Before and during Iraq: Was Insurgent lethality impacted by the invasion of Iraq?

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Abstract. Over the last 15 years, the literature on the impact of both the Iraq war and the September 11 terror attacks on the behavior of states and terrorist organizations has grown immensely. Despite this attention, there has been little research on how the invasion of Iraq impacted violent non-state actors (VNSAs), and particularly insurgent organizations killing of civilians and security personnel. Differentiating between the killing of police/military personnel and civilians is of key theoretical and policy importance, particularly if there are differences between the two in terms of insurgent behavior before and during the Iraq war. In this paper, we use the Big Allied and Dangerous Insurgency (BAADI) dataset to examine what factors impact the killing of police/military personnel and civilians by insurgent organizations between 1998 and 2012. We argue that before the invasion of Iraq, social and political factors influenced organizational lethality. During the Iraq war, however, we argue that this relationship changed because the United States and the West changed their policies and invested enormously in global resources to fighting non-state actors. Given this, the organizational factor that will determine an organization's lethality would simply be the organization's capability—captured most effectively by its size. Our analysis provides support for this argument.

Keywords. Iraq war, Insurgent Fatalities, Civilian Fatalities, Violent Non-State Actors, Organizational Factors

Introduction

Over the last 15 years there has been a large and growing literature produced about terrorism, as well as the impact of both the Iraq war and the September 11th terror attacks on state behavior [1-5]. The scope of this work has expanded to focus additionally on violent non-state actors (VNSAs) and especially terrorist organizations [6-8]. This has led to important insights demonstrating that group-based dynamics have impacted the lethality and longevity of terrorist and insurgent organizations [9-11]. Recent advances in the literature also have established that terrorism influences large-scale government actions, which in turn have the

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potential to influence terrorism trends [12-14]. Nascent research in this area suggests complex impacts from both of the September 11th terror attacks and specific counterterrorism initiatives on the behavior of terrorist organizations [15]. To date however, there has been little attention paid to how the invasion of Iraq (a direct outcome of the September 11th terror attacks)[2] impacted the factors that influence the frequency of VNSAs killing civilians and soldiers, especially with regard to insurgent organizations.

Beyond securing the safety of society more broadly, the targeting of civilians compared with police/military personnel can reveal important political and strategic elements of these conflicts [17]. To this point, there has been little work that differentiates between the killing of police/military personnel and civilians to see if there is a difference between the two in terms of insurgent behavior, particularly examining whether different trends are observable before and after a government intervention. In this paper, we use the Big Allied and Dangerous Insurgency (BAADI) dataset to examine which factors impact the killing of police/military personnel and civilians by insurgent organizations and if the massive changes in state/non-state actor dynamics related to foreign intervention by the United States and its allies as part of the Iraq war had any impact on insurgent behavior. We argue that prior to the invasion of Iraq, specific political and social factors mattered in terms of their impact on organizational lethality. Different factors including the ideological motivation of an organization as well as organizational connections and size were more salient in the decisions of these organizations. After the invasion of Iraq, however, we argue that this relationship may have altered due to the enormous changes in resources and policies used by the United States and the Western forces around the world to fight non-state actors, granting counterinsurgency (COIN) policy applied to organizations more influence of Insurgent behavior. Given this change, we believe that the key difference will be that after the investment in counterterrorism and COIN spurred by 9/11 and carried out in Iraq, the organizational factors that will determine an organization's lethality will be the organization's capability, captured most effectively by its size.

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[2] See, for example, President George W. Bush's speech in Tampa, Florida, on November 2, 2002: "This is a different kind of war. In the old days, you know, if you destroyed an enemy's tanks or sunk his ships or knocked down airplanes, you knew you were making progress. . . . Slowly but surely, we're hunting them down. It's going to take a while. You just have got to know it's going to take a while. But the stakes are high. And they're really high, particularly on what happened on September the 11th. You see, a cold reality came—my job, by the way, is to see the world the way it is, not the way we hope—hope it is. And there's a cold reality. Oceans no longer protect us from threats. Oceans no longer protect us from gathering dangers across the—in other parts of the world. It used to be, we could pick or choose. We learned a lesson that the battlefield is here at home, and we've got to be realistic about that. And that's why I started the debate on Iraq. You see, I view the man as a serious threat to America and our friends and allies. He's a man who has told the world he wouldn't have weapons of mass destruction, yet he does. We know a while ago that he was close to having a nuclear weapon. We have no idea today how close he is. If he has a nuclear weapon, it's a serious problem for America and our friends and allies. We know he's got chemical weapons. He said he wouldn't have them, but we know he's got them. Not only does he have them, he used them. He used them in his neighborhood. He used them on his own people. We know that he's had connections with Al Qaida. There would be nothing more pleasing to him to be able to use one of these shadowy terrorist networks. He could serve as the armory and the training grounds. They could be the deliverer of weapons, and we would never see his fingerprints." [16]

What Might Be the Impact of 9/11 and the Iraq War?

Since the attacks on the United States on September 11 in 2001, the amount of research on terrorism and political violence has skyrocketed [3, 18]. In a recent paper titled "What We Have Learned about Terrorism since 9/11," Gaibulloev and Sandler [8] lay out changes in research on terrorism and specifically in the areas of how terrorism has changed, how terrorist groups organize, the causes of terrorism and counterterrorism, and the economic impact of terrorism. Researchers have investigated a range of perspectives in this domain—from why some terrorist organizations are more lethal than others [6], to why some organizations would protest, others would use violence, and others would do both [19]. Some have even asked how terrorism or terrorist attacks have changed after the September 11th terror attacks [15, 20]. Enders and Sandler [15] and Fisher, Dugan, and Chenoweth [21] argue that very little changed after September 11th when it comes to terrorist attacks. Despite these observations, Brandt and Sandler [22] found that in more recent years, terrorists were more likely to target civilians instead of officials or property, and credit this to the increasing fortification of government buildings and other measures for protecting officials.

Even with the burgeoning research on terrorism, very little of this research considers terrorist organizational features when trying to understand the impact of the 9/11 attacks and the Iraq war. Even more lacking in this area is research that focuses not specifically on terrorist organizations but on insurgent organizations. It should be noted that there is significant overlap between terrorist organizations and insurgent organizations, but they are not the same thing (though some organizations can be both). When it comes to defining terrorism, there are many different definitions that are used, ranging from the use of violence to create fear [23] to killing civilians [24]. To clarify, when we talk about terrorist organizations, we mean organizations that target civilians intentionally [25]. When we talk about insurgent organizations, we are talking about organizations that meet the Uppsala Conflict Database Program (UCDP) battle deaths dataset criteria of 25 battle deaths [26]. These two definitions are not mutually exclusive, with some organizations existing as both insurgencies and terrorist organizations. However, this overlap and divergence is important for understanding how groups use violence for political ends. Not all insurgencies target civilians, but some do [27]. While there has been some research that examines the factors that make insurgent organizations kill varying numbers of civilians [27], this paper breaks new ground by looking at how the Iraq war impacted the factors that influence the lethality of insurgent organizations toward both civilians and police/military personnel.

Insurgent groups have a wide variety of tactics at their disposal [28]. In order to meet their goals, they can use political messaging, provide services, ally with related groups, engage in violence, or engage in crime [29]. Political violence is a broad spectrum, however lethal violence often gains the most ire. Lethal violence can be used strategically to gain greater recognition and be taken more seriously, it may be used to demonstrate the capabilities of the organization, or it may serve direct strategic aims (related to terrorist violence, see [8]). Large-scale events also can indelibly alter the nature of these conflicts. Black swan terror events that change responses to political violence and political violence itself have been noted for some time [13], and globally significant government actions such as the killing of Osama bin Laden also have this potential [14]. The September 11th attacks

that led to the Iraq war beginning in 2003 fundamentally changed the way the United States, its allies, and other countries related to insurgency and terrorist organizations around the world [30-32]. Following from previous studies that have demonstrated that political periods can fundamentally alter the nature of terrorist conflicts [33], we believe that the Iraq war also had the potential to alter the factors that impacted the success of insurgent organizations at killing perceived enemies. A good example of this is the Islamic State of Iraq and the Levant (ISIS), which emerged as a leading insurgent and terrorist organization after the Iraq war [34]. When it comes to terrorism research, there is strong evidence that the more alliance connections an insurgent organization has the better it will be at killing [6, 7]. This research however does not examine insurgent behavior, nor do they compare the impact or organizational and political period influences before and after the Iraq war. In 1998, ISIS did not exist – but Al Qaeda did. With seven alliances they killed 235 people. In 2001, this increased to more than 2,000 people. In 2004 (the first year ISIS met the criteria for inclusion in the BAADI dataset), they had only two allies and had killed 807 people. In 2012 though (the last year of the current data being used), Al Qaeda had 15 connections and but killed no one. ISIS still had only two alliance connections and killed more than 900 people. Based on these observations from the BAADI dataset, it is thus possible that something has changed since the Iraq war and that the factors that explain insurgent organizational lethality have shifted. Concordantly, this paper highlights that it is a vital avenue of research to examine the factors that could be driving these changes.

Acts of violence and fatalities track each other closely as an attack is necessary for fatalities to occur. However, groups may systematically choose to reduce their lethal violence to appease their constituency or reduce the risk of losing their support [35, 36]. Conversely, organizations may seek to maximize civilian causalities to gain greater political leverage over a government [37]. As it can be seen in Figure 1, the relationship between the number of attacks by insurgent organizations and the number of fatalities fluctuates over time. Specifically, one can see that fatalities spiked in 2001 (due primarily to the 9/11 attacks) despite the consistent frequency of attacks compared to previous and subsequent years. As it can be seen between 2009 and 2011 however, the rate of fatalities also can drop relative to the number of attacks. This demonstrates that the use of fatal violence can vary over quite short temporal periods, as well the key factors that explain it.

Beyond the raw number of fatalities, the identity of the casualties also can have an impact on the development of a conflict. Police/military personnel present harder targets for insurgent groups due to their training and equipment, while the killing of civilians may have a greater political and social impact [38]. The casualties of insurgent attacks are not random, and the selection of targets is a key part of the rational calculus of insurgent groups.
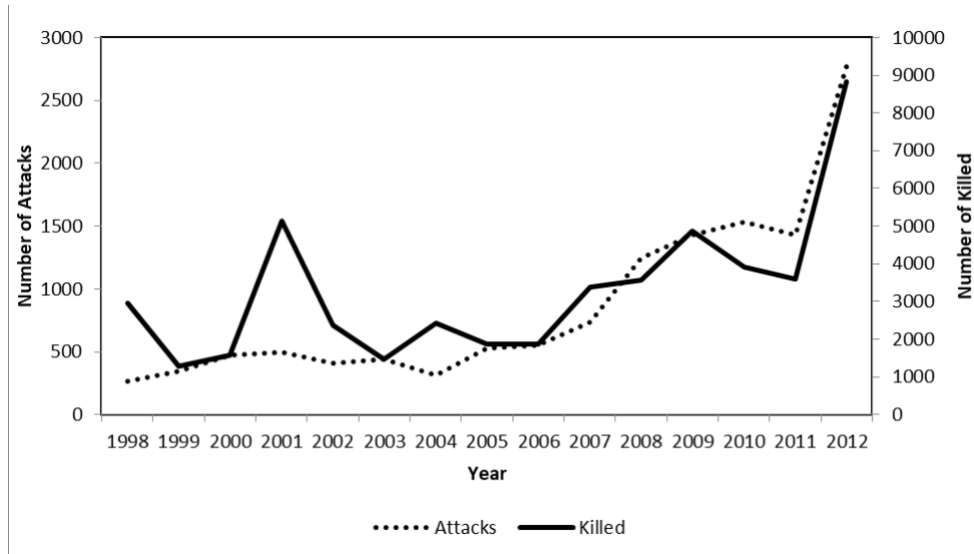
Figure 1. The number of yearly number of attacks and people killed by insurgent organizations between 1998 and 2012

This rational selection of targets provides a greater understanding of the fluctuations in violence over time. The fatalities in 2001 were primarily civilian. However, in 2012 this trend changed (see Figure 2 below). As it can be seen in this graph, 2003 marked a key year for terrorist fatalities. After decreasing from the peak in 2001, the number of fatalities has been higher in every year since. While the police/military fatalities appear to be flat, there is a positive slope coefficient. Given this inflection in slope, it is vital to understand what has contributed to this unfortunate trend. While this coincides with the start of the Iraq war, the trends seen in Figures 1 and 2 may be driven by changes in the nature of insurgent groups and their motivations as well as the impact of counterinsurgency efforts.

Present Study

We argue that before the Iraq war, which is when the United States ramped up its counterinsurgent efforts [39] and other countries followed suit [40], there was one set of factors that drove some organizations to kill civilians and others to avoid targeting the general population. Drawing upon Asal and Rethemeyer [6], which looks at terrorist organizations from 1998 to 2005 (but not yearly), their findings demonstrate that religious ideology, network connections, and the size of the organization are key factors that make organizations much more likely to kill more people. Asal and Rethemeyer [6] though only covers the period from 1998-2005 and does not disaggregate the time period. Horowitz and Potter [7](2014) who use similar data but extend the time period to 2008 have similar findings. Asal et al. [27] used the BAADI data to examine when insurgents kill civilians and the article looks at the factors that make organizations more lethal at killing civilians. Asal et al. [27] find that carrot

policies make insurgent organizations less lethal while stick policies make them more lethal. Certain ideologies like ethnic ideologies can make them more lethal, as well as behaviors like social service provision. Two factors that have a big impact on the count of civilians being killed are alliances and group size. However, this article does not do several things. It does not disaggregate the time period before the US has invested tremendous resources into fighting insurgents and beforehand. It also treats group size as a single ordinal variable and does not break it up into each level of size. This is potentially problematic because it forces all subsequent estimations to treat the difference between all group sizes as the same and forces any relationships to be linear. Beyond potentially treating group size differences of a single person to 9,000 as equivalent, which is problematic on its own, forcing any given relationship to be linear, assumes an inconsistent marginal return from each additional person that is dependent on the coding decisions. Consequently, the analysis presented here uses a series of dummy variables to allow greater flexibility in the models and relax these assumptions.

We believe that before this huge investment in counter insurgency and terrorism worldwide, many factors could impact the lethality of VNSAs. After the change in US investment in counter terrorism and counter insurgency, along with other countries, the key organizational factor that will matter will be simply the capability of the organization. We can capture this using the size variable in BAADI organization. Are we exaggerating when we say the US has ramped up its efforts since 9/11 and during the Iraq war? No. From 2002 to 2017 the United States annual spending on counter insurgency efforts skyrocketed to "… a 16-fold increase over the 2001 total" [41, p. 4]. However, the United States is not the only country where this has happened. France increased its security budget and significantly raised its security budget in response, as did many other countries [42]. We argue that this investment and effort by countries, especially the United States, has had an impact on what factors are having a bigger impact on killing both civilians and police/military personnel. As stated above we believe that due to this change in effort by states that size is the key factor that will matter. Thus, we hypothesize that before the Iraq war, various factors will matter for insurgent lethality but during and after the Iraq war what will matter will be size.

Hypothesis 1: The Iraq war increased the level of lethality employed by insurgent organizations net of other organizational factors.

Hypothesis 2: Unlike before the start of the Iraq war, size and capacity will be the key driver for insurgent lethality against both security and civilian targets.

Data

To examine the impact of the change in state investment in countering VNSAs from the Iraq war on we use the Big Allied and Dangerous Insurgency dataset (BAADI). This dataset has already been used to look at the factors that impact when insurgent organizations kill civilians [27] and when insurgent organizations engage in criminal activity [29]. The dataset has yearly observations of 140 organizations from around the globe for each year from 1998 through 2012. The dataset uses the list of organizations for this time period in the Uppsala Conflict Database Program (UCDP) battle deaths dataset. We should note that data were

collected for each organization not just for when it is present in the UCDP dataset, but also for the years it existed before and after this time period even if those years were not covered by the UCDP dataset. The UCDP uses the criteria for inclusion of having caused at least 25 battle deaths in one year. To reiterate, the BAADI dataset codes all organizations that killed 25 of more people not just for the year they reached this threshold, but also for every year that data were found for these organizations between 1998 and 2012. Organizations were dropped from the coding effort if in UCDP they were not identified as a specific named organization or if the actor listed in UCDP is actually a government, which happens occasionally. Also, groups for which there were insufficient data to code them for at least part of the time period were omitted from this dataset. Groups were included in the dataset when they became active and were not coded when they disbanded or stopped being actively involved in insurgent behavior, which could mean they stopped being violent or they signed an agreement with the government.

Variables and Research Design

As discussed previously, this study uses the BAADI data to analyze whether the Iraq war had any impact on insurgent organization fatalities, and whether this varied across civilian and police/military personnel targets. To control for factors that others have found to have an impact on organizational lethality, we included a variety of variables in each of the models. To this end, we include three variables that capture the counter insurgent policy being used against the organization. Specifically, we use a binary carrot variable that captures negotiation and conciliatory efforts by governments directed at the organization, as well as a binary stick variable that captures violent and repressive efforts used by the government in that year against the organization. In addition, we are using a binary mixed variable that captures whether the organization is being targeted by both of these strategies. The coefficients for each of these variables should thus be viewed in comparison to cases where the government adopted a "no action" strategy, which was observed in 377 (27.2%) out of 1,386 organization years.

We also use three binary size variables that capture whether the organization is between 100 and 1000 members, less than 10,000 but larger than 1000, and a variable that captures whether the organization is larger than 10,000. The reference category for these binary variables is groups with membership of fewer than 100 members. We also include measures for the count of the number of alliance connections an organization has and how many rivalries an organization has. In order to differentiate between ideological variation across insurgent organizations, we include two ideological variables – one that captures if the organization espouses a religious ideology and one if it espouses an ethnic ideology. We have binary variables that capture if the organization has a political party as well as another variable that indicates if the organization provides social services. To control for country-level factors and to account for some potential geographic influences in this relationship, we use three variables that we took from *The Quality of Government Standard Dataset* (January 2016 version) [43] that control for the regime type of the country [44], the country's population [45], and the percent of Muslims in the country [46].

Analysis

To test our hypotheses, we employed a series of zero-inflated negative binomial regression models. As the dependent variable, the number of fatalities, is a count variable and is over-dispersed, we elected to use negative binomial regression instead of poisson regression [47]. In addition, given the number of zeros in the dependent variable (62.12%), it was necessary to use zero-inflated models [48]. It should also be noted that for the model regarding civilian casualties during the Iraq war, it was necessary to run this model with no constant due to convergence issues. In this case, this analysis was repeated using zero-inflated poisson, and the substantive findings were unchanged. In addition, for all analyses the dependent variables were lagged by one year to ensure correct temporal order in the observed relationships.

In order to examine the period prior to the Iraq war and the period during the Iraq war, the data were partitioned in 2003. While the Iraq war began in March of 2003, given the yearly nature of these data, this strategy was used in order to minimize the length of time falling on the incorrect time of the cut point. To estimate the potential bias from this, sensitivity analyses were conducted excluding all of 2003. The findings from these models also did not vary substantively from the findings presented below, demonstrating that the findings were robust across both viable strategies for partitioning the yearly data.

Findings

Between 1998 and 2012, the majority of fatalities from insurgent organizations were committed against civilians. As it can be seen in Figure 2, only in 2012 were there more police/military personnel killed compared to civilians.
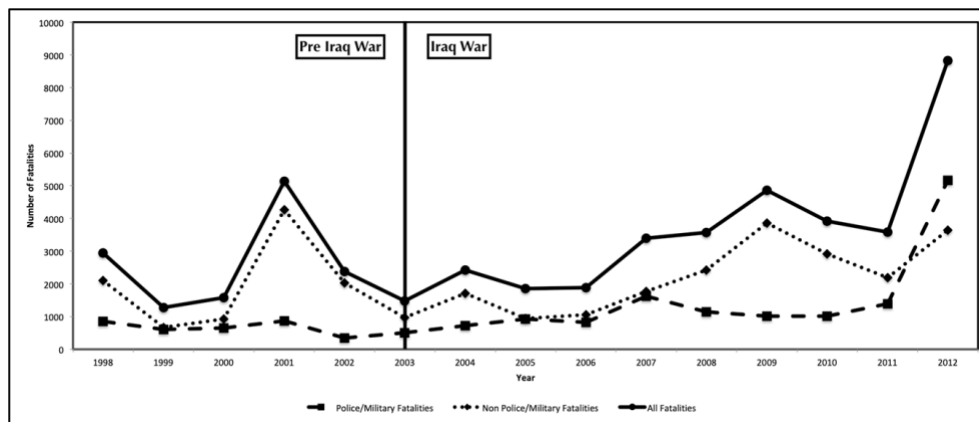

Figure 2. Police/military fatalities from insurgent organizations before and during the Iraq war

Across the entire time period observed by this study, many of the major trends were concordantly driven by civilian fatalities. This can be most clearly be seen in 2009 where the total number of fatalities had a local spike despite police/military fatalities declining from the previous year. Figure 2 also displays that 2012 marked a year where fatalities for both civilians and police/military personnel spiked. Importantly, this was also the only year in these data where there were more security causalities compared to civilian casualties as well. With the exception of this year however, police/military fatalities remained remarkably stable, while civilian deaths fluctuated more markedly across years.

The first set of formal analyses examine whether the Iraq war had a measurable influence on fatalities net of other factors. In line with hypothesis 1, Model 1 in Table 1 below displays that the Iraq war was related to an increase in total fatalities committed by insurgent organizations between 1998 and 2012. The incident rate ratio (IRR) for the Iraq war in this analysis was 1.58, suggesting that net of other factors in these models the Iraq war was related to a 58% increase in the risk of fatalities from insurgent organizations. Model 1 also displays that insurgent organizations that received carrot or conciliatory strategies from a government, also committed less fatalities in the following year compared to if the government had done nothing. Indeed, across the full time period, this strategy reduced the risk of total fatalities by 22.2%.

When the dependent variable was limited to civilian casualties (Model 2) and police/military casualties (Model 3), a more nuanced relationship emerged. While the Iraq war was also related to an increase in civilian causalities (IRR=1.61), it was not related to a statistically significant increase in the killing of police/military personnel in the following year. Echoing the observation displayed in Figure 2 above, this finding suggests that when taken as a whole, security fatalities from insurgent organizations were relatively unaffected by the Iraq war net of other factors. Indeed, this finding indicates that the increase in fatalities in the initial model coinciding with the Iraq war was not driven by police/military deaths. Model 2 also reveals additional factors that were associated with reduced insurgent organization fatalities including being an ethnically based organization (consistent across all three models), for civilian deaths, having a political party, and for security force deaths, engaging in providing social services.

The next set of analyses aimed to examine whether the factors predicting insurgent fatalities changed in the period during the Iraq war compared to before the Iraq war. Beginning with Models 4 and 5 (see Table 2), the models examining all fatalities revealed some clear differences in the factors driving fatalities during these two periods. While prior to the Iraq war only the number of rival groups and providing social services were related to reduced fatalities in the following year, during the Iraq war both carrot and stick government strategies were related to reduced insurgent killings in the following year. In addition, the size of the group emerged as a major predictive factor for total fatalities during the Iraq war.

Table 1. Coefficients and standard errors for zero-inflated negative binomial regression models for the total, civilian, and police/military personnel fatalities between 1998 and 2012

Variable	Model 1 All Fatalities $\hat{\beta}$ (SD)	Model 2 Civilian Fatalities $\hat{\beta}$ (SD)	Model 3 Security Fatalities $\hat{\beta}$ (SD)
Government Actions[a]			
Iraq war	0.458 (0.171)**	0.476 (0.188)*	0.235 (0.192)
Carrot	-0.778 (0.461)^	-0.809 (0.512)	-0.522 (0.57)
Stick	-0.165 (0.201)	-0.227 (0.224)	-0.052 (0.213)
Mixed	0.398 (0.24)	0.284 (0.257)	0.325 (0.271)
Organization Capacity[b]			
100 <x> 1000	-1.004 (0.526)^	-1.084 (0.56)^	-0.282 (0.61)
1000 <x> 10000	-0.138 (0.541)	-0.276 (0.577)	0.484 (0.616)
> 10000	0.598 (0.587)	0.638 (0.642)	0.502 (0.648)
Alliances	-0.054 (0.043)	-0.042 (0.046)	-0.08 (0.057)
Rivalries	-0.006 (0.154)	0.001 (0.167)	0.115 (0.178)
Social and Political Factors			
Religious	-0.169 (0.236)	-0.301 (0.253)	0.021 (0.251)
Ethnic	-0.934 (0.199)***	-0.917 (0.204)***	-0.954 (0.242)***
Political Party	-0.418 (0.239)	-0.528 (0.254)*	-0.094 (0.27)
Social Services	0.072 (0.326)	0.599 (0.382)	-0.723 (0.309)*
National Factors			
Polity Score	-0.037 (0.019)	-0.053 (0.021)*	-0.025 (0.022)
Muslim Nation	0.001 (0.003)	0.003 (0.003)	-0.001 (0.003)
Population	0.815 (0.225)***	0.88 (0.237)***	0.71 (0.25)**
Constant	5.023 (0.527)***	4.905 (0.567)***	3.709 (0.594)***

[a]The reference category for government actions is "no action."
[b]The reference category for organization capacity is "groups with fewer than 100 members."
^$p < 0.1$. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

As it can be seen in Model 5, all three designations of group size killed more individuals than the smallest group size. Regardless of what the base category was, there were statistically significant findings for all categories (except one), suggesting that larger groups killed more people. The sole exception to this was when the base category was groups with between 1,000 and 10,000 people. In this iteration of Model 5, the coefficient for the largest group was only marginally statistically significant using a 2-tailed alpha value ($p=0.071$), however the IRR suggests that these groups still had an increased risk of fatalities of 221% compared to the second largest group size. This suggests that the relationship between groups sizes and fatalities is not linear (as these findings are not consistent nor in ratio to the difference in categories), and that there are meaningful differences in the risk of lethality between all group sizes during the Iraq war.

Table 2. Coefficients and standard errors for zero-inflated negative binomial regression models for the total, civilian, and police/military personnel fatalities for the period before the Iraq war and during the Iraq war

		All Fatalities		Civilian Fatalities		Security Fatalities	
	Variable	Model 4 Before Iraq War $\widehat{\beta}$ (SD)	Model 5 During Iraq War $\widehat{\beta}$ (SD)	Model 6 Before Iraq War $\widehat{\beta}$ (SD)	Model 7 During Iraq War $\widehat{\beta}$ (SD)	Model 8 Before Iraq War $\widehat{\beta}$ (SD)	Model 9 During Iraq War $\widehat{\beta}$ (SD)
Government Actions[a]							
	Carrot	-0.598	-1.464	-0.706	-1.379	0.533	-0.976
		(0.756)	(0.575)*	(0.754)	(0.674)*	(0.975)	(0.697)
	Stick	0.299	-0.676	0.344	-0.582	0.176	-0.656
		(0.308)	(0.305)*	(0.32)	(0.332)	(0.326)	(0.307)*
	Mixed	0.22	0.035	0.47	0.065	-0.699	-0.245
		(0.412)	(0.33)	(0.414)	(0.348)	(0.446)	(0.383)
Organization Capacity[b]							
	100 <x> 100	-0.956	3.167	-0.572	4.179	-1.678	3.012
		(0.622)	(1.217)**	(0.574)	(0.352)***	(0.706)*	(1.609)*
	1000 <x> 10000	0.199	3.859	0.465	4.907	-0.741	3.369
		(0.688)	(1.222)**	(0.62)	(0.352)***	(0.758)	(1.619)*
	> 10000	0.665	4.651	1.195	5.895	-1.001	3.955
		(0.739)	(1.275)***	(0.717)	(0.624)***	(0.803)	(1.641)*
	Alliances	0.006	-0.063	0.053	-0.073	-0.162	-0.024
		(0.094)	(0.049)	(0.106)	(0.05)	(0.156)	(0.065)
	Rivalries	-0.604	0.116	-0.581	0.048	-0.71	-0.044
		(0.277)*	(0.177)	(0.279)*	(0.195)	(0.36)*	(0.184)
Social and Political Factors							
	Religious	-0.451	0.124	-0.949	0.078	0.957	0.852
		(0.434)	(0.276)	(0.397)*	(0.308)	(0.512)*	(0.248)***
	Ethnic	-0.673	-0.771	-0.638	-0.764	-1.226	-0.313
		(0.383)	(0.246)**	(0.35)^	(0.254)**	(0.491)*	(0.249)
	Political Party	-0.785	-0.291	-1.55	-0.148	1.401	-0.238
		(0.505)	(0.278)	(0.467)*	(0.315)	(0.594)*	(0.276)
	Social Services	-1.774	0.115	-1.619	0.391	-1.216	-1.107
		(0.543)**	(0.395)	(0.727)*	(0.479)	(0.581)*	(0.342)***

		All Fatalities		Civilian Fatalities		Security Fatalities	
	Variable	**Model 4 Before Iraq War** $\widehat{\beta}$ (*SD*)	**Model 5 During Iraq War** $\widehat{\beta}$ (*SD*)	**Model 6 Before Iraq War** $\widehat{\beta}$ (*SD*)	**Model 7 During Iraq War** $\widehat{\beta}$ (*SD*)	**Model 8 Before Iraq War** $\widehat{\beta}$ (*SD*)	**Model 9 During Iraq War** $\widehat{\beta}$ (*SD*)
National Factors							
	Polity Score	-0.015 (0.034)	-0.03 (0.025)	-0.064 (0.032)*	-0.02 (0.027)	0.101 (0.04)*	-0.064 (0.027)*
	Muslim Nation	0.002 (0.005)	0.002 (0.004)	0.005 (0.005)	0.003 (0.004)	0.002 (0.006)	0.005 (0.004)
	Population	0.472 (0.428)	0.813 (0.258)	0.829 (0.413)	0.794 (0.281)	0.295 (0.49)	0.752 (0.282)
Constant		4.775 (0.674)***	1.441 (1.251)	4.193 (0.622)***	N/A[c]	4.568 (0.772)***	0.882 (1.622)

[a]The reference category for government actions is "no action."
[b]The reference category for organization capacity is "groups with fewer than 100 members."
[c]N/A = not applicable.
^$p < 0.1$. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Similar substantive findings emerged from Models 6 and 7 (see Table 2). As with total fatalities, all measures of group size produced large, positive, and statistically significant estimates for civilian fatalities during the Iraq war (Model 7) but null findings in the preceding period (Model 6). The downward impact of carrot strategies was still observed when looking solely at civilian deaths, with an incident rate ratio of 0.25. While many social and organizational factors were related to fewer civilian deaths in the following year before the Iraq war (rivalries, religious organization, having a political party, providing social services, and having a higher polity score), only being associated with an ethnic group was observed to have any impact on fatalities during the Iraq war.

These broader findings were echoed as well when examining police/military deaths. As displayed in Models 8 and 9 (see Table 2), social and organizational factors played a more influential role on fatalities before the Iraq war than they did during the Iraq war. Unlike the previous civilian models however, having a political party, a higher polity score, and being a religious organization (1-tailed) were all positively related to killings in the following year. This suggests that prior to the Iraq war, some factors reduced the risk of civilian fatalities but increased the risk of police/military personnel deaths. In addition, while similar findings with regard to group size being more influential during the Iraq war, between 100 and 1000 members was related to increased police/military fatalities from all other group types before the Iraq war as well. Also suggesting substantive differences in the killings committed by insurgent organizations, stick strategies were related to police/military personnel fatalities.

Discussion and Conclusion

As the findings from this study demonstrate, we find strong support for our central argument and hypothesis that after the start of the Iraq war and the tremendous, ongoing investment in counter terrorism and counter insurgency, there was a measurable impact on the actions of insurgent organizations. Net of other ideological and geographic factors, the Models 1-3 above suggest that the Iraq war was related to increase in the overall fatalities and civilian fatalities committed by these groups. Against prediction, this influence did not extend to police and military personnel. As such, while many nations around the globe greatly expanded the contact between police/military personnel and insurgent groups, amidst other factors we find no evidence that this increased casualties for police and military members. As this may be due to a combination of increased target hardening, improved deployment strategies, or changes in the decision-making of insurgent organizations to offset these impacts, further research is needed to better understand this null finding. Despite this, this study provides evidence that the Iraq war, like the first and second intifadas and Oslo Lull in Israel [33], had an appreciable period impact on conflicts with insurgent organizations. In concert with the findings from Fisher and Becker [14], the findings presented here demonstrate that the periodic nature of these conflicts that depend on strategic regimes may extend beyond national borders. This suggests that governments should be aware of macro-level changing trends in political violence, particularly as this may alter the incentives for increased fatalities against civilians.

These changing period factors were also evident in the second set of analyses that examined the period before the Iraq war and during the Ira war. These findings consistently demonstrated that the factors that impacted insurgent organizations fatalities can change over time. Prior to 2003, specific social and political factors of insurgent organizations predicted their lethality in the following year, capability as measured by size then became the dominant organizational factor for explaining lethality against both civilians and police/military personnel. This shift away from social and political factors suggests that traditional government strategies that focus on the motivation for political violence as means to prioritize resources might be out of date. Instead, these findings highlight that group size and other metrics for organizational capacity might be a more effective means for identifying which insurgent organizations are viewed to pose the greatest threat with regard to fatalities.

This study also found robust and consistent evidence that government actions were able to reduce total, civilian, and police/military personnel fatalities by insurgent organizations after the beginning of the Iraq war. Although the method for this varied, with carrot strategies reducing civilian fatalities and stick strategies reducing police and military fatalities, there was no evidence that government strategies had an appreciable impact before the Iraq war. While these findings require replication and should be examined by other studies, they do suggest governments were able to reduce insurgent group fatalities through their actions. While this suite of findings may be taken to indicate that both carrot and stick methods should be used in concert to reduce both civilian and police/military personnel deaths, it should be noted that mixed strategies were statistically indistinguishable from "no action" strategies in all models. In light of this finding, it appears that focused strategies produce the greatest marginal benefit for government with regard to reducing fatalities. Particularly if the lethality of more contemporary insurgent organizations is determined by their organizational capacity, consistent strategies employed by governments may demonstrate that they are attempting to combat insurgent organizations in general rather than ones unified by specific motivations, thus reducing the incentives for committing fatalities across all groups.

Beyond these broad findings, there were a number of additional interesting findings with other variables that altered after the beginning of the Iraq war, which suggested identifiable changes to these conflicts. Some variables performed in line with expectations including the impact of the provision of social services having a negative impact on killing, and political parties having a negative impact on the killing of civilians (although why this did not continue after 2003 is something that requires future research to further unpack and analyze). We were surprised to see that size actually had a null effect on civilians before 2003 and had a negative effect on police/military personnel deaths. The lack of an impact on civilians may be due to the added pressure brought on by the events we discussed, with some insurgency groups feeling they could be under added pressure after the push by the United States started.

Although the data examined above only cover until 2012, there is reason to believe that these trends would continue into the future, particularly for organization like ISIS. As noted above, ISIS emerged as a leading insurgent and terrorist organization after the Iraq war [34], and Hemmingby [49] has observed that their methods and targets continued to be primarily influenced by both contextual and operational factors beyond the temporal frame of this study. Echoing our findings here, Hemmingby [49] suggests that rather than being influenced by alliances and inter-group relationships, ISIS instead demonstrated innovations in their

actions that were more likely driven by the conditions fostered by the Iraq war. Indeed, Brands and Feaver [50] argue that the decision to invade Iraq and the subsequent actions taken in this conflict were the most influential factor for the rise of ISIS and the lethality of their attacks. As such, there is evidence suggesting that the trends observed in this study continued beyond the observation period, and the Iraq war influenced both broad insurgent lethality patterns and specific actions taken by ISIS.

In viewing the aforementioned findings, it is important to acknowledge that this study has a number of limitations. Most notably, as it uses yearly data it is unable to directly estimate the exact cut point for the beginning of the Iraq war (March 2003). While sensitivity analyses suggest that this 3-month period did not produce an appreciable impact on results, replicating this study using event data would help to further examine the nature of the impact of the Iraq war on insurgent organization fatalities. While this study also included a number of advances over the previous literature with accounting for period impacts and relaxing the statistical assumptions regarding groups size, other estimation strategies may also be used to triangulate the present findings. Specifically, the use of fixed effects models and their ability to difference out time stable heterogeneity would help to exclude rival hypotheses and better isolate the relationship between the Iraq war and insurgent group fatalities. While this approach would not be able to include time-stable variables such as ideological motivation, this study highlights that by examining subsets of data (as was done with temporal periods in the present study) any important differences could still emerge.

This study demonstrates that the invasion of Iraq had an identifiable impact on the actions of insurgent organizations across the globe. In addition to increasing overall fatalities, the findings from this study also suggest that net of other factors, civilian casualties also increased during the Iraq war. Importantly, these findings also show that the predictor of insurgent group fatalities also changed during this period, suggesting that broad government actions can influence the nature of conflicts involving insurgent organizations.

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