Replication and Extension of "Moving Beyond Deterrence: The Effectiveness of Raising the Expected Utility of Abstaining from Terrorism in Israel" (Dugan and Chenoweth 2012)

Introduction:

The causes of terrorism and impacts of counterterrorism policies have occupied a prominent place in the Western psyche since the events of September 11, 2001. While 2001 drew international attention to the issue with the prominence of its target and casualty count, countries worldwide have been searching for solutions to terrorist actions since the mid-20th century (Sandler and Enders 2011). In a 2012 publication for the American Sociological Review, Laura Dugan and Erica Chenoweth made an important contribution to the study of terrorism with their analysis of counterterrorism actions using the Government Actions in a Terrorist Environment – Israel (GATE-Israel) dataset (Dugan and Chenoweth 2012). This dataset, newly collected by the authors, records a wide range of counterterrorism actions performed by five MENA governments (Chenoweth and Dugan 2011). The Israeli component used for this study recorded all actions of the Israeli government towards Palestinian targets from June 1987 through December 2004. Using Reuters articles from the period, the authors collected all references to Israeli actions regardless of action type in order to present a complete view of any potential influences on terrorism, as opposed to a limited consideration of events explicitly targeted at countering terrorist actions. They code these actions as either repressive or conciliatory according to a seven-point scale, and they further differentiate the actions as either directed against specific individuals suspected of terrorist involvement (discriminate) or impacting Palestinians regardless of their involvement in terrorism (indiscriminate).

Dugan and Chenoweth's research question considers the application of rational choice theory towards terrorist behavior, specifically testing whether predictions of terrorists acting to maximize their utility according to rational choice theory are supported in practice. They highlight the importance of considering the impact on utility from both increasing the costs of unwanted behavior and increasing the benefits of desirable behavior. In the case of terrorism, these manifest in deterring terrorist behavior through violence and threats of punishment and in raising the benefits of abstaining from terrorism by improving the status quo for would-be terrorists (Dugan and Chenoweth 2012, 598–603). Dugan and Chenoweth consider five hypotheses which test this rational choice approach with increasing precision:

Hypothesis 1: Any Israeli action leads to fewer terrorist attacks by Palestinians.
Hypothesis 2: Conciliatory actions lead to fewer terrorist attacks by Palestinians.
Hypothesis 3: Repressive actions lead to fewer terrorist attacks by Palestinians.
Hypothesis 4: Indiscriminate repressive actions lead to more terrorist attacks.
Hypothesis 5: Indiscriminate conciliatory actions lead to a larger decrease in terrorist violence than do other actions. (Dugan and Chenoweth 2012, 605–6)

They further refine their study by considering these effects across time periods when Israeli actions reflected distinct policy approaches towards Palestine, classified by the authors as tactical regimes. The time periods considered include the First Intifada (a period of high conflict from 1987 to 1993), the Oslo Lull (a period of relative peace from 1993 to 2000), and the Second Intifada (a period of intense conflict from 2000 to 2004). Finally, for their dependent variable of the count of terrorist attacks, Dugan and Chenoweth rely on the Global Terrorism Database (GTD), a widely utilized, comprehensive database of terrorist attacks from 1970 through the present (National Consortium for the Study of Terrorism and Responses to Terrorism (START), University of Maryland 2019). Initially created by the Pinkerton Global Intelligence Service (PGIS) agency, who ceased their efforts in 1997, this database was built from open-source reporting on terrorist events worldwide. In 2005, the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland collaborated with the Center for Terrorism and Intelligence Studies (CETIS) to complete the records from 1997 onwards with expanded information, and the START team has maintained and updated the GTD into the present day.

Deconstruct an Observation:

Dugan and Chenoweth limit the GTD dataset to consider attacks from 1987 to 2004, mirroring their GATE-Israel dataset. The unit of observation for the GTD is a terrorist event, which the GTD Codebook defines as "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" (START 2019, 12). To meet this definition, the START team requires 1) "[t]he incident must be intentional", 2) "[t]he incident must entail some level of violence or immediate threat of violence", and 3) "[t]he perpetrators of the incidents must be sub-national

actors". Further, the incident must meet two of three additional criteria which will be explained below.

While Dugan and Chenoweth only provide the counts of GTD events aggregated by month in their replication data, they do provide the criteria they use to include an event for their analysis. They require events that involve "at least one Israeli target in Israel or the Palestinian territories" and exclude from this group any events perpetrated by non-Palestinians (Dugan and Chenoweth 2012, 607). Notably, they decide to include attacks by unknown perpetrators, arguing that "the majority of attacks [for which perpetrators are identified] are Palestinian related", so it is likely the majority of the Unknown attacks will be by Palestinians as well (Dugan and Chenoweth 2012, 607). They argue there is a low chance that any errors resulting from this assumption will be systematic, though this judgement is open to interpretation and must be kept in mind when considering their results.

Using Dugan and Chenoweth's parameters, I recreated the dataset from the raw GTD data in order to examine individual observations. In this recreation, I included an indicator for whether the attack perpetrators were confirmed Palestinian or Unknown. Comparing my values with Dugan and Chenoweth's, out of 199 month-year records, forty-four contain different overall counts from Dugan and Chenoweth, but only five differ by more than two attacks. In spot-checking certain month-years which differ, it appears these differences can be explained by the work the START team has done since Dugan and Chenoweth performed their analysis. According to the GTD Codebook, since 2011 the data collection has been performed by START staff who have "retroactively coded several key variables not originally available for the PGIS cases [and] conducted numerous quality control projects […] and supplemental data collection efforts" (START 2019, 4). Using the most extreme divergence as an example, my recreated dataset contains seven additional attacks for February 2002 which meet Dugan and Chenoweth's criteria. Four of these are in fact sourced from the UMD Schmid 2012 data collection, which would not have been present when Dugan and Chenoweth conducted their analysis.[1] It is uncertain which three of the remaining attacks were added after Dugan and Chenoweth's analysis, but a consideration of all GTD records for February 2002 in the recreated dataset match Dugan and Chenoweth's requirements of 1) at least one Israeli target, 2) occurred in Israel or Palestinian territories, and 3) no specified non-Palestinian perpetrators. Thus, I will consider this

[1] These are Event IDs 200202210002, 200209020001, 200202220004, 200208020006

recreated GTD dataset when I need to view observation-level records, as it is a near-match to Dugan and Chenoweth's version and potentially more accurate due to the START team's revisions.

To deconstruct one of the observations incorporated in Dugan and Chenoweth's study, we can consider the event recorded on September 27, 2000, coded with Event ID 200009270011 in the GTD. The GTD summarizes: "09/27/2000: A bomb exploded in the Netzarim settlement of the Gaza Strip killing an Israeli Soldier and wounding another. No one claimed responsibility for the attack, however Islamic militants were suspected." Media depictions of this event are available from Western and Israeli sources and can provide external information when considering the GTD's coding.[2]

This event was intentional and violent, meeting the first two requirements for GTD inclusion. While the perpetrators are recorded as Unknown (under the variable gname), the GTD assumes they are sub-national actors and not representatives of a state. In the case of Palestinian actors, particularly Hamas, this could be a cause of uncertainty. For example, after Hamas's election victory in 2006 and subsequent seizure of the Gaza Strip, despite being removed from official leadership, they have maintained "de facto authority over Palestinians in the Gaza Strip" (Laub 2014). While the events in our study occurred before the 2006 election, it speaks to the START team's coding choices that they do not classify events perpetrated by Hamas with the alternate designation 'State Actor' after 2012, when the team began systematically including such indications of doubt that the "incident in question is exclusively terrorism" (START 2019, 11). While most would likely agree with the assessment that, unless directly sponsored and overseen by an internationally recognized governmental body, it is accurate to classify perpetrators of terrorism as non-state actors, it is worth recognizing that the GTD has made this classification of the perpetrators while refraining from identifying a specific group.

This seemingly tenuous basis for determining which classifications are justified is further shaken when considering the additional criteria which are required for inclusion in the GTD: 1) "[t]he act must be aimed at attaining a political, economic, religious, or social goal", 2) "[t]here must be evidence of an intention to coerce, intimidate, or convey some other message to a larger

[2] For some examples, I direct the reader to: Associated Press 2000; Hockstader 2000; *Reuters News* 2000a; *Reuters News* 2000b; Neilan 2000; "Victims of Palestinian Violence and Terrorism since September 2000" n.d.; "September 27, 2000 | Chronology of the Palestinian-Israeli Conflict" n.d.

audience (or audiences) than the immediate victims", and 3) "[t]he action must be outside the context of legitimate warfare activities". While only two of these three are required, the GTD observation for this event identifies all three as met. Without identification of the perpetrators, the first two of these are again assumptions based on the choice of target and the attack's context within the larger Israeli-Palestinian conflict. While most would likely accept this designation given the societal understanding of a terrorist act, the GTD's own record for this event lists the motive as Unknown, and with no claim of responsibility, the designation of this event as meeting the first two criteria rests on grounds of supposition rather than firm evidence.

The difficulties in precisely assigning and defining terrorist actions are numerous, as this example has made clear. While a casual, unaffiliated observer would likely have little trouble agreeing that this event was a terrorist act, when scholars attempt to set firm parameters the difficulty compounds. In my view, the greatest challenge to the GTD's coding of this and other events is the decision to designate the group as Unknown while still classifying the group as non-state actors who are aiming for a specific goal and have the intent to intimidate, coerce, or convey a message. In order for these classifications to be true, the GTD is necessarily making assumptions about the perpetrators, so it seems ineffective and inconsistent to avoid a group designation for this record, especially given their extensive use of the generic 'Palestinian' group name for perpetrators in other attacks. Israeli and Western media sources from this period do identify Palestinians as the perpetrators (Associated Press 2000; *Reuters News* 2000a), and as the GTD is openly sourced from the media, it seems that providing a group designation, while perhaps making use of the uncertainty flag already present in the database, might be preferable and beneficial to the GTD's user base.

Replication

Despite these challenges of classifying terrorism, the GTD still serves as an invaluable and comprehensive resource for scholars and policy makers attempting to learn from past events, as exemplified by Dugan and Chenoweth. For this analysis, Dugan and Chenoweth have made public the Stata data file they compiled, which contains counts of terrorist attacks from the GTD and counts of government actions from the GATE-Israel database aggregated at the month level. Their replication code allows for recreating their primary negative binomial regression models, which consider 1) the effect of all government actions, 2) the effect of conciliatory and

repressive government actions, and 3) the effect of indiscriminate and discriminate conciliatory and repressive actions. They test "for both linear and nonlinear relations using squared terms" for government actions, though the coefficients for squared terms are only shown if they are significant (Dugan and Chenoweth 2012, 609–10). The results of my running these analyses with their script and replication data (Table 1) align with Dugan and Chenoweth's published results (Table 2)[3].

First considering the control variables, Dugan and Chenoweth find attacks increased during the First and Second Intifadas, as indicated by the positive and significant coefficient for these variables. They also find a significant, negative effect for the variable they included to account for the shift in collection methodology post-1997, indicating the retrospective collection of these events likely resulted in undercounting. They further find the number of attacks committed one and three months prior also has a significant positive effect across all three models, as indicated by the positive coefficient for the first and third lagged attack variables.

Turning next to their hypotheses, Dugan and Chenoweth find no effect of indiscriminate Israeli actions on terrorist attacks, which indicates the data do not support their first hypothesis. They do, however, find conciliatory actions have a significant negative effect on terrorist attacks from Model 2, as predicted by Hypothesis 2. Only the squared conciliatory term is significant, which they suggest may indicate a higher number of conciliatory actions required to produce this effect. This finding is expanded in Model 3, with the squared indiscriminate conciliatory action term having a significant negative effect. These results provide no support for hypotheses which predict repressive actions to be effective at suppressing terrorism and instead show slim support for the claim of Hypothesis 5 that indiscriminate conciliatory actions are effective as a counterterrorism policy, albeit in high quantities. This caveat requiring a sustained policy of many conciliatory actions is reinforced in their consideration of effects by regime type (see Appendix 1, Tables 1a and 1b). While they continue to find negative, significant coefficients for conciliatory and conciliatory-indiscriminate squared terms when breaking down the models by regime, in all but the Second Intifada period small numbers of conciliatory actions (identified by

[3] Results in Table 1 match Dugan and Chenoweth's analyses precisely except for the Conciliatory-Discriminate coefficient in Model 3. Dugan and Chenoweth report -0.006, whereas using their replication data and code produced -0.003. Given that all other coefficients and standard errors match exactly, the source of this discrepancy is uncertain – perhaps a typo or a change in the dataset Dugan and Chenoweth used from the one they provided for replication, though such a change would be unlikely to affect this single coefficient in isolation.

the non-squared conciliatory term) actually correspond to increased terrorist attacks (Dugan and Chenoweth 2012, 617). This aspect of their findings will be further discussed in the Extension.

Table 1. Negative Binomial Coefficients and (SE), June 1987 through December 2004, n = 191 (Dugan Chenoweth Replication Data)

	Model 1	Model 2	Model 3
All Actions	0.00482 (0.00428)		
Conciliatory		0.0484 (0.0313)	
Conciliatory^2		-0.00280* (0.00124)	
Repressive		0.00856 (0.00595)	
Conciliatory-Discriminate			-0.00257 (0.0411)
Conciliatory-Indiscriminate			0.0511 (0.0355)
(Conciliatory-Indiscriminate)^2			-0.00344* (0.00159)
Repressive-Discriminate			0.0159 (0.0150)
Repressive-Indiscriminate			0.00538 (0.00813)
First Intifada	0.732*** (0.159)	0.626*** (0.185)	0.660*** (0.191)
Second Intifada	1.263*** (0.264)	1.120*** (0.277)	1.153*** (0.278)
GTD2	-1.023*** (0.255)	-1.032*** (0.252)	-1.028*** (0.253)
First Lagged Attacks	0.0231* (0.0113)	0.0249* (0.0114)	0.0254* (0.0115)
Second Lagged Attacks	-0.000685 (0.00960)	0.00392 (0.00987)	0.00175 (0.00981)
Third Lagged Attacks	0.0346** (0.0106)	0.0349*** (0.0106)	0.0340** (0.0107)
Fourth Lagged Attacks	0.0183 (0.0107)	0.0200 (0.0106)	0.0203 (0.0107)

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2. Negative Binomial Coefficients and (SE), June 1987 through December 2004, n = 191 (Dugan and Chenoweth Original Table)

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

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

A final consideration for this analysis comes in replicating Dugan and Chenoweth's models with the dataset I recreated from the updated GTD, described above. The analysis of this recreated dataset, presented in Table 3, finds that the squared term of indiscriminate conciliatory actions does not have a significant effect on terrorist attacks unless considered at the $p < 0.1$ significance level ($p = 0.056$). I do still find a significant negative effect for squared conciliatory actions when using the recreated dataset to run Model 2, which upholds the support of Hypothesis 2 using this updated data.[4] The failure to entirely replicate Dugan and Chenoweth's results with an updated version of the GTD is concerning, as it suggests that their findings of the benefits of conciliatory actions for reducing terrorism may have relied on missing events or subjective coding. While this is always a concern and a source of caution in performing quantitative analyses of events which are nebulous, poorly documented, or difficult to classify, in the case of terrorist actions we may be able to find additional clarity through verification with alternate data sources.

Table 3. Negative Binomial Coefficients and (SE), June 1987 through December 2004, n = 191 (Recreated GTD dataset)

	Model 1	Model 2	Model 3
All Actions	0.00434 (0.00428)		
Conciliatory		0.0451 (0.0308)	
Conciliatory^2		-0.00265* (0.00121)	
Repressive		0.00803 (0.00594)	
Conciliatory-Discriminate			-0.00402 (0.0402)
Conciliatory-Indiscriminate			0.0408 (0.0349)
(Conciliatory-Indiscriminate)^2			-0.00293 (0.00153)

[4] A further consideration available with this recreated GTD dataset would be to reject Dugan and Chenoweth's argument for including all unknown terrorist attacks in the analysis and only include attacks by known Palestinian perpetrators. The results of this analysis find no significant effects for any kind of action (see Appendix 1, Table 2) and serve to highlight the impact of choices surrounding the inclusion of records. This is further discussed in the Extension.

Repressive-Discriminate			0.0140 (0.0147)
Repressive-Indiscriminate			0.00576 (0.00803)
First Intifada	0.707*** (0.156)	0.602*** (0.181)	0.626*** (0.187)
Second Intifada	1.247*** (0.263)	1.109*** (0.275)	1.137*** (0.276)
GTD2	-1.009*** (0.250)	-1.025*** (0.248)	-1.021*** (0.249)
First Lagged Attacks	0.0243* (0.0104)	0.0253* (0.0105)	0.0260* (0.0107)
Second Lagged Attacks	-0.000210 (0.00953)	0.00373 (0.00970)	0.00192 (0.00967)
Third Lagged Attacks	0.0316** (0.0101)	0.0319** (0.0101)	0.0314** (0.0102)
Fourth Lagged Attacks	0.0209* (0.0106)	0.0221* (0.0105)	0.0221* (0.0105)

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Extension:

Dugan and Chenoweth's findings rely, as in any quantitative work, on the coding and quality of the datasets they are analyzing. The use of the GTD is particularly interesting to consider, as it is recognized by many scholars as the primary source for terrorist events (For some examples, see Polo 2020, 242; Hsu and McDowall 2020, 494; Vidal-Diez and Argomaniz 2015, 9). Scholars rightly appreciate this comprehensive, open-source collection of domestic and transnational terrorist events, but Dugan and Chenoweth also acknowledge potential shortcomings, including that "open sources are biased toward the most noteworthy events" and thus may skew the data through undercounting (Dugan and Chenoweth 2012, 607). Additionally, data from 1993 are missing from the GTD, which is particularly relevant for the study of terrorism in Israel and Palestine as 1993 was transition year between the First Intifada and the Oslo Lull decision regimes, and thus these actions may not be comparable to terrorist events within regime periods. Finally, the data collection methodology for the GTD shifted for events after 1997, when the original creators at PGIS ceased collecting data. In 2005, when the START

team at the University of Maryland collaborated with CETIS to complete the records from 1997 onwards, the retrospective nature of these additions and necessarily differing methodologies and access levels may have impacted post-1997 results, despite every effort to remain as consistent as possible (START 2019, 4–5). Indeed, the significant negative coefficient found for Dugan and Chenoweth's post-1997 control variable (GTD2) suggests this shift in methodology did impact the composition of the GTD and must be accounted for in any analysis (see Tables 1 and 2).

An alternate data source to consider in validating Dugan and Chenoweth's findings is the RAND Database of Worldwide Terrorism Incidents (RDWTI), which has compiled international terrorism incidents since 1972 and included domestic incidents since 1997 (RAND National Security Research Division 2009). While this source also went through a series of iterations, first as the RAND Terrorism Chronology and then as the RAND-MIPT Terrorism Incident Database, the expertise of RAND researchers and the difference in purpose and methodology between RAND and the GTD provide strong motivation to leverage the RDWTI in terrorism studies.[5] In particular, comparisons note that the for-profit PGIS was motivated by best serving their clients' risk assessments, whereas RAND's work was intended to guide US terrorism policy from the outset, and thus their definition of terrorism, methodology, and access to information are tailored to this goal (Laura Dugan et al. 2008, 2). While the GTD contains more information for each event, precluding the use of RAND in some studies dependent on the scope, for the purpose of considering aggregated terrorist events it is worthy of consideration. This justification is amplified for events occurring after January 1998, when RAND began recording domestic and transnational incidents under its partnership with the National Memorial Institute for the Prevention of Terrorism (MIPT) (LaFree and Dugan 2009, 442). As many Palestinian terrorist attacks occur in occupied Palestinian territories, they are classified as domestic incidents even though they may target Israeli nationals. Thus, for a consideration of Israeli-Palestinian terrorism, this inclusion makes the RAND dataset directly comparable to the GTD.

RAND defines terrorism similarly to the GTD, identifying the key elements as "violence or the threat of violence, [being] calculated to create fear and alarm, [being] intended to coerce certain actions, [motivated by] a political objective, generally directed against civilian targets, [and committed by] a group or an individual" (RAND National Security Research Division

[5] In fact, Dugan also contributed to the creation of a joint GTD-RAND database, though at a time when the post-1997 GTD events were not yet available (LaFree and Dugan 2009).

2009). While the definition of terrorism is similar, RAND's database can contain significant differences from the GTD. We can consider as an example the attack deconstructed above, which was one of three events recorded by the GTD in Israel or the Palestinian territories for the month of September 2000.[6] These attacks represent two bombings and one armed assault committed against members of the Israeli military and police forces. By contrast, RAND's entries for September 2000 include four entirely different attacks directed against Israeli targets: two involving a stabbing, one involving firearms, and another utilizing firebombs.[7] While all seem to be worthy of inclusion for the purposes of studying counterterrorism effectiveness, it is noteworthy that RAND does not contain any of the GTD events and the GTD does not contain any of the RAND events. For the RAND database, this may be due to the military and police targets in the GTD attacks, although RAND does include some reports of attacks against Israeli security officials.[8] While there would certainly be value in consolidating both data sources to provide a more complete consideration of terrorist events, for the purposes of this study I will perform complementary analyses using only the RAND data to expand upon Dugan and Chenoweth's GTD findings.

To utilize the RAND data to replicate Dugan and Chenoweth's study, I first considered all records from June 1987 through December 2004 which occurred in Israel or the Palestinian territories. The RAND database does not provide identification of the nationality of the targets, unlike the GTD. With this limitation, in order replicate as closely as possible the GTD filtering which included only Israeli targets and excluded explicit non-Palestinian groups, I labeled each Perpetrator in the RAND dataset according to their affiliation (Palestinian, Not Palestinian, or Unknown) to identify relevant attacks. A comparison of the resulting attacks for the entire date range, however, revealed a stark divide after January 1998 due to the inclusion of domestic incidents (Table 4). While there are 2049 attacks recorded in Israel or Palestine from 1987 to 2004, 1830 of these attacks (89%) took place after 1998. In order to account for this shift, one option available is to add an indicator variable for the post-1998 period in the regression, similar to Dugan and Chenoweth's addition of a post-1997 indicator for the change in GTD data collection methodology (GTD2) (Dugan and Chenoweth 2012, 607). The results of an analysis

[6] The Event IDs for these Sept, 2000 attacks in the GTD are 200009270011, 200009280001, and 200009290003.
[7] These events in the RDWTI are reported as occurring on September 15th, 16th, 16th, and 23rd of 2000.
[8] See for example the October 27, 2000 bomb which injured an Israeli Border Policeman, or the fatal stabbing of an Israeli soldier on May 19, 1987.

performed across the entire timeframe using such an indicator (RAND2) are reported in Appendix 1, Table 3. These models mirror Dugan and Chenoweth's findings of a significant negative impact of numerous conciliatory and conciliatory indiscriminate actions (represented by the squared terms) on terrorist attacks.

Given the extent of the shift in the RAND database, however, it seems preferable to perform our main analysis with only post-1998 data. While it is not ideal to shrink an already limited sample range, considering 1998 – 2004 still provides an acceptable sample of eighty-four months and avoids this potential source of error.

Table 4: Summary Statistics for GTD and RAND Terrorist Attacks in Israel and Palestine

	Perpetrator Affiliation	**Average Attacks per Month**	**Total Attacks (1987 – 2004 unless specified)**
Dugan and Chenowith Original	Palestinian and Unknown	6.07	1208
Dugan and Chenowith Original post-1998	Palestinian and Unknown	5.21	438
GTD Recreated from Updated Data	Palestinian and Unknown	6.33	1266
GTD Recreated from Updated Data	All Perpetrators	6.57	1314
GTD Recreated from Updated Data	Palestinian Identified	4.37	874
RAND	Palestinian and Unknown	9.6	2025
RAND post-1998	Palestinian and Unknown	21.63	1817
RAND	All Perpetrators	9.71	2049
RAND post-1998	All Perpetrators	21.79	1830
RAND	Palestinian Identified	3	632
RAND post-1998	Palestinian Identified	6.39	537

With this reduced dataset of attacks between 1998 and 2004 committed in Israel or the Palestinian territories, it is next left to consider the classification of perpetrators. As noted above, Dugan and Chenoweth determine that, with 70% of attacks identified and the majority Palestinian affiliated, it is preferable to include all Unknown attacks in their analysis with the assumption that most will be Palestinian affiliated and any non-Palestinian attacks will be

randomly distributed.[9] However, the RAND data do not display the same characteristics. Only 30.0% of the post-1998 attacks have identified perpetrators, so although 96.3% of identified attacks were committed by Palestinians, it is more controversial to include all Unknown attacks in an analysis using the RAND data. An argument could be made in support of including all unknowns on similar grounds to Dugan and Chenoweth's argument, namely that the location of the attacks in Palestinian or Israeli territory coupled with the high proportion of Palestinian perpetrators among the identified attacks is sufficient reason to suggest most Unknown attacks are also Palestinian related, with attribution errors randomly distributed. In deference to this argument, I include the three primary models for all attacks by Palestinian or Unknown perpetrators from 1998 to 2004 in Appendix 1, Table 4. These models find no significant effect from any government actions on the level of terrorist violence, which contradicts Dugan and Chenoweth's findings if we accept the inclusion of Unknown perpetrators as valid for the RAND dataset.

However, I believe the specifics of the RAND dataset make a stronger case for excluding all Unknown attacks from the analysis. By the inverse of Dugan and Chenoweth's logic, it can be argued that the attacks which are identified as Palestinian related are a representative sample of all Palestinian attacks. That is, while we are likely missing Palestinian attacks by only considering identified events, it is unlikely we are missing these attacks according to any pattern. Even in periods when a group might be more willing to claim responsibility for attacks, for example during the Second Intifada, it is likely other Muslim terrorist organizations targeting Israel would see a similar increase in anti-Israel, pro-Muslim sentiment and thus be no less likely to claim responsibility than Palestinian organizations.[10] In the case of Jewish terrorist organizations, these same variations in hostility levels would likely provoke similar responses, as during times of tense relations both sides would have greater incentive to publicize their actions to their supporters. While it is possible we are introducing systematic errors due to excluding any Unknown attacks, this approach seems likely to introduce fewer errors than assuming the 70% of

[9] An analysis of my recreated GTD dataset find similar proportions to those reported by Dugan and Chenoweth: 70.2% of all attacks in Israel or Palestine have an identified perpetrator and 94.8% of all known-perpetrator attacks are Palestinian related.

[10] Consider the example of Hezbollah, which was the primary non-Palestinian, non-Israeli perpetrator in both the GTD and RAND databases. While Israel and Lebanon have been in conflict external to Israel's conflict with Palestine, Hezbollah was frequently supportive of the Palestinian cause, scaling tensions in tandem with Israeli-Palestinian relationships. While Hezbollah and Hamas have suffered setbacks in their relationship since 2004, over the time frame of this analysis relations were relatively positive (Gidda 2014; Melhem 2019; Levitt 2003).

Unknown attacks are all Palestinian related. I will therefore proceed using only Palestinian attacks as the more reliable and appropriate approach.

These considerations produce our final dataset, encompassing attacks from 1998 to 2004 which occurred in Israel or the Palestinian territories and were identified as Palestinian-perpetrated. This conservative approach provides 537 attacks for consideration over eighty-four months (Table 4). Using the same independent and control variables as Dugan and Chenoweth (aside from removing the First Intifada and RAND2 variables which are no longer relevant given the shortened time frame), the results of modeling the RAND attacks with a negative binomial regression are shown in Table 5. As expected, we find a positive and significant effect for our Second Intifada variable across all models, confirming that attacks were higher during the Second Intifada than during the preceding Oslo Lull. We also find that one-month lagged attacks have a significant and positive effect across all models.

Table 5. Negative Binomial Coefficients and (SE), Jan 1998 through December 2004, n = 84 (RAND Terrorism Database, confirmed Palestinian-affiliated)

	Model 1	Model 2	Model 3
All Actions	-0.00540 (0.00496)		
Conciliatory		0.139* (0.0541)	
Conciliatory^2		-0.00721** (0.00263)	
Repressive		-0.00544 (0.00646)	
Conciliatory-Discriminate			-0.0828 (0.0795)
Conciliatory-Indiscriminate			0.157** (0.0547)
(Conciliatory-Indiscriminate)^2			-0.00878** (0.00311)
Repressive-Discriminate			-0.0128 (0.0177)
Repressive-Indiscriminate			-0.00322 (0.00798)
Second Intifada	2.574*** (0.417)	2.495*** (0.425)	2.473*** (0.431)

First Lagged Attacks	0.0542***	0.0527***	0.0489***
	(0.0135)	(0.0129)	(0.0130)
Second Lagged Attacks	0.000896	0.0134	0.00820
	(0.0197)	(0.0196)	(0.0189)
Third Lagged Attacks	0.0372	0.0269	0.0340
	(0.0195)	(0.0185)	(0.0204)
Fourth Lagged Attacks	0.0306	0.0304	0.0402*
	(0.0193)	(0.0183)	(0.0193)

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In considering the hypotheses of interest, we first turn to Model 1 in testing whether Israeli actions overall have an impact on Palestinian attacks. In agreement with Dugan and Chenoweth, we do not find a statistically significant effect for the All Actions variable, providing no support for Hypothesis 1. Hypotheses 2 and 3 consider conciliatory and repressive actions separately, and our analysis indicates that small numbers of conciliatory actions can in fact have a positive effect on Palestinian attacks, whereas higher numbers of conciliatory actions have a significant negative effect, as indicated by the conciliatory squared term. This also aligns with Dugan and Chenoweth's findings, particularly when broken out by regime: they found significant negative effects for high numbers of conciliatory actions (the conciliatory squared term), whereas for all periods besides the Second Intifada they found small numbers of conciliatory actions in fact indicated an increase in attacks (see Appendix 1, Tables 1a and 1b). They hypothesize this effect could be due to small numbers of conciliatory actions provoking doubt of Israel's sincerity and increasing armed resistance, whereas large numbers of conciliatory actions may be more convincing and lead to a decrease in violence.

Turning to Hypotheses 4 and 5, we consider the effects of conciliatory and repressive actions broken out as discriminate or indiscriminate. We again find similar results to Dugan and Chenoweth, with a significant negative effect from large numbers of conciliatory indiscriminate actions, identified by the squared term. These results support Hypothesis 5, indicating that indiscriminate conciliatory actions drive the effects we see on attack counts rather than conciliatory actions directed towards terrorists specifically. However, we also find a significant positive effect from the non-squared term for indiscriminate conciliatory actions, mirroring Model 2 in demonstrating a positive effect on attacks from small numbers of conciliatory actions. This finding is not present in Dugan and Chenoweth's analysis for Model 3, and thus the

question of what is driving the different response to small and large numbers of conciliatory actions is especially pressing. Further study across a longer time frame may be able to provide some answers, as may studies which consider a range of countries and time periods in which differing levels of conciliatory actions were employed.

While a consideration of the RAND dataset provides further support for Dugan and Chenoweth's conclusion that governments may see increased benefits from a sustained policy of conciliation towards the target community, the differing impact due to duration and number of conciliatory actions was reinforced using in the RAND analysis. If upheld with further study, this presents a challenge to governments considering counterterrorism policy. In addition to the cost – both political and monetary – of sustained conciliatory actions towards antagonistic communities, the conclusion of these analyses that they may in fact see an increase in terrorist incidents at the outset of their policies (Dugan and Chenoweth 2012, 614) will make implementation and societal support for these policies more difficult to achieve. Nevertheless, the significant negative consequences to a community's safety, productivity, and happiness which accompany regular terrorist events make even challenging and costly counterterrorism policies worthwhile and necessary. The work of scholars performing empirical analyses of terrorism can be a valuable resource in reducing the costs and improving the effectiveness of these policies; thus, despite the challenges of such empirical work, with perseverance and continual methodological refinement the impacts of this research on society can be profound.

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Appendix 1

Table 1a. Negative Binomial Coefficients and (SE) for Government Actions in Model 2 for Each Tactical Regime (Originally Table 6b in Dugan and Chenoweth, 2012)

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

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

Table 1b. Negative Binomial Coefficients and (SE) for Government Actions in Model 3 for Each Tactical Regime (Originally Table 6c in Dugan and Chenoweth, 2012)

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

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

Table 2. Negative Binomial Coefficients and (SE), June 1987 through December 2004, n = 191 (Recreated GTD dataset, only Palestinian actors)

	Model 1	Model 2	Model 3
All Actions	0.00319 (0.00481)		
Conciliatory		0.0215 (0.0343)	
Conciliatory^2		-0.00188 (0.00139)	
Repressive		0.00970 (0.00668)	
Conciliatory-Discriminate			-0.0296 (0.0483)
Conciliatory-Indiscriminate			0.0102 (0.0382)
(Conciliatory-Indiscriminate)^2			-0.00156 (0.00172)
Repressive-Discriminate			0.00970 (0.0163)
Repressive-Indiscriminate			0.0106 (0.00847)
First Intifada	1.023*** (0.187)	0.848*** (0.211)	0.867*** (0.216)
Second Intifada	1.841*** (0.356)	1.628*** (0.368)	1.635*** (0.370)
GTD2	-1.223*** (0.355)	-1.234*** (0.354)	-1.234*** (0.355)
First Lagged Attacks	0.0358* (0.0166)	0.0372* (0.0164)	0.0361* (0.0165)
Second Lagged Attacks	0.0221 (0.0153)	0.0281 (0.0154)	0.0264 (0.0154)
Third Lagged Attacks	0.0381* (0.0158)	0.0391* (0.0158)	0.0403* (0.0161)
Fourth Lagged Attacks	0.0316* (0.0161)	0.0357* (0.0161)	0.0353* (0.0163)

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3. Negative Binomial Coefficients and (SE), June 1987 through December 2004, n = 207 (RAND Terrorism Database, confirmed Palestinian-affiliated)

	Model 1	Model 2	Model 3
All Actions	-0.00539 (0.00490)		
Conciliatory		0.0714 (0.0423)	
Conciliatory^2		-0.00380* (0.00181)	
Repressive		-0.00397 (0.00683)	
Conciliatory-Discriminate			-0.0136 (0.0575)
Conciliatory-Indiscriminate			0.103* (0.0466)
(Conciliatory-Indiscriminate)^2			-0.00620** (0.00235)
Repressive-Discriminate			-0.00672 (0.0186)
Repressive-Indiscriminate			-0.00397 (0.00862)
First Intifada	-0.186 (0.242)	-0.190 (0.261)	-0.138 (0.265)
Second Intifada	2.513*** (0.431)	2.429*** (0.439)	2.448*** (0.443)
RAND2	-1.344** (0.413)	-1.365*** (0.412)	-1.355** (0.412)
First Lagged Attacks	0.0497** (0.0155)	0.0496*** (0.0151)	0.0486** (0.0151)
Second Lagged Attacks	0.00903 (0.0221)	0.0147 (0.0215)	0.0138 (0.0211)
Third Lagged Attacks	0.0335 (0.0218)	0.0281 (0.0211)	0.0262 (0.0216)
Fourth Lagged Attacks	0.0397 (0.0220)	0.0400 (0.0213)	0.0427 (0.0218)

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4. Negative Binomial Coefficients and (SE), Jan 1998 through December 2004, n = 84
(RAND Terrorism Database, attacks by Palestinian and Unknown perpetrators)

	Model 1	Model 2	Model 3
All Actions	0.00611 (0.00455)		
Conciliatory		0.0325 (0.0437)	
Conciliatory^2		-0.00178 (0.00186)	
Repressive		0.00644 (0.00617)	
Conciliatory-Discriminate			-0.0748 (0.0648)
Conciliatory-Indiscriminate			0.0422 (0.0441)
(Conciliatory-Indiscriminate)^2			-0.00208 (0.00192)
Repressive-Discriminate			0.00688 (0.0153)
Repressive-Indiscriminate			0.00646 (0.00888)
Second Intifada	1.845*** (0.237)	1.820*** (0.243)	1.789*** (0.244)
First Lagged Attacks	0.0178*** (0.00464)	0.0180*** (0.00472)	0.0179*** (0.00474)
Second Lagged Attacks	-0.00635 (0.00450)	-0.00637 (0.00461)	-0.00673 (0.00459)
Third Lagged Attacks	0.00732 (0.00467)	0.00992 (0.00538)	0.00988 (0.00531)
Fourth Lagged Attacks	-0.00237 (0.00415)	-0.00364 (0.00416)	-0.00139 (0.00462)

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$