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THE EFFECTIVENESS OF DRONE STRIKES IN COUNTERINSURGENCY AND COUNTERTERRORISM CAMPAIGNS

James Igoe Walsh

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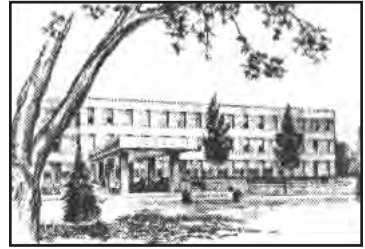
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FOREWORD

The United States increasingly relies on unmanned aerial vehicles—better known as drones—to target insurgent and terrorist groups around the world. Drones have a number of advantages that could fundamentally alter how the United States engages in counterinsurgency and counterterrorism operations. Drones place no U.S. military personnel at risk. They do not require a large "footprint" of U.S. personnel overseas. They are armed with accurate missiles that have the capacity to target individuals, automobiles, and sections of structures such as rooms in a large house. Perhaps the most consequential advantage of drones is their ability to integrate intelligence collection with decisions to use force. These characteristics should make drones especially effective at targeting only the individuals against whom the United States wishes to use force, and minimizing harm to noncombatants. This highly selective use of force has the potential to allow the United States to achieve its counterinsurgency objectives at lower cost and risk.

Critics, though, suggest that drone strikes have been ineffective or have actually backfired. Drone strikes are ineffective if some insurgent organizations are large and resilient enough to survive the deaths of their leaders and rank-and-file members. Many observers suggest that any degradation of insurgent organizations caused by drone strikes is outweighed by the ability of such organizations to exploit even small numbers of civilian casualties with the goals of persuading people to join or support the insurgency. A less common criticism of the drone strike campaign focuses on how such strikes influence relationships among insurgent organizations. While drone opera-

tors may be able to distinguish civilians from militants, it is more difficult to determine if a militant or group of militants are core members of one insurgent organization or another. This presents a real problem where multiple insurgent organizations are operating, and the United States does not wish to target all of them. This may actually promote cooperation among these groups and lead them to focus more of their energies on using violence in ways that undermine U.S. goals.
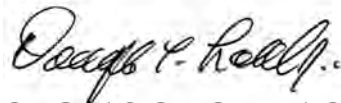
A number of researchers have investigated the relationships between the occurrence of drone strikes and various types of behavior by insurgent and terrorist groups with links to Pakistan. One reasonably consistent finding across the studies is that drone strikes have little influence, positive or negative, on the amount of insurgent violence that occurs in Afghanistan. A more tentative conclusion that can be drawn from existing research is that drone strikes that result in civilian deaths appear to have little relationship with subsequent insurgent violence. This suggests that insurgent organizations have not been very effective at leveraging such deaths in their propaganda to secure more support. Another conclusion is that drone strikes that kill militants in Pakistan are associated with increases in subsequent insurgent violence in the country. This fact could be creating a dynamic in which all insurgent organizations, even those that have few grievances against United States and the government of Pakistan or that engage in low levels of violence, feel threatened by the drones and seek support from other insurgent organizations that do have as their goal undermining the U.S. position in the region.

These findings have implications for the conduct of counterinsurgency and counterterrorism operations. Drones appear to be, at most, weak substitutes

for traditional counterinsurgency operations. While drones have the capability to punish and deter insurgent organizations, they do not contribute alone to the establishment of effective state authority in direct and meaningful ways, which likely requires large numbers of ground forces and civilians to provide services to and gain intelligence from the local population. Drone strikes might achieve their objectives in a more narrowly circumscribed counterterrorism, rather than counterinsurgency, campaign. This claim is difficult to assess, however, since the United States has not consistently employed drones in a counterterrorism campaign. One reason for this is that the targets of drone strikes have been expanded and focus on areas where the United States cannot or will not engage "on the ground" in large numbers. Drones are most useful in precisely such areas, since they allow the United States to project force when it and the national government have few other options. But the absence of boots on the ground makes it more difficult to gather human intelligence on the activities of militant groups that can be used to target drone strikes. Drones, then, are most useful for counterterrorism in precisely those settings where the challenges of counterterrorism are the greatest, and the ability to collect intelligence is the weakest.

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SUMMARY

The United States increasingly relies on unmanned aerial vehicles—better known as drones—to target insurgent and terrorist groups around the world. Proponents argue that drones are, in both political and military terms, an effective way to coerce such adversaries. Critics suggest that drone strikes not infrequently result in inadvertent civilian casualties, which terrorist and insurgent organizations use as rallying cries to garner support and legitimacy for their acts of violence.

There is surprisingly little systematic evidence that either of these positions is correct. It is not clear if drone strikes have degraded their targets, or that they kill enough civilians to create sizable public backlashes against the United States. Drones are a politically and militarily attractive way to counter insurgents and terrorists, but, paradoxically, this may lead to their use in situations where they are less likely to be effective and where there is difficulty in predicting the consequences.

THE EFFECTIVENESS OF DRONE STRIKES IN COUNTERINSURGENCY AND COUNTERTERRORISM CAMPAIGNS

INTRODUCTION

The United States increasingly relies on unmanned aerial vehicles — better known as drones — to target insurgent and terrorist groups around the world. Drones have been used in armed conflicts in which the United States is a recognized participant, including the conflicts against insurgent groups in Afghanistan and Iraq, and against government forces in Libya. The United States has also used drones to strike at terrorist and insurgent groups outside of theaters of armed conflict. These include drone strikes that target militants in Pakistan who support al-Qaeda and insurgents operating in Afghanistan, al-Qaeda in the Arabian Peninsula in Yemen, and the al-Shabaab movement in Somalia.

The objectives of these campaigns of drone strikes are to punish and to deter insurgent and terrorist organizations. They punish these organizations by killing and creating fear and uncertainty among current members. They also seek to deter insurgents and terrorists from engaging in more violence, as well as to deter others from joining or supporting these movements. While drones have attracted considerable attention, we know little about how effective they are as tools of punishment and deterrence. In particular, it is not clear how, if at all, drones differ from other technologies of violence, what experience with broadly similar technologies in past conflicts suggests will be the likely consequences of drone strikes, and what systematic analysis of the available evidence suggests about the effects of the drone campaigns.

This monograph seeks to address these open questions. The next section describes the major elements of drone technology that are relevant for counterinsurgency and counterterrorism operations, and the logic by which they are intended to punish and deter insurgent and terrorist organizations. The technological capabilities of drones are an important advance over similar forms of violence because they remove American military personnel from the immediate battlefield, and allow the collection of real-time intelligence and its tight integration with decisions to launch attacks. The subsequent section explores what social science theory and experience with past counterinsurgency campaigns suggest would be the possible impacts of drone strikes on insurgent organizations. Drone strikes are a form of selective violence in which the attacker takes considerable care to distinguish combatant targets from noncombatants. Theory suggests that the more selective the application of violence is, the more effective it will be in punishing and deterring insurgent and terrorist organizations.

However, there is not universal agreement on this point. Some conclude that even selective violence may fuel insurgency and terrorism by creating anger and grievances among those who identify with the targets of drone strikes. Another perspective holds that distinguishing between combatants and noncombatants is insufficient to ensure that drone strikes deter insurgency and terrorism. To have this effect, drone strikes must also be able to distinguish between members of insurgent organizations that are hostile to the United States and its allies and those that are not. Failure to do so may push disparate insurgent organizations with distinct agendas to coalesce around the goal of responding to drone strikes with even more terrorist attacks.

A major barrier to assessing the effectiveness of drone strikes has been the lack of adequate data and appropriate techniques for analysis. Collecting such data is quite difficult, because drone strikes occur in remote areas, some drone campaigns are officially covert operations and thus are not officially discussed or assessed by the U.S. Government, and parties to the conflict may have incentives to manipulate perceptions of the numbers of civilians and militants who are killed by drone strikes. Nonetheless, a number of nongovernmental, journalist, and research groups have sought to collect reliable data about the occurrence of drone strikes, the location of such strikes, and the number and identity of combatants and noncombatants who are killed and injured. Since the longest running and most extensive drone campaign has occurred in Pakistan, most of the systematic data collection effort has focused on this country.

The third major section of this monograph summarizes the strengths and weaknesses of the methodologies used to collect data on drone strikes. It then discusses how uncertainty about the occurrence, targets, and victims of drone strikes can be exploited by militant groups to their advantage. It then uses some of these data to describe in a series of figures possible relationships between drone strikes, militants killed and civilian deaths, and subsequent terrorist and insurgent violence in the region. The section also analyzes a number of ongoing efforts to understand these relationships by rigorously using different types of data and more sophisticated and complex statistical techniques. Although the data on drone strikes are imperfect, and different research efforts use different techniques and reach different conclusions, there are a few consistent findings with important implications for policy and strategy. One is that drone strikes against insurgent

camps and bases in Pakistan appear to have little relationship to terrorist attacks in Afghanistan. This null finding is surprising, because one of the goals of the drone strikes is to deter insurgent organizations that operate in the country.

There is conflicting evidence on the effect of drone strikes on terrorism in Pakistan. At least one ongoing project finds that drones reduce the number and severity of terrorist attacks in the Federally Administered Tribal Areas of Pakistan (FATA). Other research efforts, however, find that drone strikes are associated with more, not less, terrorism in the entire country. Another preliminary finding is that civilian deaths from drone strikes have no consistent relationship with terrorism in Pakistan. Although this research is still in the preliminary stages, this finding suggests that concerns that civilian deaths lead to immediate increases in support for terrorist and insurgent organizations do not have a great deal of empirical support.

While rigorous research on drone strikes is just beginning, these findings have important implications for the role of drones in counterinsurgency and counterterrorist operations. The concluding section highlights two such implications. First, drones are rather poor substitutes for traditional counterinsurgency operations. The reason is that drone strikes (as well as other forms of force) may punish and deter a militant movement, but they cannot directly contribute to the protection of civilians and the strengthening of the authority and legitimacy of the government, which are key objectives of the counterinsurgency doctrine of the U.S. Army. Second, drone strikes conducted by the United States may create perverse incentives for host governments. These governments may exaggerate the threat that they face from militant groups in order to

secure American assistance, and they may provide incomplete intelligence in order to guide drone strikes against their enemies rather than against groups that target the United States. This risks involving the United States in long-running but ineffective campaigns of drone strikes on behalf of local clients. The concluding section also highlights a number of questions that could be fruitfully addressed in future work. These include how other countries, as well as insurgent organizations, may utilize drone technology in the future and why American decisionmakers choose to use drones rather than other types of armed force, as well as how the American public views drones used against terrorist and insurgent organizations.

WHY DRONES ARE DIFFERENT

Drones—or, more formally, unmanned aerial vehicles (UAVs) or remotely piloted aircraft (RPAs)—are pilotless aircraft controlled by individuals located on the ground, often some distance from the area where the drone is operating. Drones come in many shapes and sizes and perform a variety of missions, including reconnaissance, intelligence collection, and combat. The focus here is on combat drones, such as the MQ-1 Predator and MQ-9 Reaper UAVs deployed by the United States. These drones are armed with precision-guided air-to-surface missiles, and also can collect and transmit to their controllers intelligence collected from imagery, infrared, signals, and other types of sensors. Unarmed drones have been used by the United States for many years, but it is only within the past decade that combat versions have been used to collect intelligence on and to target terrorists and insurgents. The first known use of an armed drone to strike at militants

occurred in Yemen in late-2002, killing a senior al-Qaeda leader and five other men, including a U.S. citizen.[1]

How might the suite of technologies utilized in armed drones change counterinsurgency outcomes? Drone strikes are intended to be a form of selective violence that targets bona fide insurgents while sparing noninsurgents from harm. Selective violence has the goal of undermining insurgent organizations' ability to plan and to engage in action, including political activities as well as acts of violence. It can exercise this effect both directly and indirectly. The direct punishment effect is that selective violence forces militants to change their activities in ways that make it difficult to engage in violence. Drone strikes kill leaders as well as rank-and-file members of the terrorist organization, destroy safe houses and equipment, force militants to rely on means of communication that cannot be easily intercepted but that are less efficient and reliable, lead them to change their locations frequently, and create mistrust of members of the organization who are suspected of providing intelligence to the United States or its proxies. All of these effects raise the costs to insurgents of engaging in violence.

As important as its direct effects are, selective violence also has indirect deterrent effects that can do long-term damage to the organization's capacity to sustain itself and deter current and future members from engaging in violence. Selective violence can deter potential recruits, who know that joining the insurgency will make them potential targets of drone strikes. Current members of the insurgency will face stronger incentives to leave or to defect to the government, since doing so may allow them to escape death or injury from a drone's missiles. Supporters of the movement who provide funds, safe haven, or intelligence

may be dissuaded from doing so by the threat that they, too, may become the targets of selective violence. All of these effects will be reinforced if the campaign of selective violence can be sustained over long periods, as the insurgency's loss of members and recruits will weaken its ability to achieve its aims and thus make it less attractive to current and potential members.

Proponents hold that drones are a particularly selective form of violence. From this perspective, drone technology has the promise of both punishing and deterring insurgent groups and minimizing risks to civilians as well as to American military forces.[2] The reason is that drones combine multiple, complementary technologies into a single platform. Drones are armed with accurate missiles that can target individual vehicles, houses, and other structures, and even particular rooms in a building. These precision-guided missiles are directed by intelligence collected in real time by the vehicle's sensors. Drones, freed from the constraints of the endurance of an onboard pilot, can loiter for long periods. This allows the operators of the drone to identify their target better before striking. It also allows the operator to ensure that any noncombatants in the target area can be identified in advance, and that a strike can be called off or delayed in order to avoid civilian deaths.

These technological characteristics of armed drones could make them more effective than traditional airpower delivered from manned aircraft. Their potential to collect intelligence and to strike targets accurately provides them with many of the advantages that ground forces offer in counterinsurgency operations. The fact that drones are pilotless means that their use does not endanger American military personnel, potentially allowing their use in missions where the ben-

efit of a successful attack is outweighed by the risk of harm to ground troops or pilots of manned strike aircraft. It may also mean that their use would generate less public opposition to the use of force.

A large body of research concludes that the deaths of American military personnel in combat operations reduce the willingness of the American public to support engagement in armed conflict.[3] There was a strong relationship between mounting American casualties in Iraq and the decline in public support for remaining engaged in the conflict, for example.[4] Since drones reduce the likelihood of casualties, they may increase the freedom of political and military commanders to use drones in combat operations. Remote operation also minimizes the "footprint" of U.S. military forces in foreign countries who may be perceived as occupiers and become the target of violence themselves.[5] While all of these technologies and characteristics have existed independently of each other in the past, their combination allows drones to become the core element on a counterinsurgency campaign rather than an adjunct to operations conducted by ground forces. If drones can effectively play these roles in a counterinsurgency strategy, their use could reduce the need for large numbers of ground troops.

Others hold that drones are unlikely to transform counterinsurgency radically, and that they represent a quite modest change from past technologies of violence.[6] Drones are a more evolved technique for projecting force precisely against targets over long distances, and such technologies have, some argue, been ineffective for countering insurgencies.[7] In this sense, drones are quite similar to strikes from fixed-wing aircraft armed with precision-guided missiles or cruise missile strikes. Even strikes from manned aircraft frequently

place no or very few American military personnel at risk, because the United States is able to establish air superiority. There are also multiple other technologies for collecting real-time intelligence, such as high-flying reconnaissance aircraft and satellites equipped with a variety of sensors. Drones are still capable of missing their target and of killing civilians inadvertently. Such collateral damage can produce anger and resentment against the United States. Critics increasingly charge that the use of drones also violates international law, and these charges may harm the reputation of the United States concerning the upholding of the rules of conduct regarding the use of force. This suggests that effective counterinsurgency and counterterrorist operations will still, in at least some cases, require the United States to employ ground troops in order to prevail.

Drones, then, have two characteristics that make their use potentially quite different from that of "smart" bombs, cruise missiles, and other precision-guided munitions—the fact that they place no U.S. military personnel in direct risk of harm, and their ability to serve simultaneously as both intelligence-collection and strike platforms. Together these characteristics may make drones more flexible and effective technologies of violence. But experience with other technologies thought to transform warfare reminds us that success in counterinsurgency involves more than the use of overwhelming and precisely targeted force. Instead, counterinsurgency is a political task that requires not just, or even, killing militants but also preventing the population from sympathizing with and supporting these militants.[8] Achieving the first objective can conflict with the second. Even highly accurate weapons are imperfect, and opponents may be able to exploit targeting errors for their own political gain. Decisionmakers

thus would benefit from understanding the potential of drone strikes as a tool of counterinsurgency as well as the potential limits and downsides to their use. Subsequent sections address these issues by first positioning each perspective within established approaches to analyze the use of force, and then summarizing what we can conclude from empirical evidence about the effectiveness of the campaigns of drone strikes that have been launched in recent years.

DRONES AND DETERRENCE: THREE PERSPECTIVES

Drones as Selective Violence.

How might drone strikes influence the capacity and behavior of the insurgent groups that they target? A useful starting point for addressing this question is more general work on the use of violence by public authorities. Such violence can be classified as either indiscriminate, on the one hand, or selective or discriminate, on the other. Selective violence targets individuals whom the authorities have good reason to believe are members or supporters of an insurgency. Indiscriminate violence, in contrast, is targeted not at individuals, but at a population. This "population" may consist of any individual in a particular geographic area, members of an ethnic or religious group, or people with other characteristics such as being young and male.[9] Examples of indiscriminate violence include massacres, aerial bombing with unguided gravity bombs or artillery shelling of civilian-populated areas, widespread arrests and imprisonment, and so on. Selective violence includes assassinations of political and military leaders, targeted killings by snipers, fixed-wing or

rotary aircraft, raids to capture particular individuals, and torture directed against detained insurgents.

Selective violence is targeted only at individuals who join or support an insurgency and should deter current and potential members of the insurgency. Indiscriminate violence directed against civilians can, in contrast, drive them into the arms of insurgents. Such violence reduces the benefits of siding with the authorities in the conflict. Insurgents may also be able to provide supporters with incentives that further reduce such benefits, the most important of which is security from government attacks.[10] Kalyvas documents that violence against civilians is associated with subsequent militant violence in many insurgencies and civil wars.[11] The U.S. military's counterinsurgency doctrine stresses the importance of using force in a discriminate fashion so as not to alienate the local population.[12] The most sophisticated and careful study of this issue concludes that air strikes, which likely victimized many noncombatants, were associated with subsequent increases in insurgent violence in Vietnam.[13]

Other analysts find that governments that engage in widespread violence and human rights abuses against civilians are the victims of more frequent terrorist attacks.[14] Most of these pieces of research focus on widespread, indiscriminate violence committed by the authorities. The key distinction between selective and indiscriminate violence is that, for the former, the authorities make efforts to collect reliable information so that they can target their violence only against individuals who are members or active supporters of the insurgent movement. Recall from the description above that drone strikes are closely integrated with intelligence collection and analysis. Drones can collect a great deal of intelligence while monitoring a

target. This can help to ensure that the target does, in fact, have the characteristics of a likely militant, and, in some cases, may allow the identification of particular individuals. Drones can also allow those authorizing the attack to collect information about the presence of nearby noncombatants.

American authorities emphasize that the precision allowed by drone technology not only maximizes the chance that insurgents will be killed, but also minimizes the likelihood that noncombatants will be victims of drone strikes. They claim to target only individuals who, according to reliable intelligence, represent a significant threat to the United States—when their capture is not feasible, and when a strike is unlikely to result in civilian deaths. In the first official discussion of the drone strike program, a senior United States official emphasized that:

> We only authorize a strike if we have a high degree of confidence that innocent civilians will not be injured or killed, except in the rarest of circumstances. The unprecedented advances we have made in technology provide us greater proximity to targets for a longer period of time, and as a result allow us to better understand what is happening in real time on the ground in ways that were previously impossible. We can be much more discriminating and we can make more informed judgments about factors that might contribute to collateral damage. I can tell you today that there have indeed been occasions when we have decided against conducting a strike in order to avoid the injury or death of innocent civilians.[15]

It appears that drone strikes in Pakistan, the country that has experienced the most such attacks, are selective compared with other forms of violence. Avery Plaw and Matthew Fricker developed a dataset of the victims of drone strikes in the region.[16] Their data col-

lection effort divides victims into three categories: militants, civilians, and those whose status cannot be determined. Based on a careful review of media reports, these data measure the ratio of militants killed in drone strikes for every civilian who dies in such attacks. Using information only from media sources in Pakistan, they estimate that over 26 militants are killed for each confirmed civilian death. This ratio falls slightly to 19 militants per civilian killed if they draw on both Pakistani and international media sources. They also calculate the same ratios for other data-collection efforts. These data produce a ratio of 14:1 when using data from the *Long War Journal*, and either 11.5:1 or 3.97:1, depending on the specific coding rules employed, when based on data from the New America Foundation.

The researchers then compare these ratios of militants and civilians killed by drone strikes with corresponding ratios for other types of armed conflict, including Pakistani military operations in the Federally Administered Tribal Areas and the Swat Valley, U.S. military operations in Pakistan that use types of force other than drones, targeted killings in the West Bank and Gaza Strip carried out by Israel between 2000 and 2008, and all conflicts in the world in the year 2000. All of these other types of force produce ratios that are lower than even the lowest estimates for the proportion of civilians killed per militant by drone strikes. This conclusion needs to be tempered by the fact that it is quite difficult to generate accurate counts of civilian and military victims during armed conflicts. But it also suggests that some of the controversy about the civilian deaths produced by drone strikes may be overstated. Instead of drones killing civilians indiscriminately, as some critics assume, the available data suggest that, when compared with other types of force, the propor-

tion of civilian victims is at a lower or similar level. Furthermore, elsewhere Plaw and collaborators analyze how such ratios have evolved in the drone campaign in Pakistan. They find that the ratio of civilian to military deaths has dropped over time. This suggests that with experience, the United States may have improved its ability to distinguish civilian from military targets and modify its decisions to launch strikes from drones to minimize civilian casualties.[17]

Stepping back from this particular campaign, one can find some evidence that targeted killings do undermine insurgencies more generally. Kalyvas's survey of the use of violence by the authorities in many insurgencies and civil wars finds consistent evidence that selective violence degrades organizations.[18] The capture and trial of the leader of the Kurdish Workers Party in Turkey and the killing of the leader of the Shining Path insurgency in Peru both contributed to the decline of these insurgent organizations.[19] Two recent papers systematically analyze the effects of leadership decapitation—the use of selective violence (both killing and capturing) against senior members of insurgencies—on groups' subsequent behavior. Both conclude that the strategy is effective. Patrick Johnston finds that such targeted killings reduce the lethality and frequency of insurgent attacks. He also concludes that failed attempts at leadership decapitation do not increase the violence that insurgents undertake, suggesting that the strategy has few negative consequences for states that use it.[20] Bryan Price concludes that targeted killings substantially shorten the life spans of terrorist groups. He argues that organizational characteristics of terrorist groups, including their use of violence, clandestine structure, and focus on values, make them particularly susceptible to targeted killings.[21]

**Drone Strikes and the Resilience of
Insurgent Organizations.**

A second perspective holds that attempts to deliver violence selectively against leaders of insurgent movements are usually ineffective. This is because efforts to carefully target such violence too frequently fail, or many insurgent organizations are quite resilient to the loss of individual members.

Drone strikes are similar to targeted killings and the use of air power in counterinsurgency campaigns. All of these types of violence seek to target leaders and other key members of insurgent organizations, and integrate intelligence into their targeting decisions. Targeted killings have been defined as "the intentional killing of a specific civilian or unlawful combatant who cannot reasonably be apprehended, who is taking a direct part in hostilities, the targeting done at the direction of the state, in the context of an international or noninternational armed conflict."[22] The most extensive and well-documented campaign of targeted killings is that conducted by Israel against Palestinian militant organizations. Israel has used missiles fired from drones and from helicopters, bombs dropped from fixed-wing aircraft, armed raids, and snipers to kill militants.[23] There is a small literature that assesses the effectiveness of these targeted killings. Researchers have collected open-source data about the occurrence of targeted killings, the outcome (such as the death of the targeted individual or others), and subsequent acts of violence by insurgent and terrorist groups. Findings are mixed; most of these studies conclude that targeted killings do not lead to a decline in subsequent terrorist attacks. Two papers find that targeted killings con-

ducted by Israeli forces had no effect on subsequent attacks by Palestinian terrorists between 2000 and 2005.[24] An analysis focused on suicide terrorism in the Israeli-Palestinian conflict concludes that targeted killings are associated with fewer victims of suicide attacks, and that high levels of targeted killings reduce Palestinian intentions to launch terrorist attacks.[25]

Why might such targeted killings be ineffective? Work on air power in war suggests one reason. Robert Pape argues that air strikes directed at military targets and infrastructure—a strategy of denial—is more effective in coercing an opponent than is bombing civilian targets.[26] However, this effect depends on the target's military strategy:

> Strategies that rely on large-scale mechanized operations are particularly vulnerable because they depend on massive logistic flows that make excellent targets for air attack. At the opposite end of the spectrum, guerrilla fighters are much less vulnerable to coercion because they need little logistical support.[27]

Effective coercion of insurgents requires separating them from the population that provides them with support. This is difficult to achieve with air power alone, since the groups targeted for attack typically lack the logistical infrastructure, clear control of territory, and massed personnel that make a strategy of denial effective.[28] Pape's subsequent study of counterterrorism strategies concludes that targeted killings are not effective against terrorist groups that undertake suicide attack campaigns. Of the 13 groups in his study, only one was undermined by targeted killings.[29]

Other analysts also connect the failure of selective violence to the organizational characteristics of insurgent groups. An important analysis of targeted killings

aimed at top commanders of terrorist organizations—leadership decapitation—finds that they do contribute to the collapse of smaller and newer organizations that are not motivated by religious grievances.[30] Among the organizations that survived leadership decapitation, some subsequently engaged in fewer terrorist attacks, but others actually increased their use of violence. Larger and older groups have the resources and time to develop organizational practices, such as succession plans and standard operating procedures that will allow them to survive the loss of key members. Many observers point out that even large terrorist groups, such as al-Qaeda, are careful to organize themselves in networks.[31] Rather than functioning as hierarchies in which leaders plan and organize attacks, they allow smaller cells of terrorists to operate on their own initiative. These cells might be better positioned to alter their behavior to avoid targeted killings strikes by, for example, no longer traveling in groups or by remaining in the same location for extended periods of time. If this is the case, killing leaders should have a small, or even no, effect on the subsequent activities of the group. Network structures also limit how far the effects of selective violence diffuse within the insurgent organization. Wiping out the leader of one cell may have small effects on other cells because these are only loosely coupled to each other.

Drone Strikes as Indiscriminate Violence.

Even carefully targeted killings often kill or injure individuals with little direct connection to an insurgent organization. President Barack Obama and others have publicly acknowledged that drones have killed or injured noncombatants, while stressing that such collateral damage is rare and that great care is taken

to avoid civilian harm.[32] Civilian deaths can provide insurgents with political gains that outweigh the harm inflicted by successful targeted killings. Insurgent organizations can publicize civilian deaths in propaganda campaigns aimed at mobilizing supporters, by portraying the authorities as a direct threat to civilians. They can emphasize to the larger population, which may not feel vulnerable to targeted killings, that civilian victims share their ethnic, religious, and national identities, and are thus worthy of support. This also makes it easier for terrorists to justify their own use of violence against civilian targets as necessary in the face of a more powerful and threatening state security apparatus.

This has been the central criticism of the drone campaign's effectiveness—civilian deaths from drone strikes create powerful grievances against the United States and the Pakistani authorities, and insurgents magnify these grievances through their propaganda—leading individuals and groups to lend direct or indirect support to insurgent organizations. These organizations use these newfound resources to launch more terrorist attacks in Pakistan. This position has been articulated by influential analysts in the United States and by former intelligence officials of the U.S. Government.[33]

Insurgents' attempts to portray drone strikes as indiscriminate are facilitated by the ambiguous status of targeted killings under international law. The drone campaign involves the use of force against militants in Pakistan, but the United States is not at war with Pakistan. Even if drone strikes kill *bona fide* militants, these individuals may not be, at the time of their deaths, always involved in direct combat with the United States in Afghanistan.

Drone strikes can thus be plausibly described as violating the prohibition of international human rights law against extra-judicial killings. The best available data suggest that drone strikes are more selective than many other types of violence. Insurgents, though, seek to use a different frame to interpret drone strikes. The frame comparing drones to other types of attacks suggests that drones result in fewer civilian deaths. The frame that insurgents use instead casts drone strikes as violations of international law and universal moral precepts. From this perspective, any civilian deaths caused by drones are unacceptable. The ability of insurgents to convince an audience to accept this frame is facilitated by the fact that it is not easy for independent media organizations to interview victims of drone strikes immediately after they occur.[34] This difficulty in categorizing those killed by drones as combatants or civilians is not simply the creation of the insurgent organizations' propaganda efforts. Instead, it reflects a real debate about how consistent drone strikes are with international human rights law.[35] Al-Qaeda and allied groups have used drone strikes as part of their propaganda campaign to mobilize recruits and financial donations from overseas, portraying the strikes as unfair exploitation of technology by a more powerful foe unwilling to risk the lives of its own soldiers and citizens.[36]

Drone strikes have aroused considerable controversy about civilian deaths in Pakistan. One survey conducted in the tribal areas of Pakistan, where most drone strikes occur, suggests that most respondents believe that the drones kill more noncombatants than militants. Respondents were asked if drones "accurately target militants" or "largely kill civilians." Only 16.2 percent of respondents expressed the belief that drones accurately kill militants alone, while 47.8 per-

cent concluded that they kill civilians, and an additional 33.1 percent stated that drones kill both militants and civilians.[37] This reaction may also have complicated Pakistani cooperation with the United States. The government has at times supported the drone campaign; at least until 2011, some drones were flown from a military base in Pakistan, and Pakistani military intelligence channeled information about the identity and location of militants to the United States. But the political sensitivities that drone strikes arouse have also led the authorities to officially condemn the campaign. On some occasions, Pakistani officials have sought to limit the areas of the country where drone strikes take place and to evict American drones from their base in Pakistan.[38]

There may be another mechanism through which drone strikes and other forms of targeted killings influence insurgent violence.[39] The idea, outlined above, that selective violence deters individuals from joining or supporting an insurgent movement assumes there is one cohesive insurgency. Quite frequently, however, there is a great deal of fragmentation in insurgencies. More than one insurgent organization has used violence in almost half of all civil wars since 1989, for example.[40] Fragmented insurgencies have been defined as those with multiple organizations, weak institutional links among these organizations, and roughly equal distributions of power among their constituent organizations.[41] The dynamics of fragmented insurgencies are distinct from those of cohesive insurgencies,[42] and an emerging body of research suggests that fragmented civil wars last longer,[43] are more likely to experience in-fighting[44] and more defections to the government,[45] and bargain in different ways with the authorities.[46]

Fragmentation makes it more difficult for the authorities to employ selective violence. The groups comprising fragmented insurgencies hold different preferences regarding long-term goals, their strategies of violence, relations with the authorities, and other issues. The result is that "cooperation among factions of a single dissident group and among separate dissident organizations is rare."[47] In such situations, the authorities frequently prefer to direct their violence only against members of one or a few insurgent movements, while sparing members of other insurgent organizations. One could imagine, for example, targeting members of insurgent organizations that oppose peace negotiations and compromise, while not targeting members of organizations willing to participate in such talks. This would increase the pressure on groups more strongly opposed to the authorities and encourage more moderate groups to split from them. But this level of discrimination in targeting may be difficult to achieve, because insurgencies are not regular armed forces. Instead, they typically do not wear uniforms, do not control well-defined areas of territory for long periods, seek to mask their communications and the identity of their supporters from outside scrutiny, and draw on the same population for recruits. In such circumstances, it may be practically impossible for the authorities to develop sufficiently accurate intelligence that allows them to determine the specific organizational affiliation of a suspected militant or small group of militants. Drones, of course, can collect a great deal of intelligence about the location, movements, and communications of individuals, but this alone may not be sufficient to determine organizational affiliation among irregular forces. Human intelligence sources can supplement technical means of

intelligence collection, but may have personal incentives to identify individuals incorrectly as members of an insurgent organization targeted by the authorities.[48] The common insurgent tactic of hiding among the population makes it difficult for the authorities to solve the "identification problem" of distinguishing combatants and noncombatants.[49] Fragmentation creates a similar problem of determining if a particular militant is a member of an unsurgent organization targeted for selective violence, or belongs to another insurgent group against whom the government is not using force.

Fragmented insurgents mean that the authorities have two options when contemplating the use of selective violence. On the one hand, they can decline to use violence except in the (rare) cases when they are certain of the organizational affiliation of the target. The cost of this approach, of course, is that it may lead to few attacks on insurgents. Alternatively, the authorities can engage in "profiling," understood as attacking all or every person who has the characteristics of an insurgent. If these characteristics are very precisely defined and sufficient intelligence exists for them to be acted upon, this should result in attacks primarily on insurgents and should exercise a deterrent effect on those considering joining or supporting the movement. Note, though, that among the group of individuals who match the profile of a militant developed by the authorities, such violence is indiscriminate. Anyone matching the characteristics of the insurgent profile could be the victim of state violence, even if he or she is not a member of an insurgent organization that the state chooses to target. From the perspective of the individual militant, this reduces the difference in the costs of being a member of an insurgent organization

that the state opposes strongly and one of an insurgency that does not attract such opposition. Indeed, in such a situation, the rewards of joining or allying with the insurgency most hostile to the authorities can be greater if it provides selective incentives that increase the chance of survival, such as safe havens, money or weapons, or intelligence about how to avoid being targeted by the state.[50] In such situations, then, selectively targeting militants from disparate organizations may lead them to coalesce to launch violent attacks on the state.

DRONES AND COUNTERINSURGENCY: WHAT DOES THE EVIDENCE TELL US?

The policy and scholarly literature has produced a wide range of sometimes-competing expectations about how selective violence can influence the structure and behavior of terrorist and insurgent groups. Many of these perspectives challenge the conclusion, which motivates U.S. policy, that drone strikes will be exceptionally effective in undermining such groups. This diversity of expectations also makes it difficult to draw conclusions about the likely effects of drone strikes. One way to address this issue is to look at the empirical evidence on the relationships between drone strikes and various measures of insurgent activity. The U.S. campaign of drone strikes in Pakistan, in particular, has been going on for a long enough period that researchers and scholars have been able to collect data systematically about the occurrence of such strikes and the civilian and militant deaths they produce, and then to relate these to insurgent activity. This section discusses the sources of this data, their validity and reliability, and the results of the research on strikes and insurgency in this region of the world.

**Challenges in Measuring Drone Strikes
and Insurgent Activity.**

Consider first how we understand insurgent activity. Insurgent groups engage in many activities—violence directed against combatants and noncombatants, recruiting new members, controlling territory, raising funds, generating propaganda, and so on. U.S. policy would expect that drone strikes would both undermine the targeted group's capacity to engage in most of these activities and deter them from taking such actions in the future. According to the *National Strategy for Counterterrorism* issued by the White House in June 2011, the "most solemn" counterterrorism goal of the United States is to "protect the American people, homeland, and American interests." The *National Strategy* names al-Qaeda as the principal international challenge to this goal, and identifies further goals specific to the group that could be met, in part, by drone strikes. These include to "disrupt, degrade, dismantle, and defeat" al-Qaeda and related groups, eliminating safe havens used by al-Qaeda and its affiliates, and weakening the links between al-Qaeda and other violent groups. At the same time, other goals outlined in the strategy document could conceivably be undermined by drone strikes. These include "building enduring counterterrorism partnerships," countering al-Qaeda's ideology and propaganda, and depriving the movement of the sources of financial support and recruits.[51]

There are thus multiple types of insurgent activity that might be measured, and drone strikes might have distinct effects on each of these. But it is difficult for researchers to obtain the underlying information they would need to measure these concepts because both insurgents and the authorities behave strategically. In-

surgents deliberately mask their activities precisely so they will not be targeted with attacks by the authorities. Governments collect secret intelligence but do not make it available to outside researchers for fear of revealing their sources and methods to the insurgents. Researchers are thus quite limited in the types of insurgent activity they can actually measure.

One important type of insurgent activity that can be observed and measured is terrorist attacks, understood as public acts of violence against noncombatants. Such attacks are intended to influence a mass audience, meaning that the insurgents that carry them out expect that their occurrence and consequences will be a matter of public record. Terrorist attacks are a limited measure of the capacity of insurgent groups. They may not reflect insurgents' ability to carry out other acts of violence, such as those directed against military forces. It is possible that insurgents resort to more terrorist attacks when they are weakening, because noncombatants are easier and less dangerous to target. Furthermore, it is not clear if we should measure all acts of terrorism, or only those directed against the United States. One obvious candidate that is consistent with the goals outlined in the U.S. counterterrorism strategy document would be actual and planned attacks by al-Qaeda or affiliated groups against the U.S. homeland. But such attacks are too few in number to yield reliable conclusions about the underlying capacity of the groups carrying them out. Instead, those seeking a systematic evaluation of the effects of drone strikes have most frequently analyzed terrorist attacks in Afghanistan and/or Pakistan. A common source measuring such attacks is the Worldwide Incidents Tracking System (WITS) database. WITS draws on open sources of information, such as news stories and reports by

nongovernmental organizations (NGOs), to construct a list of terrorist incidents. An incident is considered a terrorist attack if:

> sub-national or clandestine groups or individuals deliberately or recklessly attacked civilians or noncombatants (including military personnel and assets outside war zones and war-like settings).[52]

WITS has the advantage over other terrorist datasets of being updated regularly, allowing the researcher to determine which types of terrorist attacks should be included, and including both domestic and transnational attacks in its data.

Measuring the occurrence of drone strikes presents fewer challenges. Strikes are widely reported on international media, such as wire services, as well as in media outlets in Pakistan. Journalists can seek to confirm the occurrence of a drone strike with sources in the U.S. Government, Pakistani civilian and military authorities, and militant organizations. While all of these sources have powerful incentives to shape reporting on the consequences of drone strikes, such as civilian deaths, it is not obvious that their interests would be served by systematically inflating or deflating where and when such strikes occur. Doing so would undermine their credibility with the media. It might also prove ineffective, since journalists can triangulate among sources with different agendas and report only those strikes that are confirmed by more than one source. The New America Foundation, the Bureau of Investigative Journalism, and the *Long War Journal* have all produced datasets that count the occurrence of drone strikes. All three base their information primarily on reports in reliable media sources.

These include Western newspapers, such as *The New York Times*, news wire services and broadcast networks such as the BBC, and leading English-language newspapers and a broadcast network in Pakistan. They also rely on reports from NGOs, evidence presented in legal cases, and leaked documents. In addition, the Bureau of Investigative Journalism also undertook its own field investigations to measure civilian deaths. These datasets produce very similar counts of drone strikes, suggesting that the differences in their methods of data collection exert little systematic bias.[53]

More difficult to measure are the *consequences* of such drone strikes. None of the data-collection efforts have been able to determine accurately which specific insurgent or terrorist groups have been the targets of drone strikes. The New America Foundation does seek to identify the organizational affiliation of militants targeted by drones, but has been able to do so in less than two-thirds of the cases. Both New America and the Bureau of Investigative Journalism have also sought to count the number of militants and noncombatants killed in drone strikes. This is more challenging than accounting for the occurrence of a drone strike for a number of reasons. First, drone strikes take place in remote areas of Pakistan, where it is dangerous for journalists and researchers to operate and to identify victims. Second, the categories "militant" and "noncombatant" may not be mutually exclusive. One can imagine individuals who (voluntarily or not) provide some support to insurgents, such as housing or transportation, but do not engage in violence themselves being counted inadvertently as militants. Third, the difficulties of gaining access to the region where strikes occur and ambiguity about the affiliations of victims give both governments and insurgents incen-

tives to assume that any victims fall into the category that assists the organization's goals. So, insurgent organizations may define victims as civilians, both to demonstrate that they are not themselves directly affected by drone strikes, as well as to emphasize the inhumanity of such strikes. Not surprisingly, there is a vigorous debate between these data-collection efforts and others over which dataset more accurately reflects the number and identity of drone-strike victims.[54]

Effects of Drone Strikes on Insurgent Activity.

With these limitations in mind, these data can be used to assess the effects of drone strikes on insurgent activity. A starting point is to analyze how insurgent attacks have evolved over time as the pace of drone strikes has increased or decreased. This co-relational approach is widely used by policy analysts; reports by both the New America Foundation and the *Long War Journal* frequently use this approach in their assessments of the effectiveness of drone strikes. As we shall see, though, this type of analysis has important limits that make it difficult to draw conclusions about how drone strikes influence insurgent groups. A better approach is to use various forms of regression analysis that include techniques for tackling some of these limitations. This section also summarizes and assesses the conclusions of a number of such analyses.

Figures 1 through 6 depict how drone strikes, militant and civilian deaths, and terrorist attacks in Afghanistan and Pakistan have evolved from 2006 through the third quarter of 2011.[55] The data are presented as 30-day moving averages to smooth any sharp changes and facilitate the detection of relationships between the variables. Figures 1 and 2 compare the number of
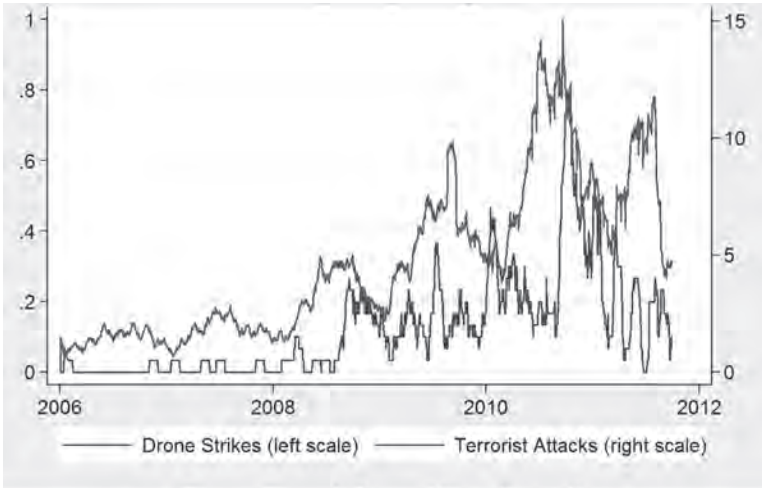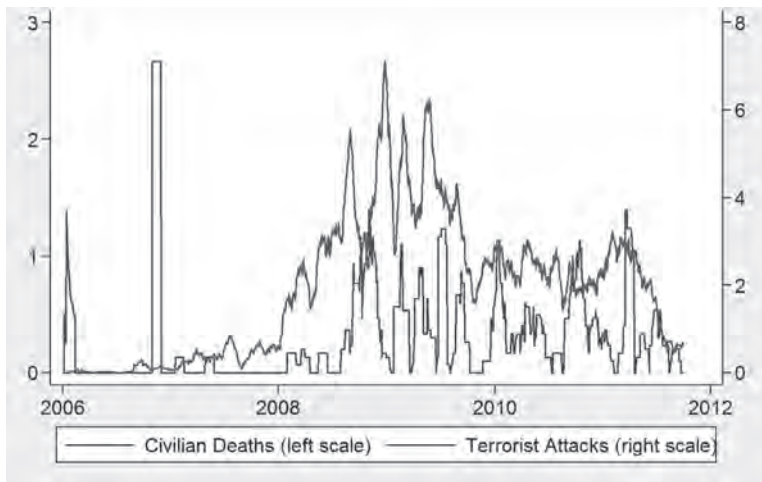
Figure 1. Drone Strikes and Terrorist Attacks in Afghanistan (30-Day Moving Averages).
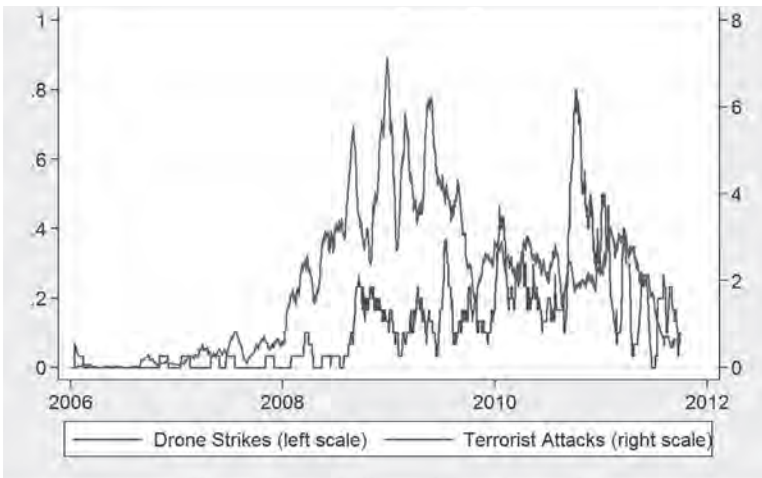
Figure 2. Drone Strikes and Terrorist Attacks in Pakistan (30-Day Moving Averages).
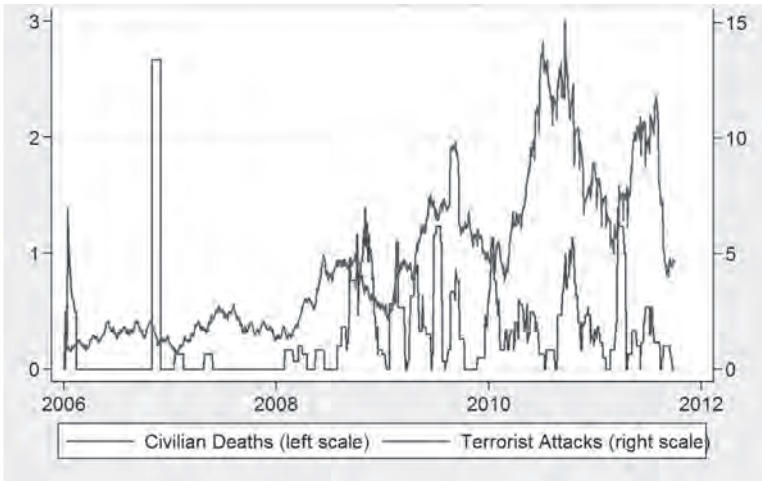
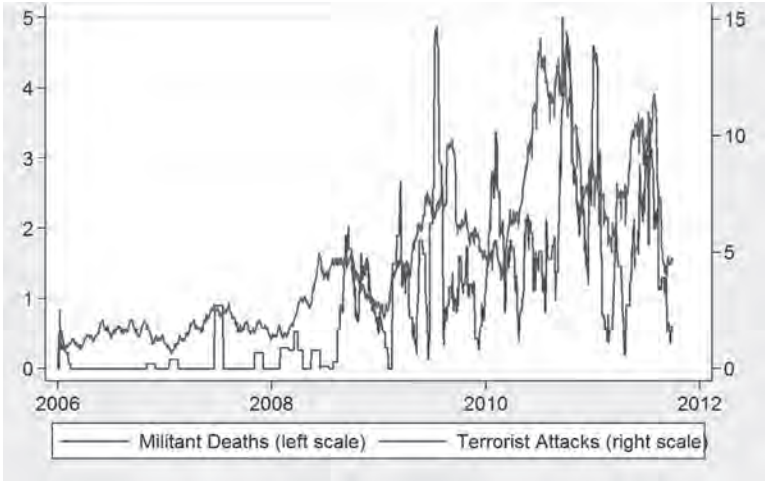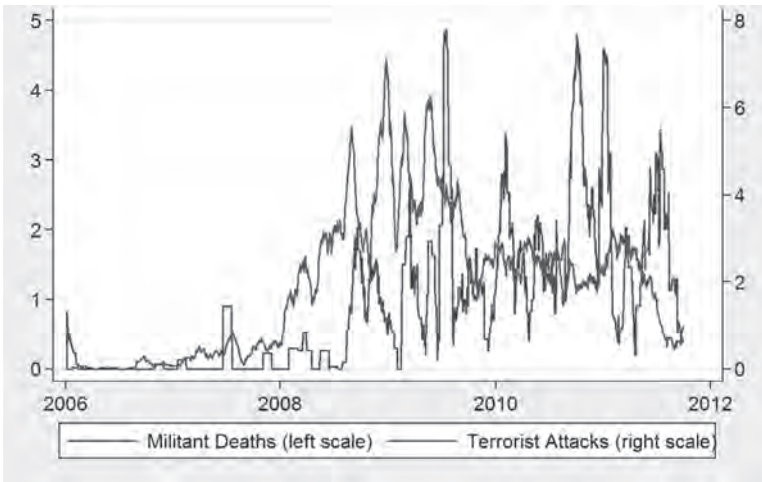**Figure 3. Civilian Deaths and Terrorist Attacks in Afghanistan (30-Day Moving Averages).**

Figure 4. Civilian Deaths and Terrorist Attacks in Pakistan (30-Day Moving Averages).

Figure 5. Militant Deaths and Terrorist Attacks in Afghanistan (30-Day Moving Averages).

Figure 6. Militant Deaths and Terrorist Attacks in Pakistan (30-Day Moving Averages).

drone strikes with the number of terrorist attacks in Afghanistan and Pakistan, respectively. Until at least early-2011, there does appear to be a reasonably consistent relationship among these time series. However, the pattern is not one that would be expected by the deterrence interpretation of drone strikes. Instead of drone strikes leading to a subsequent fall in the number of terrorist attacks, the pattern is one in which increases in terrorism are followed by more drone strikes. Something similar characterizes the data for Pakistan through 2010. After this date, though, a spike in drone strikes is closely associated with a decline in terrorist activity, suggesting that drones may have had their desired effect.

Recall that the most prominent criticism of drone strikes is that they produce inadvertent civilian casualties, which makes some individuals more willing to support insurgent organizations, which, in turn, allows these organizations more capacity to engage in violence. Figures 3 and 4 assess this relationship by plotting the number of civilians killed in drone strikes along with the number of terrorist attacks in Afghanistan and Pakistan. No clear patterns emerge. In Afghanistan, the number of terrorist attacks is highest in 2010 and 2011, during which time the number of civilian casualties from drones appears to be declining or holding steady. Terrorism in Pakistan and drone victims both increase from 2008 to 2010. Terrorist attacks stabilize in 2010 and then decline in 2011, as do the number of civilian casualties.

These weak relationships are not clearly consistent with the argument that more civilian casualties fuel terrorist attacks. Figures 5 and 6 chart the number of militants killed by drone strikes and terrorist attacks in the two countries. In Afghanistan, there is a very close

relationship between these two variables, although it appears that spikes in terrorist attacks precede, rather than follow, increases in militant deaths from drones. The pattern for Pakistan is more complicated. Prior to 2010, spikes in terrorist attacks are followed by more drone strikes that kill militants. After this, however, the number of terrorist incidents stabilizes and then falls. During the same period, there are sharp spikes in the number of militants that die in drone strikes, suggesting that such deaths might reduce the capacity of insurgent organizations to engage in terrorism.

Plots similar to these are the means through which relationships between drone strikes and the capacity of insurgent organizations are typically analyzed by policymakers and outside experts. But these visual relationships have a number of weaknesses, which make it difficult to assess the effects of drone strikes. First, the number of data points is so large that it may not be possible to detect subtle relationships, and the changes in such relationships, through simple visual inspection of the data. Second, it seems likely that any effects of drone strikes would operate with a lag. If drone strikes inhibit the recruitment of insurgents, for example, this might not result in a reduction in the capacity of insurgent organizations to engage in terrorism for some weeks or months. Conversely, civilian deaths from drone strikes may cause sympathizers to transfer resources to insurgent organizations, but this would likely take some time to organize. It is possible, then, that the absence of many clear simultaneous relationships in Figures 1 through 6 is due to the lack of any reliable way of accounting for such lags. Third, it is possible that any effect of drone strikes on insurgents depends on other factors in addition to drone strikes. The decline in terrorist attacks in Afghanistan in late-

2010 and again in late-2011 may not be due to the increased tempo of drone strikes during this period, but instead to successful counterinsurgency activities by Afghan and allied forces operating in the country after the "surge" of American military personnel that began in 2009.

A more sophisticated way of modeling the effects of drones on insurgency is to use various forms of regression analysis. This allows a consistent and systematic interpretation of the large amount of data available on drone strikes and their consequences. Regression analysis permits one to use these data to determine the appropriate lengths of any lagged relationships between drones and insurgency. It also allows one to estimate how other factors, such as the surge, mediate the relationships between drone strikes and insurgency. At least four working papers use regression techniques to develop more sophisticated understandings of these relationships. These projects employ distinct research designs and strategies and produce some overlapping but also some distinct results and conclusions. Analyzing the strengths and weaknesses of each should allow future work to build more reliable models of the effects of drone strikes on political violence.

The first effort, by Johnston and Sarbahi, focuses on how drones influence terrorism in the FATA, which is the region that many of the groups targeted by drones use as a base.[56] They use the agency—which is the third order administrative region in Pakistan—as the basic unit of analysis. There are eight such agencies in the FATA region of Pakistan. Using the New America Foundation data on drone strikes and WITS data on terrorism, they code the date and agency in which each drone strike or terrorist attack occurs from March 2004 through June 2010. Johnson and Sarbahi use four dis-

tinct measures of terrorist attacks: the number of overall attacks, the number of deaths that result from these attacks, the number of attacks that rely on improvised explosive devices, and the number that employ suicide attacks. They find that the simple correlation between drone strikes and these measures of insurgent violence is positive, suggesting that drones are associated with more, not fewer, terrorist attacks. Johnson and Sarbahi suggest that this positive relationship could be due, in part, to reverse causality if the United States is more likely to launch drone strikes when there is more violence occurring in the targeted agency. Terrorist attacks might reveal information that allows the United States to target its drone strikes, and an escalation of insurgent violence in a particular agency might motivate the United States to heighten the pace of strikes to deter more such violence. To control such interdependence between the decisions to launch drone strikes and terrorist attacks, Johnson and Sarbahi employ fixed-effects estimation, which accounts for differences between agencies that do not change over time—such as population or elevation—as well as first-differencing of the independent and dependent variables. When these techniques are employed, the relationship between drone strikes and most measures of insurgent violence becomes negative, indicating that the drones may be reducing the ability or willingness of these groups to undertake attacks. The analysts caution, though, that the substantive size of the reductions in terrorist attacks associated with drone strikes is rather small. This suggests that while drones may be an effective tactic in disrupting insurgent organizations, they are unlikely to be successful as the primary basis for a strategy aimed at defeating al-Qaeda and related groups.

Johnson and Sarbahi's working paper employs a sophisticated research design with the goal of minimizing the chance of finding a spurious relationship between drone strikes and terrorism due to the strategic interaction of decisionmakers in the United States and the targeted insurgent organizations. The authors are also careful to point out that future work in this area could perhaps more fully understand the influence of drones. In particular, this working paper uses as its independent variable the occurrence and location of a drone strike. It does not, for example, seek to measure the direct consequences of such strikes, including how many "high-value" targets, militants, and civilians are killed or injured. As discussed above, each of these consequences could have distinct effects on subsequent insurgent violence. Furthermore, it is possible that drone strikes launched against targets in the FATA influence the levels of insurgent violence in other regions. For example, we might expect that insurgents targeted by drones are those most active in the Afghan theater, so including measures of violence in this country would seem appropriate. It is also possible that insurgent organizations based in the FATA might calibrate the amount of violence that they use outside of this region in Pakistan. Many insurgents have used drone strikes to justify heightened conflict with the government of Pakistan. This could lead such insurgents to respond to drone strikes by deliberately escalating their attacks in other, more populous, and politically important regions of the country that receive greater media attention in order to maximize the political impact of their violence.

A second working paper uses a different research strategy to address some of these issues.[57] It also uses data from the New America Foundation and the WITS

database, counting the number of terrorist attacks in both Afghanistan and Pakistan. The authors measure both the occurrence of drone strikes as well as the success of the strikes in killing leaders of a militant group. David Jaeger and Zahra Siddique account for the strategic interaction between terrorism and drone strikes in the two countries by including the lagged values of each of these variables in models using terrorist attacks in Afghanistan or in Pakistan as the dependent variable. They find that drone strikes have no consistent relationship to terrorist violence in Afghanistan. In the researchers' baseline models, there is some evidence that drones lead to less terrorism in Pakistan; a drone strike today, for example, is associated with fewer terrorist attacks 2, 12, and 13 days in the future. But the same strike is also associated with more terrorist attacks in Pakistan 5 days later. These relationships depend on how the models aggregate time, disappearing when data are grouped in weeks or months.[58] They also disaggregate the presumed targets of the drone strikes. The Haqqani network, based in North Waziristan, engages in considerable violence in Afghanistan. Jaeger and Siddique's model suggests that drone strikes reduce the capacity of the Haqqani network to respond with violence in the subsequent week, but that the network undertakes considerably more terrorist attacks in the second week after a drone strike. They replicate this sort of analysis for the Tehrik-e-Taliban in South Waziristan, finding a somewhat different pattern, with drone strikes in this region associated with both increases and decreases in terrorist attacks at various points in the future. Finally, the researchers' models—including measures of successful and unsuccessful drone strikes—find that these result in substantively similar outcomes, indicating that drone strikes

that kill militant leaders do not fundamentally alter the patterns of violence in Pakistan.

What conclusions can we draw from these statistical analyses? First, a consistent finding across these models is that drone strikes do not influence the amounts of terrorist violence that occur in Afghanistan. To the extent that reducing such violence is an important objective of the strikes, this finding suggests that drones are not an effective tool for achieving this goal. Second, the relationships between drone strikes and terrorist attacks in Pakistan are quite variable. In most of the models reported here, drone strikes are associated with both an increase and a decrease in subsequent terrorism. This could occur if, for example, drone strikes have an immediate effect of reducing the capacity of insurgent organizations by, for example, killing members who were about to engage in violence, but also have a longer-run effect in which those upset by the strikes provide the insurgency with more recruits and other resources, allowing it to undertake more attacks. However, the temporal pattern of negative and positive links between drone strikes and terrorism is not very consistent across the specifications of the different models, making it difficult to determine if the relationships are simply due to chance or if they reflect some difficulty discerning an underlying pattern. Third, the paper by Jaeger and Siddique does recognize the possibility that different insurgent organizations respond to drone strikes in different ways, and that drone strikes with different consequences—such as killing a militant leader or not—can have quite distinct consequences for subsequent political violence. Although Jaeger and Siddique's findings on these relationships are not very robust, they do suggest important issues that future work on drone strikes could tackle.

One example is a working paper focused on the influence of fragmentation.[59] This paper discusses how the organization of insurgency mediates the response to drone strikes. It suggests that drone strikes are unlikely to have much of an effect on large, cohesive insurgencies such as the Taliban operations in Afghanistan. Drone strikes are likely to incite more cooperation among, and violence by, more fragmented insurgencies, such as those operating in Pakistan. Furthermore, the authors hypothesize that drones are sufficiently capable of distinguishing militants from civilians so that strikes that kill civilians should be small in number and thus not lead, as many claim, to more support for political violence committed by insurgent organizations. To evaluate these propositions, the paper also uses WITS data on the number of terrorist attacks in Afghanistan and in Pakistan. The key independent variables are the occurrence of drone strikes, the number of militants killed by drones, and the number of civilian victims of drones. Consistent with the work of Jaeger and Siddique, the authors find that none of these measures of drone strikes have any statistical relationship to terrorist violence in Afghanistan. This study reinforces the conclusion that drones have little effect, positive or negative, on the security situation in Afghanistan. It also finds a strong, positive relationship between drone strikes and subsequent terrorist attacks in Pakistan, suggesting that drones help fuel political violence in the country.

To shed light on what factors are driving this relationship, the authors ran additional models, using the numbers of militants and of civilians killed by drones as independent variables. Civilian deaths in drone strikes are unrelated to subsequent terrorist attacks. This finding is inconsistent with the argument that anger about civilian deaths makes it easier for terrorist organiza-

tions to recruit new members and supporters and to use these resources to engage in greater violence. Instead, the authors find that drone strikes that kill militants are associated with increases in terrorist attacks. From the perspective of U.S. policy, which expects drone strikes to undermine the capacity of insurgent organizations to engage in violence by killing their current members and deterring potential members, this relationship is surprising. It is consistent, however, with the argument that the fragmented nature of the insurgency in Pakistan—combined with the technological capacity of drones to distinguish civilians from militants with some accuracy—has fostered a more cohesive focus by these militants on launching terrorist attacks against the Pakistani state.

One concern with all of these analyses is that they do not directly address the core U.S. priority articulated in its counterterrorism strategy—disrupting and degrading al-Qaeda. As discussed earlier, there are good reasons for this; it is difficult to obtain reliable information about al-Qaeda's activities and plots. The studies discussed use terrorist attacks in Afghanistan and Pakistan as proxies for the strength of insurgent movements located in these countries. But these proxies may be only weakly related to the strength of al-Qaeda. A final project discussed here addresses this issue by measuring the propaganda output of al-Qaeda as an alternative proxy for the group's capacity.[60] Propaganda output is a useful proxy for two reasons. First, producing effective propaganda is an important objective of most terrorist groups, including al-Qaeda. The group's most senior leaders have repeatedly emphasized this point. Osama bin Laden stated that "the media war of this century is one of the strongest methods" of terrorism, and his deputy, Ayman al-Zawahiri, claimed that, "We are in a battle, and more than

half of this battle is taking place in the battlefield of the media."[61]

Second, propaganda output is a proxy for al-Qaeda's capacity to organize political action that can be observed and measured. This is not the case for many other types of terrorist group activity, such as the ability to raise funds or to attract recruits. The project uses regression analysis based on weekly data measuring the occurrence of drone strikes, the incidence of propaganda output, and the duration of propaganda produced by al-Qaeda from January 2006 through November 2011. The evidence leads to the conclusion that drone strikes have not been effective in reducing al-Qaeda's propaganda output. From the perspective of its ability to generate propaganda, al-Qaeda appears to be resilient to the threat of drone strikes. This could mean that, while drone strikes have killed many militants associated with the group, they have not been very effective in undermining its ability to plan and undertake complex political and media relations actions. As noted above, drone strikes also involve some costs for the United States. Perhaps the most important cost is political. Foes of the United States decry the fact that some drone strikes kill or injure noncombatants. This could reduce political support for the entire range of U.S. counterterrorist operations in Pakistan in particular. The findings suggest that the gains of drone strikes in terms of undermining al-Qaeda may be smaller than many believe.

POLICY AND STRATEGY IMPLICATIONS

Drones have become an important component of U.S. counterterrorism and counterinsurgency strategies in multiple regions of the world. They appear to

have a number of advantages that could fundamentally alter how the United States and other countries engage in counterinsurgency and counterterrorism operations. Drones place no U.S. military personnel at risk. They do not require a large "footprint" of U.S. personnel overseas. They are armed with accurate missiles that have the capacity to target individuals, automobiles, and sections of structures, such as rooms in a large house. Perhaps the most consequential advantage of drones is their ability to integrate intelligence collection with decisions to use force. Drones can collect intelligence directly with their own sensors. Their ability to linger for long periods allows this real-time intelligence to be combined with other intelligence sources while a target is being monitored. These characteristics should make drones especially effective in targeting only the individuals against whom the United States wishes to use force, and minimizing harm to noncombatants. This highly selective use of force, which minimizes harm to civilians, has the potential to allow the United States to achieve its counterinsurgency objectives at lower cost and risk. Selective violence increases the risks to individuals of joining or supporting an insurgency. This should make it more difficult for insurgent organizations to retain their current members, to recruit new members, and to increase support from sympathetic individuals outside the organization. At the same time, highly selective violence minimizes the risks faced by civilian noncombatants. This means that anger and resentment directed at the United States should be reduced.

The evidence and analyses discussed here, however, suggest that, to date, drone strikes have not fulfilled this promise. The historical record provides many examples of cases in which selective violence was suc-

cessful in undermining insurgencies. At the same time, though, there are many cases in which such violence backfired or was ineffective. One reason may be that some insurgent organizations are large and resilient enough to survive the deaths of their leaders and rank-and-file members. Furthermore, the most selective forms of violence can lead to civilian casualties. Insurgent and terrorist organizations can exploit even a small number of civilian deaths to depict their opponents as ruthless and uncaring. The objective of such propaganda campaigns is to convince the population that these opponents are actually using indiscriminate violence, and that noncombatants face considerable risks of harm. This is perhaps the most common criticism of the U.S. drone campaign. Many observers suggest that any degradation of insurgent organizations caused by drone strikes is outweighed by the ability of such organizations to exploit even small numbers of civilian casualties, with the goals of persuading people to join or support the insurgency. While there is considerable evidence that drone strikes are actually quite selective when compared with other types of violence, this fact may be unimportant if insurgent organizations can convince the population otherwise.

Another criticism of the drone strike campaign focuses less on civilian deaths and more on the relationships among insurgent organizations. This holds that the small number of civilian deaths produced by drones compared with other types of violence should, in fact, be recognized by the population. Fewer civilian deaths should result in less mobilization by noncombatants on the side of insurgent organizations. Drones, then, have the capacity to distinguish militants from civilians, and to focus most of their violence on militant targets. The difficulty that drones face is that they can-

not reliably distinguish the organizational affiliation of militants. The intelligence collection and analysis tools that drones possess are less capable of figuring out if a militant or group of militants is a core member of one insurgent organization or another. This presents a real problem where multiple insurgent organizations are operating, and the United States does not wish to target all of them. In such situations, violence is selective in the sense that it sorts militants from civilians, but is indiscriminate *among* militants with different organizational affiliations. This provides insurgent organizations with fewer reasons to avoid targeting or otherwise angering the United States, because there is a good chance that members of such organizations will be targeted with drone strikes regardless of what they do. When facing multiple, difficult-to-distinguish, insurgent organizations, drone strikes and other forms of selective violence may actually promote cooperation among these groups and lead them to focus more of their energies on using violence in ways that undermine U.S. goals.

To address these issues, a number of researchers have investigated the relationships between the occurrence of drone strikes and various types of behavior by insurgent and terrorist groups with links to Pakistan. These research efforts have not yet produced a consensus on how drones influence insurgent organizations. However, one reasonably consistent finding across the spectrum of analysis is that drone strikes have little influence, positive or negative, on the amount of insurgent violence that occurs in Afghanistan. This is important, because one objective of the drone strike campaign is to weaken and undermine insurgent organizations based in Pakistan that launch attacks against American, Afghan, and international military forces as

well as civilians in Afghanistan. The studies conducted to date would suggest that this objective of the drone campaign is not being met. Another, more tentative, conclusion that can be drawn from existing research is that drone strikes that result in civilian deaths appear to have little relationship with subsequent insurgent violence. This suggests that insurgent organizations have not been very effective at leveraging such deaths in their propaganda to secure more support.

If this is the case, it seems that harm inflicted on noncombatants, while regrettable, does not immediately undermine U.S. goals in the region. Another finding is that drone strikes that kill militants in Pakistan are associated with increases in subsequent insurgent violence in the country. The fact that there are multiple, difficult-to-distinguish, insurgent organizations operating in western Pakistan may make it difficult for the operators of drone strikes to determine reliably the organizational affiliation of their targets. This fact could be creating a dynamic in which all insurgent organizations, even those that have few grievances against the United States and the government of Pakistan or that engage in low levels of violence, feel threatened by the drones and seek support from other insurgent organizations that do have a goal of undermining the U.S. position in the region.

These findings have implications for the conduct of counterinsurgency and counterterrorism operations. Based on the evidence and analyses discussed above, drones appear to be, at most, weak substitutes for traditional counterinsurgency operations. Punishing insurgent organizations is only one of the strategies outlined in the current counterinsurgency doctrine of the U.S. Army and Marine Corps.[62] The thrust of this doctrine is protecting civilians from harm. One way to

achieve this objective, of course, is to punish and deter insurgent organizations. But the doctrine also emphasizes a range of steps to strengthen the population's identification with and loyalty to the authorities. These include encouraging the effective provision of public goods; engaging in information strategies that counter insurgent propaganda; coordinating the actions of government, international, and nongovernmental actors; and ensuring that government military and civilian forces treat civilians justly and equitably. The insight here is that insurgent organizations find it much easier to sustain themselves in environments where state authority has broken down or is seen as illegitimate. While drones have the capability to punish and deter insurgent organizations, they do not alone contribute to the establishment of effective state authority in direct and meaningful ways, which likely requires large numbers of ground forces and civilians to provide services to and gain intelligence from the local population.[63] To date, drones have been employed in some conflicts as an alternative, rather than a complement to, counterinsurgency operations on the ground. The United States has used drones intensively against militants in countries where the local government would strongly resist a more visible American military presence (Pakistan and Yemen), or where there is not an effective government with which to collaborate on counterinsurgency (Somalia). The experience of Pakistan suggests that this approach is unlikely to succeed over the longer term.

A related implication concerns collaboration with host-nation forces and governments. Drone strikes in Pakistan and elsewhere were initially targeted at individual leaders of militant organizations, such as al-Qaeda, that actively targeted the United States. It appears

that the types of targets of drones have been expanded to include both lower-level militants as well as violent groups that target primarily the local authorities. For example, *The New York Times* reports that:

> [F]or at least 2 years in Pakistan, partly because of the C.I.A.'s success in decimating Al Qaeda's top ranks, most strikes have been directed at militants whose main battle is with the Pakistani authorities or who fight with the Taliban against American troops in Afghanistan. In Yemen, some strikes apparently launched by the United States killed militants who were preparing to attack Yemeni military forces.[64]

Such an expansion of targets poses risks for the ability to effectively target members of militant organizations that aim their violence primarily against the United States. Some host governments that receive counterterrorism and counterinsurgency assistance from abroad have powerful incentives to exaggerate the threats that they and the international community face from militants. Furthermore, actually eliminating the threat from such groups would undermine the rationale for foreign military and civilian funding and assistance. This could lead host governments to calibrate their efforts against such groups carefully so that they do not become strong enough to overthrow the government or take control of large areas of national territory, but remain powerful enough to pose some plausible threat.[65] These incentives could lead host governments to attempt to influence the pattern and target of drone strikes in ways that are not consistent with U.S. interests. Host governments, for example, might provide intelligence on the location and activities of militants that they prefer to target, while providing less such intelligence on militants that are

of most interest to the United States.[66] An active campaign of drone strikes might also lead the host government to take less effective action against militants with its own forces. The United States frequently suggests that Pakistan develop and implement a comprehensive counterinsurgency program including military force, effective police and judicial services, and economic development for areas in the western part of the country. Such a program, even if it succeeded, would be costly and risky for the Pakistani government and military. Drone strikes directed against militants in this area of the country might be seen by Pakistani leaders as a low-cost way to pressure insurgent organizations. If this is the case, drone strikes may actually enable host governments to avoid taking steps that the United States considers more effective in countering local insurgencies.

There is some reason to think that drone strikes might achieve their objectives in a more narrowly circumscribed counterterrorism, rather than counterinsurgency, campaign. According to Michael J. Boyle, contemporary American doctrine views counterterrorism as a strategy that:

> relies on a combined package of air power, special forces, and the sophisticated use of intelligence to kill enemy operatives and disrupt terrorist networks.[67]

Insurgency and terrorism are closely related strategies of violence, but generally exhibit at least two differences that might make drones more effective for counterterrorism than for counterinsurgency. First, terrorist groups typically are more extreme in their political views—representing only a small minority of grievances and perspectives on the use and targets of

violence of the population on whose behalf they claim to act—than are insurgent groups. Weaker ties to a particular community means that drone strikes and other forms of selective violence directed against terrorist groups are less likely to provoke a popular backlash against the United States. Second, terrorist groups have a more limited repertoire of political tactics at their disposal. Terrorist groups engage in violence directed against civilians, and seek to publicize their violent acts to mass audiences. Insurgent groups sometimes use and publicize the same type of violence, but also may engage in more conventional tactics, direct their violence at military targets, and provide services, such as protection from predatory government forces, to a population. This broader range of activities is more difficult to undermine with strategies that rely solely on selective violence, but such violence may be effective against terrorist groups with a narrower range of action.

This claim is difficult to assess, however, since the United States has not employed drones consistently in a counterterrorism campaign. Instead, as discussed above, the United States has tended to expand the targets of drone strikes from individuals who appear to be planning attacks on the U.S. homeland, close allies, or forces in Afghanistan, since a strict counterterrorism approach would suggest it is appropriate to also include militants who are opposed by the government of the state where they are active but who are not directly planning attacks against U.S. interests. This pattern of expansion may tell us something interesting about the practical utility of drone strikes for counterterrorism. In both Pakistan and Yemen, the expansion has been justified on the reasonable grounds that the new targets are providing assistance to groups who plan attacks that the United States wants to prevent.

Also in both cases, the groups targeted by drones operate in areas where the United States and the national government cannot or will not engage "on the ground" with troops or police forces, much less with government services such as education, in large numbers. Drones are most useful in precisely such areas, since they allow the United States to project force when it and the national government have few other options. But such ungoverned spaces present two key challenges for the effective use of drone strikes. The absence of boots on the ground makes it more difficult to gather human intelligence on the activities of militant groups. This means that even strikes from drones, which have the capacity to collect real-time intelligence on their targets, might occasionally hit the wrong targets or kill civilians. Ungoverned spaces also can allow armed groups to proliferate and form complex and short-lived alliances that are difficult for outsiders to understand, increasing the challenge of targeting only militants that oppose the United States. Drones, then, are most useful for counterterrorism in precisely those settings where the challenges of counterterrorism are the greatest, and the ability to collect intelligence is the weakest. This means that the bar for successful use of drones to counter terrorism is set quite high, but at the same time they are, in the words of former Director of Central Intelligence Leon Panetta, "the only game in town in terms of confronting or trying to disrupt the al-Qaeda leadership" based in the FATA region of Pakistan.[68]

Combat applications of drone technology are very recent. But their use to date has also raised a number of new questions about how the technology might alter counterinsurgency in the future. At least three issues merit sustained attention as the technology evolves.

First, how will other countries and insurgent organizations respond to the use of drones as a U.S. tool of counterinsurgency? Will other states seek to emulate the United States and develop their own drone fleets that can be used against insurgencies within their borders or overseas? Will insurgencies respond to the proliferation of armed drones? Most drones that have been deployed by the United States and other countries assume complete air superiority. This has allowed many armed drones to be based on simple airframes and to be developed with little concern about possible countermeasures. Insurgent organizations may seek to exploit this assumption by developing such countermeasures, or by developing their own intelligence or armed drones. The proliferation of drone technology to state and nonstate actors may quickly erode the U.S. advantage in this domain, and present a range of new and unexpected challenges.

A second issue is how the reliance on drone strikes will influence perceptions on the part of the American public of the acceptability and desirability of the use of force. Drone technology reduces the costs and risks of initiating armed conflict. The use of drones means that U.S. military personnel are not at risk of harm, that the occupation of foreign territory may not be necessary in order to wage an effective counterinsurgency campaign, and that backlash from civilian deaths and other consequences of indiscriminate violence can be minimized. These lower costs make it more likely that the American public is more willing to employ this form of force. A large body of research has shown that the public is more likely to oppose involvement in armed conflicts that involve U.S. military casualties or that involve issues of peripheral interest to the core national security goals of the country. Drones eliminate the possibility of such military casualties and, compared with

ground forces, can be deployed relatively cheaply and easily to even minor conflicts. It is possible, then, that the American public will be more willing to endorse drone strikes than they would other forms of armed conflict. Many critics of drone strikes worry that these lower costs will create powerful incentives for the U.S. Government to resort to drone strikes in the face of even minor challenges. But this is not a foregone conclusion. Other research on the support for the use of force concludes that the American public is willing to support such actions only when they have a reasonably high chance of succeeding in achieving their military objectives. If this focus on successful military operations is important, it may restrain decisionmakers from resorting to drone strikes too quickly or casually.

Third, drones are an example of the discrete and small-scale use of force to achieve particular objectives. It is unclear how their presence in the U.S. arsenal might influence perspectives on the forms of armed force at the other end the spectrum. It is possible that drones will reduce support among the American public and decisionmakers for larger-scale interventions overseas. Individuals might be less willing to support interventions with ground forces, for example, when they believe that drone strikes are able to achieve the same objectives at lower cost and risk to United States. This perspective would be contingent on the conclusion that drone strikes are a particularly effective counterinsurgency tool. The research on drone strikes in Pakistan reviewed above, however, does not suggest unambiguously that this is the case. Many experts in counterinsurgency emphasize that force is only one, and perhaps not the most important, means of undermining an insurgency. If this preference for only low-risk military operations were to become dominant be-

cause of the availability of drone technology, it might place practical limits on the ability of political leaders and warfighters to develop plans for a more appropriate range of use of military force.

Armed drones are a remarkable development in weapons technology. They combine multiple surveillance technologies with precision-guided munitions, allowing the United States to project selective violence over long distances, while placing no American personnel in harm's way. This technology seems well-suited to effective counterinsurgency operations that, as a large body of scholarship and U.S. Army doctrine suggests, are more effective when they employ force selectively in ways that reflect solid intelligence on and understanding of the targeted insurgent group and the population from which it seeks to draw support. However, the evidence from the most sustained campaign to rely on drone strikes to deter and punish insurgent organizations in Pakistan suggests this technology has limited capacity to achieve these objectives. Insurgencies are adaptive organizations, and may change their behavior in response to drone strikes in ways that render the strikes ineffective or even counterproductive. It is also very difficult to gain accurate intelligence on insurgent movements, especially when the United States does not have personnel on the ground in sufficient numbers to collect and place useful human intelligence in the appropriate context, which may lead to drone strikes that do little harm to their intended targets. Despite these limitations, drone technology seems very likely to spread both within the United States armed forces, the armed forces of other countries, and even to insurgent organizations. Better understanding of the limits of armed drones may allow their use to be more effectively integrated with other types of armed force and tools of foreign and security policy.

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> As the President and others have acknowledged, there have indeed been instances when—despite the extraordinary precautions we take—civilians have been accidently injured, or worse, killed in these strikes. It is exceedingly rare, but it has happened. When it does, it pains us and we regret it deeply, as we do any time innocents are killed in war. And when this happens we take it seriously. We go back and review our actions. We examine our practices. And we constantly work to improve and refine our efforts so that we are doing everything in our power to prevent the loss of innocent life. This too is a reflection of our values as Americans.

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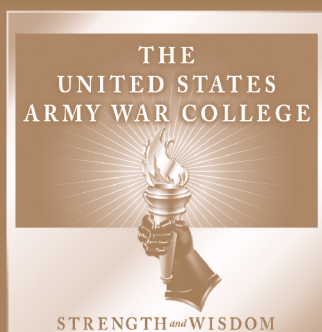
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