Is Technology the Answer?

The Limits of Combat Drones in Countering Insurgents

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Can new weapons technologies make it easier to coerce insurgents and other violent nonstate actors? The key problems in countering insurgency are identifying the enemy while avoiding harm to civilians and protecting ground troops from surprise attacks. Unmanned aerial vehicles—better known as drones—would seem to be an ideal technological solution to these political-military problems These aircraft can surveil potential targets for long periods and are armed with precision weapons. This should increase their ability to ensure that coercive force is directed at the intended adversary. The absence of an onboard crew reduces the costs of using force since the coercer no longer needs to worry about military casualties.

The United States increasingly relies on drones to target insurgent and terrorist groups around the world, in Pakistan, Yemen, Libya, Syria, Somalia, and Iraq, among others places. The objectives of these campaigns are to compel and deter insurgent and terrorist organizations. Drones are used to punish violent organizations by targeting their leaders and creating fear and uncertainty among their members. Drones also 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 still know relatively little about how effective they are as tools of compellence 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 suggest 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 chapter seeks to address these open questions by

offering a survey of the state of knowledge concerning the efficacy of drones as instruments of coercion, particularly in the context of counterinsurgency operations.

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.[1] Yet there is not universal agreement on this point. Some conclude that even indiscriminate violence can be an effective strategy, while others suggest it frequently fails to achieve its objectives, as insurgents are strategic actors who change and adapt their internal organization to reduce their vulnerability to violence.[2]

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[1] Stathis N. Kalyvas, *The Logic of Violence in Civil War* (New York: Cambridge University Press, 2006); T. David Mason and Dale A. Krane, "The Political Economy of Death Squads: Toward a Theory of the Impact of State-Sanctioned Terror," *International Studies Quarterly* 33, no. 2 (1989): 175–98; Matthew A. Kocher, Thomas B. Pepinsky, and Stathis N. Kalyvas, "Aerial Bombing and Counterinsurgency in the Vietnam War," *American Journal of Political Science* 55, no. 2 (2011): 201–18.

[2] Jason Lyall, "Does Indiscriminate Violence Incite Insurgent Attacks?: Evidence from Chechnya," *Journal of Conflict Resolution* 53, no. 3 (February 12, 2009): 331–62; R. Bhavnani, D. Miodownik, and H. J. Choi, "Violence and Control in Civil Conflict: Israel, the West Bank, and Gaza," *Comparative Politics* 44 (2011): 61; R. Bhavnani, D. Miodownik, and Hyun Jin Choi, "Three Two Tango: Territorial Control and Selective Violence in Israel, the West Bank, and Gaza," *Journal of Conflict Resolution*, 55, no. 1 (2011): 133-158; Yuri M. Zhukov, "An Epidemic Model of Violence and Public Support

The evidence from Pakistan suggests that insurgents have adapted to drone strikes in ways that are not conducive to the interests of the United States. Drone strikes are associated with subsequent terrorist attacks in Pakistan's urban areas, creating more political instability in this strategically important country. Insurgents are responding to drone strikes with their own acts of violence in an attempt to demonstrate to current and potential supporters that they can continue to bring the fight to the enemy. It also appears that while drones are less likely to cause civilian harm than other forms of violence employed in this theater, they have difficulty distinguishing between members of insurgent organizations that are hostile to the United States and its allies and those that are not. Inability to very carefully target drone strikes on particular militants appears to have pushed disparate insurgent organizations with distinct agendas to coalesce around the goal of responding to drone strikes with even more terrorist attacks.

Drones: Why They Are Different and Why They Might Work

Drones—more formally, unmanned aerial vehicles (UAVs)—are pilotless aircraft controlled by individuals located on the ground, often some distance from the area where the platform 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 in recent years by the United States. These drones are armed with precision-guided air-to-

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in Civil War," *Conflict Management and Peace Science* 30, no. 1 (2013): 24–52; Gonzalo Vargas, "Urban Irregular Warfare and Violence against Civilians: Evidence from a Colombian City," *Terrorism and Political Violence* 22, no 1(2009): 110-132.

surface missiles 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.[3]

How might the technologies utilized by combat drones change counterinsurgency outcomes? A key challenge in counterinsurgency campaigns is resolving the "identification problem" of distinguishing combatants from noncombatants. This is difficult because insurgents typically do not operate in large numbers in open terrain and often mix closely with the civilian population.[4] 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 goals 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 it 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 terrorist

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[3] Jonathan Masters, "Targeted Killings," *Council on Foreign Relations,* May 23, 2013 https://www.cfr.org/backgrounder/targeted-killings.

[4] Kalyvas, *The Logic of Violence in Civil War*; Jeff Goodwin, *No Other Way Out: States and Revolutionary Movements, 1945–1991* (Cambridge, UK: Cambridge University Press, 2001); Mason and Krane, "The Political Economy of Death Squads"; Kocher et al., "Aerial Bombing and Counterinsurgency in the Vietnam War."

organizations, 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 suspected of providing intelligence to the United States or its proxies. All of these effects raise the costs to insurgents of engaging in violence.

In principle, 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 of time, as the insurgency's loss of members and recruits will weaken its ability to achieve its aims and thus make it even less attractive for current and potential members.

Proponents hold that drones represent a *particularly* selective form of violence compared to the available alternatives. From this perspective, drone technology offers the promise of both punishing and deterring insurgent groups while minimizing risks to U.S. military forces and to civilians.[5] The reason is that drones combine multiple,

[5] Jason M. Brown, "To Bomb or Not to Bomb? Counterinsurgency, Airpower, and Dynamic Targeting," *Air and Space Power Journal* 21, no. 4 (2007): 1–13; Norton

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 of time. This allows the operators of the drone to better identify their target 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 if it is important to avoid civilian deaths.

These technological characteristics of armed drones could make them more effective than traditional air power delivered from manned aircraft. Their potential to collect intelligence and to accurately strike targets provides them with many of the advantages that ground forces offer in counterinsurgency operations. 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 of 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.

U.S. authorities emphasize that the precision allowed by drones marks an important advance over other technologies of violence available to the United States. The reason is that it maximizes the chance that insurgents will be killed, while also

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Schwartz, "Airpower in Counterinsurgency and Stability Operations," *Prism* 22 (2011): 127–34.

minimizing the likelihood that noncombatants will also be killed. Precision should make drones a particularly effective form of targeted killings that reduces any backlash against the United States resulting from civilian deaths. In the first official discussion of the drone strike program, a senior U.S. official emphasized:

> 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.[6]

The little publicly available research on this issue finds that drone strikes in Pakistan, the country that has experienced the most such attacks, are selective compared to other forms of violence. Avery Plaw and Matthew Fricker developed a data set of the victims of

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[6] John O. Brennan, "The Ethics and Efficacy of the President's Counterterrorism Strategy," April 30, 2012, *Woodrow Wilson Center*, https://lawfare.s3-us-west-2.amazonaws.com/staging/s3fs-public/uploads/2012/04/WilsonCenterFinalPrepared1.pdf.

drone strikes in the region.[7] Their effort divides victims into three categories: militants, civilians, and those whose status cannot be determined. Based on a review of media reports, they measure the ratio of militants killed in drone strikes for every civilian that dies in such attacks. Using information from only 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 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 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 to other types of force*, the proportion of civilian victims is at a lower or comparable level. Elsewhere Plaw and collaborators

[7] Avery Plaw and M. S. Fricker, "Tracking the Predators: Evaluating the US Drone Campaign in Pakistan," *International Studies Perspectives* 13, no. 4 (2012): 1–22. Note that their data only cover drone strikes through 2011.

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 the drone pilots are getting better at distinguishing civilian from military targets and that the United States may be modifying its decisions to launch strikes from drones to minimize civilian casualties.[8]

Stepping back from the Pakistan campaign, there is also evidence that selective violence in the form of targeted killings does undermine insurgencies more generally. Stathis N. Kalyvas's survey of the use of violence by the authorities in many insurgencies and civil wars concludes that selective violence degrades insurgent organizations.[9] 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.[10] Two studies that systematically analyzed the effects of leadership decapitation—the use of selective violence (both killing and capturing) against senior members of insurgencies—on groups' subsequent behavior concluded that the strategy is effective. In the first, Patrick Johnston found that such targeted killings reduce the lethality and frequency of subsequent insurgent attacks. He also concluded that failed attempts at leadership decapitation do not increase the violence that insurgencies

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[8] A. Plaw, M. S. Fricker, and B. G. Williams, "Practice Makes Perfect? The Changing Civilian Toll of CIA Drone Strikes in Pakistan," *Perspectives on Terrorism* 5, nos. 5–6 (2011): 51-69.

[9] Kalyvas, *The Logic of Violence in Civil War*.

[10] Audrey Cronin, *How Terrorism Ends: Understanding the Decline and Demise of Terrorist Campaigns* (Princeton, NJ: Princeton University Press, 2009).

undertake, suggesting that the strategy has few negative consequences for states that use it.[11] In the second study, Bryan Price found that targeted killings substantially shorten the life spans of terrorist groups. He argued that organizational characteristics of terrorist groups, including their use of violence, clandestine structure, and focus on values, make such groups particularly susceptible to targeted killings.[12]

According to this line of reasoning, the technological characteristics of armed drones should make them quite effective at coercing insurgents. These characteristics also might reduce the political costs to the United States of engaging in coercion. If this is the case, we might expect that the development and deployment of armed drones could make the United States (or other actors with such weapons) more likely to initiate conflict. The fact that drones are pilotless means that their use does not endanger U.S. military personnel, potentially allowing their use in missions where the benefit 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 U.S. military personnel in combat operations reduces the willingness of the U.S. public to support engagement in

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[11] Patrick B. Johnston, "Does Decapitation Work? Assessing the Effectiveness of Leadership Targeting in Counterinsurgency Campaigns," *International Security* 36, no. 4 (2012): 47–79.

[12] Bryan C. Price, "Targeting Top Terrorists: How Leadership Decapitation Contributes to Counterterrorism Targeting Top Terrorists," *International Security* 36, no. 4 (2012): 9–46.

armed conflict.[13] There was a strong relationship between mounting U.S. casualties in Iraq and decline in public support for remaining engaged in the conflict, for example.[14] There is also evidence that individuals in the United States are more willing to support the use of force in the form of drone strikes compared to otherwise identical attacks that place military personnel at risk of harm.[15] Since drones reduce the likelihood of casualties, they may increase the freedom of political and military commanders to use drones in combat operations.

Remote operations such as drone strikes also minimize the footprint of U.S. military forces in foreign countries, who may be perceived as occupiers and the target of

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[13] Scott Sigmund Gartner, "The Multiple Effects of Casualties on Public Support for War: An Experimental Approach," *American Political Science Review* 102 (2008): 95–106; Harvey Sapolsky and Jeremy Shapiro, "Casualties, Technology, and America's Future Wars," *Parameters* 26, no. 2 (1996): 119–27; John Mueller, *War, Presidents, and Public Opinion* (New York: Wiley, 1973).

[14] Matthew A. Baum and Tim Groeling, "Reality Asserts Itself: Public Opinion on Iraq and the Elasticity of Reality," *International Organization* 64 (2010): 443–79; C. V. Sirin, "Public Support for Military Interventions across Levels of Political Information and Stages of Intervention: The Case of the Iraq War," *Armed Forces & Society* 38 (2011): 252–72; W. A. Boettcher and M. D. Cobb, "Echoes of Vietnam? Casualty Framing and Public Perceptions of Success and Failure in Iraq," *Journal of Conflict Resolution* 50 (2006): 831–54.

[15] James Igoe Walsh, "Precision Weapons, Civilian Casualties, and Support for the Use of Force," *Political Psychology* 36, no. 5 (2015): 507–23.

violence themselves and may insist on side payments from the United States in return for basing rights.[16] Most drone strikes that the United States has conducted outside of hot battlefields such as Iraq and Afghanistan have been covert, meaning that there is no official acknowledgment of U.S. participation. This makes it more difficult to reliably assign credit or blame for such strikes to the United States. It also means that drone strikes have been subject to far less scrutiny by the legislature, judiciary, and press than is true for traditional military operations. The comparatively low oversight costs of drones may make them a more attractive option for incumbent leaders, especially those facing polarized legislatures, as was the case for President Obama and the U.S. Congress.

Why Drones Might Not Work

At the same time, others hold that drones are unlikely to radically transform counterinsurgency. They contend that drones represent a quite modest change in their ability to coerce adversaries from past technologies of violence.[17] Drones may be less revolutionary than their advocates believe because their targets are strategic actors who organize themselves and their interactions with other insurgent movements so as to maximize their chance of surviving strikes. For example, documents captured from militants in Mali connected to Al Qaeda outline tactics that the group should or could use to avoid being targeted by drones, including changing location frequently, hiding under thick trees, and developing techniques for generating electronic signals that draw the

[16] Robert A. Pape and James K. Feldman, *Cutting the Fuse: The Explosion of Global Suicide Terrorism and How to Stop It* (Chicago: University of Chicago Press, 2010).

[17] "Flying under the Influence," *Foreign Policy*, July 20, 2012, https://foreignpolicy.com/2012/07/20/flying-under-the-influence/

drone away from the militants' location.[18] The fact that drones reduce the costs of initiating conflict could also backfire against the United States. Lower costs of coercion might push the United States to expand the range of conflicts in which it considers using force. Arguably we have already seen examples of this. The United States quickly ramped up its campaign of drone strikes in Pakistan, increasing the number of strikes from 36 in 2008 to 122 in 2010, while also expanding the drone campaign to Yemen, Libya, Iraq, and Syria. Such changes may also shift the domestic political calculus surrounding military action, making the public both more likely to support drone strikes than other forms of violence while at the same time undermining the credibility of threats to escalate further and/or to employ more direct, less surgical instruments of violence.

The Organization of Insurgency

Drone strikes are a form of targeted killings, 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 non-international armed conflict."[19] 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

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[18] Associated Press, "The Al Qaeda Papers: Drones," 2012, http://hosted.ap.org/specials/interactives/_international/_pdfs/al-qaida-papers-drones.pdf.

[19] Gary Solis, *The Law of Armed Conflict: International Humanitarian Law in War* (New York: Cambridge University Press, 2010), 528.

militants.[20] 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. Some find that targeted killings conducted by Israeli forces had no effect on subsequent attacks by Palestinian terrorists between 2000 and 2005.[21] An analysis focused on suicide terrorism in the Israeli-Palestinian conflict concludes that targeted killings are associated with fewer victims from suicide attacks and that high levels of targeted killings reduce Palestinian intentions to launch terrorist attacks.[22]

Why might such targeted killings be ineffective? Existing research on air power in war offers one answer. Robert Pape argues that air strikes directed at military targets and

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[20] Steven R. David, "Fatal Choices: Israel's Policy of Targeted Killing," 17, no. 1 (2003): 111-126; Daniel Byman, "Do Targeted Killings Work?," *Foreign Affairs* 85 (2006): 95–111; Gal Luft, "The Logic of Israel's Targeted Killing," *Middle East Quarterly* (Winter 2003): 3–13.

[21] David A. Jaeger and M. Daniele Paserman, "The Cycle of Violence? An Empirical Analysis of Fatalities in the Palestinian-Israeli Conflict," *American Economic Review*, 98 (2008): 1591–604; Mohammed M. Hafez and Joseph M. Hatfield, "Do Targeted Assassinations Work? A Multivariate Analysis of Israel's Controversial Tactic During Al-Aqsa Uprising," *Studies in Conflict & Terrorism* 29 (2006): 359–82.

[22] David A. Jaeger, "The Shape of Things to Come? On the Dynamics of Suicide Attacks and Targeted Killings," *Quarterly Journal of Political Science* 4 (2009): 315–42.

infrastructure—a strategy of denial—is more effective in coercing an opponent than is bombing civilian targets.[23] 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."[24] 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.[25] 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 1 was undermined by targeted killings.[26]

One way to separate insurgents from civilians, as discussed earlier, is to use force in ways that maximize harm to the former and minimize danger to the latter. From the perspective of the United States, the precision of drone strikes in achieving this battlefield objective is a key advantage of the technology. However, it is not clear that the civilians

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[23] Robert Pape, *Bombing to Win: Airpower and Coercion in War* (Ithaca, NY: Cornell University Press, 1996).

[24] Pape, *Bombing to Win*, 8.

[25] Pape, *Bombing to Win*, 31.

[26] Robert Pape, *Dying to Win: The Strategic Logic of Suicide Terrorism* (New York: Random House, 2005).

in areas where drones operate perceive them this way. Public opinion surveys in Pakistan that ask questions about drone strikes typically find large—in some cases overwhelming—opposition to their use. Citizens object that drones do in fact kill large numbers of civilians, create incentives for insurgents to launch attacks in response that target innocent Pakistanis, and violate the country's sovereignty. Conducting reliable public opinion surveys on sensitive issues in conflict-prone countries such as Pakistan is very difficult. A number of researchers suggest that simple readings of relevant surveys overstate the opposition to drone strikes. Nonetheless there is little evidence to date at the level of individual citizens that many are persuaded to see the drone campaign as a positive development or one that is likely to bring more stability to their country.[27]

Others 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—known as leadership decapitation—finds that they do contribute to the collapse of smaller and newer organizations that are not

[27] C. Christine Fair, Karl Kaltenthaler, and William J Miller, "Pakistani Opposition to American Drone Strikes," *Political Research Quarterly* 129 (2014): 1–33; New America Foundation and Terror Free Tomorrow, *Public Opinion in Pakistan's Tribal Regions*, (2010) http://www.terrorfreetomorrow.org/upimagestft/FATApoll1.pdf; Adeline Delavande and Basit Zafar, *How Deeply Held Are Anti-American Attitudes among Pakistani Youth? Evidence Using Experimental Variation in Information*, 2012 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2043148.

motivated by religious grievances.[28] 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 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 into networks.[29] 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 strikes by, for example, not traveling in groups or 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 they are only loosely connected to each other.

Countering Coercion

Insurgent organizations targeted by U.S. drone strikes can respond in turn by attempting to coerce their coercer. Responding to drone attacks with more violence may convince

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[28] Jenna Jordan, "When Heads Roll: Assessing the Effectiveness of Leadership Decapitation," *Security Studies* 18 (2009): 719–55.

[29] Marc Sageman, *Understanding Terror Networks* (Philadelphia: University of Pennsylvania Press, 2004); Marc Sageman, *Leaderless Jihad: Terror Networks in the Twenty-first Century* (Philadelphia: University of Pennsylvania Press, 2008).

the United States that the insurgency is resilient and that drone strikes are an ineffective strategy.[30]

One important difficulty with this strategy is that the insurgent organizations based in Pakistan have limited capacity for attacking the United States directly. Al Qaeda Central certainly is interested in attacking the homeland of the United States, and did so on a very large scale on September 11, 2001. But it has not managed to replicate such an attack since then. Some of its allies in Pakistan, especially the Haqqani network, are also targeted by drone strikes and have been able to retaliate against U.S. military forces in Afghanistan. But its other allies in Pakistan lack the means to engage in attacks against U.S. forces, and many are essentially insurgent movements associated with local warlords with few international connections.

Most of these groups can undertake attacks throughout Pakistan, however. This is an attractive target because the Pakistani government has long collaborated with the United States in its campaign of drone strikes by sharing intelligence on potential targets. Coercing the government to end this collaboration would make it more difficult for the United States to select targets for drone strikes. Attacks in Pakistan might also undermine the stability of the country's political institutions, which would also be costly for the United States, which worries about Pakistan's support for some insurgent groups, control

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[30] For a version of this argument, see Thomas Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1996). Evidence that air strikes are associated with more insurgent violence in Afghanistan is presented in Jason Lyall, *Bombing to Lose? Airpower and the Dynamics of Violence in Counterinsurgency Wars*, manuscript, Yale University, 2014.

of the country's nuclear arsenal, and potential conflicts between Pakistan and India. As discussed earlier, drone strikes have become increasingly unpopular and controversial in Pakistan, in part because they are seen as prompting insurgents to launch terrorist attacks in the country. Insurgents likely perceive their chances of pushing Pakistani authorities to withdraw their support for drone strikes as more likely to succeed than attempts to coerce the United States to stop engaging in such strikes.[31]

Who Are the Insurgents?

There may be another mechanism through which drone strikes and other forms of targeted killings influence insurgent violence. The idea that selective violence deters individuals from joining or supporting an insurgent movement assumes there is one cohesive insurgency. Quite frequently, however, insurgencies suffer from a great deal of fragmentation. More than one insurgent organization has used violence in almost half of all civil wars since 1989, for example.[32] Fragmented insurgencies have been defined as those with multiple organizations, weak institutional links among these organizations, and those with roughly equal distribution of power among their constituent organizations.[33]

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[31] Erik Gartzke and James Igoe Walsh, "The Drawbacks of Drones," unpublished manuscript, 2017.

[32] Michael G. Findley and Peter J. Rudloff, "Combatant Fragmentation and the Dynamics of Civil War," *British Journal of Political Science* 42, no. 4 (2012): 879–901.

[33] Kristin M. Bakke, Kathleen Gallagher Cunningham, and Lee J. M. Seymour, "A Plague of Initials: Fragmentation, Cohesion, and Infighting in Civil Wars," *Perspectives on Politics* 10 (2012): 265–83.

Fragmentation makes it more difficult for the authorities to employ selective violence. The groups comprising fragmented insurgencies have 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."[34] In situations such as this, 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. In Pakistan, for example, the United States has targeted insurgent organizations that engage in violence in Afghanistan but has avoided targeting militants favored by the Pakistani military.

This level of discrimination in targeting may be difficult to achieve because insurgencies are not regular armed forces. They typically do not wear uniforms, do not control well-defined areas of territory for long periods of time, 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

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[34] Mark Lichbach, *The Rebel's Dilemma* (Ann Arbor: University of Michigan Press, 1995), 18.

can supplement technical means of intelligence collection but may have personal incentives to incorrectly identify individuals as members of an insurgent organization targeted by the authorities.[35] The common insurgent tactic of hiding among the population can make it difficult for the authorities to solve the "identification problem" of distinguishing combatants and noncombatants.[36] Fragmentation creates a similar problem of determining if a particular militant is a member of an insurgent organization targeted for selective violence or belongs to another insurgent group against whom the government is not using force.

This means that anyone matching the characteristics of an insurgent could be the target of drone strikes, even if he or she is not a member of an insurgent organization the United States prefers to attack. 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 an insurgent group that does not attract such opposition. Indeed, in such a situation, the rewards from 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.[37] In such situations, then, selectively targeting militants

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[35] Kalyvas, *The Logic of Violence in Civil War*.

[36] Kocher et al., "Aerial Bombing and Counterinsurgency in the Vietnam War."

[37] Stathis N. Kalyvas and Matthew A Kocher, "How 'Free' Is Free Riding in Civil Wars? Violence, Insurgency, and the Collective Action Problem," *World Politics* 59, no. 2 (2007): 177–216.

from disparate organizations may lead them to coalesce to launch violent attacks on the state.

Evidence from quantitative data analysis suggests that these dynamics characterize drone strikes in Pakistan. Acts of violence by militants in the country appear to be aimed at countering U.S. coercion as well as a response to the fact that individuals associated with multiple militant groups are targeted by drone strikes. Strikes that kill civilians are not associated with subsequent increases in terrorist violence in the country. This is consistent with the argument that drone strikes are sufficiently selective that they alone are not driving Pakistani citizens to lend more support to militants, at least in the short run. However, strikes that result in militant deaths do precede upticks in such violence, especially attacks on "soft" targets in major urban centers well away from the tribal areas, where the militants are targeted by drones.[38] Furthermore, the available data suggest that the organizational identity of many of the militants killed by drones cannot be reliably established, even by local reporters and nongovernmental organizations after the fact. This is consistent with the idea that the inability to systematically distinguish militants' organizational identity may be leading these organizations to more closely coordinate their subsequent attacks in Pakistan.

Furthermore, militant organizations that seek to weaken or overthrow the Pakistani government have used such strikes as a rallying cry with the goal of uniting under a single movement. Experts in the region suggest that the increased collaboration among insurgent groups is due, in part, to Pakistani military incursions into the Federally Administered Tribal Areas and U.S. drone strikes, in particular a drone strike in late 2006

[38] Gartzke and Walsh, "Drawbacks of Drones."

that targeted Ayman al-Zawahiri of Al Qaeda but instead killed members of a local insurgent group.[39] This contributed to the formation of the Pakistan Taliban and reduced the fragmentation in the overall movement by institutionalizing ties among its constituent groups, leading to the sharing of information and the coordination of attacks in Pakistan.

Al Qaeda Central has played an important role in facilitating cooperation and providing benefits to other insurgent groups. It has used its sophisticated media relations arm to publicize justifications for attacks in Pakistan, provided allied groups with expertise on how to launch attacks, especially suicide attacks, and served as a mediator among these groups, especially when they experience conflict over leadership of the larger movement.[40]

The ramping up of the drone campaign, especially from 2008 through 2011, appears to have been associated with a reduction in the fragmentation of militant organizations in Pakistan and facilitated their cooperation during this period. The long-term consequences of this development remain unclear for at least two reasons. One is the decline in the frequency of drone strikes after 2011. This may weaken incentives for

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[39] C. Christine Fair, "The Militant Challenge in Pakistan," *Asia Policy* 11, no. 1 (2011): 105–37; Imtiaz Gul, *The Most Dangerous Place: Pakistan's Lawless Frontier* (New York: Penguin, 2012); Carlotta Gall and Sabrina Tavernise, "Pakistani Taliban Are Said to Expand Alliances," *New York Times*, May 6, 2010, http://www.nytimes.com/2010/05/07/world/asia/07pstan.html?ref=world.

[40] Gul, *The Most Dangerous Place*; Don Rassler and Vahid Brown, "Al-Qaeda's Pakistan Strategy," Combating Terrorism Center, U.S. Military Academy, 2011, https://www.ctc.usma.edu/posts/al-qaida%E2%80%99s-pakistan-strategy.

different militant organizations to continue to cooperate in targeting the Pakistani state. The second is the fact that it does not appear that one of the militant organizations constituting the Pakistan Taliban has achieved a hegemonic position within this umbrella organization. As Krause's chapter discusses, a hegemonic group can sustain intermilitant cooperation over the longer run. The absence of such a hegemon among militants in Pakistan suggests they may be unlikely to mount a sustained campaign to overthrow or greatly weaken the Pakistani state.

Task Expansion

Drone technology reduces the costs of military action. On the face of it, this is a good thing for the actor initiating conflict. But, as Todd Sechser explains in his contribution to this volume, lower costs also create incentives to engage in more risky actions and/or to expand the slate of missions drones are tasked to perform. For example, drone strikes in Pakistan and elsewhere were initially limited to individual leaders of militant organizations, such as Al Qaeda, that actively targeted the United States. However, it appears that drone targets have been expanded to include both lower-level militants as well as violent groups that target primarily the local authorities. The *New York Times* reports, "For at least two 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."[41] Such an expansion of targets poses risks for the ability to effectively target members of militant organizations who aim their violence primarily against the United States. It is a good example of an attempt to implement transitive compellence, a concept developed in Keren Fraiman's chapter in this volume. Fraiman demonstrates that such coercion can be effective in altering the behavior of base states. In this case, however, the ability to coerce the militants directly with drones has made it more difficult to also push the Pakistani state to take more effective action.

Some governments that receive counterterrorism and counterinsurgency assistance have powerful incentives to exaggerate the threats they and the international community face from militants. Furthermore, actually eliminating the threat posed by such groups would undermine the rationale for foreign military and civilian funding and assistance. Such perverse incentives could lead host governments to carefully calibrate their own operations against such groups 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.[42]

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[41] Scott Shane, "White House Presses for Drone Rule Book," *New York Times*, November 25, 2012, http://www.nytimes.com/2012/11/25/world/white-house-presses-for-drone-rule-book.html.

[42] David B. Carter and Andrew Boutton, "Fair Weather Allies: Terrorism and the Allocation of United States Foreign Aid," *Journal of Conflict Resolution* 58 no. 7 (2014): 1144-1173.

Such incentives could also lead host governments to attempt to influence the pattern and target of drone strikes in ways that privilege their own interests over the interests of those conducting drone strikes. Host governments, for example, might provide intelligence on the location and activities of militants they prefer to target, while providing less intelligence on militants that are of most interest to the United States.[43] Pakistan demanded that the United States direct drone strikes not only at insurgent groups closely affiliated with Al Qaeda or the Taliban but also at groups that the Pakistani authorities viewed as enemies. The United States subsequently collaborated with the Pakistani military and intelligence services in selecting some targets and informing their Pakistani counterparts of areas where they planned to launch strikes in the near future.[44]

An active campaign of drone strikes might also lead host governments to engage in "free riding" by taking less effective actions against militants with their own forces than they might otherwise. For instance, the United States frequently suggests that

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[43] James Igoe Walsh, *International Politics of Intelligence Sharing* (New York: Columbia University Press, 2010).

[44] Ashish Sen, "Pakistan Quietly Aids Drone Attacks," *Washington Times*, September 30, 2010, http://www.washingtontimes.com/news/2010/sep/30/pakistan-quietly-aids-drone-attacks/?page=all; Adam Entous, Siobhan Gorman, and Julian E. Barnes, "U.S. Tightens Drone Rules," *Wall Street Journal*, November 11, 2011; Adam Entous, Siobhan Gorman, and Evan Perez, "U.S. Unease over Drone Strikes: Obama Administration Charts Delicate Legal Path Defending Controversial Weapons," *Wall Street Journal*, September 26, 2012; Daniel Markey, *No Exit from Pakistan: America's Tortured Relationship with Islamabad* (New York: Cambridge University Press, 2013).

Pakistan should develop and implement a comprehensive counterinsurgency program including military force, effective police and judicial services, and economic development for areas in the northwest of the country. However, such a program would be both 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 while avoiding the pitfalls associated with direct action.

Domestic Politics and the Credibility of Coercive Threats

Use of drones puts U.S. pilots and other service personnel out of harm's way. It also means that the occupation of foreign territory may not be necessary in order to wage some kinds of counterinsurgency campaigns. As discussed, there is some evidence that the U.S. public is more willing to support the use of force when it takes the form of drone strikes than of ground troops. 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 to ground forces, can be deployed relatively cheaply and easily to even minor conflicts. It is possible, then, that the U.S. 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.[45]

[45] Walsh, "Precision Weapons, Civilian Casualties, and Support for the Use of Force."

These lower costs, though, might create political and military problems for the United States. One such problem is that political leaders might come to see drone strikes as a cheap way to mollify the public's demands that they "do something" about a foreign policy crisis. If this is the case, drones could be deployed in situations where their use alone is unlikely to alter the situation on the ground in the short run in ways that favor the United States. A good example is the initial U.S. reaction to the rapid rise of the Islamic State (ISIS) militant group in Syria and Iraq. The United States was quick to deploy drones (as well as manned attack aircraft) against ISIS when it threatened to engage in civilian massacres and to take over large parts of Iraq. As this campaign developed, the United States did deploy small numbers of ground troops to train and advise Iraqi forces. But the Obama administration made clear its intention to avoid involving those troops directly in combat operations.

Indeed, the reduced costs of conflict initiation that drones permit might also render threats to escalate less credible. An important element of effective coercion is convincing the adversary that one is willing to bear large costs in order to alter behavior. Such threats to escalate the costs of conflict are often not credible, in the sense that states that are and states that are not willing to carry out such threats will issue them. Since drones impose fewer costs on the U.S. public, leaders may commit to their use in situations where the public and legislature are unwilling to support means of violence that might lead to military casualties, such as the introduction of ground troops. Adversaries that can correctly identify such situations have powerful incentives to try to ride out drone strikes in the knowledge that they do not face the risk of more direct combat if they do so.

Finally, the more widespread use of drone technology may begin to alter how Americans calculate the costs of war. As discussed, military casualties have long been a key driver of opposition to the use of force. By rendering such casualties impossible, drones may draw the public's and the media's attention to other undesirable aspects of military action. A likely candidate for greater attention is civilian casualties. The media pays far more attention to civilian harm that results from drone strikes in Pakistan or Yemen than the effects of U.S. military action on noncombatants in Afghanistan, for example. Surveys find that the public is more concerned about civilian harm when military casualties cannot occur because drones are employed. This suggests that, over time, heightened concern about civilian casualties may create a new constraint on the use of force.[46]

Summary

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 U.S. personnel in harm's way. This technology seems well-suited to effective counterinsurgency operations, which, as a large body of scholarship and recent military 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

[46] Walsh, "Precision Weapons, Civilian Casualties, and Support for the Use of Force."

limited capacity to achieve these objectives and can create problems as well as solve them. Insurgencies are adaptive organizations that change their behavior in response to drone strikes in ways that render them ineffective or even counterproductive. Militants in Pakistan, for example, have responded to drone strikes with attacks on civilian targets in the country. This increased threat to Pakistan's urban areas creates more instability in the country. It may increase popular opposition to drone strikes (although we lack high-quality data demonstrating this link conclusively). More political violence in the core of the country creates a new problem for Pakistani police and military forces. This may have delayed their willingness to accede to U.S. demands that Pakistan use force in a more sustained way against militants in the tribal areas.

Drones also have implications for the use of and effectiveness of other instruments of coercion. A key concern is that they may lead to unbalanced counterinsurgency efforts that focus primarily on drone strikes and pull attention away from other tools. The fact that drones minimize military casualties reduces this cost of conflict onset. This may make political leaders more willing to resort to drones as a seemingly quick and easy solution to political-military problems and to neglect other tools that incur more costs but that may be more likely to succeed in the long run. There is considerable evidence that military force alone is unlikely to defeat insurgents,[47] suggesting than increasingly drone-centric counterinsurgency practices could produce few successes in future campaigns.

[47] Seth Jones and Martin Libicki, *How Terrorist Groups End* (Santa Monica, CA: RAND, 2008).

Despite these limitations, drone technology seems very likely to spread within the U.S. armed forces, the armed forces of other countries, and even to insurgent organizations. Better understanding the limits of armed drones for coercion may allow their use to be more effectively integrated with other types of armed force and tools of foreign and security policy.