Drone Strikes and “Hearts and Minds”: A Quasi-Experimental Analysis in Pakistan

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Abstract: How does counterinsurgent violence influence the “hearts and minds” of civilian populations? Despite extensive theoretical debate, we have little systematic evidence on this matter. I add to this literature by analyzing how one increasingly important form of violence in modern asymmetric conflict – targeted killing across state borders – influences “hearts and minds” in the target society. In particular, I exploit a natural experiment in the timing of U.S. drone strikes and public opinion surveys in Pakistan that allows me to estimate the effects of these operations on national Pakistani opinion. The results of this analysis show that the strikes do have substantial anti-American, anti-incumbent, and pro-militant effects on the Pakistani population. Yet closer analysis also reveals important nuances in these responses. Indeed, while the strikes legitimize some target organizations (e.g., the Taliban), they do not fuel support for other prominent militant groups (e.g., Al Qaeda). Moreover, they actually boost Pakistani support for U.S. financial and humanitarian aid to fight extremism, creating demand for policy change rather than simply disengagement. Ultimately, the results show that cross-border targeted killing does alienate and radicalize “hearts and minds” across the targeted society, while also highlighting the limitations and potential opportunities for mitigation of these effects as well.
How does counterinsurgent or counterterrorist violence influence the “hearts and minds” – or political attitudes and attachments – of civilian populations? This question is at the heart of modern asymmetric conflict, in which a regular military faces militant forces who draw various forms of support from a broader civilian population. Some theories suggest that the use of force by state authorities is likely to alienate civilian communities, pushing them to sympathize more with the militants, while others argue that such violence promotes allegiance and compliance by the populace. Still others contend that it depends on the type of force employed, with selective – but not indiscriminate – violence securing civilian support. Despite the continued relevance of these questions, few studies venture to identify how violence shapes attitudes, and most of our knowledge relies on casual observations.

I contribute to this research agenda by examining how one increasingly important type of violence in modern asymmetric conflict – targeted killing across state borders – impacts political attitudes throughout the targeted country. The use of cross-border targeted killing has become an increasingly important and common feature of contemporary conflict. Indeed, a growing number of states now regularly carry out airstrikes, special forces raids, or other operations against terrorist or insurgent groups in foreign countries that they have not invaded or occupied. This includes not only Israel’s longstanding targeted assassination program against Palestinian militant leaders in neighboring Arab nations like Jordan and Lebanon, but also the U.S. drone campaigns against Al Qaeda and its affiliates in countries like Pakistan, Yemen, and Somalia. Indeed, the U.S. has launched over 500 such operations in Pakistan and Yemen over the last decade alone, generating thousands of casualties and a multibillion-dollar annual price tag.\(^1\) Moreover, it has been joined

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\(^1\) See the New America Foundation and the Bureau of Investigative Journalism databases.
by a number of regional powers, with Russia, Colombia, Turkey, Iran, Saudi Arabia, Egypt, and others also attacking militants abroad.

Examining how this type of violence influences the political allegiances and preferences of the target society extends our traditional “hearts and minds” models in at least two key ways. First, asymmetric conflict is almost invariably cast in terms of the “three-actor model,” in which a (1) regular state army and a (2) militant organization compete for the sympathy and support of a (3) civilian constituency or population (Bueno de Mesquita 2005, Kalyvas 2006, Scutte 2015). However, the situation examined here introduces a fourth actor: a foreign counterinsurgent who uses military force against the militant organization without invading or occupying the territory, and with varying levels of consent from the local regime. Second, and relatedly, the violence can influence perceptions of not only its perpetrators and its targets, as in the traditional scenario, but also of the local regime (which may or may not be seen as collaborating with the foreign power). The impact of this form of violence on “hearts and minds” is not entirely clear. On the one hand, it is a selective or targeted use of force that targets militants and not civilians. On the other hand, its cross-border nature may make it especially alienating to the target population. Unsurprisingly, there is strong debate in the anecdotal literature about whether (and precisely how) such violence shapes political attitudes in the target society.

In order to investigate these dynamics, I exploit a natural experiment in the timing of U.S. drone strikes and public opinion surveys in Pakistan. The Pakistani case is ideal because it offers an annual series of publicly available surveys since 2002 as part of the Pew Global Attitudes Pro-

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2 Russia has assassinated Chechen militants in several nations since the 2nd Chechen War.  
3 Colombia attacked a FARC base in Ecuador in 2008.  
4 Turkey has repeatedly attacked the bases of the PKK in northern Iraq.  
5 Iran has attacked militants in Syria, Iraq, and Pakistan in recent years.  
6 Saudi Arabia has led a multinational air campaign in Yemen since early 2015.  
7 Egypt has repeatedly attacked militants in Libya since 2011.  
8 For an introduction to this debate, see Audrey K. Cronin. “Why Drones Fail.” Foreign Affairs, July/August 2013; and Daniel Byman, “Why Drones Work.” Foreign Affairs, July/August 2013.
ject (GAP), which is unique for a country experiencing a cross-border targeted killing campaign. These surveys also contain the date of each interview, which is crucial for the empirical strategy. Armed with this information, I compare survey responses immediately before (control) and after (treated) U.S. drone strikes occur in order to analyze how the violence shapes Pakistani attitudes toward a variety of relevant actors and actions.

The analysis reveals that the strikes do generate Pakistani opposition to their perpetrators (the U.S.) and collaborators (the Pakistani incumbent), as well as support for at least some of the targeted groups (the Taliban). This impact is substantial as well: anti-Americanism, for example, jumps by an estimated 10 percentage points among treated individuals in the ensuing two weeks. Moreover, it is concentrated in crucial pockets of Pakistani society – such as men, internet users, and those close to the affected areas – that may be especially vulnerable to militant involvement. This suggests that cross-border targeted killing does fuel substantial alienation and radicalization across the target society.

However, the analysis also reveals some limitations and nuances to this narrative as well. First, while the strikes do boost support for the Taliban, they do not fuel sympathy for Al Qaeda, the Afghan Taliban, or other externally-oriented organizations. This indicates that the population is clearly distinguishing between different militant organizations and reacting to changes in their strategic environments (Fair and Shapiro 2010), as opposed to just responding to repression with greater “support for militancy” across the board. Second, the violence actually increases demand for U.S. humanitarian and financial aid to combat extremism, while reducing desire for Pakistani army campaigns to do the same. This suggests that it generates demand for a different (i.e., more nonviolent) counterinsurgency approach, rather than a rejection of American involvement per se, opening up potential opportunities for mitigation of these effects. Ultimately, these results reveal
that, at least in one prominent context, cross-border targeted killing does alienate and radicalize the target society, but this impact is limited and nuanced in important ways as well.

**Literature Review:**

Theoretically, there are competing views about how counterinsurgent or counterterrorist violence shapes civilian loyalties. The dominant perspective is that proactive military responses alienate the population and drive it towards the insurgents (Rosendorff and Sandler 2004). This “boomerang effect” can arise because the civilian casualties and negative economic externalities of the violence make the population view the government as hostile (Bueno de Mesquita 2005), or simply out of a desire for protection because of the perceived risks of victimization (Kalyvas and Kocher 2007). In fact, the terrorism literature even suggests that terrorists recognize and exploit such dynamics by provoking regimes into military responses that radicalize the population (Kydd and Walter 2006).

In contrast, deterrence-based thinking holds that military action against rebels, insurgents, or terrorists makes it more difficult for them to organize and mobilize support for their campaign. This line of thought stresses the fact that militants face a severe collective action problem (Olson 1965, Lichbach 1995), as they demand costly and risky individual sacrifice from their supporters for a distant and uncertain public good. State repression only increases these costs and risks, thus exacerbating the collective action problem. Indeed, the violence may spread not only fear among potential participants and supporters, but also a sense of futility and perception that the campaign is a “lost cause” (Wilner 2012: 315). In some cases the civilian communities may even blame the insurgents for provoking the regime and bringing about its wrath (Lyall 2009).
Finally, an increasingly prominent line of thought holds that the relationship depends on the type or quality of violence that is employed. In particular, state violence is thought to secure civilian loyalties when it is “selective” as opposed to “indiscriminate” in nature (Kalyvas 2006). This means that it is not arbitrary or even communal, but conditional on individual participation in or collaboration with the militant actor. The basic logic is that indiscriminate violence pushes populations toward the militants out of both anger (Schutte 2015) and fear (Kalyvas and Kocher 2007), whereas selective violence avoids or at least minimizes such alienation.

Despite the ample amount of theory, there is almost no systematic causal evidence about how counterinsurgent and counterterrorist violence impacts the loyalties of civilian populations. Indeed, most of our knowledge about how such violence influences civilian “hearts and minds” relies on casual empiricism and the personal anecdotes of individual participants and victims in warfare and conflict.9

**Cross-border Targeted Killing:**

I add to this literature by analyzing how one increasingly important category of violence in modern asymmetric conflict – targeted killing across state borders – shapes political attitudes throughout the target country. As noted above, cross-border targeted killing occurs when a state uses force against militants on foreign soil that it has not occupied or invaded.

There are a couple of particular reasons to think that this type of violence may – and may not – be deeply alienating inside the target society. On the one hand, like all targeted killing, it is an explicitly selective application of force in which the perpetrator targets the enemy combatants (particularly those with “high value”) instead of the broader civilian communities. This stands in

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9 Two notable exceptions are Lyall et al (2013) and Jaeger (2012). Yet these are conventional military interventions or occupations, not cross-border targeted killing campaigns.
stark contrast to the indiscriminate shelling, bombing, massacres or other forms of communal (or random) repression that remain common in intrastate conflict (Lyall 2009). As mentioned above, such restraint is thought to minimize civilian alienation.

On the other hand, such violence may be particularly alienating for at least two reasons. First, the violence may be perceived by the target society as a violation of national sovereignty. Indeed, national sovereignty has become one of the most entrenched norms in the world system (Reus-Smit 2001), and its perceived violation is often viewed as a salient grievance that clashes with basic notions of fairness and justice. In the case of cross-border targeted killing, recall that the violence is conducted by a “fourth actor” on foreign soil that it has not invaded or occupied, making it likely to be seen as a clear sovereignty violation by the target population. It is thus no surprise that sovereignty violation is among the predominant criticisms of the practice (whether in Pakistan, Yemen, or Ecuador) by local governments and their populations.¹⁰

Second, this violence may also be particularly vulnerable to politicization by local elites. Indeed, whenever a state uses force against a militant organization, there is an inevitable contest between the two “sides” to shape the narrative of the event – with the state trying to portray it as moral and effective, and the militants (and opposition) trying to do the opposite (Tugwell 1986). Yet unlike when a state targets militants on its own soil, a state targeting militants on foreign soil that it has not invaded or occupied is likely to have sharply limited (if any) informational control in the target country. In particular, it cannot mobilize the state media apparatus or compel private media or civil society in the target country to oppose the negative narrative. Moreover, the local regime will likely avoid heavily contesting such narratives (and may even join them) in order to

¹⁰ For example, Ecuador harshly condemned Colombia’s violation of its sovereignty in the 2008 Raul Reyes killing, while Iraq regularly denounces Turkish and Iranian violation of its sovereignty during operations in Iraqi Kurdistan. The Pakistani and Yemeni parliaments have even passed resolutions with such rhetoric. See, for example, New York Times, March 20, 2012.
retain some credibility. This overwhelmingly negative treatment of cross-border targeted killings by local governments, elites, and media is a key theme in anecdotal literature.\footnote{On these dynamics in Pakistan, see Fair (2014: 13-15). The dynamics are also clear in various other cases, such as the 2015 Saudi-led campaign in Yemen. See, for example, New York Times, March 26, 2015.}

Of course, this discussion is not meant to be exhaustive. There may be other compelling reasons why cross-border targeted killing is – and is not – likely to be alienating and radicalizing in the target society. Instead, it simply illustrates that there are factors pushing in both directions. In this vein, while the dominant view in the anecdotal literature is that the practice does alienate and radicalize the target society, this view is not uncontested.\footnote{See f.n. 8.} Moreover, even if this dominant view is accurate, a number of more specific questions abound, such as whether it tarnishes views of the local regime or only the foreign power, and whether it legitimizes various militant groups or only the particular one that is targeted. The actual impact of the violence on local “hearts and minds” may be much more nuanced than a pure pro-state or pro-militant effect.

**Research Design:**

In order to estimate these effects, I examine cross-border targeted killing operations that occurred during the fielding of local public opinion surveys. As described by Garcia-Ponce and Pasquale (2014), the best strategy to identify the impact of violence on public opinion – at least methodologically – would be to randomize exposure to violence and then compare the attitudes of exposed (treated) and unexposed (control) populations. However, as this ideal experiment is “neither possible nor desirable in real-life settings” (16), the best feasible strategy is to compare attitudes immediately before (control) and immediately after (treated) the incidents of violence. The key assumption is that the timing of the incidents is exogenous to the timing of the surveys, providing us with a “natural experiment” in which to analyze the effects of violence on opinion.
Similar research designs have been used to identify the consequences of state violence in Africa (Garcia-Ponce and Pasquale 2014) and the relationship between crime and student performance in Chicago (Sharkey 2010). In order to provide the tightest comparison possible, I use relatively narrow temporal windows (1-14 days) on each side of the incidents.

As noted, the key assumption behind this strategy is that the administration of surveys is not affected by the application of violence. The key concern is that survey administrators might adjust the survey routes after drone strikes for security reasons. However, this is unnecessary in our case due to the territorial restriction of the U.S. drone program in Pakistan. As seen in Figure 1, U.S. drone warfare in Pakistan occurs almost exclusively in the Federally Administered Tribal Areas (FATA), a semi-autonomous region bordering Afghanistan that is normally excluded from Pakistani surveys due to instability and inaccessibility. This means that standard national surveys – like those used here – need not be adjusted out of fear of drone strikes (or of the local reprisals that follow them, which also occur overwhelmingly in FATA\(^\text{13}\)). In fact, local survey firms have confirmed to me that they only need to adjust their routes in the event of a Pakistani army operation in one of their Primary Sampling Units (PSU’s) inside “Pakistan proper,” and not an American drone strike in the tribal regions.\(^\text{14}\)

**Figure 1: Geographic Distribution of U.S. Drone Strikes in Pakistan**

\(^{13}\) Bauer et al (2015) find that about 95% of collaborator killings by the TTP after U.S. drone strikes occur in FATA.

\(^{14}\) Conversation with Tariq Junaid, Executive Director of the Institute for Public Opinion Research (IPOR), Pakistan. IPOR has conducted over 150 nationally representatively survey projects across Pakistan.
Yet this feature also raises some crucial questions about the analysis. Most notably, how important is examining the influence of U.S. drone strikes on Pakistani civilian attitudes outside of the tribal areas, where they predominantly occur? I contend that it is tremendously important, for two major reasons. First, militant organizations in Pakistan – and the campaigns they wage, and constituencies they draw support from – are far from restricted to the tribal regions. On the contrary, the country boasts a complex tapestry of overlapping militant networks that operate in all four provinces, and wage a variety of external (Al Qaeda, Afghan Taliban, Lashkar-e-Taiba) and internal (Pakistani Taliban, Baloch Liberation Army, Sipah-e-Sahaba Pakistan) campaigns. As is the idea behind the flurry of polls in the country since 9/11, popular support is one crucial input that sustains and strengthens these groups (Fair and Shapiro 2010), and U.S. drone strikes could conceivably boost sympathy for any number of them. Likewise, such opinion also shapes
the government’s reactions toward these groups, and whether it suppresses, neglects, negotiates with, or even supports them.

Second, the reaction of the broader population may also have important implications for Pakistani mainstream politics. Indeed, FATA contains only a tiny slice of Pakistan’s population (under 2%), so we can still test how the violence influences attitudes across the vast majority of the country, including the four major provinces of Punjab, Sindh, Khyber Pakhtunkwha (KPK), and Balochistan. Moreover, FATA is effectively disenfranchised from mainstream politics, with a harsh colonial-era administrative structure and little voice in national or provincial elections.15 It is thus opposition throughout the rest of Pakistan that has – according to anecdotal literature – “radicalized” Pakistani mainstream politics, eroding support for incumbent leadership, elevating new opposition elites (e.g., Imran Khan), and sparking conflict with the U.S. in other areas (e.g., the NATO supply lines to Afghanistan).16 In sum, the reaction of the broader Pakistani populace may have important implications for militant and mainstream politics in Pakistan.

A related concern is that the reactions in FATA might be distinct from those elsewhere in the country. Yet this concern might be overstated for at least two reasons. First, based on the few relevant polls of FATA, opinion of the drone strikes there is broadly in line with opinion of them across the rest of the nation, with a substantial majority opposed (76% vs. 22%, according to one 2010 poll).17 Second, we can conduct subgroup analyses and examine elements of the population that share key attributes (e.g., awareness of the drone strikes) with FATA residents, thus gaining some insight into their potential reactions. Indeed, some of the surveys even contain the location of each respondent, allowing us to examine the impact of the strikes on those just outside FATA.

15 FATA is still governed under the draconian Frontier Crimes Regulation (FCR) established by the British in 1901. See White (2008).
Thus, while having FATA data as well would be ideal (though perhaps not without other biases), we can analyze such dynamics fruitfully across the vast remainder of the country.

**Empirical Context:**

The origins of U.S. drone warfare in Pakistan can be traced back to the late 2001 invasion of neighboring Afghanistan, when scores of Al Qaeda and Afghan Taliban militants fled over the porous border between the two countries – the “Durand line” – into the tribal regions of Pakistan. Under intense American pressure, the Pakistani military entered FATA in 2002 to root them out, but its incursion only enraged the fiercely independent local tribes (Qazi 2011). This enabled the militants to win over some tribal support, which they used along with killings of pro-government tribal elders to consolidate control of FATA in 2004. In 2007, a number of these militant factions coalesced into the Tehrik-e-Taliban Pakistan (TTP), or Pakistani Taliban, under the leadership of Baitullah Mehsud. The TTP then proved itself to be an existential threat to Islamabad (and thus a serious threat to Washington), rolling down the Swat Valley to within 60 miles of the capital in a full-scale national insurgency. While this bold advance was blunted in 2009, the group continues to pose a lethal terrorist threat from its stronghold in the tribal areas. Moreover, FATA continues to serve as a major “launching pad” for the Afghan Taliban against NATO forces in Afghanistan as well as a sanctuary for key elements of Al Qaeda and various other militant outfits outside the grasp of the Pakistani army (Fair 2004).

In order to confront this situation, the U.S. has launched over 400 strikes from Unmanned Aerial Vehicles (UAV’s), or “drones,” against the militant groups in the tribal areas since 2004. These strikes were initially very infrequent, but their pace accelerated dramatically in 2008 when the militant threats emanating from FATA intensified, peaking in 2010 with over 100 operations.

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18 See f.n. 1.
Over that time, the strikes have scored a number of key successes, including the killing of dozens of Al Qaeda and Taliban leaders. This includes the top TTP leader Baitullah Mehsud in 2009 as well as his successor Hakimullah Mehsud in 2013, which facilitated the group’s factionalization. Yet there have also been a number of notable mistakes and misfires as well, such as the bombing of seminaries and tribal jirgas reportedly full of civilians.

**Data and Variables:**

The primary source of drone strike data used in the analysis is the Bureau of Investigative Journalism’s (BIJ) drone wars database. The BIJ database is a comprehensive, open-source effort to document all U.S. drone strikes (and other covert operations) in Pakistan, Yemen, and Somalia since 2002. It includes a narrative description of each event as well as active links to all reputable media sources used to research it. The key sources used include major international wire services or media outlets such as Reuters, the BBC, Associated Press, the Guardian, the Washington Post, the New York Times, and AFP, as well as leading local outlets like Dawn, Express Tribune, and the Nation in Pakistan, and others in Yemen and Somalia. The database contains over 400 drone strikes in Pakistan since 2004, with over 2,000 casualties.

The main source of public opinion data used in the analysis is the Pew Research Center's Global Attitudes Project (GAP). GAP is a continuous effort to track social and political attitudes worldwide since 2002. Pakistan has been included in every year except 2009, yielding 13 waves and over 17,000 interviews. The surveys in Pakistan consist of multi-stage cluster samples of all four major provinces (Punjab, Sindh, Khyber Pakhtunkwha, and Balochistan), with stratification by province and urbanity. As noted, they exclude the FATA region and other areas of insecurity.

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19 The NAF records 63 such “high-value targets” killed to date in Pakistan. This is not tracked by the BIJ.
Although disproportionately urban, they have been weighted to capture the actual urban vs. rural distribution in the country.

The primary dependent variables used in the analysis are standard four-point favorability scales (“please tell me if you have a very favorable, somewhat favorable, somewhat unfavorable, or very unfavorable opinion of:”) of the American people, the Pakistani president and opposition leaders, and militant groups such as Al Qaeda and the Taliban. They also include questions about U.S. and Pakistani counterterrorism policies and threat perceptions of Al Qaeda and the Taliban. Meanwhile, the “treatment” is simply whether each interview was conducted 1 to 14 days before (control) vs. 1 to 14 days after (treated) one of the seven drone strikes. The models also include a number of key demographic covariates to account for any potential imbalances between the pre- and post-strike respondents (although results remain substantively similar either way).

To construct the sample, I first identified all GAP Pakistan survey waves during which at least one U.S. drone strike was conducted. This yielded six waves, with ten unique intersections: one each in 2005, 2007, 2012, and 2013, two in 2011, and four in 2010. With the simple rule that the strikes must be separated by more than one day (or the “control” group would be “treated” by the previous strike), only one of four strikes in 2010 can be used. This leaves seven events across six waves, which jointly contain almost 10,000 responses. While we cannot expect the remaining seven events to be fully representative of over 400, Table 1 compares the sample and universe on five key dimensions: their proportion conducted in the most oft-targeted area (North Waziristan), and their average number of (overall) casualties, civilian casualties, child casualties, and injuries. As is clear, the sample strikes resemble the overall U.S. drone program remarkably well. Indeed, they both largely landed in North Waziristan, and generated strikingly similar results. Moreover, the sample captures various time points throughout the program’s history, from the second strike
ever launched in 2005 through 2013. Thus, these strikes do not appear to provide a particularly unrepresentative sample of the drone campaign in Pakistan.

Table 1: Sample vs. Universe of U.S. Drone Strikes in Pakistan

<table>
<thead>
<tr>
<th></th>
<th>Conducted in N. Waziristan</th>
<th>Average Casualties</th>
<th>Average Civilian Casualties</th>
<th>Average Child Casualties</th>
<th>Average Injuries</th>
</tr>
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<tbody>
<tr>
<td>Sample (N=7)</td>
<td>86%</td>
<td>7.00</td>
<td>2.00</td>
<td>0.57</td>
<td>3.64</td>
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<tr>
<td>Universe (N=421)</td>
<td>72%</td>
<td>7.68</td>
<td>1.65</td>
<td>0.45</td>
<td>3.44</td>
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</table>

Source: Calculations based on the BIJ database.

In order to assess the validity of the empirical strategy, I also check the covariate balance before vs. after the strikes. To do so, I regress a dummy for treatment status (“0” if the interview was conducted pre-strike, “1” if it was post-strike) on a number of basic demographic covariates, with 3-, 6-, 9-, and 12-day response windows on either side of the seven “intersections.” Figure 2 presents the results, with the coefficients and 95% confidence intervals from the four regressions. As can be seen, the sample is balanced on a number of key covariates, including the respondent’s age, income, internet use, religiosity, religion (Islam vs. other), and language (Pashto vs. other). The key exceptions to this are gender, education, and number of children: post-strike respondents are more likely to be male, less likely to be educated, and more likely to have larger families than pre-strike respondents as the response window expands. However, all results remain robust to the inclusion of these three variables, in addition to several subgroup analyses and robustness checks designed to boost confidence in the results and mitigate potential confounder concerns.

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20 The seven strikes occurred on 5/8/2005, 4/27/2007, 4/24/2010, 4/13/2011, 4/22/2011, 3/30/2012, and 3/21/2013. All were researched extensively to verify BIJ codeings. Moreover, the NAF database records that only one killed a militant leader, meaning that this variable was also similar between the sample (14.3%) and universe (15.7%).

21 These covariates are available in all six waves.
Figure 2: Covariate Balance with 3-, 6-, 9-, and 12-Day Response Windows

<table>
<thead>
<tr>
<th>Variable</th>
<th>3 Days</th>
<th>6 Days</th>
<th>9 Days</th>
<th>12 Days</th>
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<td>Age</td>
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<td>Internet Use</td>
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<td>Children</td>
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<td>Relig. Important</td>
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<td>Muslim</td>
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<td>Pashto Speaker</td>
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Note: Coefficients and 95% confidence intervals from logit regressions of treatment status on above covariates plus province and wave dummies, using varying response windows.

Empirical Results:

First, I examine whether the violence shifts Pakistani attitudes away from its perpetrator: the United States. To this end, Figure 3 plots the coefficients and 95% confidence intervals from regressions of the U.S. drone strike treatment on three attitudes: (1) the perceived unfavorability of the American people,\(^{22}\) (2) whether the U.S. “takes into account the interests of countries like Pakistan” in international policy decisions, and (3) whether American aid to Pakistan “is mostly

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\(^{22}\) The surveys also ask about the (un)favorability of the U.S. as opposed to Americans, but this is limited by strong “ceiling effects,” with most responses already at their maximum value pre-strike. This does not mean the strikes do not stoke anti-U.S. sentiment (they do in subgroup analyses), but just that it is harder to detect on this limited scale, at least among the general population.
military aid, or mostly to help Pakistan develop economically.” The idea is that any “blowback” resulting from the strikes should surely be visible within the first two weeks, given the intensive coverage of drones in Pakistani media (Fair et al 2014, 2015). Indeed, news reports on the seven particular strikes used in the analysis are in most cases visible the same (or the following) day in major Pakistani media outlets like *Dawn* (the country’s most-read English-language newspaper) and *GEO TV* (its most-viewed private television station). All regressions were estimated using ordinary least squares (OLS), with the demographic covariates as well as the province and wave fixed effects.

**Figure 3: The Effects of Drone Strikes on Attitudes toward the U.S.**

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23 A perusal of the BIJ database shows that the Pakistani press routinely covers strikes the same (or following) day. For example, our 2007 strike was reported by *Dawn* the next day. See *Dawn*, April 28, 2007.
Note: OLS regressions, with demographic covariates plus province and wave dummies. 1-14 day response windows. 95% confidence intervals. U.S. aid question asked in four of six waves, while others asked in six.

As can be seen, U.S. drone strikes significantly boost the perceived unfavorability of the American people as well as the perception that the U.S. is indifferent to the interests of Pakistan and the belief that U.S. aid is mostly military in nature. In fact, the magnitude of all three of the effects only grows over time, especially after the first week. The lag time is probably because it takes several days for news of the strikes to spread through Pakistani society, where the primary means of political communication remains “word of mouth” (Fair et al 2015). The violence thus significantly tarnishes perceptions of U.S. citizens, motivations, and policies.

These effects are meaningful in substantive terms as well: the perceived unfavorability of the American people, for instance, jumps by 2-3 percentage points following a U.S. drone strike. Moreover, this is only the intention-to-treat (ITT) and not the average treatment effect (ATE), as the news undoubtedly does not reach all respondents inside the designated response windows (or at all). In order to “back out” an estimate of the ATE, we can divide the ITT by the proportion of the population that actually received the “treatment” (proportion of respondents exposed to news about the event). While this quantity is unknown for our specific strikes, the 2010 survey did ask people if they had heard about a particularly notable drone strike that killed TTP leader Baitullah Mehsud several months before the survey. This provides a conservative benchmark both because it is a very high-profile strike, and the respondents had several months in which to hear about it. Indeed, almost exactly 25% of the respondents reported knowledge of this strike, so I divide the original (ITT) estimates by 25%. This conservative method suggests that drone strikes boost the unfavorability of Americans by around 10 percentage points. One should also keep in mind that
this is only the effect for one “dose” of the treatment. This shows that U.S. drone strikes do fuel substantial alienation from their perpetrator among the Pakistani population.

**Figure 4: The Effects of Drone Strikes on Attitudes toward Domestic Politics**

![Graph showing the effects of drone strikes on attitudes.](image)

*Note: OLS regressions, with demographic covariates plus province and wave dummies. 1-14 day response windows. 95% confidence intervals. Incumbent question asked in five of six waves, and others asked in four.*

Does the violence fuel similar backlash against incumbent Pakistani authorities? Figure 4 plots coefficients and 95% confidence intervals from regressions of the drone strike treatment on support for (1) the Pakistani incumbent president and (2) the Pakistani opposition leader, plus

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24 This was Pervez Musharraf from 2001-08 and Asif Ali Zardari from 2008-13. I find backlash against both leaders.

25 This was Nawaz Sharif from 2008-13. The question was not asked pre-2008.
(3) a democratic system of government (as opposed to a “strong leader”) more broadly, using the full model with expanding response windows from 1-14 days as above. The results show that the strikes do significantly increase opposition to the president and support for the opposition leader, in other words generating an anti-incumbency effect in Pakistan. They also significantly sour the population on democracy more broadly, producing demand instead for a strong leader. However, this might be occurring for several reasons, including the perceived complicity of elected leaders, an association of democracy with the U.S., or simply a generic “rally effect” after being attacked. Substantively, the impact of these effects is similar to the backlash against the U.S.: opposition to the Pakistani president increases by 2-3 percentage points in the wake of a strike. Using the same approach as above, this means that the violence produces an anti-incumbency effect of around 10 percentage points. Thus, the strikes shift Pakistani attitudes away from the U.S. and the Pakistani incumbent leader, and toward alternative leaders (and structures) in Pakistan.

Next, I analyze whether this alienation also translates into increased support or sympathy for the militant groups targeted by the strikes. Specifically, I estimate the same models as above, but on perceived favorability as well as perceived threat of Al Qaeda and the Taliban. As before, the regressions include the full array of covariates plus the province and wave fixed effects, with response windows from 1 to 14 days around each strike. The results show that U.S. drone strikes significantly boost support for – and reduce threat perceptions of – the Taliban among Pakistanis. In contrast, they generate no additional support for or comfort with Al Qaeda.

Figure 5: The Effects of Drone Strikes on Support for Militant Groups
Note: OLS regressions, with demographic covariates plus province and wave dummies. 1-14 day response windows. 95% confidence intervals. Questions asked in four of six waves.

This contrast is puzzling. Why do the operations stoke support for the Taliban but not for Al Qaeda, the organization ostensibly focused on directly attacking their perpetrator (as opposed to its regional allies)? One possible clue comes from examining their effects on support for other relevant groups included in the surveys. In particular, estimating the same models on support for the Pakistani Taliban and Afghan Taliban (see Appendix, Figure 1) shows that the strikes do not significantly stoke support for these two organizations either. However, a closer analysis reveals that the Pakistani Taliban effect is positive and near-significant, while the Afghan Taliban effect (like the Al Qaeda effect above) is not. Given that a generic reference to “Taliban” likely makes most Pakistanis think initially of the Pakistani Taliban, the strikes appear to be fueling support for militant organizations with an internal as opposed to an external focus. This may be because

26 This is a safe assumption because the question was only asked in the 2010-13 surveys, after the TTP had emerged as an existential threat to Islamabad.
Pakistanis perceive groups like the Pakistani Taliban as the primary victim of drone strikes, or at least the primary provider for their civilian victims in FATA. In any case, what is clear is that U.S. drone warfare is breeding sympathy for one of its primary targets (the Taliban), but not for other prominent ones such as Al Qaeda.

**Figure 6: The Effects of Drone Strikes on Support for Counterterrorism Strategies**

Note: OLS regressions, with demographic covariates plus province and wave dummies. 1-14 day response windows. 95% confidence intervals. Questions asked in four of six waves.

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27 The NAF database records the Taliban as the most common target (30%). However, 44% are listed as “unknown.” The breakdown of our sample is fairly representative (3 Taliban, 2 unknown, 1 Al Qaeda, 1 Haqqani).
Finally, I also examine how the violence influences Pakistani attitudes towards U.S. and Pakistani counterterrorism strategies or policies. Specifically, I examine their impact on support for (1) “using the Pakistani army to fight extremist groups” in FATA and KPK, and (2) the U.S. “providing financial and humanitarian aid to areas where extremists operate.” These regressions, again, were estimated with the full set of covariates and 1-14 day response windows. The results are presented in Figure 6. As can be seen, the strikes significantly diminish support for using the Pakistani military to fight extremists, while boosting support for U.S. financial and humanitarian aid to areas where they operate. Thus, the strikes do not make Pakistanis oppose any U.S. role in the struggle against extremism. Instead, they appear to be fueling demand for a different strategy (a more aid-based approach) as opposed to merely a different perpetrator. This is consistent with the view that the population’s primary sympathy after an attack is for the welfare of the civilians in the affected areas.

**Subgroup Analysis:**

Thus far, we have only examined how the violence influences attitudes on average in the Pakistani population. Yet they may also have varying effects on different elements or subgroups within Pakistani society. To examine such a possibility, I interact the drone strike treatment with different covariates. First, given that not all respondents hear about each strike, I look at whether the effects vary with access to information. If the effects were stronger among those with greater information access, this would reinforce the credibility of our results.

I capture Pakistani access or exposure to information about drone strikes in several ways. One such way is internet use. Indeed, Fair et al (2014) find that internet use is one of the primary predictors of Pakistani knowledge about drone strikes. Figure 7 displays the effects of the strikes
on the perceived unfavorability of Americans among internet users and non-internet users, using the full set of covariates and a 10-day response window. As can be seen, the strikes significantly boost anti-American sentiment among internet users, but do not do so among non-internet users. This is consistent with expectations about the moderating effect of information access. It is also notable that the magnitude of the effect among internet users (10 percentage points) is precisely what we obtained by informally “backing out” the ATE previously. Furthermore, this evidence is particularly convincing given that the covariate “normally” points in the other direction: internet use significantly lowers anti-American sentiment before a drone strike \((p=0.000\) at 10 days), but significantly boosts it afterwards.

**Figure 7: The Effects of Drone Strikes on Anti-Americanism by Internet Use**
Note: OLS regressions, with demographic covariates plus province and wave dummies. 10-day response windows. 95% confidence intervals.

Another factor that strongly influences levels of information access in Pakistan is gender. As explained by Christine Fair and her coauthors (2014: 15), “Pakistani men tend to be far better educated and better informed about political matters than Pakistani women, and as a result, they have much greater access to different channels of information.” Indeed, they find that being male is one of the three major predictors of Pakistani knowledge about the drone strikes. To this end, Figure 8 shows the effects of the strikes on the unfavorability of Americans among both men and women, once again with the full model and 10-day response window. As can be seen, the strikes generate significant anti-American sentiment among men, but not among women. As above, this is particularly strong evidence that we have captured the intended effects, given that the variable “normally” points in the opposite direction: women exhibit higher anti-Americanism in Pakistan before a strike (although this difference is not significant).

Figure 8: The Effects of Drone Strikes on Anti-Americanism by Gender

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28 These top three predictors are internet use, gender, and education. I find a similar interaction effect with education ($p=0.008$). Results available upon request.
A third way to test the informational dynamic is by measuring proximity to the particular drone strike in question. The idea is simply that exposure to information about a strike should be greater among those living closer to the affected area. To test this, I geo-located all of the survey responses in our sample for which the enumeration area was available. Unfortunately, GAP only recorded the enumeration area in Pakistan in two of our survey waves, those fielded in 2005 and in 2007. In these two waves, I was able to geo-locate 75.4% of the responses at the district level. I then calculated the distance of each respondent from the specific drone strike that occurred during the survey in question. Figure 9 shows the effect of the strikes on the unfavorability of Americans by respondent distance from the strike, with the full model and a 10-day response window. As can be seen, the strikes significantly increase anti-American sentiment among those close to the strike area.
the affected area, and the effect decreases as we move further away, losing significance at a distance of about 400 kilometers. Still, drawing a circle with a radius of 400 kilometers around the affected areas captures a broad swath of Pakistani territory (including Islamabad), meaning that the portion of the country affected is quite substantial. In sum, this provides more evidence that the effects are the strongest where we expect them to be, lending further credence to our results while also showing which elements of Pakistani society are most affected.

**Figure 9: The Effects of Drone Strikes on Anti-Americanism by Distance from Strike**
Robustness Checks:

While the fact that the strikes have greater effects on those with more information access (measured several ways) boosts our confidence in these results, I also conduct several additional tests to boost their credibility. One concern is that the results reflect not true preference changes, but just increased social or political sensitivity of the topics in question following a drone strike. For example, respondents may be unwilling to voice more (or less) support for militants after an operation because of increased fear of repercussions from the authorities (or militants). One way of addressing this issue is by examining nonresponse rates before vs. after the strikes. Given that nonresponse increases with social or political sensitivity (Ferber 1966), if this is valid we should observe higher nonresponse rates following the strikes. To test for this, I regress the nonresponse rates for the questions about all five main actors on the treatment, using the full model with 1-14 day windows. The results (see Appendix, Figure 2) reveal that the nonresponse rates do not shift significantly for any of these actors. This speaks against the notion of the results being driven by social or coercive pressures after the violence.

Moreover, I conduct three other robustness checks. First, I replicate the analyses without covariates in order to ensure that the results do not depend on their inclusion. Second, I replicate the main analyses with ordered logit models instead of OLS in order to ensure that the results do not depend on a linear modelling strategy. Third, because the income question has a high degree of missingness (25%), I multiply impute the income measure and replicate the results without

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29 I multiply impute income using truncated regression (as it cannot be below 0) on all covariates plus province and wave dummies.
discarding these data. Substantively, the results remain similar in all three cases (see Appendix, Figures 3-8), although a couple of secondary results are significant at the 10% and not 5% level. In sum, the robustness checks broadly support our results that U.S. drone strikes fuel substantial anti-American, anti-incumbent, and pro-Taliban sentiment throughout Pakistan.

**Discussion and Conclusion:**

In modern asymmetric conflict, the question of how military actions by combatants shape the “hearts and minds” of relevant civilian populations is an enduring one, yet empirical progress has been elusive. This study provides firm evidence that one form of counterinsurgent violence – targeted killing across state borders – generates alienation from its perpetrators and collaborators and sympathy for (at least some of) its targets among the civilian population of the target society. In addition to illuminating the attitudinal consequences of a central U.S. counterterrorism policy, these findings have some important methodological and theoretical implications.

Methodologically, the analysis demonstrates the value of quasi-experimental designs that pair violent event data and public opinion data. These two streams of data are collected regularly by credible organizations across much of the globe – including conflict settings such as Pakistan, Mexico, and Nigeria – and yet largely remain in isolation from one another. Indeed, the method used here could be applied to a variety of important issues at the nexus of violence and opinion, from the attitudinal consequences of terrorism to the links between communal tensions and riots. Crucially, this approach is much more systematic than conducting interviews in conflict settings, and much cheaper than fielding original surveys and experiments in wartorn societies. Of course, this is not to replace these essential methods, which each offer distinct strengths and weaknesses,
but to emphasize the tremendous value in fully exploiting – and combining – the vast quantities of data we already have at our disposal.

Theoretically, the study suggests that counterinsurgent violence may have highly unequal effects on support for different militant organizations. Indeed, we saw that U.S. targeted killings generate Pakistani support for the Taliban, but not other major militant targets such as Al Qaeda or the Afghan Taliban. This suggests that civilians differentiate clearly between different targets of repression – perhaps only perceiving some as victims – as opposed to simply responding in a pro-(or anti-)militant fashion across the board. This is consistent with work by Fair and Shapiro (2010), which finds that support for militancy in Pakistan is best disaggregated by organization, and responds in relatively sophisticated ways to shifts in strategic context. Still, further research is required to fully explain these dynamics, and understand exactly who violence helps and hurts on the “battlefield” of hearts and minds.

Moreover, the analysis also highlights the potential attitudinal impact of the perpetrator’s reaction after using force. In particular, the results showed that U.S. drone strikes boost Pakistani support for U.S. financial and humanitarian aid to combat extremism, while reducing demand for deploying the Pakistani military as a means to do so. Thus, while they do fuel civilian resentment against the U.S., this does not translate into demands for total U.S. withdrawal or disengagement. On the contrary, the results suggest that the U.S. may be able to soften some of this alienation by responding in a conciliatory way after the violence. A crucial question for both policy and theory more broadly, then, is whether the perpetrator’s reaction can actually alleviate civilian alienation, and if so, which types of responses are most effective.
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