

Drone strikes and suicide attacks in Pakistan: an analysis

Luqman Saeed, Professor Mike Spagat, Iain Overton

Introduction

In recent years, the US, UK and other NATO countries have increasingly emphasized drone strikes as a primary weapon of war and counter terrorism in a list of countries that includes Iraq, Syria, Pakistan, Libya, Somalia and Yemen.¹ In the same period, the number of suicide attacks has risen sharply around the world.

Between January 2011 and January 2019, for instance, there have been 199 confirmed drone strikes in Pakistan and 182 suicide bombings. In Yemen there have been 323 confirmed drone strikes and 89 suicide attacks. And in Afghanistan there have been 5,833 drone strikes and 206 suicide bombers. The interplay between state actor drone strikes and suicide bombings from non-state groups is clearly a matter of concern.

In this report we focus on Pakistan to examine this relationship, although we hope that some of the lessons learned apply more widely.

There is a debate surrounding whether or not drone strikes in Pakistan lead to reactions from militant groups, and this debate has been largely based on two types of studies. The first approach uses public opinion surveys to assess attitudes, while the second, which is more relevant to this report, measures violent reactions of militants to drone strikes. We briefly survey this literature in the next few paragraphs, but note that there is little reason to expect strong agreement between the findings of these two types of studies. For example, drone strikes could garner general approval from a broad swathe of population while, simultaneously, a minority of militants could react violently to these strikes.

Some scholars, e.g, Boyle (2013), argue that drone strikes incite local anger but provide only limited empirical evidence to support this claim. Zubair (2012) and Shah (2016), on the other hand, use survey data to find fairly strong approval for drone strikes in their samples of tribal area residents – the latter study found a 79 percent approval of drone strikes in a sample of 147 respondents from tribal areas. These results are interesting, although the samples are biased toward local maliks (tribal elders), government employees, the intelligentsia and other local elites (i.e. people who tend to appear on Taliban target lists).

Silverman (2018) suggests that drone strikes may be popular in the places in which they occur – where knowledge of their effects is greatest – but become increasingly unpopular as distance increases and knowledge decreases.²

Overall, these debates about public opinion toward drone strikes are illuminating but not fully resolved.

Jaeger and Siddique (2018) find that drone strikes in Pakistan and Afghanistan fuelled violence in those countries, particularly in Pakistan, between January 1, 2007 and September 30, 2011, with strong effects in the first week following a drone strike. At first glance, their findings seem contrary to those of Johnston and Sarbahi (2016), who also covered 2007-2011 and found that drone strikes in Pakistan deterred terrorism. The discrepancy between these two reports is geographical. Jaeger and Siddique (2018) analysed terrorist responses throughout the whole of Pakistan, whereas Johnston and Sarbahi (2016) only looked at local responses, limiting their analysis to a 150 kilometre radius per strike.

Saeed and Syed (2016) show that militants of Pakistani origin come from all over the country, and tribal areas have served as launching pads for militancy throughout Pakistan – at least since US-led military offensives led Al-Qaeda to settle in the region. Indeed, many militant groups such as Lashker-e-Jhangvi and Harkat ul Jihad al Islami congregated in the region after they were originally formed in settled areas of Pakistan, areas where they retain a keen interest. Thus, it would be surprising for reactions to drone strikes, which are publicized nationally, to be confined to the local areas where they occur. In fact, militants have specifically claimed responsibility for violent attacks in settled areas of Pakistan as

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reactions to drone strikes in far-away tribal areas. For example, after a major March 2009 attack on a police academy in Lahore, an ex-Taliban leader [issued a statement](#) explicitly framing the incident as a retaliation for drone strikes.

In this report, we inquire anew into the possibility that remote-controlled drone strikes fuel local suicide attacks within Pakistan. To do this, we have used the [drone strike database](#) maintained by the [Bureau of Investigative Journalism](#) (BIJ), which spans from 2004 to the present. The BIJ database is a good choice because it covers 430 strikes in Pakistan, which is slightly more than the 404 and 414 recorded by the [New American Foundation](#) (NAF) and the [Long War Journal](#) (LWJ), respectively, during the same time period. Nevertheless, in future work it will be interesting to check whether our results are robust to the replacement of the BIJ database with NAF or LWJ, or with a grand database that integrates all three.

We measure the actions of militant groups with suicide attacks as documented by the [Chicago Project on Security and Terrorism](#) (CPOST). Suicide attacks are just one type of militant action, so this focus does limit the scope of our work. On the other hand, suicide attacks are the deadliest weapon in the arsenal of militant groups, so it is of particular interest to focus on this powerful weapon. Moreover, CPOST has documented suicide attacks going back well before 2004, the year of the first drone strike in Pakistan. Thus, crucially, we cover a much longer run of data than any previous studies, which have all been limited to 2007 to 2011. Unfortunately, CPOST is no longer active, so we have to terminate our analysis at the end of 2016. Nonetheless, we more than triple the time period of earlier studies and are able to gain considerable new insights into overall patterns and differences between time periods.

We base our analysis on the methods originally deployed in Jaeger and Passerman (2006 & 2008) to study the Israeli-Palestinian conflict and, more recently, in Jaeger and Siddique (2018) to study possible militant reactions to drone strikes in Afghanistan and especially Pakistan. In particular, we test whether there are elevated rates of suicide bombing activity in Pakistan during 30-day time periods immediately following drone strikes.

We find that, indeed, drone strikes are followed by strongly elevated rates of suicide attacks: we discovered roughly one additional suicide attack associated with an average of 20 deaths and 48 injuries during a 30-day window following a drone strike.³

Suicide-attack reactions to drone attacks vary in interesting ways across time periods. In particular, they were substantially stronger during the presidency of George W. Bush than they were during that of Barack Obama. We also do a before-and-after comparison for a major [Pakistani military initiative](#) known as Zarb-e-Azab (Sharp and Cutting Edge), which began in 2014 and intensified later in the year after a militant attack on the Army Public School in Peshawar killed 150 students. It is [generally understood](#) that the frequency of suicide attacks declined during and after Zarb-e-Azab, but there has not yet been an investigation into how the suicide attacks that did occur might relate to drone strikes.

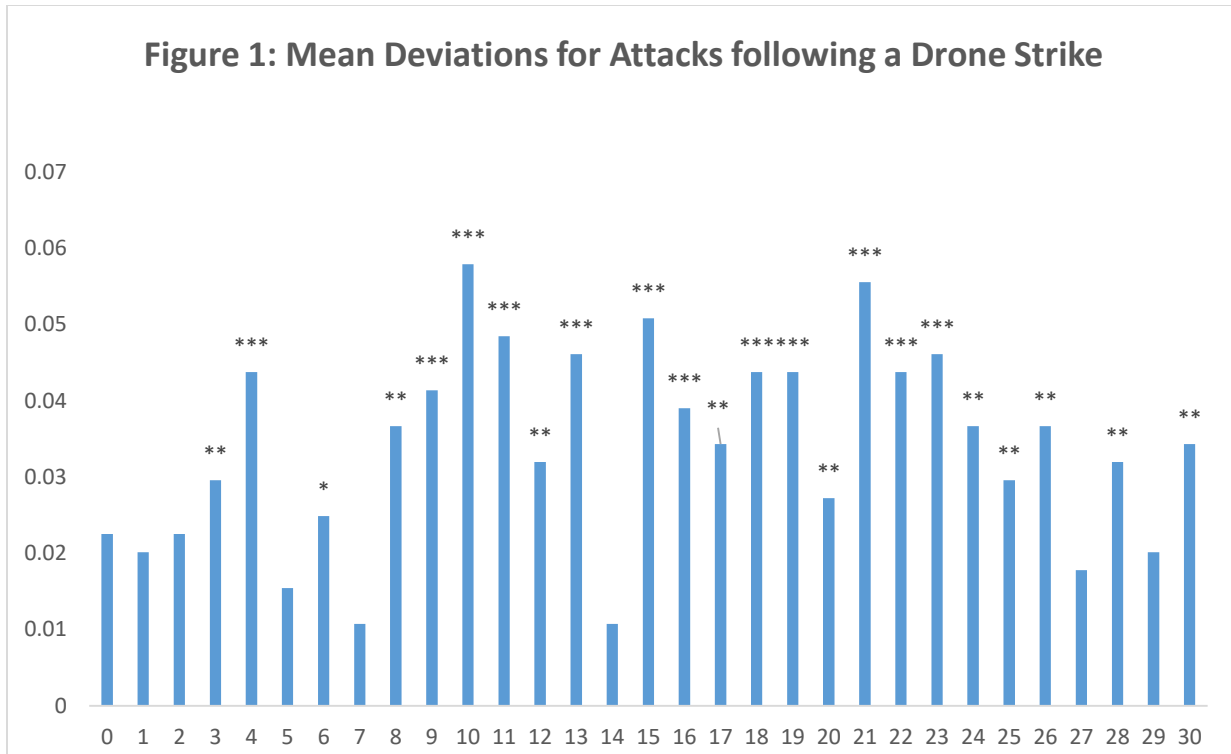
In the short-term, suicide-bombing reactions to drone attacks appear to have been reduced by this offensive, at least through 2016. We should point out, however, that any inhibitory impact of military intervention may have been short lived – data from Action on Armed Violence’s explosive violence monitor shows that there were 28 suicide strikes in Pakistan in 2013, 19 in 2014, 14 in 2015 and 10 in 2016, but then 23 in 2017 and 20 in 2018.

2. Analysis

Here we explain the findings highlighted in Figure 1 in detail. The subsequent figures should become easier to understand once readers make this initial investment.

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We find that there were 0.104 suicide attacks per day in Pakistan between 2004 and 2016 according to the CPOST data.⁴ During this same time period, there were drone attacks on 424 days. The average number of suicide attacks per day on these 424 drone-attack days was 0.127. Accordingly, bar 0 in Figure 1 has a height of 0.023.⁵ We interpret this point as suggesting slightly elevated suicide attack activity on drone-strike days; suicide attacks on drone-strike days come at a daily rate that is 0.023 above the average rate for all of 2004-2014. Nevertheless, this rate elevation is not statistically significant, as indicated by the absence of any stars above this bar, which suggests that there may be no real effect or, perhaps, just a weak one. It is, in fact, reassuring that our calculation does not point towards a same-day suicide-attack response to drone attacks since it is unlikely that militants could successfully organize such instant responses.

Next, consider bar 1 in Figure 1. The average number of suicide attacks on these days was 0.125, so bar 1 in the graph reaches a height of 0.021. Again, the result is not statistically significant.

The first statistically significant result comes from 3 days after a drone-strike. The average number of suicide attacks per day on these days is 0.134, which places bar 3 at 0.029. It seems more credible that suicide attacks could be organized within a 3-day window following a drone strike.

All other bars are constructed similarly.

Next, consider the effect magnitudes. Elevation of the daily rate of suicide attacks by, for example, roughly 0.03 on days that are 3 days after drone attacks might seem like a small effect. This number means that we might expect roughly 1 extra suicide attack for every 33 drone attacks, with this extra attack coming 3 days after a drone attack.

But the 3-day delay is just 1 out of 31 delays displayed in Figure 1. The sum of all the bar heights in Figure 1 is 1.05. Even if we add only the bar heights that reach at least 2-star significance, we still get

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sum of 0.68. This suggests that over a 30-day period each drone strike is followed by almost one extra suicide attack.

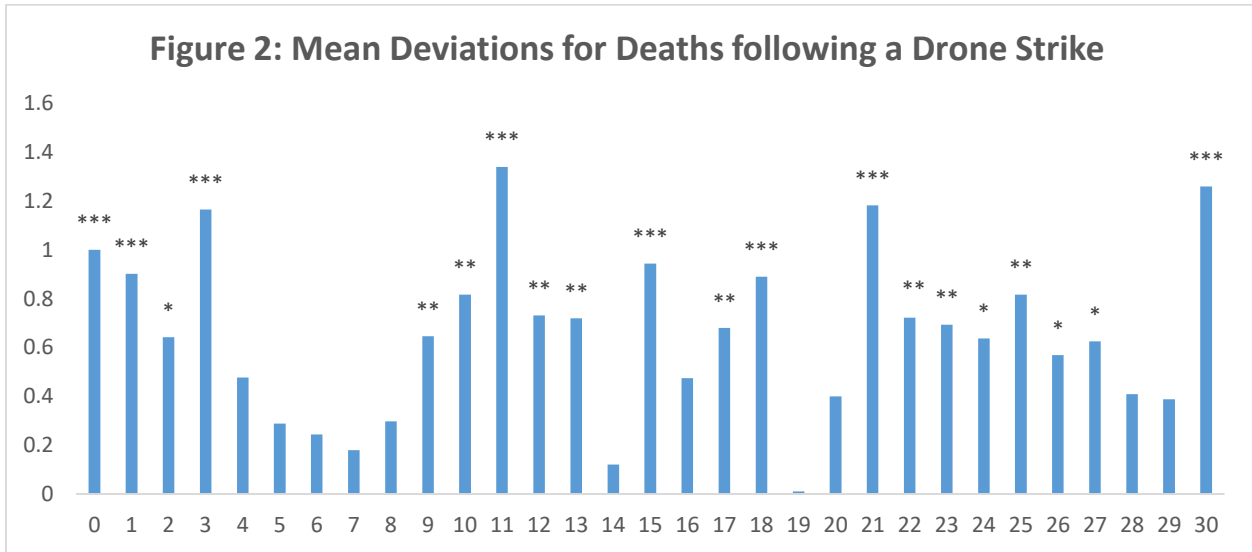
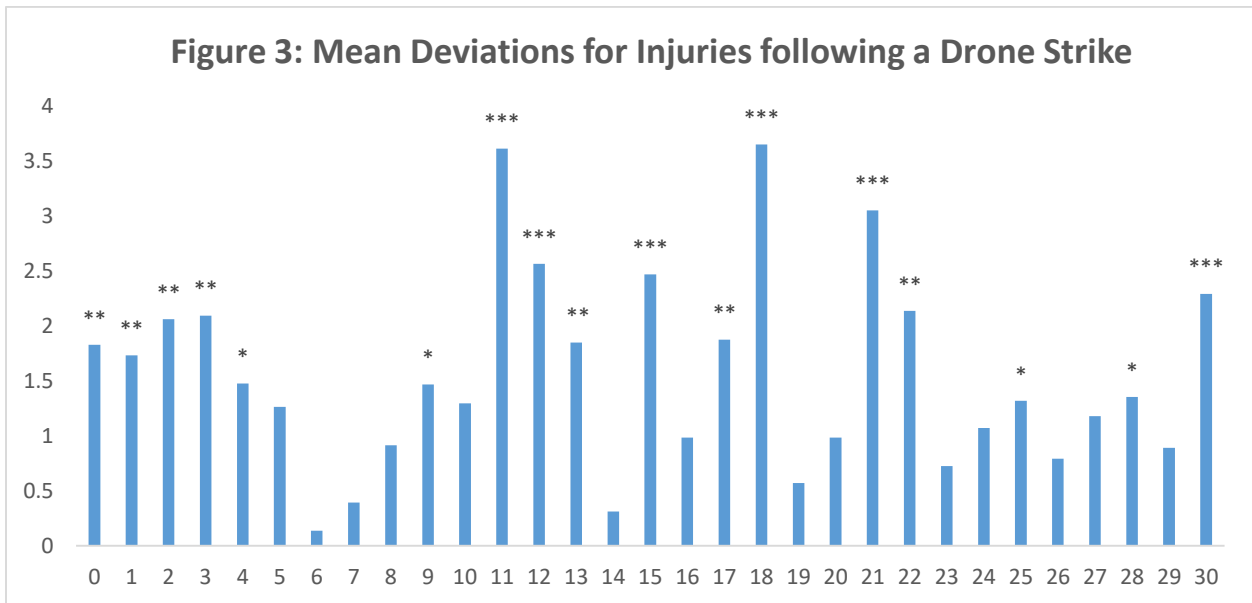


Figure 2 is similar to Figure 1, but here we measure the suicide-attack reaction to drone attacks in terms of numbers of people killed in these suicide attacks. The pattern is more erratic than the one for event counts (Figure 1), perhaps because the number of people killed in a suicide attack includes a substantial random component. We also have some statistically significant, but implausibly fast, same-day and next-day reactions that, perhaps, would disappear with still more data. Nevertheless, the findings are broadly consistent with those presented in Figure 1. The findings suggest a cumulative 30-day response of 20.28 extra deaths in suicide attacks (13.2 if we include only 2-star statistically significant bars).



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Figure 3 shows a similar pattern for injuries. The cumulative number of excess injuries during a 30-day window following a drone strike is 48 (or 31 if only 2-star statistically significant bars are included).

This, then, suggests that drone strikes in Pakistan between 2004 and 2016 were followed within a month by the occurrence of, on average, one more suicide attack killing 20 people and injuring a further 48.

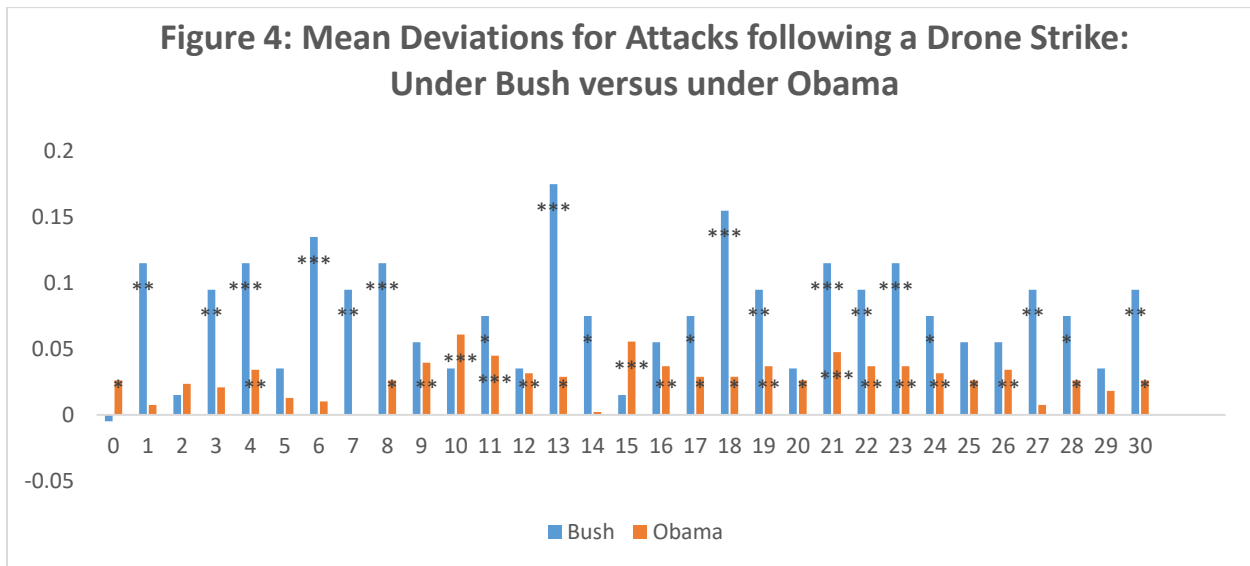
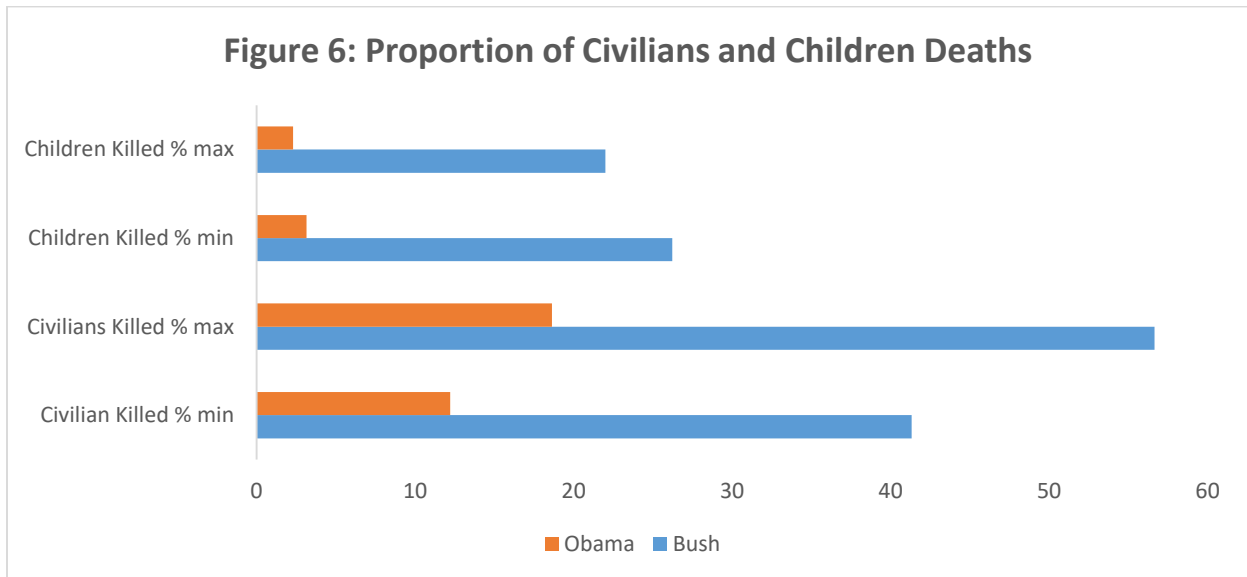
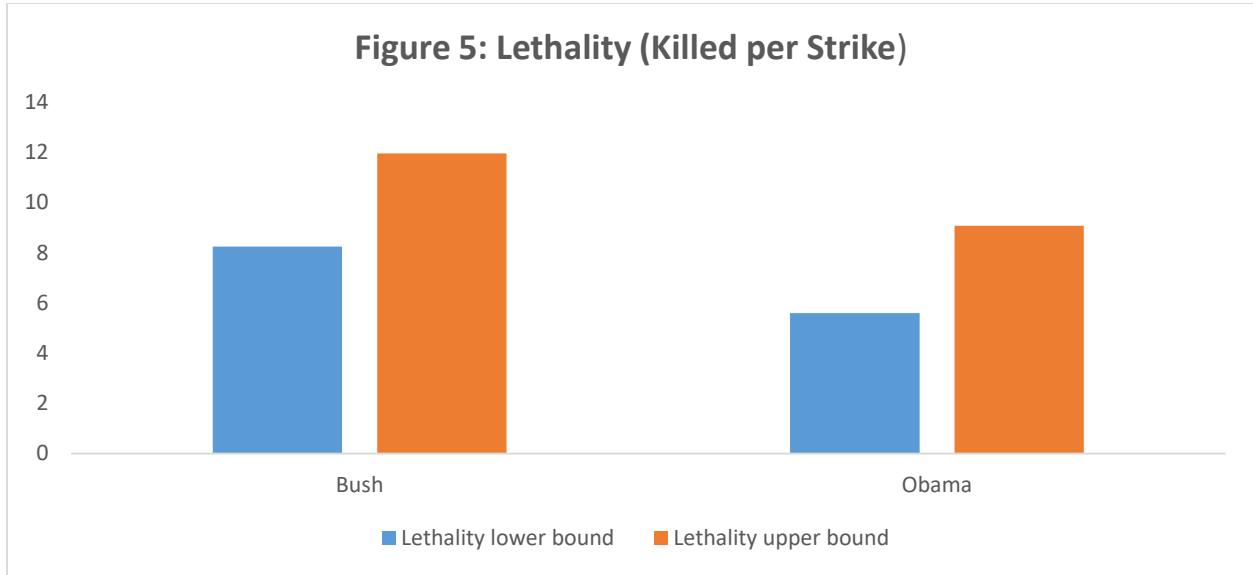


Figure 4 divides time into two separate periods: the US presidency of George W. Bush (which ran from 2001 to 2009) and that of Barack Obama (from 2009 to 2017).⁶ The suicide-attack reactions to drone strikes appears to be substantially stronger under Bush than under Obama. For the former, the sum of the effect sizes is 2.40 compared to only 0.87 for the latter, and 1.61 and 0.52, respectively, if we include only 2-star statistically significant effect sizes.

A possible explanatory factor for the weaker reactions under Obama is that drone strikes were “cleaner” under Obama in two separate senses. First, the number of people killed per strike was higher under Bush (Figure 5). Second, both the percentage of all people killed in drone strikes who were children and the percentage of those killed who were civilians were lower under Obama than they were under Bush (Figure 6). Perhaps the US military improved its drone-strike methods over time, or perhaps it was simply more cautious under Obama than it was under Bush. However, overall, the Obama administration actually used drone-strikes far more and caused more casualties than the Bush administration did (Figure 7). Indeed, the sheer scale of the effort under Obama may have overwhelmed the militant groups and rendered it difficult for them to respond to strikes. The fact that responses were weaker under Obama is much clearer than the reasons for this change.

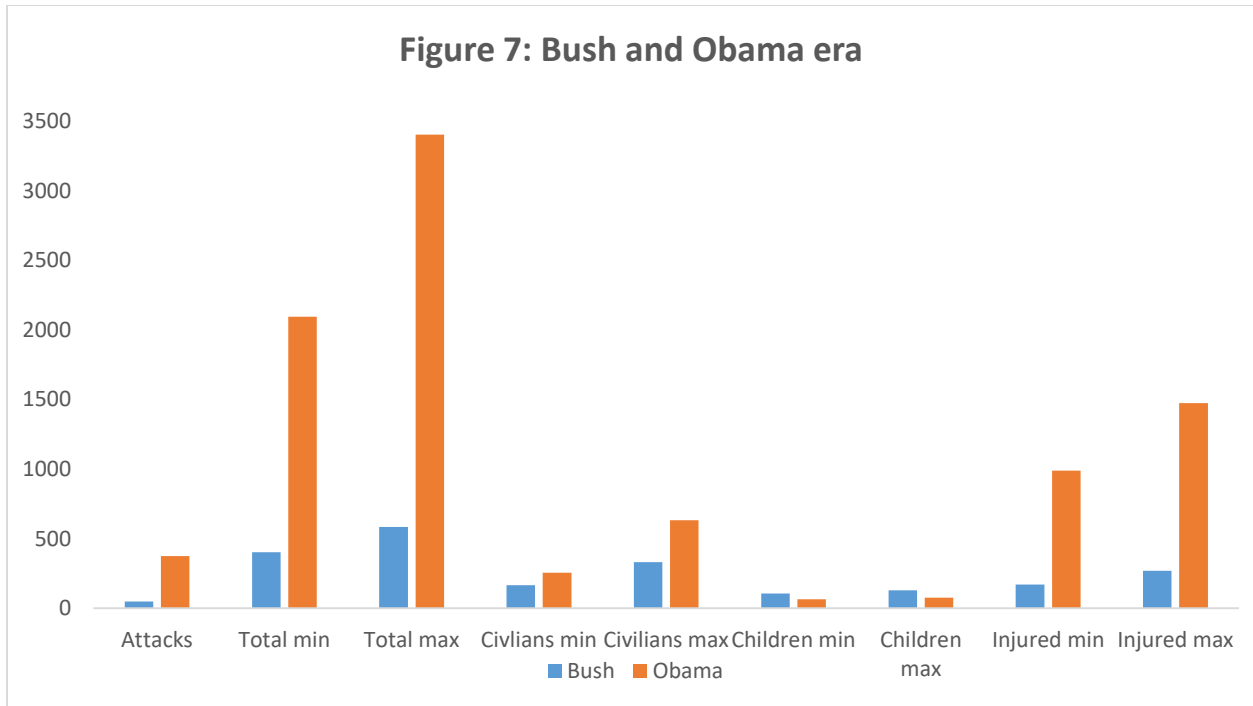
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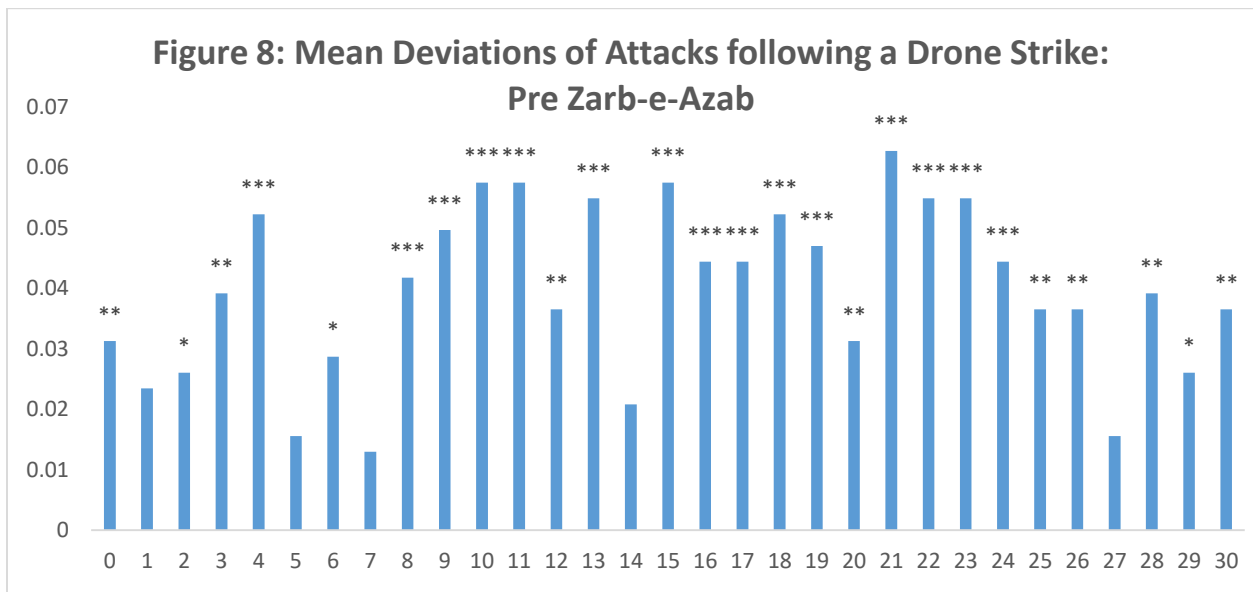


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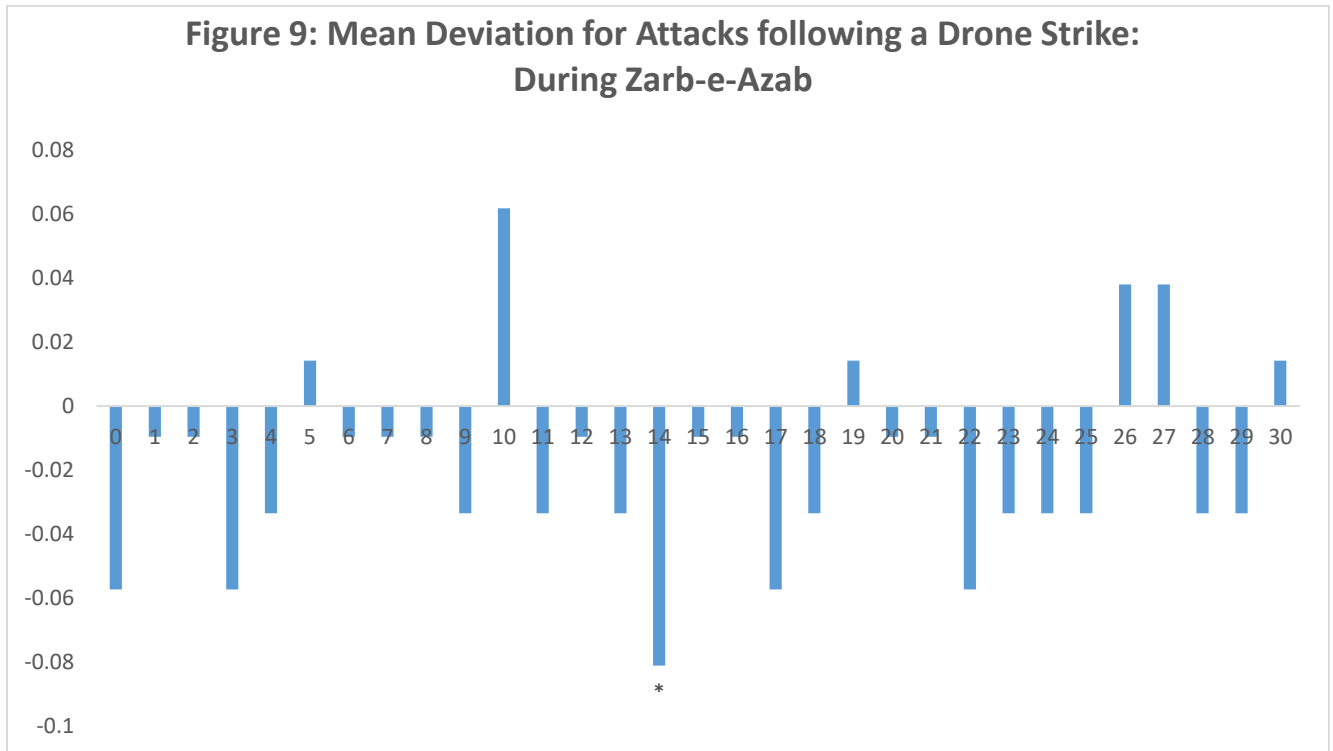


A second interesting before-and-after comparison is one that pivots around Pakistan's Zarb-e-Azab offensive, which began in June 2014. Figure 8 shows suicide attack rates above the mean daily rate before the initiation of Zarb-e-Azab. Figure 9 shows these differences between the initiation of the offensive and the end of 2016. Suicide-bombing responsiveness to drone attacks seems to disappear during the offensive, although it may have returned after 2016 when the CPOST data ends, but the Action on Armed Violence explosive violence monitor shows an upswing in suicide bombing in Pakistan.



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Conclusion

Overall, our analysis of drone and suicide attack data in Pakistan suggests that drone strikes between 2004 and 2016 were followed within a month by the occurrence of, on average, one more suicide attack than usual, with an average of 20 people killed and 48 injured.

This finding adds to a body of work that looks at the impact on civilians from both terror attacks and the counter-terrorism measures undertaken to address terrorism. More work in this area is imperative to understand, in full, the routes towards radicalization and suicidal terror and the role that state airpower has in fueling such routes.

¹ See, for example, the databases of the [Bureau of Investigative Journalism](#) and [AirWars](#).

² [Silverman \(2018\)](#) gives a good round-up with links of the evidence surveyed in in the present paragraph.

³ On a more conservative handling of statistical significance the response could be rendered as 2/3 of an additional suicide attack with 13 deaths and 31 injuries on average during the 30-day window following a drone attack. See section 2 for details.

⁴ There were 4864 days and 510 suicide attacks during this period for an average of 0.104 attacks per day.

⁵ $0.127 - 0.104 = 0.023$.

⁶ Recall, however, that we do not have suicide bombing data for 2017.