



COMBATING TERRORISM CENTER

at West Point



The Fight Goes On:

The Islamic State's Continuing Military Efforts in Liberated Cities

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The views expressed in this report are the authors’ and do not necessarily reflect those of the Combating Terrorism Center, United States Military Academy, Department of Defense, or U.S. Government.

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Cover Photo: Image of a city in Syria captured from a video released by Wilayat Aleppo entitled “We will Remain until the Judgment Day” and released on April 16, 2017.

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Daniel Milton and Muhammad al-`Ubaydi

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Executive Summary

This report examines the Islamic State's self-reported military activities in 16 cities, 11 in Iraq and five in Syria. From each city's date of liberation from the Islamic State until April 2017, the Islamic State reported that it carried out 1,468 separate attacks in these 16 cities. The volume of military operations in these cities provides evidence for the idea that the Islamic State, once relegated in Iraq to guerilla warfare from 2003-2011, may be returning to this form of existence in Iraq and Syria. However, this activity is not uniform across each of the cities. As the coalition edges closer to taking formal control of Mosul and Raqqa back from the Islamic State, this report highlights trends in the data to provide additional insight for those planning and implementing post-liberation security, reconstruction, and governance plans. Key findings include:

- The left side of Mosul, Iraq,¹ that has been liberated is the location with the highest number of attacks per 30 days post-liberation at 130. Baiji, Iraq, has the second-highest number of monthly attacks at 21. Cities in Iraq appear to experience more post-liberation violence than do cities in Syria. There is tremendous diversity in the data, as six cities experienced fewer than two attacks per 30 days.
- The Islamic State only reported death tolls in 30 percent of its attacks, totaling just under 2,600 deaths, or about 8.6 per attack. If that average were applied across the entire dataset to the remaining 70 percent of attacks, the death toll would exceed 12,000.
- A wide variety of tactics are employed in these attacks. Attacks that occur from a distance, employing weapons such as rockets and sniper rifles, are used in 56 percent of all attacks. Suicide bombings and suicide fighters, on the other hand, are used in five and two percent of operations, respectively.
- Suicide operations (including both bombers and fighters) have occurred in the largest numbers in Baiji, Iraq, followed by Shadadi, Syria, and then Manbij, Syria.
- Suicide operations in post-liberation cities seem to follow two patterns. The first is the tight clustering of attacks in a relatively time period, usually, but not always, after the city is liberated. The second is a diffusion pattern, in which attacks are spread out over a longer period of time.
- In the Iraqi cities in the dataset, the Islamic State predominately targets both Iraqi government forces and Shiite militias, with the peshmerga coming in at a distant third. In the Syrian cities, the Kurdish opposition is targeted in the large majority of Islamic State operations in liberated cities, with the Syrian regime a distant second.

1 When referring to the city of Mosul, locals use the way the Tigris River flows as the point of reference, with the left side corresponding to the east side of the city and the right side to the west side. The west side of the city, at the time of this writing, has still not been liberated. In this report, therefore, the authors refer to the liberated portion of Mosul in accordance with how locals refer to it: Mosul's Left Side.

Introduction

The word “liberation” carries with it a tremendous sense of finality and accomplishment. It suggests freedom from something that was previously oppressed. Despite all of these positive connotations, the liberation of cities in Iraq and Syria has proved to be much more of a mixed bag for those living in the aftermath. Part of this is the challenge of governing post-liberation areas where city infrastructure has been destroyed and where security threats still remain. Consider the example of Fallujah, which was liberated by Iraqi forces on June 27, 2016. Many months later, reports suggest that the citizens of the city are still facing an array of challenges, from destroyed buildings to live Islamic State munitions buried in the rubble to the continuing threat of Islamic State attacks.¹ In March 2017, the mayor of Fallujah was still living in Erbil, a city in Iraqi Kurdistan in northern Iraq, and only traveling to Fallujah on certain days for work.²

This example is not intended to malign the Iraqi mayor or overstate the staying power of the Islamic State. However, it *is* intended to highlight the fact that much remains to be accomplished after liberation. Research that focuses on Islamic State operational activity after liberation is not particularly common.³ Most current research on this subject examines the continually shifting frontline between the Islamic State and the forces that oppose it. Relatively little focuses on the nature of operations in cities from which the group has supposedly been ejected. The goal of this report is to offer additional data that allows for a more accurate picture of the military challenges faced in Iraq and Syria, especially as it pertains to the maintenance of security in cities that have been liberated by either Iraqi government forces, Syrian government forces, or any of the other armed groups that are fighting to retake territory from the Islamic State.

To this end, this report relies on a newly collected dataset of over 1,400 self-reported Islamic State military operations across 16 cities that have been liberated from the group’s control. This information was collected from Islamic State media sources. The report shows that while concerns about a rising guerilla warfare campaign by the Islamic State are well-founded in a number of locations, the group’s military activity is not uniform across the liberated cities examined in this study.

This report proceeds by briefly explaining the methodology used to compile the data, as well as the challenges of relying on the group’s own reporting. It then examines the data from several different perspectives, including comparing the overall level of activity between the 16 different cities, examining the different types of operations carried out in those cities, and discussing the groups targeted by the Islamic State’s post-liberation military attacks. In sum, each of these comparisons reveals a nuanced security environment in cities that have been liberated from the Islamic State’s control. Finally, the report concludes by discussing the complex nature of the post-liberation challenge and avenues for continued research on the subject.

A Note on Methodology

This report relies on open-source data collected by researchers at the Combating Terrorism Center (CTC) from various online sources. For the data on Islamic State military activity, CTC researchers based their data collection on the Islamic State’s own reporting regarding its military activities. This approach is not without its limitations. The most significant is that it is hard to independently verify whether or not what the Islamic State is reporting is an accurate representation of what is actually

1 Jonathan Steele, “Fallujah and Ramadi: Where Liberation from IS Comes at a Price,” Middle East Eye, March 23, 2017.

2 Ibid.

3 For one excellent example of such research, see Michael Knights and Alexander Mello, “Losing Mosul, Regenerating in Diyala: How the Islamic State Could Exploit Iraq’s Sectarian Tinderbox,” *CTC Sentinel* 9:10 (2016).

occurring on the ground. There would seem to be clear incentives for the Islamic State to inflate its attack reports in an effort to make it appear more resilient and capable than it actually is. That said, publishing blatant falsehoods in the group's reports is risky. If such false reporting were widespread, found out, and highlighted publicly, it would undermine the group's ability to convey its message and potentially end up tarnishing its brand. In the end, although the CTC has found such reporting to be fairly accurate in the past, that certainly does not guarantee any level of accuracy in the current dataset.⁴

Another option would have been to cull reports of Islamic State military activity from local, national, and international media reporting in Iraq and Syria. While the authors and researchers do rely on these sources for various components of this report, there are challenges in relying on them in order to create a dataset of Islamic State attacks. Where the concern in using the Islamic State's self-reported data is that the group might have an incentive to overreport its attacks, the concern in relying on local and national reporting is one of underreporting. Whether in Iraq or Syria, local and national media organizations have varying levels of ties to the government, which may seek to prevent reports emerging of Islamic State military operations for a variety of reasons. Another reason for the underreporting of Islamic State attacks is that many of them are small and result in minimal casualties. Stories of these operations are likely too commonplace to make the local and state news, and too small to make it into the pages or broadcasts of international media outlets.

Data Collection

Shortly after the Islamic State's takeover of Mosul in June 2014 and continued advance through Iraq and Syria, the National Counterterrorism Center estimated that the group controlled approximately 81,000 square miles of territory, roughly the same land area of Great Britain.⁵ In early 2017, it was reported that the group had lost approximately two-thirds of the territory that it once controlled.⁶ Along with this reduction in territory, there has been the loss of the Islamic State's formal control over a large number of cities, towns, and villages. In an effort to limit the scope of the data collection required for this project, CTC researchers identified 16 cities, 11 in Iraq and five in Syria, that had been liberated from the control of the Islamic State.

A word about case selection provides important context for the analysis that follows. The selection of the 16 cities was not random. Instead, CTC researchers chose cities that they felt offered a balance of large and small cities as well as cities recently liberated and those liberated many months ago. The emphasis on cities in Iraq is partially due to the fact that Iraq has been the focal point for counter-Islamic State efforts, although operations in Syria have been increasing.⁷ The emphasis on Iraqi cities

4 In a previous CTC study that relied on the Islamic State's self-reported attack data, CTC researchers attempted to find corroborating accounts of the group's reports in local and national Iraqi media. While not perfectly aligned, there appeared to be a high level of fidelity in the Islamic State's reporting when it came to incidents and, to a less extent, casualty counts. Bryan Price, Daniel Milton, and Muhammad al-`Ubaydi, "The Islamic State in Iraq and the Levant: More Than Just a June Surprise," *CTC Sentinel* 7:6 (2014); Muhammad al-`Ubaydi, Nelly Lahoud, Daniel Milton, and Bryan Price, *The Group That Calls Itself a State: Understanding the Evolution and Challenges of the Islamic State* (West Point, NY: Combating Terrorism Center, December 2014).

5 The comparison is rough, at best, as much of the 81,000 square miles controlled by the Islamic State was uninhabitable desert. Rick Noack, "Here's How the Islamic State Compares with Real States," *Washington Post*, September 12, 2014.

6 "Islamic State and the Crisis in Iraq and Syria in Maps," BBC News, April 28, 2017; Tom DiChristopher, "The Islamic State's Territory is Shrinking. Taking a Major Bite Out of Its Financing," CNBC, March 31, 2017.

7 Consider two metrics that help demonstrate this point. One metric is the data on airstrikes carried out in Iraq and Syria. As of May 31, 2017, the United States has carried out 17,417 airstrikes in Iraq and Syria, with 8,758 in Iraq (just over 50 percent). The rest of the coalition has carried out 4,460 airstrikes in Iraq and Syria, with 4,048 occurring in Iraq (just under 91 percent). The data on airstrikes come from the Department of Defense and is available at https://www.defense.gov/News/Special-Reports/0814_Inherent-Resolve/. The other metric is the number of U.S. troops in each country. Open source reporting from March 2017 suggests there may be as many as 6,000 U.S. troops in Iraq compared with approximately 900 in Syria. Luis Martinez, "200 More U.S. Troops Headed to Iraq to 'advise and assist' Mosul offensive," ABC News, March 27, 2017.

is also due to the fact that Iraq is the long-standing base of the Islamic State, dating back the establishment of its precursor organization following the 2003 Iraq War. This history, complete with the near destruction and then reemergence of the group in 2006-2011, suggests that understanding the post-liberation dynamics in Iraq is important to undercutting the group's ability to survive. Regardless of these reasons, this selection is subjective and subject to criticism. However, the transparency of this choice will hopefully allow readers the chance to make judgments for themselves on any bias that may exist in the subsequent analysis.

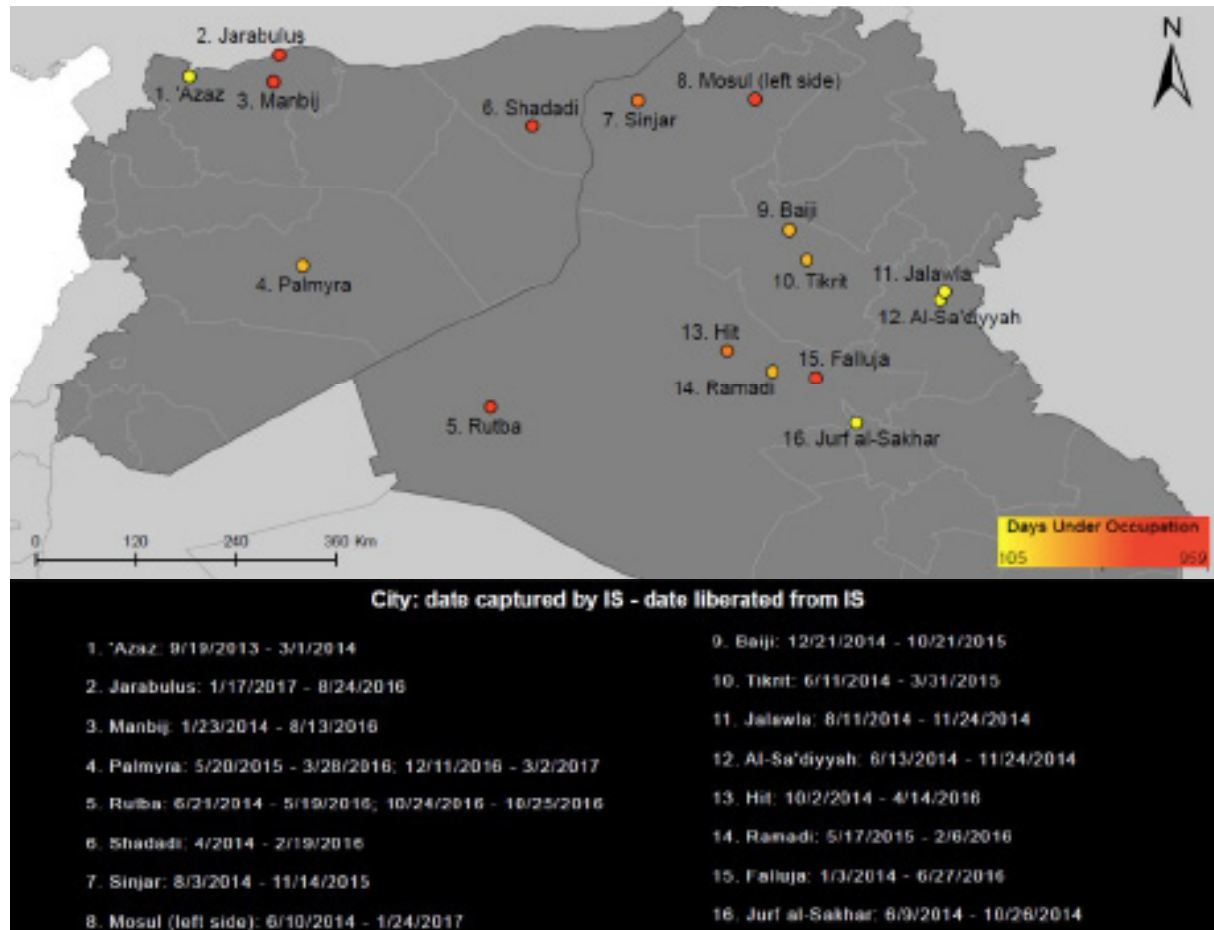


Figure 1: Map of Liberated Cities, Dates of Capture, and Dates of Liberation

The date of "liberation" was determined by CTC researchers based on an official statement from coalition forces stating that they had successfully driven Islamic State forces out of the city in question.⁸ In most instances, there was relatively clear agreement between when the government said a city was liberated and when the Islamic State began operations to retake a city. There were a few times when this was not the case. In these instances, CTC researchers would scrutinize the operational activity on both sides to make sure that the Islamic State was no longer conducting operations to prevent a city from falling from its control, but that the group had switched its operational posture to either harass the government or retake the city. The line here is not always clear, but researchers attempted

⁸ Two cities posed a more difficult coding challenge than the rest. Palmyra, Syria, and Rutba, Iraq, were liberated, then recaptured by the Islamic State, then liberated again. In these two cases, CTC researchers collected data from the date these cities were liberated until they were recaptured by the Islamic State. Data collection resumed once the city was again liberated.

to be objective in making this judgment. The city names, dates of capture, and dates of liberation are shown in Figure 1.

Islamic State Military Activity: General Statistics

Across the 16 cities in the CTC dataset, researchers were able to code 1,468 self-reported Islamic State attacks. There was a significant amount of variation in the number of attacks that took place in each city following liberation. To demonstrate this, Table 1 presents three pieces of information: (1) the number of days between the city's liberation and the end date for coding in the CTC dataset (April 30, 2017);^{9,10} (2) the number of attacks coded in each city following its liberation; (3) a statistic that shows the average monthly number of attacks.¹¹

<i>City</i>	<i>Country</i>	<i>Number of Days Post-Liberation</i>	<i>Number of Attacks</i>	<i>Average Monthly Attacks</i>	<i>Reported Killed</i>
Al-Sa`diyyah	Iraq	888	47	1.6	45
Baiji	Iraq	557	387	20.8	429
Falluja	Iraq	307	12	1.2	49
Hit	Iraq	381	37	2.9	80
Jalawla	Iraq	888	23	0.8	40
Jurf al-Sakhar	Iraq	917	1	0.0	0
Mosul's Left Side	Iraq	96	417	130.3	52
Ramadi	Iraq	449	163	10.9	335
Rutba	Iraq	345	38	3.3	212
Sinjar	Iraq	533	140	7.9	158
Tikrit	Iraq	761	63	2.5	115
`Azaz	Syria	1156	5	0.1	26
Jarabulus	Syria	249	2	0.2	0
Manbij	Syria	260	41	4.7	268
Palmyra	Syria	317	37	3.5	334
Shadadi	Syria	436	55	3.8	431

A few important points emerge from the simple data presented in Table 1. First, there is significant variation in the average number of monthly attacks that occur in any given city following its liberation from the control of the Islamic State. The Islamic State has claimed almost no attacks in Jurf al-Sakhar, Iraq, and `Azaz, Syria. On the other hand, it has claimed a significant amount of activity in the liberated areas of Mosul, Iraq. While it is difficult to assess what the exact reasons for these difference are,

9 If, instead of coding the number of days between liberation and the end of the CTC's coding effort, the number of days between the first and last attacks in the CTC dataset are used in Table 1, the results do not vary greatly from what is being shown here.

10 It should be noted that the calculation of the number of days post-liberation includes April 30, but does not include the day liberation occurred.

11 The average monthly attacks figure was obtained by dividing the number of days post-liberation by 30 to get an estimate of the number of months post-liberation. The number of attacks occurring during this time period was then divided by the estimated number of post-liberation months.

several potential explanations are worth considering.

One of these arguments is quite simple and has to do with geographic distance. It could be that liberated cities that remain distant from the frontlines of conflict between the Islamic State and opposition groups have lower rates of continued activity. Clearly places like 'Azaz and Jarabulus lend credence to this possibility, as they are both located close to the Turkey-Syria border and have become more and more distant from the frontlines as the war has progressed. More compelling support for this particular line of argument is a comparison between Falluja and Ramadi, as Ramadi is 32 miles closer to Islamic State territory than Falluja. Falluja's average number of monthly attacks is 1.2, whereas Ramadi's is 10.9.

Another explanation for the variation between cities may reflect the length of time that each city spent under Islamic State control. This line of argument would suggest that if a city were governed longer, the liberation process might be rockier because of the fact that the Islamic State was able to effectively use its time to either win over the population, kill its enemies, prepare for an eventually attack, or some combination of these factors. It is also possible that longer Islamic State governance created an appetite for liberation that led to fewer post-liberation attacks. However, neither explanation finds support in our data, as simple correlations between the number of days the Islamic State governed a city and the average monthly attack rate were not statistically significant. This may simply be due to the small sample size in the dataset.

Other city characteristics, such as the geographic size of the city or its population, might also matter. To assess these two possibilities, CTC researchers attempted to find reputable information on the size of a city (in square kilometers) and population. While this information was not available for all of the cities in the dataset, enough information could be gathered to do basic correlations. What they showed is that, unsurprisingly, larger cities (in terms of square kilometers) correlated with higher attack frequencies, as did cities with larger populations. While the correlations are not conclusive, they do suggest that geographic and demographic factors may explain part of the variation in the Islamic State's post-liberation military activities.

A more general explanation has to do with how the Islamic State and the actors that oppose the group strategically view the liberated cities.¹² This explanation is less tangible than geographic distance or the time that the city was under Islamic State control. This line of explanation suggests that higher levels of fighting may persist in cities that the Islamic State views as making important contributions to the broader caliphate project. Mosul, a city with historic, strategic, financial, and propaganda value, has one of the highest rates of monthly attacks at 130.3.¹³ Of course, Mosul's unique geography, in which the two main sides of the city are separated by a river, likely factors in as well. As discussed below, a large number of the attacks in Mosul utilize indirect weapons, such as rockets, fired from one side of the river into the other. Baiji, a city of symbolic and economic importance because of the presence of its oil refinery, experienced the second-highest number of monthly attacks at 20.8.¹⁴

Alternatively, while the importance of certain cities to the Islamic State may explain some of the cities with higher levels of post-liberation attacks, it may be equally plausible that cities with low levels of post-liberation attacks are cities viewed by the Iraqi government as particularly critical to their government's credibility. Jurf al-Sakhar is the perfect example of this. Located just over 40 miles south of the center of Baghdad, Jurf al-Sakhar was populated by Sunni Muslims prior to 2014. The

12 One other way to think about how the Islamic State strategically views cities has to do with timing. If the group loses cities early in the campaign and still has more on which it can rely, it might not fight so hard to retake them. Thus, perhaps the high level of attacks in Mosul is a sign that the group believes time is running out on its hold over territory in Iraq. The authors wish to thank Kevin Mott for pointing out this possibility.

13 Holly Yan and Nadeem Muaddi, "Why the Battle for Mosul Matters," CNN, October 17, 2016.

14 Arwa Damon and Hamdi Alkhshali, "ISIS Targets Iraq's Largest Oil Refinery," CNN, April 13, 2015; Michael A. Gordon, "Iraqi Forces and Shiite Militias Retake Oil Refinery from ISIS," *New York Times*, October 16, 2015.

town also occupied a very important geographic spot, as it stood on the road between Baghdad and Karbala, a route traveled frequently by Shi'a pilgrims. When the Islamic State took the city over in the summer of 2014, its continued control of the area and roads would have been a tough blow to the Iraqi government. Consequently, it was the focus of early liberation efforts by the Iraqi government and Shiite militias. By late October 2014, the city had been liberated and, according to the CTC data, post-liberation attacks were few.

The cautionary note is that such low attacks came at a cost. The Sunnis who called Jurf al-Sakhar home were forced out of the city and not allowed to return. According to one local official, advancing government forces and militias "considered every family that stayed al-Qaeda or Daesh."¹⁵ Reports emerged a couple of months after the liberation that Sunni residents would be prohibited from returning for at least several months.¹⁶ However, as recently as May 2017, Iraqi Vice President Ayad Allawi noted that residents were still not being allowed to return to the city and suggested that Iran was playing a role in preventing their return.¹⁷ In short, if the "success" of reduced militant activity in Jurf al-Sakhar came at the cost of driving the inhabitants out, preventing their return, and ceding influence to Iran, one needs to carefully weigh the costs and benefits of that approach.

The second finding that emerged from Table 1 is that there appears to be a greater level of operational activity in liberated cities in Iraq than in Syria. Of the 1,468 attacks in the dataset, 1,331 (~91 percent) of them took place in Iraq, whereas only 138 (~9 percent) took place in Syria. However, this may simply be the result of the fact that there are more Iraqi cities in the dataset than Syrian cities. Taking into account the fact that there are 11 Iraqi cities in the dataset and only five Syrian cities and simply dividing the number of cities in each country by the total number of attacks, the average number of attacks per city in Iraq is 121, while the number for Syria is 27.6.

Another way to assess the difference between Iraq and Syria in the dataset is to look at the average number of monthly attacks taking place in each of the cities. This metric across the 11 liberated cities in Iraq is 16.6, whereas it is only 2.5 for the five liberated Syrian cities. Even removing Mosul, which could be considered an outlier, the monthly rate of attacks in the remaining 10 Iraqi cities is 5.2, which is more the double the rate for Syrian cities. The reason for this difference between Iraq and Syria is not exactly clear, although specific conditions in each country are likely a factor. On the Iraq side, the difference could be an indication of the higher priority that the Islamic State places on Iraq, leading it to carry out more operations. On the Syrian side of the equation, the fact that most towns in this dataset were overtaken by opposition forces may lead to less post-liberation violence because opposition forces are slightly more welcomed by the local populace. If this were the case, the Islamic State may not have as strong of a supportive network to use in carrying out operations. To move beyond speculation, more research should be done on these dynamics.¹⁸

The third observation from Table 1 has to do with the number killed during the Islamic State's operations. The total number of individuals reported killed across the dataset is 2,591. However, such information was only provided for 301 attacks.¹⁹ It is unclear why fatality information was not reported

15 Loveday Morris, "Iraq's Victory over Militants in Sunni Town Underlines Challenges Government Faces," *Washington Post*, October 29, 2014.

16 David D. Kirkpatrick, "Sunnis Fear Permanent Displacement from Iraqi Town," *New York Times*, December 5, 2014.

17 "The return of displaced people to Jurf al-Sakhar is up to Iran," *Al Jazeera*, May 4, 2017.

18 Another variable worth considering is the fighter's freedom of mobility. If freedom to move from one location to another is more constrained in Iraq as opposed to Syria, it may explain why, on average, there are more attacks in Iraqi as opposed to Syrian cities. Unfortunately, good data on freedom of mobility in the conflict zone is not available, but the authors appreciate Kevin Mott for making this point.

19 In many cases, the Islamic State's official statement on the attack simply says that it killed "a number of them," referring to whatever group was targeted by the operation. In some cases, the number of killed and wounded are lumped together. Those cases were not included in the 2,591 total. The approach was to present, based on clear evidence provided by the group itself, a conservative estimate of how many individuals it had killed.

in most cases. Based only on those 301 attacks, the average number of individuals killed per attack is approximately 8.6. If this average were applied to the entire dataset, this would suggest that Islamic State military operations in these 16 cities have resulted in over 12,000 fatalities. Whether the number of total fatalities is closer to 2,500 or 12,000, it seems clear from this information that the group continues to inflict large numbers of fatalities even after being forced out of the cities that it previously controlled.

Exploring Attack Methods and Targets of the Islamic State

One way to refine these initial findings is to add additional levels of nuance to the data. To do this, CTC researchers coded two additional categories: attack type and target type.

There are seven categories for type of attack: suicide bombing, suicide fighter operations, armed assault (without intention of the perpetrators to die in the attack), improvised explosive device, indirect projectiles (such as mortars), direct fire weapons (such as sniper fire or RPGs), and other types of attacks (air defense operations, arson, etc.).²⁰ The coding for type of attack was not mutually exclusive, so that an operation may have been coded as a suicide bombing followed by an armed assault. Of the 1,468 attacks in the data, 1,424 (97 percent) were coded into only one category.

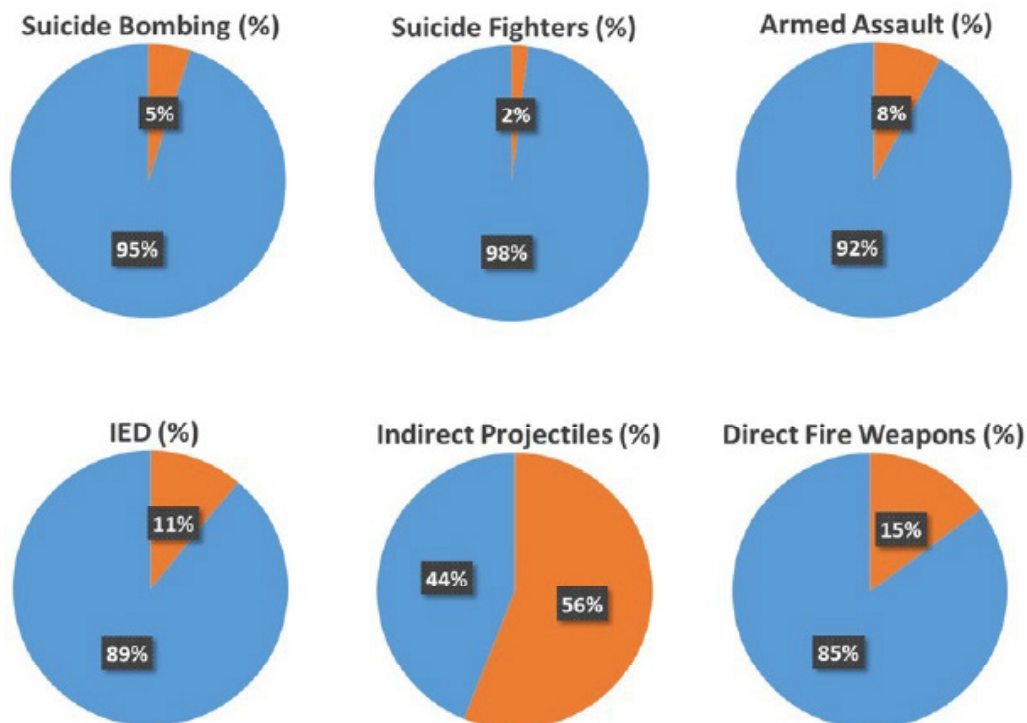


Figure 2: Percentage of Attacks Involving Each Attack Modality

Figure 2 shows the frequency with which each attack modality was employed in the total number of attacks in the dataset. It is important to note that because more than one attack type can be employed

²⁰ A brief description of what is meant by suicide fighter operations may prove useful. These are operations in which a group of Islamic State fighters is sent on a mission that, in all likelihood, will prove to be one-way only. They attack and fight with small arms, but are often sent to targets in order to wreak as much havoc as possible on the enemy, with little or no regard for escape routes. As a consequence of this, the fighters are often outfitted with suicide belts or vests to allow them, in the final moments of their mission, to commit martyrdom. Though some suicide operatives may return from their missions, most do not.

in a single incident, multiple pie charts were used to avoid the percentages summing to over 100 percent. Several points are worth highlighting based on the visual representation of the data. It is interesting to note the preponderance of Islamic State military activity that occurs at a distance. If one considers the bottom three pie charts in Figure 2 to represent attacks carried out in an effort to avoid close quarter, one-on-one confrontation with the enemy, over 82 percent of the attacks fall into these categories. Thus, although the group maintains the infrastructure to carry out operations in territories that have been liberated, it seems particularly focused on avoiding (or, at the very least, not carrying out) operations that will further deplete the group's strength in these areas. This strategy seems well suited to increasing the group's ability to remain on the battlefield and not waste its strength.

Another point is that the Islamic State's operational portfolio differs across the various cities included in the CTC dataset. This can be seen in Figure 3, which shows the percentage of times a particular tactic was employed by the group in a city. Within each row, the darker orange color represents tactics used more frequently, while lighter colors denote less frequently used tactics. While indirect attacks are the most prominent across several locations, several interesting outliers exist. For instance, the Palmyra attack profile shows a tendency toward armed assaults and direct operations as opposed to indirect action. Having been retaken by the group after the first liberation, clearly the city remains of interest to the Islamic State, such that it appears to be willing to invest more into direct confrontations with its enemies. Another Syrian city, Manbij, also sees a low number of indirect operations. However, instead of seeing large numbers of operations using small arms and RPGs, the balance is shifted here in favor of IEDs. This particular tactic, which does not require a one-on-one confrontation and can rely on remote detonation, appears to be used more in Manbij, especially as the city grows farther and farther away from the frontlines of battle.

Ramadi was one city in which the Islamic State used a fairly large number of IEDs. In particular, the type of IEDs referenced in the group's statements suggests that many may have been "sticky" IEDs. This particular type of IED is usually attached to a target vehicle using some form of adhesive. The fact that the device is being used against a specific target suggests a robust intelligence presence and potentially cells of individuals who are working to target key figures in the post-liberation environment. With more research needed on the connection between the nature of the group's presence and the particular type of attack method employed, the use of "sticky" IEDs is a good candidate for such efforts.

Another observation arising from Figure 3 has to do with the last column. This column shows the number of events in which the group announced that the operation involved more than one attack modality. For example, if an attack claim stated that a suicide bombing was carried out together with an armed assault, this would be an attack with more than one attack type. These types of operations might be a small indicator of places where the Islamic State has better operational capacity, as these types of assaults require more coordination. Baiji is clearly the leader in this category, although it is also the place where the largest number of overall attacks took place. If the overall number of attacks is taken into account, only five percent of the attacks in Baiji had more than one attack type, while almost 14 percent of the attacks in Rutba and Palmyra were coded as having multiple attack types.

City	Country	Sample Size	Suicide Bombing (%)	Suicide Fighter (%)	Armed Assault (%)	IED (%)	Booby Trap (%)	Indirect (%)	Direct (%)	Other (%)	Multiple Attack Modes
Al-Sa`dhiyyah	Iraq	47	0	0	12.77	65.96	0	12.77	0	10.64	1
Baiji	Iraq	387	3.36	2.33	7.75	0.52	0.52	71.06	18.09	1.81	19
Falluja	Iraq	12	50	0	0	16.67	0	0	0	33.33	0
Hft	Iraq	37	5.4	2.7	5.41	8.11	2.7	29.73	43.24	8.11	1
Jalawla	Iraq	23	0	0	8.7	86.96	8.7	0	0	4.35	1
Jurf al-Sakhar	Iraq	1	0	0	100	0	0	0	0	0	0
Mosul's Left Side	Iraq	417	1.92	0.48	0.72	0.48	0	69.78	19.42	7.19	0
Ramadi	Iraq	163	3.68	1.23	11.66	36.81	0.61	23.93	16.56	5.52	0
Rutba	Iraq	38	13.16	5.26	21.05	13.16	0	50	2.63	10.53	5
Sinjar	Iraq	140	2.86	0.71	2.86	4.29	0	87.14	2.14	2.14	2
Tikrit	Iraq	63	6.35	3.17	9.52	7.94	6.35	55.56	6.35	12.7	1
`Azaz	Syria	5	20	0	0	0	0	40	0	40	0
Jarabulus	Syria	2	50	0	0	0	0	50	0	0	0
Manbij	Syria	41	17.07	17.07	14.63	26.83	0	12.2	14.63	7.32	4
Palmyra	Syria	37	10.81	0	48.65	5.41	0	16.22	21.62	10.81	5
Shadadi	Syria	55	23.64	10.91	14.55	9.09	0	29.09	12.73	9.09	5

Figure 3: Islamic State Attack Type Frequency, by City

Another insight is that while suicide operations (suicide bombings together with operations that employ suicide fighters) receive a large amount of attention, they are a small part of the group's military operations overall. Of course, suicide operations do not need to be used with great frequency to have a large effect. For the 44 suicide attacks in the dataset for which the authors have information on the number of individuals killed, the average is 26.3. For all other attacks, the average is 5.6.

A closer look at the group's claimed use of suicide operations reveals a number of interesting patterns. The first suicide operation in this dataset occurred in May 2015 and the last in April 2017. Since then, dozens of these operations have taken place. Figure 4 shows the number of suicide operations in the dataset over time (the blue area), as well as the number of cities in the dataset over time (the orange line). While the number of incidents is correlated with the number of cities included in the dataset over the first part of the series, there is variation in the number of suicide operations in the latter part of the series, even when the number of cities is constant. This is in part because as the battlefield shifts, so too do the logistical hubs and strategic priorities of the group. More complex suicide bombings, particular those involving vehicles, cannot be assembled on the spot. Vehicles need to be obtained and retrofitted with makeshift armor, bombs need to be constructed and placed into the vehicle, and other logistical preparations must take place. Overall, these trends suggest that the group is engaging in a strategic use of a limited resource. If suicide operations were of unlimited supply, one might expect to see them consistently increase over the entire span of the data. This is not the case.

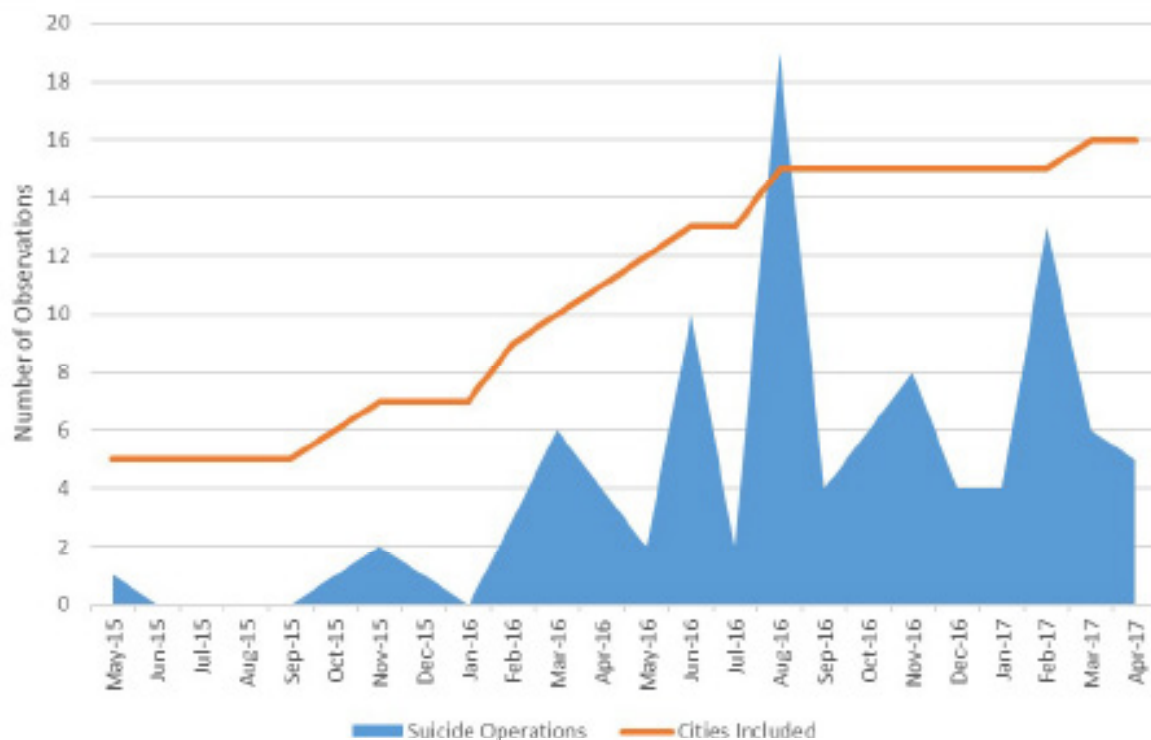


Figure 4: Suicide Operations by Month, May 2015 – April 2017

If the group is thinking strategically about its use of suicide operations, then the location of suicide operations may provide additional insight into the way in which the group uses this particular tactic. The breakdown of the group's use of suicide operations by city can be seen in Figure 5. While there is variation among cities, Figure 5 illustrates that the tactic is diffused across multiple cities in both Iraq and Syria. The widespread use of the tactic across various liberated cities suggests that the group sees utility in continuing to use the tactic in post-liberation operations, not simply as a tactic for taking over or preventing the takeover of territory it either wants to control or already does control.

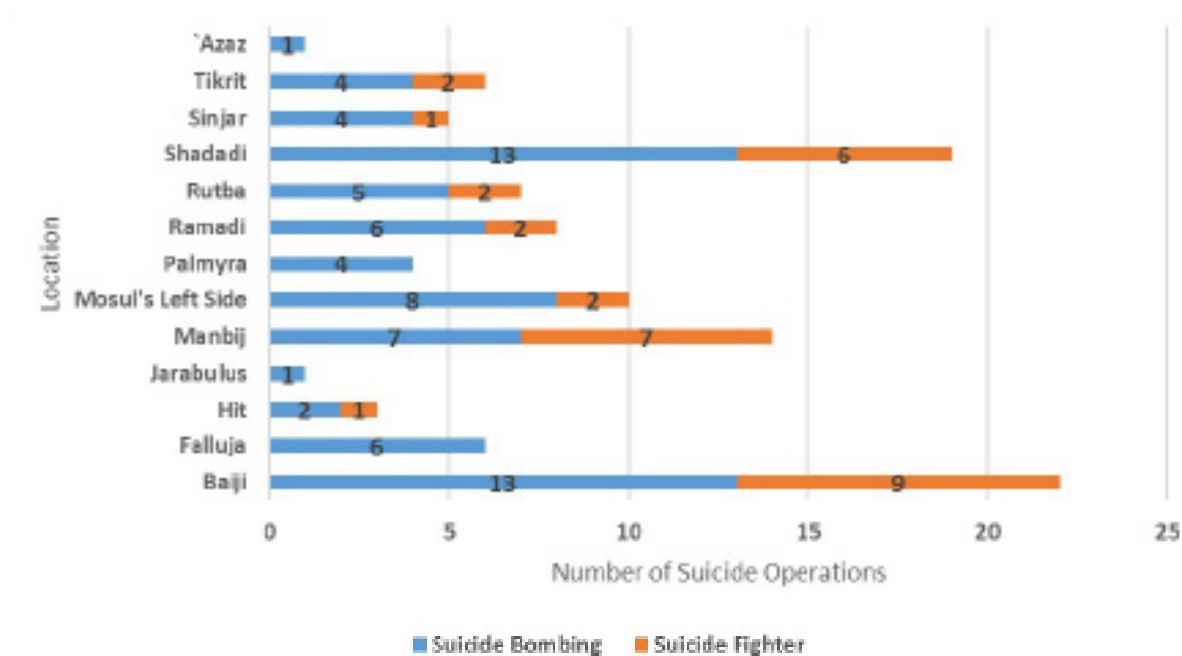


Figure 5: Islamic State Suicide Operations, by City

Another pattern observed in the data is that the use of suicide operations is diffuse across time in some of the cities. To see this, CTC researchers coded the date of the suicide operation and then plotted the operations over time and across cities. These results appear in Figure 6. Each of the blue circles in Figure 6 represent a suicide bombing, and each orange 'x' represents the time that a particular city was liberated. For example, in Baiji, which was liberated on October 21, 2015, the first suicide operation post-liberation was claimed on October 23, 2015, and the last on April 22, 2017, with 17 such operations taking place on a nearly monthly basis in between.²¹ Compare that with the data on Manbij, which was liberated on August 13, 2016. The first suicide operation post-liberation took place on August 15, 2016, and the last on November 11, 2016, with a dozen or so operations taking place in between, most of them in the month of August.²² It is possible that this is the result of underlying resource allocations not visible to the outside observer, but it may also be an indication of cities that the group sees as necessary to its future and therefore is willing to invest both people and logistical support to continue suicide bombing operations. In the end, while it is not certain why such clustering and diffusion patterns appear, these graphs suggest the ability to sustain suicide operations over time in some locations, while in others their use appears to be quick and intense, but of a limited duration.

21 Other cities that seem to follow this spread pattern are Hit, Ramadi, Shadadi, Sinjar, and Tikrit.

22 Other cities that seem to follow this clustering pattern are Falluja, Mosul's Left Side, Palmyra, and Rutba.

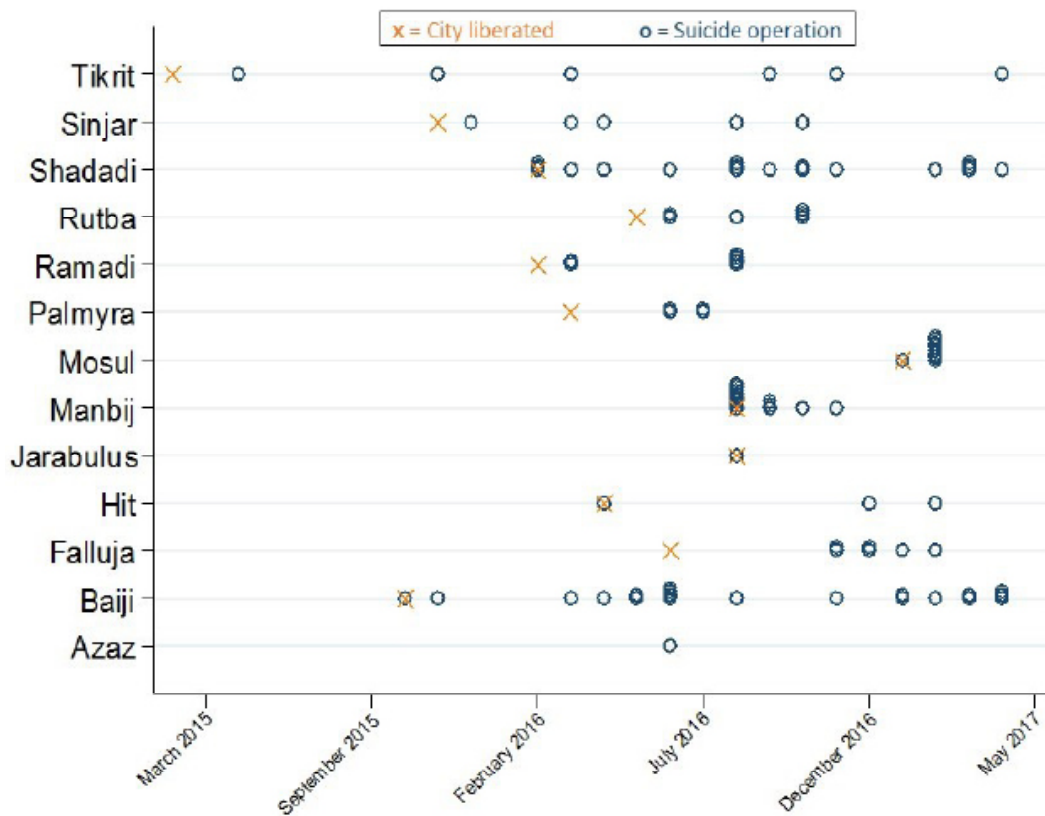


Figure 6: Spread of Suicide Operations Over Time, by City

Moving away from target types, this report now discusses the groups targeted by the Islamic State's military operations. An important caveat to keep in mind regarding these findings is that they are certainly biased toward the cities selected. In Iraq, where 11 cities were considered, there is a large amount of diversity in terms of who liberated the city and when. On the Syrian side, where only five cities were coded, there is less diversity. This likely exercises an important influence on the data on groups targeted.

The coding of target type included a total of 12 categories: Iraqi government military forces, Iraqi police force, Iraqi government officials, Iraqi Sahwat, Shiite militia units, civilians, peshmerga, Syrian Kurdish groups, Syrian rebels, Syrian regime forces, coalition forces, and others. As in the case of the attack type variable, the coding of target type was not mutually exclusive. The group coding variable had a single group coded in 991 of the 1,468 cases (~68 percent).

To help make sense of the data on group types targeted, Figures 7 and 9 present the percentage of the overall number of incidents in which a group was targeted in Iraq and Syria, respectively. It is important to note that because multiple group types can be assigned to each incident, the percentages in each of these graphs do not sum to 100.

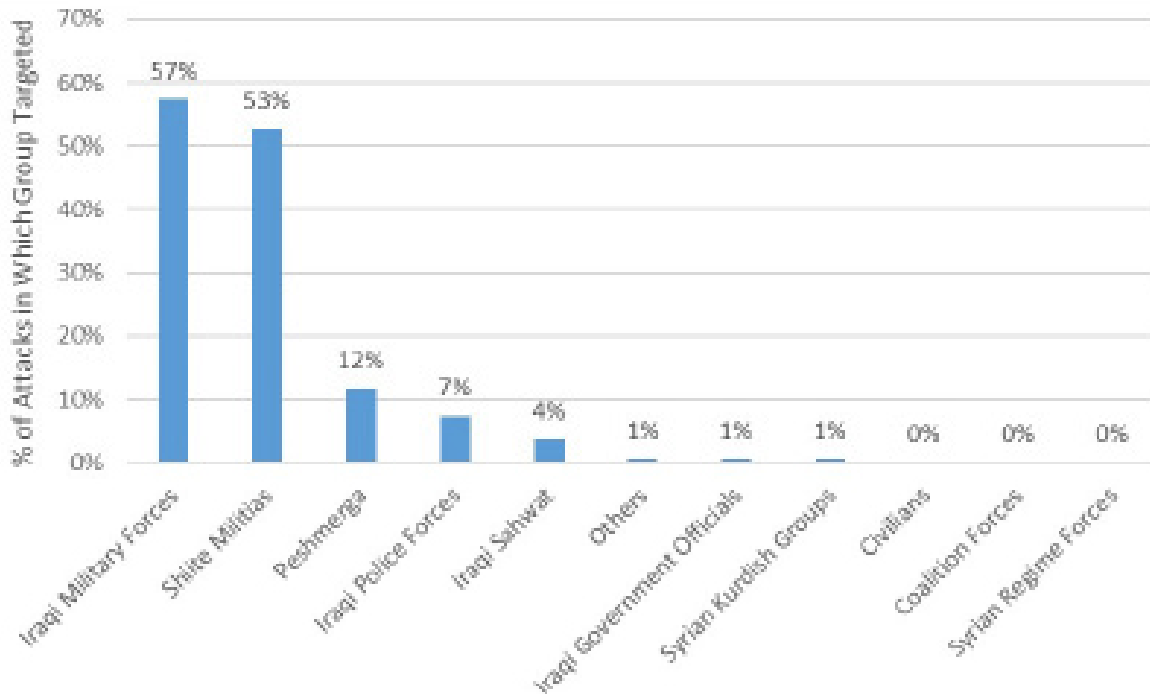


Figure 7: Percentage of times in which Islamic State Targeted Various Groups in Iraq (n = 1,331)

As can be seen in Figure 7, Islamic State attacks in liberated areas in Iraq predominately targeted Iraqi military forces and Shiite militias. This is not particularly surprising as these groups were usually in control of these territories prior to the Islamic State's takeover and led the counter-offensives to take back territory from the Islamic State. Two notable non-state actors are also targeted by the Islamic State with a lesser, but still sizable, frequency: the Kurdish peshmerga forces and the Iraqi Sahwat (Sunni Awakening fighters). Although Iraqi military forces are targeted more than any other group in the overall dataset, there appear to be subtle but important differences when the area of the operation is taken into consideration.

Figure 8 shows this by taking the top five groups in Figure 7 and calculating the percentage of times the Islamic State claimed to target the group conditional on the Islamic State province in which the attack took place. It is important to remember that the Islamic State may have stated that it was targeting more than one group in each attack. One of the first items to note is that there appears to be a substantial change in the targeting profile across these three provinces. Among the three areas in Figure 8, the first to be liberated was Salahuddin. The province, although home to mostly Sunnis, was also the location of one of the holiest shrines in Shiite Islam (in the city of Samarra) until it was destroyed in 2006.²³ The cities of Baiji and Tikrit are also in Salahuddin province. The attack profile for Salahuddin shows that the majority of attacks were against the Shiite militias. It may be the case that Shiites were targeted in direct proportion to their numbers and proximity to the frontlines. Unfortunately, such detailed data on the liberating force is not available. Another possibility is that the Islamic State may have targeted Shiite militias in an attempt to garner support from the local population by appearing to be their protector. Such an effort would likely have resonated, as Sunnis in Salahuddin

23 Robert F. Worth, "Blast at Shiite Shrine Sets Off Sectarian Fury in Iraq," *New York Times*, February 23, 2006.

have long felt neglected by the Shiite-led government in Baghdad, at one point declaring autonomy from the central government.²⁴

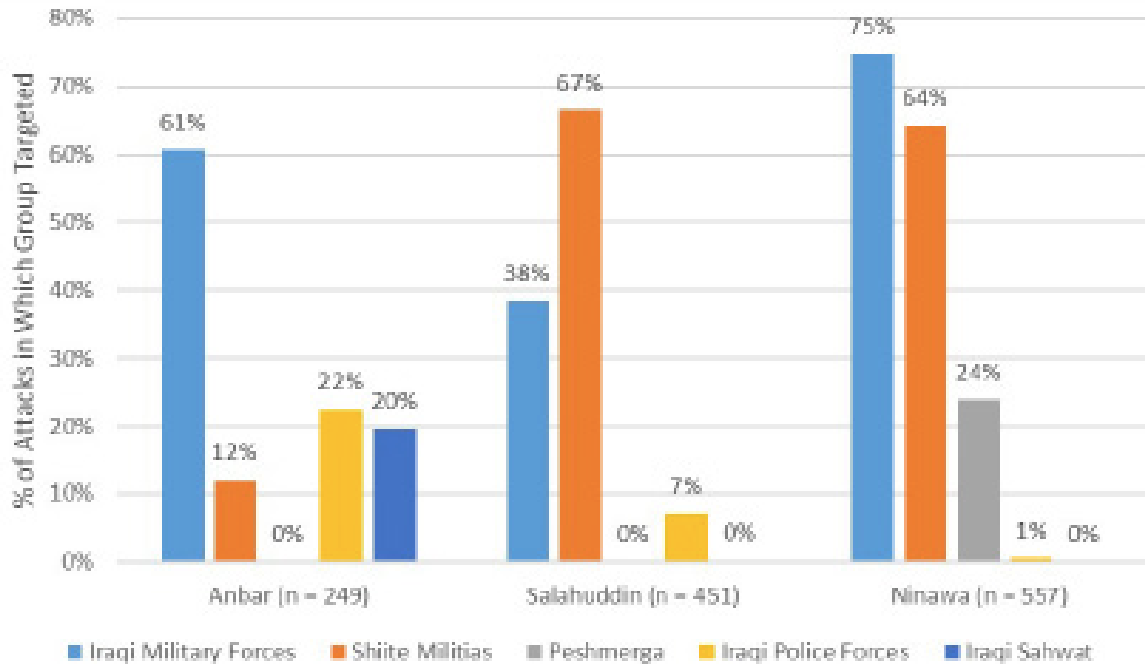


Figure 8: Percentage of Times Group Targeted in Iraq, by Selected Cities

Turning to Anbar, the bulk of the attacks are claimed against the Iraqi military forces. When combined with Iraq police forces, the total of both exceeds 80 percent, which is nearly double the amount of targeting against those two groups that took place in Salahuddin. Shiite militias were clearly present on the ground at various points of the campaign to retake cities in Anbar, although there was some controversy regarding their overt participation in battles.²⁵ Assuming that Shiite militias were there, the data may simply reflect the fact that Shiite militias had become rebranded into official Iraqi government units.²⁶ If this is the case, and assuming that the Islamic State could tell the difference in who it was targeting, why would the Islamic State go along with the deception and report these attacks as being against the Iraqi government? As it turns out, if the public perceives closer ties between the Iraqi government and the Shiite militias, then that serves the Islamic State's narrative. If the Shiite militias were there and the Islamic State knew it, there would be no real incentive to call the government out on its rebranding. It is also interesting to note the increased level of targeting against Iraqi Sahwat, a clear statement by the Islamic State that it sees moderate or unaligned Sunnis as enemies as well.

The final area shown in Figure 8 is that of Ninawa. The most notable difference between Ninawa and the other two provinces is the sizable number of attacks against the peshmerga. As one would expect, the peshmerga were not targeted by the Islamic State in Anbar and Salahuddin, mostly because they were not present in sizable numbers to be targeted, but they were attacked in 25 percent of the Islamic State's attacks in Ninawa. This increased diversity of participants in the Ninawa area foreshadows the

24 Dan Zak, "Iraqi Province Declares Autonomy in Symbolic Move," *Washington Post*, October 27, 2011.

25 Rod Nordland and Falih Hassan, "U.S. Steps Up Bombing Raids in Anbar After Shiite Militias Withdraw," *New York Times*, April 12, 2015.

26 Renad Mansour, "From Militia to State Force: the Transformation of the al-Hashd al-Shaabi," Carnegie Middle East Center, November 16, 2015; Jeff Stein, "Ramadi's Dirty Little Secret in the War Against ISIS," *Newsweek*, December 19, 2015.

future challenges of the post-Mosul fighting. The targeting of Shiite militias, Iraqi military forces, and peshmerga fighters, each of whom represents divergent political factions, speaks to the complicated nature of moving from conflict into recovery and future governance.²⁷

While there was a fair amount of variation in terms of the groups targeted by the Islamic State in post-liberation Iraq, there was comparatively less variation when it came to the cities in Syria in the dataset, which is shown in Figure 9. It is important to recall that this report only includes data on five cities. Given that, the most frequently targeted group is the Syrian Kurdish opposition, which was attacked in over 69 percent of the operations in Syria. The next most frequently targeted group is the Syrian regime, which was targeted at 26 percent. This nearly 40 percentage-point spread is starkly different from the Iraqi case, where the top two groups targeted were separated by less than five points.

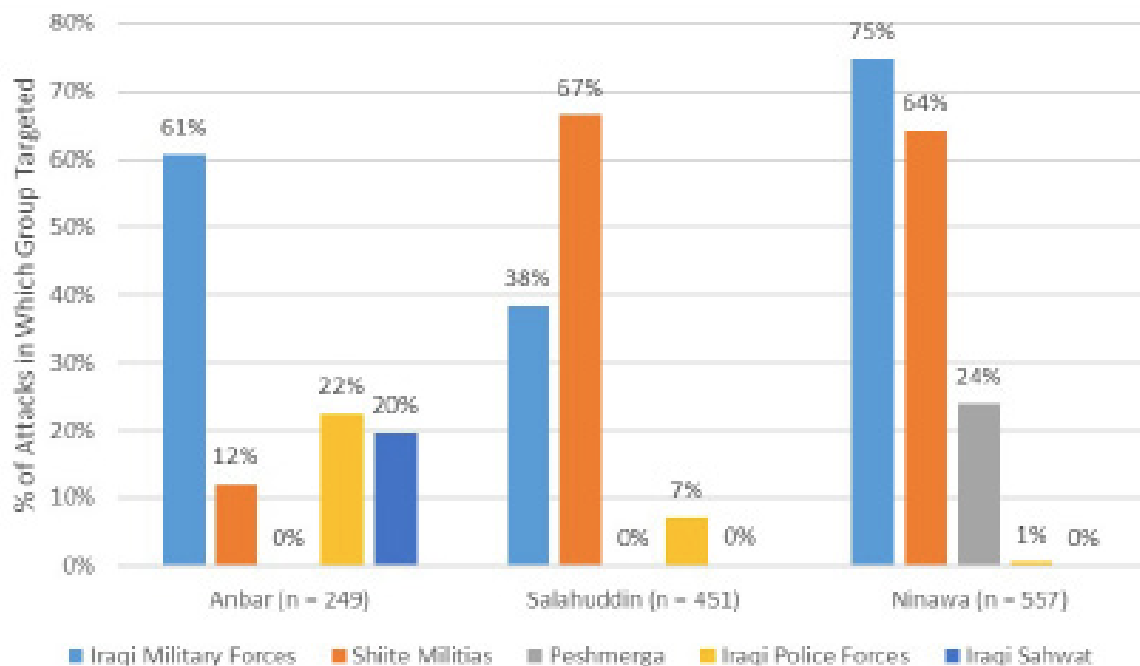


Figure 9: Percentage of Attacks in which Islamic State Targeted Various Groups in Syria (n = 138)

Not only is the relatively clear focus on Syrian Kurdish groups interesting, it draws out another important comparison with Iraq. Whereas the Islamic State's military activity after liberation in Iraq tends to target government forces or those closely affiliated with government forces, in Syria the most frequent targets in the cities studied in this dataset are opposition groups.

There are at least two potential explanations why the Islamic State has targeted regime forces less in Syria. On the one hand, it could be a deliberate decision made by both sides to avoid significant conflict with each other.²⁸ On the other hand, it could simply be a function of geography. Syrian Kurdish groups have been at the forefront of many liberation efforts in eastern Syria, while the Syrian government has focused more on western Syria. Regardless, recent reports suggest the regime's forces are intensifying

27 Tim Lister, "The Mosul Campaign: From Here to the Horizon," *CTC Sentinel* 9:11 (2016).

28 Aryn Baker, "Why Bashar Assad Won't Fight ISIS," *Time*, February 26, 2015.

the fight in the territory controlled by the Islamic State.²⁹

Conclusion

The fact that territory is being pried away from the grip of the Islamic State as a governing organization is a positive development. This report is not intended to diminish the gains being won on the battlefield by mostly local forces, supported by a variety of external actors. However, what this report suggests is that pushing the Islamic State out as the formal governing party in a territory is not a sufficient development when it comes to ending the group's ability to enact violence against individuals in Iraq and Syria. Indeed, the more than 1,400 data points of the Islamic State's self-reported military activity in liberated cities serve as a reminder of the group's intention and capability to carry out attacks. This report shows, however, that such capability is not uniform across all parts of Iraq and Syria. In some of the 16 cities studied in this report, violence has diminished significantly since liberation, and the Islamic State appears unable to or uninterested in reinvigorating its military activities presently. In others, however, the threat of violence remains pervasive. This nuanced understanding of the post-Islamic State security environment is important for stakeholders in the region to understand.

Beyond the immensely important provision of security, other equally important issues remain that are beyond the scope of this report. Many of the areas discussed in this report remain decimated due to the combination of Islamic State's governing tenure and its parting blows, but also due to some of the tactics employed by forces retaking the cities. Regardless of attribution, a number of cities experienced tremendous destruction of infrastructure, making the provision of city services difficult. In the case of Ramadi, a United Nations survey of the damage found that 5,700 buildings in and around Ramadi had been damaged, with 35 percent of them being destroyed.³⁰ Even those building that remain are not safe, as tragically shown when a British contractor was killed while removing a mine in the city.³¹

Even in locations where the Islamic State is driven out and relative peace is restored, difficult political challenges remain. In March 2017 in Manbij, Syria, U.S. forces intentionally drove through the streets of the city in an effort to prevent fighting between the Syrian Democratic Forces (SDF), the Turkish government, and others.³² A similar, but potentially more intense, post-liberation dynamic is possible in Mosul, where a range of actors have converged in an effort to drive out the Islamic State.³³ And, at the time of this writing, the effort to retake and subsequently govern Raqqa are likely to face similar challenges.

All of these examples emphasize the importance of post-liberation security, governance, and politics. Simply pushing the Islamic State out of a formal governing position in Iraq and Syria, while an important first step, will not ensure the achievement of these post-liberation tasks and reduce the likelihood that the Islamic State or some other terrorist organization emerges to take advantage of a tenuous peace. By understanding the group's desire to remain, as well as its efforts to do so, anti-Islamic State actors can better plan to achieve these goals.

29 Tom O'Connor, "Russia Warns U.S. Against Attacking Syrian Army as Allies Beat ISIS at Border," *Newsweek*, June 12, 2017. To see this trend more fully, consider a series of studies conducted by IHS Markit, which show that mutual avoidance was the case in late 2014, held mostly true into late 2015, and appears to have shifted such that the Syrian government and the Islamic State have encountered each other with much greater frequency in 2016 and 2017. See Ammar Cheikh Omar and Cassandra Vinograd, "Syria, ISIS Have Been 'Ignoring' Each Other on Battlefield, Data Suggests," *NBC News*, December 11, 2014; "Islamic State's Caliphate Shrinks by 14 Percent in 2015," *IHS Markit*, December 21, 2015; "Study Shows Islamic State's Primary Opponent in Syria is Government Forces, IHS Markit Says," *IHS Markit*, April 19, 2017.

30 "U.N. Team Calls Destruction in Iraq's Ramadi 'Staggering,'" *Reuters*, March 4, 2016.

31 Lizzie Dearden, "British Man Killed While Defusing ISIS Bomb in Iraqi City of Ramadi," *Independent*, August 23, 2016.

32 "Kurds Pledge to Fight Turkey to Retain Syria's Manbij," *Al Jazeera*, February 18, 2017; Paul D. Shinkman, "Manbij and the Unforgiving Complexity of the Syrian War," *U.S. News*, March 10, 2017; Joe Macaron, "The Sheriff of Manbij: US Makes Debut in the Syrian War," *Al Jazeera*, March 11, 2017.

33 Lister.