the most part, other variables that we included in the model were insignificant, or because there is particular interest in the relationship between these variables and terrorism. (We did not estimate corresponding models for suicide attacks because so few countries were involved in these attacks.)

The results have no surprises compared to the bivariate comparisons in Table 5. Quite sensibly, larger countries (in terms of population) are associated with more terrorism, at the origin, target, and place unit of analysis. At either the origin level of place-of-occurrence level, GDP per capita is insignificantly related to terrorism, but it is positively related to terrorism at the target-country level. A paucity of civil liberties, by contrast, is associated with more terrorism at the origin country and at the country where the event is perpetrated, but not at the target country level. In this sense, the results suggest that the genesis of terrorism involves political factors, while the targets are more economic in nature. The disparate findings based on country of origin and target country illustrate the importance of aggregating separately by origin and target.

Lastly, we cannot reject that the shares affiliated with the various religions jointly have no effect on terrorism, at any of the levels of analyses. **Check.** No religion appears to have a monopoly on terrorism; countries with very different religious faiths have all experienced terrorism, as targets, origins and hosts.

IV. *Kto, Kogo?*: Characteristics of Origins and Targets

Our last set of analyses involves the matrix of who to whom: that is, we model the cross tabulation of the origins and targets of terrorism. Each country is a potential origin country for perpetrators who can attack any country in the world. Because we have a maximum of 159 countries in our sample, and, without further structure, the full *Kto*, *kogo?* analysis would involve a matrix with $159 \times 159 = 25,122$ cells, most of which would be empty, we need to simplify the analysis. Here we focus on two important dimensions of origin and target countries: their income and civil liberties.

First consider income. We divided the countries into income quartiles based on GDP per capita. Specifically, we assigned all possible country pairs to cells based on their GDP per capita, as potential targets and potential origins. Thus, instead of a 159×159 matrix, our data are reduced to a 4×4 matrix. In each cell, we tallied the number of incidents perpetrated by people from a country in one income bracket against people from a country of another income bracket. For every entry, we normalized the counts by dividing by the geometric mean of the *total* population across countries in the two income brackets. Note that this differs subtly from our analysis in Table 5 and 6, where we weighted countries equally; here we weight countries by a combination of their size and their potential target's size. Conceptually, this formulation makes sense if the characteristics of the countries (in this case, income) are relevant, but the borders are not relevant. Mathematically, an entry in Table 7, P_{ij} , is given by:

$$P_{ij} = C_{ij} / (N_i * N_j)^{.5}$$

where C_{ij} is the number of incidents perpetrated by people from countries with an income level falling in quartile “i” against people in countries with income levels falling in

quartile “j”, and N_i and N_j represent the aggregate number of people (in millions) in the origin and target quartiles, respectively.¹⁸

Table 8 provides the analogous matrix where the countries were cross-categorized into 3x3 cells based on their civil liberties index. That is, i refers to the civil liberties of the originating countries (low, medium and high) and j refers to the civil liberties available in the target countries (low, medium and high). Again, we pool all countries that fall in the same civil liberties category, and normalize by the geometric mean of the total population in each category.

Despite the (somewhat) different weighting and the added feature of cross-classification, the results are similar to what we observed from Table 6. Terrorists from most countries are particularly likely to strike at others in countries with about the same income level, because a large number of the attacks target individuals in the country of origin. For this reason, the diagonals of Figure 7 have large entries. But terrorists who do not strike against targets in their own income brackets are much more likely to strike against targets from higher-income countries than from lower-income countries. Indeed, for terrorists from countries in the middle-income quartiles, targets in the highest-income quartile are more likely to be affected by their terrorist acts than are targets from countries in their own income quartile.

Countries with a high degree of civil liberties are unlikely to be origin countries for terrorist acts. The lower- and (especially) middle-level countries in terms of civil liberties are more likely to be origin countries for terrorism. Compared to Table 5, the increase in source countries from those with a middle-level of civil liberties is a result of

¹⁸ The reason for the multiplicative formulation of population is that if terrorism were just random – i.e., Brownian motion, ignoring distance – then the number of events involving peoples from quartiles i and j would be proportional to the product of their populations.

the new aggregation (by countries within a civil-liberties category) and the different scaling. Interestingly, countries with a high level of civil liberties appear to be somewhat more likely a target in these tabulations.

V. Conclusion

Nearly six months after he articulated a naïve economic explanation for terrorism and on the first anniversary of the al-Qa'ida attacks on American soil, President Bush articulated a more nuanced view, closer to what the data presented in this paper show. He was quoted as follows in *The New York Times* (September 11, 2002): “Poverty does not transform poor people into terrorists and murderers. Yet poverty, corruption and repression are a toxic combination in many societies, leading to weak governments that are unable to enforce order or patrol their borders and are vulnerable to terrorist networks and drug cartels.”

The most salient patterns in the data on global terrorism that we presented suggest that, at the country level, the sources of international terrorism have more to do with repression than with poverty. The regression analysis showed that neither country GDP nor illiteracy is a good predictor of terrorist origins. Past work suggests that at the individual level, higher economic and social status lead to greater identification with terrorist goals. Therefore, the well-to-do represent a fount of supply. On the demand side, organizations (especially for attacks that require planning and coordination, with low chances for defection) will want to recruit disciplined cadres who will more likely succeed. Thus terrorist perpetrators are not necessarily poor. But those who are repressed

politically tend to terrorize the rich, giving international terrorist events the feel of economic warfare.

Suicide attacks reveal much less on the interstate level. To be sure, in ten of the twenty-three cases where the targets were of a different country than the perpetrators, the targets were Americans, suggesting that when they do go international, suicide attackers go after the rich and the powerful. (India is the only target country suffering from an international suicide attack with a GDP/cap lower than the median, and this was a direct assault on its Prime Minister). To the extent that we can eke out patterns from the marginals (where perpetrator and target are different) in the suicide dataset, we see as with international terrorism, the origins are more likely to be in countries that deny civil liberties as compared to targets.

Several extensions of this research merit consideration. First, we need to dock the suicide data with that of international terrorism to have a general terrorism dataset. We then can construct a 150 x 150 matrix by country of origin and target, getting a much more precise picture of who terrorizes whom. We plan as well to link our findings with systematic data on countries that sponsor and/or harbor terrorist organizations. Finally, we have noted a relationship of political “occupation” and being a target for terrorist attacks. This relationship merits further scrutiny.

To sum up, our data analysis up till now confirms the lesson that President Bush has already learned, namely that the economic foundations of terrorism are at best only indirect. More specifically, we have shown that on the margin, the *kto* are those who are politically repressed and the *kogo* are those who are wealthy. The *kto* is political; the *kogo* economic.

References

- Azam, Jean-Paul. 2003. "Suicide-Bombing as Inter-Generational Investment," forthcoming in *Public Choice*.
- Berrebi, Claude. 2003. "Evidence About the Link Between Education, Poverty and Terrorism Among Palestinians," mimeo. Princeton University.
- Berrebi, Claude and Esteban Klor. 2003. "On Terrorism and Electoral Outcomes: Theory and Evidence from the Israeli-Palestinian Conflict," mimeo. Princeton University.
- Bueno de Mesquita, Ethan, "The Quality of Terror," mimeo., Dept. of Political Science, Washington University, St. Louis, MO, 2003.
- Bush, George W. 2002. "Securing Freedom's Triumph" *The New York Times*. September 11.
- Bush, George, W. 2002. "Remarks by the President at United Nations Financing for Development Conference, Cintermex Convention Center, Monterrey, Mexico. March 22. <<http://www.whitehouse.gov/news/releases/2002/03/20020322-1.html>>.
- Fearon, James and David Laitin. 2003. "Ethnicity, Insurgency, and Civil War," *American Political Science Review* 97(1): 75-90.
- Hamermesh, Daniel and N. Soss. 1974. "An Economic Theory of Suicide," *Journal of Political Economy*, pp. 83-98.
- Hamm, Mark S. 1998. "Terrorism, Hate Crime, and Antigovernment Violence: A Review of the Research," in Harvey W. Kushner, ed., *The Future of Terrorism: Violence in the New Millenium*, London: SAGE, pp. 59-96.
- Hassan, Nasra. 2001. "An Arsenal of Believers," *The New Yorker*, November 19, pp. 36-41.
- Hudson, Rex A.. 1999. "The Sociology and Psychology of Terrorism: Who Becomes a Terrorist and Why?" Report prepared under Interagency Agreement by the Federal Research Division, Library of Congress, Washington, DC.
- Kydd, Andrew and Barbara Walter. 2002. "Sabotaging the Peace: The Politics of Extremist Violence," *International Organization* 56 (2), Spring, pp. 263-96.
- Pape, Robert A. (2003) "The Strategic Logic of Suicide Terrorism" *American Political Science Review* 97(3): 343-61.

Piazza, James A. 2003. "Rooted in Poverty?: Terrorism, Poor Economic Development and Social Change," mimeo., Meredith College, Raleigh, North Carolina.

Russell, Charles and Bowman Miller. 1983. "Profile of a Terrorist," reprinted in *Perspectives on Terrorism*, Wilmington, Delaware: Scholarly Resources Inc., pp. 45-60.

Taylor, Maxwell. *The Terrorist*. London: Brassey's Defence Publishers, 1988.

Table 1: Number of Terrorist Events Originating from Each Country and Events Per Million People

Country	Events	Events/Mil
Azerbaijan	1	0.126
Belgium	1	0.098
Cuba	1	0.090
Germany	1	0.012
Guinea	1	0.141
Morocco	1	0.036
Nicaragua	1	0.208
Senegal	1	0.111
Thailand	1	0.017
Tunisia	1	0.107
United Arab E.	1	0.367
Zambia	1	0.103
Bahrain	2	3.110
Bangladesh	2	0.016
Chad	2	0.275
Chile	2	0.135
El Salvador	2	0.331
France	2	0.034
Kuwait	2	1.072
Liberia	2	0.675
Macedonia	2	0.993
Myanmar	2	0.043
Peru	2	0.081
Tanzania	2	0.062
Uzbekistan	2	0.083
Drc	3	0.062
Egypt	3	0.049
Iraq	3	0.135
Afghanistan	4	0.159
Bosnia	4	1.062
Cambodia	4	0.348
Lebanon	4	0.950

Country	Events	Events/Mil
Somalia	4	0.489
South Africa	4	0.097
Sudan	4	0.133
U.K.	4	0.067
Ecuador	5	0.410
Iran	5	0.081
Italy	5	0.087
Jordan	5	1.088
Spain	5	0.127
Algeria	6	0.203
Ethiopia	7	0.114
Rwanda	7	0.864
Sri Lanka	7	0.372
Yugoslavia	7	0.660
Georgia	9	1.654
Saudi Arabia	9	0.457
Burundi	10	1.527
Uganda	10	0.476
Greece	11	1.048
Indonesia	11	0.054
Tajikistan	11	1.795
Russia	15	0.102
Philippines	18	0.247
Sierra Leone	21	4.347
Pakistan	24	0.182
Turkey	24	0.379
Nigeria	26	0.215
Israel	30	5.031
Angola	41	3.306
Yemen	49	2.952
Colombia	97	2.377
India	227	0.232

Table 2: Description of Events

	All Int'l Terrorist Events	Suicide Attacks
Organizations Claim Responsibility or Suspected	74%	95%
Attacks on Embassies	3.3%	2.6%
Attacks on International Organizations	7%	0%
US buildings or citizens as targets (direct or indirect)	14%	4.6%
Religious Difference Between Perpetrator and Principal Target	57.8%	89.9%
Five Most Common Countries of Origin of Perpetrators (number of events)	India (227) Colombia (97) Yemen (49) Angola (41) Israel (30)	Israel (100) Sierra Leone (75) Lebanon (30) Turkey (13) Saudi Arabia (8)

Table 3: All Events: Sample Means, Depending on Origin, Target or Place

	Pop-Wtd	Perpetrator's	Origin	Targeted	Country
Characteristic	World	Origin	w/o India	Countries	of Occurrence
	Mean	Countries	& Colombia		
GDP per capita ('97-01)	5,577	2,385	3,404	10,640	3,021
Poor	0.32	0.53	0.40	0.39	0.53
Lower Middle	0.37	0.18	0.30	0.08	0.16
Upper Middle	0.15	0.20	0.14	0.15	0.21
Rich	0.17	0.09	0.16	0.38	0.10
GDP Growth '90-00	0.46	0.16	0.03	0.25	0.17
Male Illiteracy Rate	0.17	0.22	0.20	0.16	0.22
Female Illiteracy Rate	0.30	0.38	0.35	0.27	0.38
Total Illiteracy Rate	0.23	0.29	0.25	0.21	0.29
Infant Mortality (/1000)	43.99	61.57	65.59	40.94	61.54
Population (Mil.)	481	315	43	378	321
Freedom Hse Low Civil Rights	4.34	4.37	4.88	3.12	4.18
Freedom Hse Low Pol Rights	4.04	3.64	4.49	2.25	3.45
Freedom House Index	2.06	2.02	2.28	1.49	1.93
Democ. Index (-10 to +10)	2.16	3.94	0.73	7.48	4.35
Instability Dummy	0.07	0.13	0.23	0.06	0.12
Anocracy	0.13	0.28	0.49	0.11	0.28
Ethnic/Linguistic Fractionalization	0.46	0.62	0.49	0.57	0.63
Ethnic Fractionalization	76.79	63.93	60.51	71.93	65.20
Religious Fractionalization	0.29	0.33	0.38	0.36	0.35
Proportion Muslim	0.22	0.32	0.48	0.16	0.29
Proportion Christian	0.30	0.31	0.33	0.43	0.35
Proportion Buddhist	0.07	0.01	0.03	0.02	0.02
Proportion Hindu	0.15	0.24	0.00	0.27	0.24
Oil Exporter (> 1/3 exp rev)	0.09	0.20	0.35	0.08	0.20
Pct. Mountainous Terrain	21.95	22.86	24.80	18.29	21.64
Max. Sample Size	159	781	457	709	769

Note: 7% of events targeted international institutions.

Figure 1: Radar Plot for Origin Countries of Terrorists Relative to All Countries

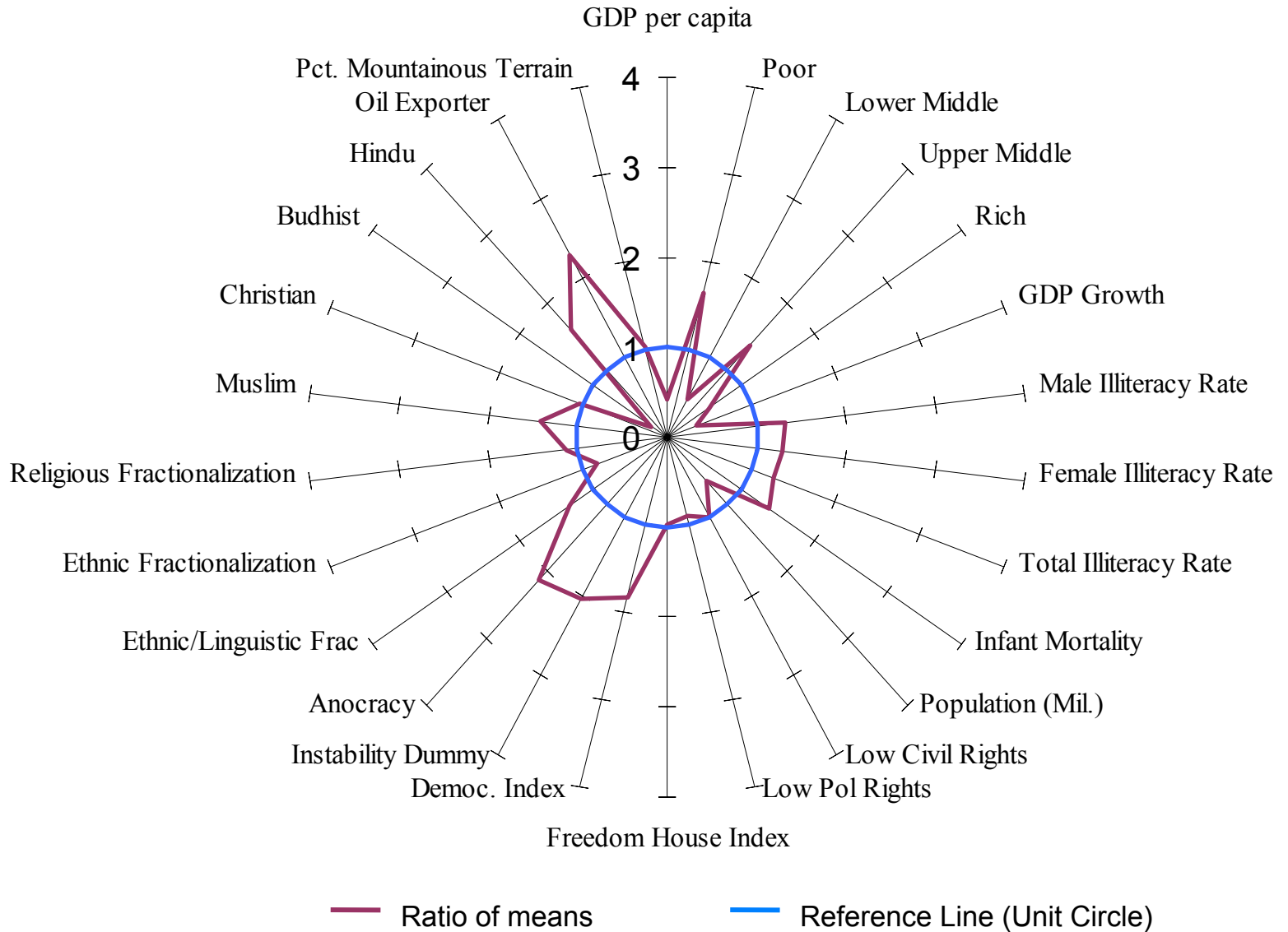


Figure 2: Radar Plot of Targeted Countries of Terrorists relative to All Countries

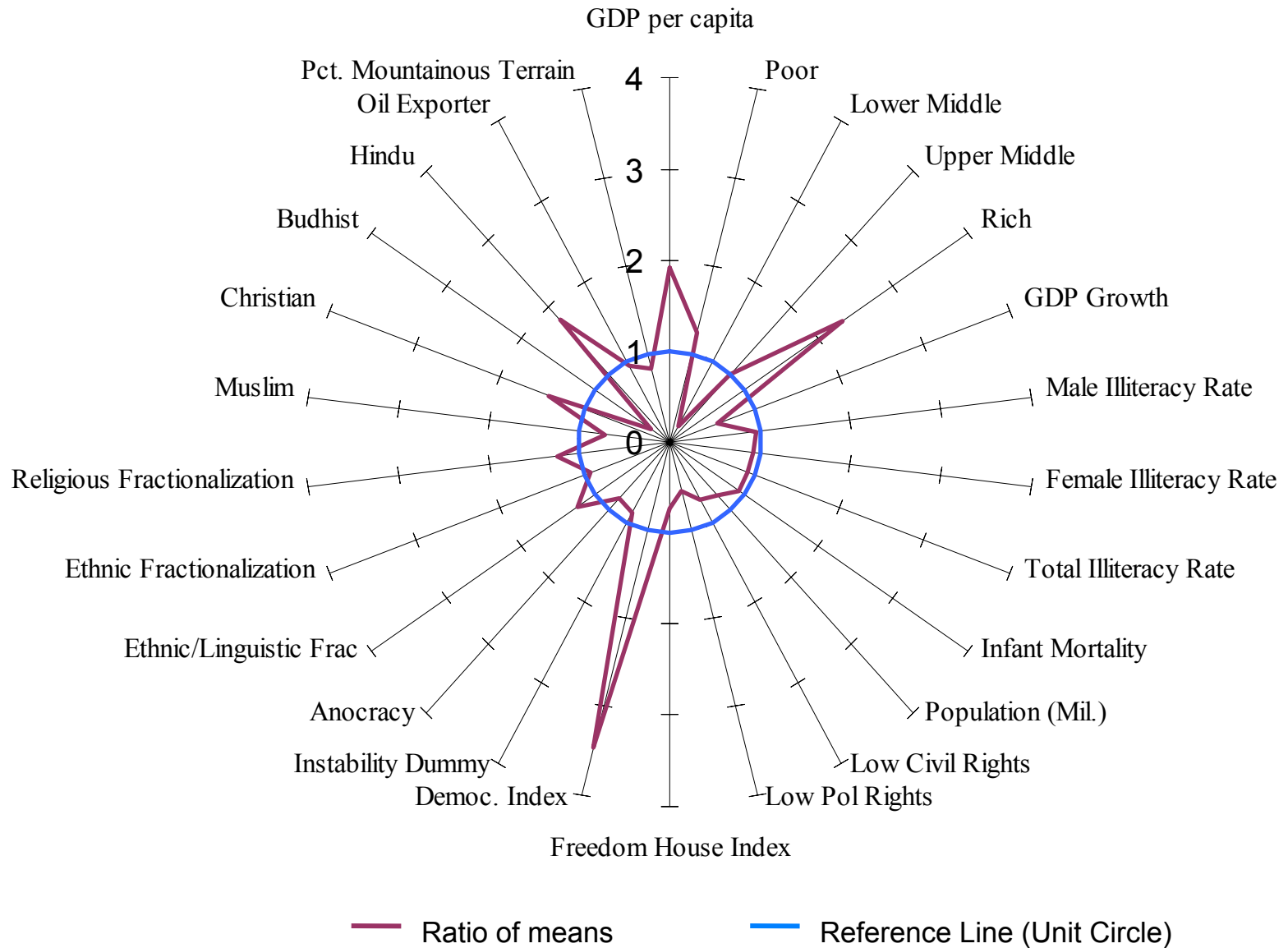
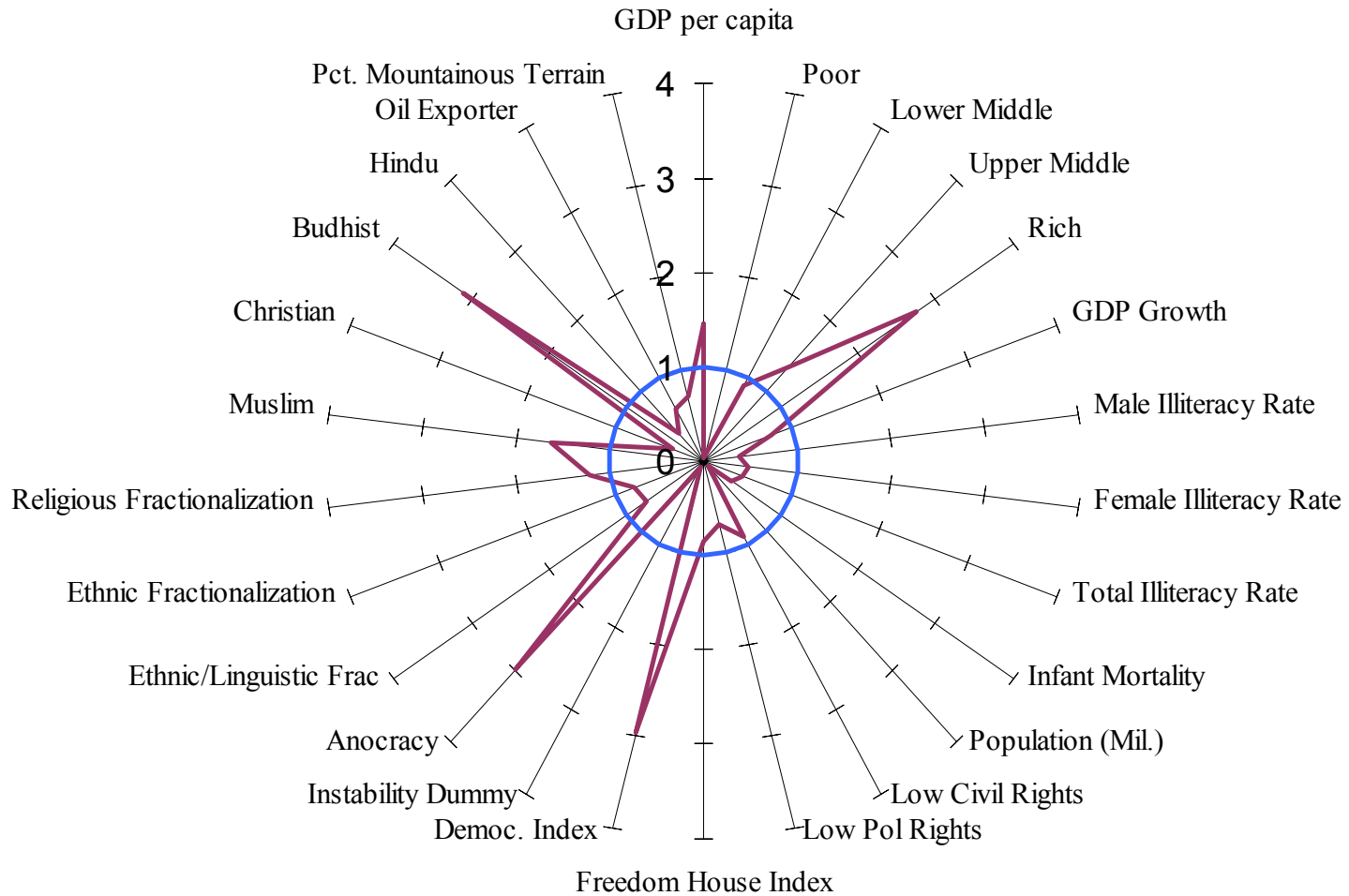


Table 4: Suicides: Sample Means, Depending on Origin, Target or Place

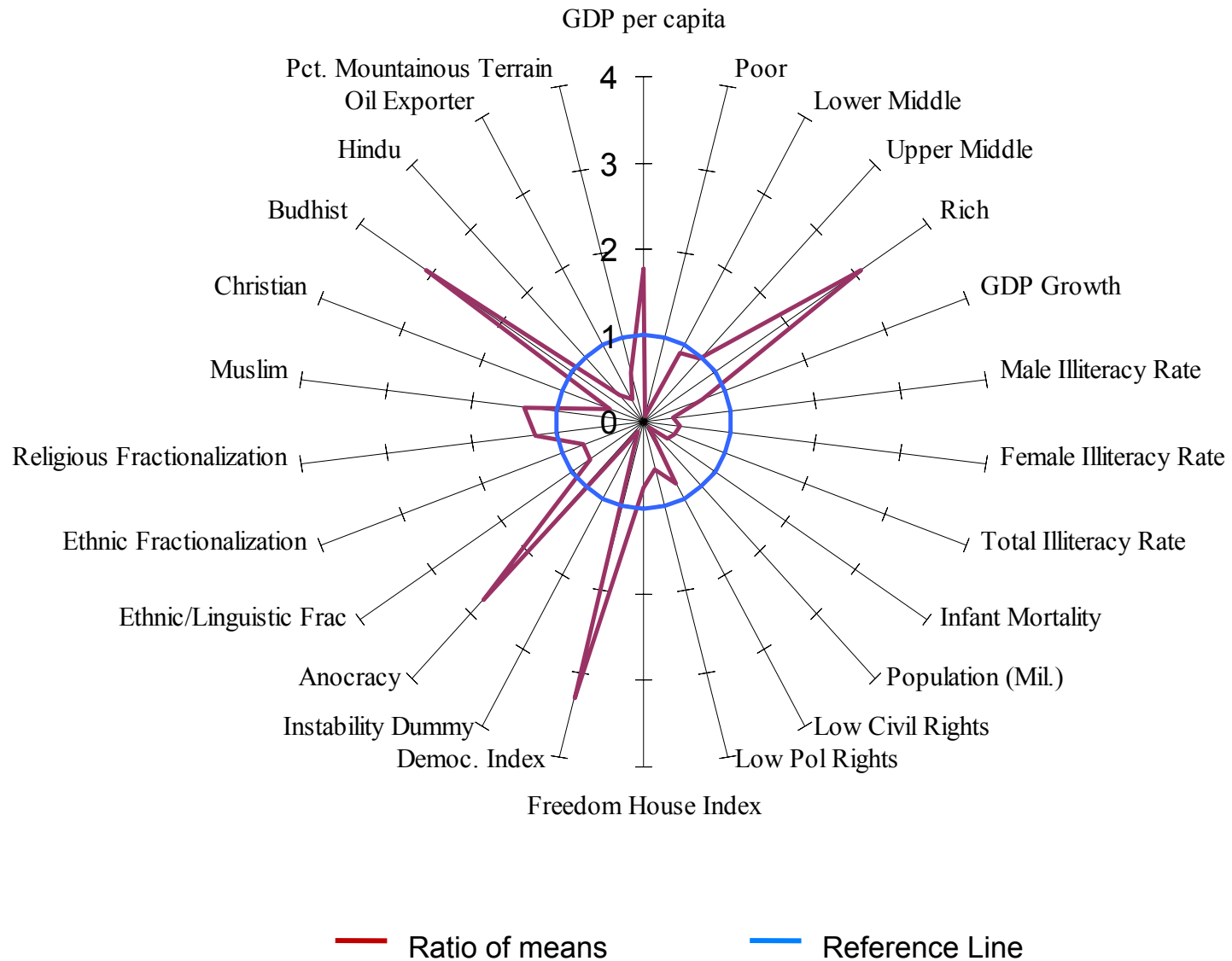
Characteristic	Pop-Wtd World Mean	Perpetrator's Origin Countries	Targeted Countries	Country of Occurrence
GDP per capita ('97-01)	5,577	8125	9875	8,316
Poor	0.32	0.01	0.02	0.03
Lower Middle	0.37	0.33	0.33	0.33
Upper Middle	0.15	0.20	0.14	0.19
Rich	0.17	0.46	0.51	0.45
GDP Growth '90-00	0.46	0.35	0.33	0.35
Male Illiteracy Rate	0.17	0.06	0.06	0.07
Female Illiteracy Rate	0.30	0.14	0.13	0.14
Total Illiteracy Rate	0.23	0.10	0.09	0.10
Infant Mortality (/1000)	43.99	15.50	14.76	16.95
Population (Mil.)	481	34.90	50.70	40
Freedom Hse Low Civil Rights	4.34	3.88	3.56	3.81
Freedom Hse Low Pol Rights	4.04	2.76	2.32	2.68
Freedom House Index	2.06	1.74	1.58	1.71
Democ. Index (-10 - +10)	2.16	6.39	7.11	6.46
Instability Dummy	0.07	0.00	0.01	0.02
Anocracy	0.13	0.39	0.37	0.40
Ethnic/Linguistic Fractionalization	0.46	0.34	0.36	0.36
Ethnic Fractionalization	76.79	60.18	57.22	58.54
Religious Fractionalization	0.29	0.36	0.37	0.37
Proportion Muslim	0.22	0.36	0.31	0.35
Proportion Christian	0.30	0.10	0.13	0.11
Proportion Budhist	0.07	0.22	0.22	0.22
Proportion Hindu	0.15	0.06	0.06	0.06
Oil Exporter (> 1/3 exp rev)	0.09	0.06	0.03	0.05
Pct. Mountainous Terrain	21.95	15.25	12.94	14.90
Max. Sample Size	159	236	236	236

Figure 3: Radar Plot: Origin Countries of Suicide Terrorists / All Countries



— Ratio of means — Reference Line

Figure 4: Radar Plot: Targeted Countries of Suicide Terrorists / All Countries



**Table 5: Terrorist Attacks Per Million Population
(of Origin or Target Country) by Country Characteristics**

Country Characteristic	All Events		Suicide Attacks	
	Origin	Target	Origin	Target
<u>GDP Per Capita</u>				
Quartile 1	0.37	0.11	0.00	0.00
Quartile 2	0.18	0.07	0.10	0.10
Quartile 3	0.17	0.30	0.19	0.11
Quartile 4	0.34	0.47	0.35	0.38
	[p=0.45]	[p=0.00]	[p=0.01]	[p=0.01]
<u>GDP Growth</u>				
< Median	0.31	0.12	0.01	0.00
> Median	0.23	0.30	0.27	0.24
	[p=0.44]	[p=0.01]	[p=0.01]	[p=0.00]
<u>Illiteracy Rate</u>				
< Median	0.27	0.26	0.22	0.23
> Median	0.18	0.19	0.11	0.07
	[p=0.40]	[p=0.01]	[p=0.61]	[p=0.26]
<u>Civil Liberties</u>				
Low	0.42	0.19	0.12	0.07
Medium	0.27	0.38	0.31	0.33
High	0.02	0.12	0.00	0.00
	[p=0.00]	[p=0.00]	[p=0.77]	[p=0.00]
<u>Political Rights</u>				
Low	0.39	0.11	0.11	0.07
Medium	0.30	0.14	0.14	0.14
High	0.13	0.38	0.19	0.20
	[p=0.04]	[p=0.00]	[p=0.95]	[p=0.65]
<u>Political Stability</u>				
Stable	0.23	0.22	0.18	0.16
Instable	0.48	0.16	0.00	0.00
	[p=0.15]	[p=0.48]	[p=0.03]	[p=0.02]
<u>Polity21</u>				
Totalitarian	0.22	0.04	0.01	0.02
Anocracy	0.50	0.14	0.10	0.10
Democracy	0.16	0.33	0.15	0.16
	[p=0.03]	[p=0.00]	[p=0.35]	[p=0.25]

Predominant Religion

Muslim	0.44	0.14	0.18	0.11
Christian	0.21	0.28	0.00	0.00
Buddhist	0.09	0.05	0.44	0.44
Hindu	0.06	0.06	0.00	0.00
Mixed/Other	0.31	0.32	0.61	0.65
	[p=0.26]	[p=0.01]	[p=0.00]	[p=0.00]

Mountainous Terrain

< Median	0.27	0.19	0.23	0.25
> Median	0.35	0.29	0.12	0.06
	[p=0.41]	[p=0.60]	[p=0.61]	[p=0.18]

Ethnolinguistic Fractionalization

< Median	0.22	0.21	0.30	0.26
> Median	0.31	0.23	0.00	0.01
	[p=0.47]	[p=0.52]	[p=0.00]	[p=0.00]

Religious Fractionalization

< Median	0.23	0.23	0.17	0.17
> Median	0.31	0.23	0.15	0.12
	[p=0.52]	[p=0.84]	[p=0.96]	[p=0.72]

Notes: Sample sizes range from 135 to 159 depending on characteristic.

The brackets report the p-value for an chi-square test of the hypothesis that the groups have equal effects from a Negative Binomial regression of the number of events on indicators for the specified groups and log population, constraining the coefficient on population to equal 1.

Table 6: Negative Binomial Regressions with Country-Level Data-Unit of Observation is Country of Origin of Terrorists, Prime Target of Terrorists, or Country Where the Event Occurred

Dependent Variable: Number of International Terrorist Events Associated with Each Country, 1997-2002.

Explanatory Variable	<u>Terrorists' Origin Country</u>		<u>Prime Target Country</u>		<u>Country Where Occurred</u>	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-9.65 (2.83)	-19.39 (3.72)	-13.97 (1.56)	-14.98 (2.08)	-8.28 (2.27)	-13.03 (3.01)
Log Population	0.74* (0.16)	0.94* (0.17)	0.76* (0.08)	0.73* (0.10)	0.64* (0.12)	0.70* (0.14)
Log GDP per capita	-0.17 (0.12)	0.23 (0.20)	0.31* (0.08)	0.43 * (0.14)	-0.13 (0.11)	0.12 (0.19)
GDP Growth	---	-0.42 (0.72)	---	-0.44 (0.58)	---	-0.05 0.68
Civil Liberties Index [1 to 7 (low civ lib)]	---	0.80* (0.27)	---	0.17 (0.16)	---	0.50* (0.25)
Proportion Muslim	---	-0.35 (0.76)	---	-0.45 (0.50)	---	-0.52 (0.70)
Proportion Buddhist	---	-1.25 (1.16)	---	-1.11 (0.83)	---	1.42 (1.02)
Proportion Hindu	---	0.32 (1.59)	---	1.34 (0.98)	---	0.25 (1.36)
Proportion Other	---	1.52 (0.91)	---	0.88 (0.67)	---	0.87 (0.90)
P-Value for 3 religions jointly equal 0	---	0.76	---	0.23	---	0.55
Pseudo-R-Square	0.05	0.09	0.13	0.14	0.05	0.07
Sample Size	150	138	150	138	150	138

Standard errors in parentheses.

Table 7: Target Country's GDP per capita Quartile

Origin Ctry GDP Qrtl.	1	2	3	4
1	0.145	0.001	0.008	0.062
2	0.003	0.022	0.015	0.029
3	0.003	0.001	0.084	0.088
4	0.002	0.002	0.002	0.065

* Entries are number incidents of international terrorism for the cell divided by the geometric mean of population (in millions) in the origin and target country quartiles.

Table 8: Target Country Civil Liberties

Origin Ctry	Low	Medium	High
Low	0.036	0.018	0.073
Medium	0.004	0.154	0.060
High	0.001	0.001	0.021

* Entries are number of incidents of international terrorism for the cell divided by the geometric mean of population (in millions) in the origin and target country civil liberties categories.