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ARMED DRONES AND TARGETED KILLING: POLICY IMPLICATIONS
FOR THEIR USE IN DETERRING VIOLENT EXTREMISM

by

Gary D. Rowley

Lieutenant Colonel, U.S. Army

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by

Gary D. Rowley

Lieutenant Colonel, U.S. Army

A paper submitted to the Faculty of the Joint Advanced Warfighting School in partial satisfaction of the requirements of a Master of Science Degree in Joint Campaign Planning and Strategy. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Joint Forces Staff College or the Department of Defense.

This paper is entirely my own work except as documented in footnotes. (or appropriate statement per the Academic Integrity Policy)


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Abstract

Since 2002, the United States has used armed unmanned aerial vehicles (UAV), or drones, to conduct more than five hundred and fifty lethal strikes against known and suspected militants in its Global War on Terrorism.¹ It appears that the United States' intent for these strikes, also referred to as targeted killings, is to disrupt the planning and execution of a violent extremist organization's (VEO) operations, and to deter, through punishment, other militants from using terror tactics in the future. This thesis focuses on the latter objective and investigates the utility of using drone strikes for deterrence. Through review of the available unclassified literature on the United States' armed drone program, applicable U.S. policies, and fourth wave deterrence theory, this thesis endeavors to answer two questions: can drone strikes support a larger deterrent strategy? and what policy changes are necessary to support achieving the desired effect? This thesis argues that within the United States' current counterterrorism strategy, armed drones do not provide a deterrent effect to terrorist organizations. However, if the U.S. modifies its counterterrorism policies to describe more clearly what constitutes a punishable terrorist activity, then unmanned aerial vehicles can serve as an effective tool to aid the U.S. efforts to deter the use of terrorism by violent extremist organizations against the U.S. and its allies' citizens and national interests.

¹ Bill Roggio, "Charting the data for US airstrikes in Pakistan, 2004 – 2016," *The Long War Journal*, <http://www.longwarjournal.org/pakistan-strikes/> (accessed December 31, 2016); Bill Roggio and Bob Barry, "Charting the data for US airstrikes in Yemen, 2002 – 2016," *The Long War Journal*, <http://www.longwarjournal.org/yemen-strikes> (accessed December 31, 2016).

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Dedication

I would like to dedicate this thesis to my wonderful wife and children who have endured my frustrations and hours of homework. Their love and support inspires me every day to work harder and be a better person. I look forward to our future adventures and wherever they may take us.

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Chapter 1 – Introduction

In the 2015 National Security Strategy, the President of the United States lists combating the persistent threat of terrorism as a priority issue for the United States. After more than a decade of protracted combat operations in Afghanistan, Iraq, and numerous other world-wide locations, U.S. policy is moving away from “costly, large-scale ground wars” to “pursuing a more sustainable approach that prioritizes targeted counterterrorism operations, collective action with responsible partners, and increased efforts to prevent the growth of violent extremism and radicalization that drives increased threats.”¹ One of the United States’ primary tools for “targeted counterterrorism operations” over the last fifteen years is unmanned aerial vehicles (UAV), or drones, used to execute strikes on known terrorists and individuals that support terrorism. It appears that the United States’ intent for these strikes, also referred to as targeted killings, is to disrupt the planning and execution of a violent extremist organization’s (VEO) operations, and to deter, through punishment, other militants from using terror tactics in the future.

Much of the debate surrounding drone warfare focuses on the moral, ethical, and legal aspects of its use and its effect on civilian populations. There is surprisingly little research on their effectiveness as a tool for deterring international violent extremism. Proponents of drone strikes laud its effectiveness as a low cost, low risk tool for executing precision attacks on critical leadership and the support structure of extremist organizations. Patrick Johnston and Anoop Sarbahi indicate “that drone strikes are associated with decreases in incidence and lethality of terrorist attacks, as well as

¹ U.S. President, *National Security Strategy* (Washington DC: Government Printing Office, February 2015): 9.

decreases in selective targeting of tribal elders;”² but confess that numerous variables make it impossible to prove the deterrent effect beyond a couple of weeks. Critics of drone strikes tend to argue that the legal and ethical questions, collateral civilian casualties, and the potential to flame the fires of hatred toward the United States for its perceived imperialism increase the likelihood of radicalization and continued violence.

Another issue with using drone strikes for deterrence arises from what Alex Wilner calls the “defeat-deter paradox.” The utility of drones for precision strike, or any other method, for deterrence may be pointless if the U.S. continues to maintain a policy of absolute dismantlement of any organization that practiced terrorist tactics in the past. For Wilner, unless extremist organizations are provided an opportunity to abandon terrorism and change their behavior, deterrence cannot be a viable strategy.³

This thesis investigates the utility of armed drone strikes within the United States’ current counterterrorism strategy to provide a deterrent effect to an organization’s decision to use terrorism as a tactic. Chapter 2 provides background on the evolution of the United States’ drone program from early UAVs used for target practice, to UAVs used for reconnaissance, and finally to their armed variants used to conduct lethal strikes. Chapter 3 reviews U.S. policies and international law applicable to the use of armed drones and targeted killing. Chapter 4 discusses current deterrence theories and their applications to counterterrorism and armed drone strikes. Chapter 5 reviews the arguments for and against armed drone use along with the available data on previous strikes within Pakistan and Yemen. From this information, this thesis draws conclusions

² Patrick B. Johnston and Anoop K. Sarbahi, "The Impact of US Drone Strikes on Terrorism in Pakistan," *International Studies Quarterly* 60, no. 2 (June 2016): 1.

³ Alex Wilner, "Fencing in Warfare: Threats, Punishment, and Intra-War Deterrence in Counterterrorism," *Security Studies* 22, no. 4 (October 2013): 742.

on the feasibility of using drone strikes within a deterrence strategy. Finally, it identifies and recommends changes for areas within current and previous U.S. policies to support a more effective deterrence strategy using armed drones.

In conclusion, this thesis argues that within the United States' current counterterrorism strategy, armed drones do not provide a deterrent effect to terrorist organizations. However, if the U.S. modifies its counterterrorism policies to describe more clearly what constitutes a punishable terrorist activity, then unmanned aerial vehicles can serve as an effective tool to aid the U.S. efforts to deter the use of terrorism by violent extremist organizations against the U.S. and its allies' citizens and national interests.

Chapter 2 – Rise of the Drones

The unmanned aerial vehicles (UAVs), or drones, have become iconic images of 21st century warfare and the United States' Global War on Terrorism. Hundreds, if not thousands, of different types of commercial and military drones exist today. This thesis focuses on only those used for U.S. military and intelligence gathering purposes, the most famous of which is the MQ-1 Predator. Drones come in many sizes and levels of sophistication. On the low end, the U.S. Army employs the 4.5 foot RQ-11B Raven down to the brigade level. This hand-launched craft provides the commander with an aerial reconnaissance capability to a range of 10 kilometers with as much as 1.5 hours of loiter time over its objective.¹ At the upper end of capabilities and size, the U.S. Air Force operates the 131 foot RQ-4 Global Hawk. This “high-altitude, long-endurance (HALE) unmanned aircraft...provides military field commanders with comprehensive, near real-time intelligence, surveillance, and reconnaissance (ISR) over large geographic areas.”² The Global Hawk has a range of 12,500 miles, a flight ceiling of 60,000 feet, and can remain aloft for 32 hours without refueling.³ Before the attacks on 9/11, the U.S. government spent about \$284 million a year on drones, but it is set to spend nearly \$3 billion in fiscal year 2016.⁴ This spending grew the U.S. drone inventory to more than eleven thousand craft.⁵

¹ AeroVironment, “UAS: RQ-11B Raven,” AeroVironment, <https://www.avinc.com/uas/view/raven> (accessed December 30, 2016).

² Northrop Grumman, “RQ-40 Block 30 Global Hawk,” Northrop Grumman, http://www.northropgrumman.com/Capabilities/GlobalHawk/Documents/GH_Brochure_B30.pdf (accessed December 30, 2016).

³ Ibid.

⁴ Ian G. R. Shaw, “The Rise of the Predator Empire: Tracing the History of U.S. Drones,” Understanding Empire. <https://understandingempire.wordpress.com/2-0-a-brief-history-of-u-s-drones/> (accessed December 30, 2016).

⁵ Ibid.

Pre-September 11, 2001

Though the Global War on Terror brought world-wide attention to drone usage, drones are not new to military operations. “One of the first recorded usages of drones was by Austrians on August 22, 1849. They launched some 200 pilotless balloons mounted with bombs against the city of Venice.”⁶ It was not until World War I, with the advent of radio communications and the airplane, that we start to see the true predecessors of modern day UAVs. One of the earliest known modern drones was a “de Havilland DH82B ‘Queen Bee’ biplane, which was fitted out with a radio and servo-operated controls in the back seat,” and used to train anti-aircraft gunners. “The term *drone* dates to this initial use, a play on the ‘Queen Bee’ nomenclature.”⁷ As drone development continued through the inter-war period and into World War II, weapons manufacturers began fitting them with bombs and explosives to give them a strike capability. Bombers, like the B-17, would release these “flying bombs”, which were more akin to guided missiles, near a target area, and then a pilot would remotely guide the drone to its target using a “live feed from [the drone’s] on-board television camera.”⁸ It was during the Cold War that drone development advanced to a point that made its use as an aerial reconnaissance platform a viable reality.

In 1951, the Ryan Aeronautical Company developed a new target drone for the U.S. Air Force, called the Q-2 Firebee, capable of flying up to two hours and to an altitude of 60,000 feet.⁹ Following the shoot down of Gary Powers’ U-2 spy plane in

⁶ Ibid.

⁷ Margaret Rouse, “Definition: Drone (Unmanned Aerial Vehicle, UAV),” TechTarget, <http://internetofthingsagenda.techtarget.com/definition/drone> (accessed December 30, 2016).

⁸ Shaw.

⁹ Ibid.

1960, the U.S. government pushed for alternatives to its manned reconnaissance programs. In 1962, the Ryan Aeronautical Company refitted the Firebee with aerial surveillance cameras and updated avionics to produce the Ryan 147 Lightning Bug. Specialized Lockheed DC-130 Hercules airplanes could launch as many as four Lightning Bugs that would fly a pre-programmed surveillance pattern and then deploy a parachute and await recovery by U.S. helicopters.¹⁰ “Between 1964 and 1975, more than 1,000 Lightning Bugs flew over 34,000 surveillance missions across Southeast Asia.”¹¹ The overall success of the Lightning Bugs served as justification for the continued development of drone technology that eventually resulted in the MQ-1 Predator.

The first RQ-1 Predator, built by General Atomics Aeronautical Systems, made its debut flight in June 1994 as an unarmed intelligence, surveillance, and reconnaissance (ISR) aircraft.¹² The Predator represented a significant leap in drone technology by replacing the C-band line-of-sight data links used in older model UAVs with a Ku-band SATCOM data link, meaning that drone operators could now pilot aircraft from around the world.¹³ In 1995, with the wars in the Balkans raging, the first four RQ-1 Predators deployed in support of Operation Deliberate Force and provided ISR of Christian Serbs committing genocidal atrocities on Bosnian Muslims. While the aircraft were based in Gjader, Albania, “the actual pilots for the aircraft were based in trailers in Indian Springs Air Force Base, Nevada (renamed Creech Air Force Base in 2005).”¹⁴

¹⁰ Ibid.

¹¹ Ibid.

¹² Brian Glyn Williams, *Predators: The CIA's Drone War on Al Qaeda* (Washington, D.C., University of Nebraska Press, 2013), 20.

¹³ Shaw.

¹⁴ Williams, 20.

This was the beginning of what many refer to as the *drone age*. The Predator could provide 24-hours of persistent, video and signals surveillance of an objective while simultaneously broadcasting the data to commanders in the field and policy makers in Washington, DC with zero risk to the pilot's safety. Despite its technological advances, the Predator still had room for improvements. In 1997, "they were finally fitted with radars and could allow them to see through fog and clouds."¹⁵ In 1999, the Predator's chin sensor ball was added to the aircraft. This ball added a laser designator and range finder to the aircraft and now housed two cameras.¹⁶ With their placement in the sensor ball, pilots could now reorient these two cameras to allow for 360 degree constant surveillance of a target in all environments even while maneuvering the aircraft. This included the addition of infrared capability to allow for visibility at night and within a cloud cover.

In 2000, in the wake of the USS Cole bombing and with the rising threat of Al Qaeda, the CIA and Pentagon started to seriously consider arming Predators to shorten the kill chain from sensor to shooter. With the Predator's maximum payload capacity of 175 pounds, the Air Force settled on the AGM-114 Hellfire missile. "On February 16, 2001, Predator number 3034 took off on a test flight and successfully fired its Hellfire missile at a tank. The RQ-1 Predator soon thereafter lost its *R* (reconnaissance) designation and was renamed the MQ-1 (the *M* for multi-mission) The unmanned reconnaissance drone had become a killer."¹⁷

¹⁵ Ibid., 21.

¹⁶ Ibid.

¹⁷ Ibid., 23-24.

Despite this successful proof of concept, many senior officials had grave misgivings about arming drones, particularly those flown by the CIA. Then CIA Director, George Tenet, and his Director of Operations, James Pavitt, both expressed reservations about the judicial and ethical dilemmas with CIA involvement in a program of “lethal operations against targeted individuals,” like those used by the Israelis against Hamas and Hezbollah.¹⁸ Debates over arming drones were tabled after a Cabinet meeting on September 4, 2001, where Condoleezza Rice agreed “that an armed Predator was needed, but for now the agency should only pursue reconnaissance Predator flights in Afghanistan.”¹⁹ Almost all reservations faded away only a week later in the wake of the September 11, 2001 bombings.

Post-September 11, 2001

Shortly after the attacks on September 11, 2001, President George W. Bush authorized the activation of the CIA’s armed Predator program. RQ-1 models started to arrive in Afghanistan within a week and the armed MQ-1 model arrived less than a month later, on October 7th. The President also “signed a directive that created a secret list of High Value Targets (HVTs) that the CIA was authorized to kill without further Presidential approval.”²⁰

The High Value Target (HVT) list serves as the basis for targeting in support of *personality strikes*, one of the two types of strike methodologies used by the United States. Personality strikes are attacks directed against a specific individual with identities

¹⁸ Ibid., 24-26.

¹⁹ Shaw.

²⁰ Ibid.

verified through multiple sources, including visual identification, human intelligence, and signals intelligence. One example of a personality strike is the drone strike on Qaed Senan al Harethi, the mastermind behind the Al Qaeda bombing of the USS Cole on October 12, 2000. In late 2002, U.S. intelligence services were tracking al Harethi in Yemen. The U.S. Ambassador paid local tribe members for al Harethi's movements, and he acquired the permissions from the Yemeni government to operate drones in its air space. On November 4, 2002, the National Security Agency's (NSA) "Yemen-based Cryptological Support Group tracked al Harethi down by monitoring his cell phone."²¹ An armed Predator dispatched to the location acquired positive visual identification of al Harethi as he entered an SUV and headed out into the desert. The Predator launched a Hellfire missile, striking the vehicle and killing all occupants instantly.

Personality strikes based on the HVT list continued as the only targeting method through 2007, garnering little public attention with less than five strikes per year.²² By March 2008, it was apparent that something changed. The number of drone strikes increased to one or more a month in Pakistan's Federally Administered Tribal Agencies (FATA) region. By the end of 2007, both the U.S. and Pakistani Presidents became convinced that al Qaeda and Taliban terrorist threats were increasing within the FATA region. Consequently, President Bush relaxed the CIA's targeting rules giving them permissions to conduct what became termed as *signature strikes*. Signature strikes no longer required positive identification of the target by name. The CIA could now classify

²¹ Williams, 42.

²² Bill Roggio, "Charting the data for US airstrikes in Pakistan, 2004 – 2016," *The Long War Journal*, <http://www.longwarjournal.org/pakistan-strikes/> (accessed December 31, 2016) and Bill Roggio and Bob Barry, "Charting the data for US airstrikes in Yemen, 2002 – 2016," *The Long War Journal*, <http://www.longwarjournal.org/yemen-strikes> (accessed December 31, 2016).

targets as terrorists based on their activities and “pattern-of-life analysis.”²³ Targeting, previously limited to high ranking members of terrorist organizations, expanded to include lower-level militants and support personnel. This relaxation of the targeting criteria immediately increased the number of drone strikes by seven-fold in 2008 compared to the previous year. Under President Barack Obama, these numbers continued to increase until reaching their peak in 2010 with 117 strikes in Pakistan alone.²⁴

2011 saw the first decrease in drone strikes (down to 64 in Pakistan) since their initiation in 2002. Brian Williams attributes this decline to four events that significantly strained U.S.-Pakistan relations and resulted in multiple moratoriums on drone strikes for various lengths of time. These incidents included the Pakistani arrest of CIA contractor Raymond Davis, the Navy Seal’s raid on bin Laden’s compound, and a friendly fire incident between U.S. and Pakistani forces along the Afghan-Pakistani border that resulted in the death of twenty-four Pakistani Soldiers.²⁵ However, the incident with the most lasting impact on drone operations occurred on March 17, 2011 when the CIA conducted a drone strike that “killed between twenty-six and forty-four people in Datta Khel, a Taliban-controlled village in North Waziristan.”²⁶ Datta Khel was the site of a meeting officiated by a high-ranking Taliban commander to adjudicate a disagreement between two tribes over mining rights. In addition to the Taliban commander, numerous tribal elders and merchants from the surrounding villages were in attendance when two drones fired as many as seven missiles into the meeting and vehicles that attempted to

²³ Williams, 67-68.

²⁴ Bill Roggio, “Charting the data for US airstrikes in Pakistan, 2004 – 2016,” *The Long War Journal*, <http://www.longwarjournal.org/pakistan-strikes/> (accessed December 31, 2016).

²⁵ Williams, 154-155.

²⁶ *Ibid.*, 124.

flee the area. Though U.S. sources claimed that all the victims were Taliban militants, other news sources reported that at least fifteen of those killed were civilians.²⁷

In the wake of the Datta Khel incident, President Obama called for internal discussions about the usefulness of signature strikes and their potential for unintended collateral damage. Despite indications that these discussions resulted in more stringent rules of engagement for drone strikes (there are no known unclassified official documents available), the total number of drone strikes in Pakistan and Yemen increased from seventy-four in 2011 to eighty-five in 2012.²⁸ Numbers of drone strikes did not significantly drop until 2013, when President Obama published his Presidential Policy Guidance (PPG) for direct action against terrorist targets. This document, discussed in Chapter 3, is the first publicly acknowledged document providing guidance for the nomination, approval, and review of operations involving the capture or targeted killing of suspected terrorist targets.²⁹

²⁷ Ibid., 124-125.

²⁸ Williams, 124-125; Roggio, “Charting the data for US airstrikes in Pakistan, 2004 – 2016;” Roggio and Barry, “Charting the data for US airstrikes in Yemen, 2002 – 2016.”

²⁹ U.S. President, Policy Guidance Memorandum, “Procedures for Approving Direct Action Against Terrorist Targets Located Outside the United States and Areas of Active Hostilities,” (May 22, 2013). <https://www.aclu.org/foia-document/presidential-policy-guidance?redirect=node/58033> (accessed October 14, 2016); The White House, “U.S. Policy Standards and Procedures for the Use of Force in Counterterrorism Operations Outside the United States and Areas of Active Hostilities,” WhiteHouse.gov (May 23, 2013).

Chapter 3 – Deterrence Theory

An analysis of armed drone usage for deterring violent extremist organizations first requires an understanding of the current, fourth wave of deterrence theory. Evaluation of the body of work reveals a continuing theme that while deterring terrorism is theoretically possible, its application is extremely challenging. Scholars tend to agree that unlike previous waves of deterrence theory that grew out of Cold War nuclear deterrence, fourth wave deterrence theory must accept a broader range of acceptable outcomes and will not provide a stand-alone solution for dealing with violent extremism. This chapter provides an overview of fourth wave deterrence theory and its applicability to targeted killing and armed drone strikes. It describes deterrence and its key elements, how fourth wave deterrence theory expanded upon Cold War thinking, and the different deterrence strategies that scholars present.

What is Deterrence?

Thomas Schelling defines deterrence as “persuading a potential enemy that he should in his own interest avoid a certain course of activity.”¹ By its very nature, deterrence attempts to convince an adversary that the cost of an action will outweigh the benefit and therefore to not commit the act in the first place. This differs from compellence, which attempts to convince an adversary to take a specific action or discontinue an action he is currently taking. Another difference is that deterrence remains a passive measure until it fails, whereas compellence is active. For example, a defender could deter an adversary from invading its territory by threatening to retaliate by

¹ Thomas C. Schelling, *The Strategy of Conflict* (Cambridge: Harvard University Press, 1960), 9.

bombing the invader's capital city. Similarly, the defender could compel an invading adversary by bombing the adversary's capital city until its armies cease fire and return to their own country. In the first example the defender does not have to take any action, whereas in the second, he must attack the adversary's capital until he complies.

At its very core, successful deterrence is about sending and receiving a message about desired behavior and consequences. Alex Wilner describes four elements that are essential for ensuring effective deterrence: "a defender must (i) clearly define the behavior considered unacceptable, (ii) communicate a willingness to punish violations; (iii) retain the coercive capability to do so; and (iv) demonstrate resolve to punish another if, and when, compliance is not met."² In light of previous strategy for combating violent extremism, political rhetoric, and the readiness of military forces, one could argue that the U.S. has not presented a viable deterrent to violent extremism that meets all four criteria. The frequent and haphazard use of the word terrorism to describe most violent attacks on civilians muddles the United States' message of what threshold of violence it is trying to deter. Additionally, the U.S. withdrawal of forces from Iraq and Afghanistan, its reduction of military forces, and its unwillingness to respond to extremist behavior in Syria provide justification for an adversary to question the nation's willingness, capability, and resolve to follow through with deterrence threats.

Fourth Wave of Deterrence Research

Understandably, the development of deterrence theory during the Cold War focused on preventing the use of nuclear weapons. Jeffery Knopf describes the previous

² Alex S. Wilner, "Targeted Killings in Afghanistan: Measuring Coercion and Deterrence in Counterterrorism and Counterinsurgency," *Studies in Conflict & Terrorism* 33, no. 4 (April 2010): 314.

three waves of research as (1) responding to the invention of nuclear weapons, (2) the application of game theory to understand how other nations will react to deterrent strategies, and (3) the use of “statistical and case-study methods to empirically test deterrence theory.”³ In their writings, Wilner, Matthew Kroenig, and Barry Pavel, explain how the fourth wave of research expands upon this previous work and its key differences.

The first major change from Cold War deterrence is the expansion of how theory views the adversary. Kroenig and Pavel explain this simply as an expansion from one adversary, the Soviet Union, to multiple adversaries in the War on Terror.⁴ The addition of other actors makes the calculus of a strategy more difficult because of how a deterrent may affect the various adversaries differently. Wilner expands upon the increased complexity when he talks about the “greater attention on the individual actors and sub-groups that constitute or support militant organizations, along with the individual processes involved in orchestrating terrorism.”⁵ By sub-dividing terrorist organizations into smaller elements and processes, Wilner suggests that there is a greater chance of achieving deterrent effects by focusing on specific parts of the organization that influence the overall organization. For example, if the U.S. can deter financiers from supporting terrorist organizations through threats of punishment, then this affects the larger organization’s ability to conduct operations.

³ Jeffrey W. Knopf, "The Fourth Wave in Deterrence Research," *Contemporary Security Policy* 31, no. 1 (April 2010): 1.

⁴ Matthew Kroenig and Barry Pavel, "How to Deter Terrorism," *Washington Quarterly* 35, no. 2 (Spring 2012): 23.

⁵ Alex Wilner, "Contemporary Deterrence Theory and Counterterrorism: A Bridge Too Far?," *New York University Journal of International Law & Politics* 47, no. 2 (January 2015): 446.

The second change is that practitioners can no longer view deterrence as a binary equation that results in success or failure, but must accept a graduated scale of success.⁶ Knopf supports this broadened view, pointing out that “although any deterrence failure would have terrible consequences for some people, for the United States and most other countries, national survival is not at risk.... Today, the key question is whether deterrence can make a positive contribution at the margins.”⁷

Finally, Wilner points out that as a product of the increased complexities associated with modern deterrence adversaries, there is a significant increase in the number and variety of deterrent processes.⁸ During the Cold War, strategies were typically viewed in terms of deterrence by punishment or denial. Current theory expands the variety of strategies to include direct and indirect deterrence, cumulative deterrence, intra-war deterrence, and deterrence by delegitimization. The next section briefly explains these deterrence strategies and their applicability to targeted killing with armed drones.

Deterrence Strategies for Counterterrorism

In fourth wave deterrence research, all deterrence strategies stem from either direct deterrence or indirect deterrence, depending on the audience that the defender is trying to influence. Direct deterrence focuses on the specific adversary (i.e. the violent extremist) that a defender wants to influence. During the Cold War, the interactions between nation states to deter nuclear aggression focused deterrence theorists on this direct approach to

⁶ Kroenig and Pavel, 24.

⁷ Knopf, 4.

⁸ Wilner, "Contemporary Deterrence Theory and Counterterrorism," 448.

deterrence; however, as shown earlier, the complexity of terrorist organizations required fourth wave theorists to look at their adversaries as systems-of-systems rather than one monolithic entity. By identifying sub-components of terrorist organizations that influence its whole, theorists now envision opportunities to use indirect approaches for deterrence. In contrast to direct deterrence, indirect deterrence focuses its influence on supporting entities valued by the primary adversary (i.e. financiers and governments that provide a safe haven). If deterrence can influence these other actors to not support a terrorist organization, then the loss of necessary resources can indirectly deter a terrorist's operations.⁹

Deterrence by punishment is the most common and widely understood deterrence strategy – it is a simple threat of retaliation directed at an adversary for violating acceptable standards. During the Cold War, threats of punishment by mutual assured destruction may have kept the Soviet Union and other nuclear capable nations from serious consideration of their use. In an asymmetric fight, the value of deterrence by punishment becomes questionable. Punishment may be counterproductive when terrorists commit violent acts in hopes of eliciting a heavy-handed governmental response to support their argument of tyranny and corruption. In these cases, deterrence by punishment supports a terrorist organization's strategic goals. Conversely, Uri Fisher and others might argue that if threats of punishment fail, then the punishment was not great enough to overcome the adversary's cost-benefit analysis. Therefore, a defender must be

⁹ Knopf, 10-11.

willing to apply even greater threats of harm or reorient his threats on an object of greater value to the adversary.¹⁰

Since threats of punishment are often difficult to enforce with non-state actors that are not easily located, other theorists advocate using a deterrence by denial strategy. Wilner describes the target of denial strategies as “the payoff or gains a challenger expects to achieve with an unwanted action.”¹¹ Kroenig and Pavel further refine this strategy into tactical denial, which focuses on “denying terrorists the ability to successfully conduct an attack,” and strategic denial, which “threatens to deny terrorists strategic benefits, even in the face of successful terrorist attacks.”¹² Some common examples of denial strategies include increasing homeland security measures and disaster response measures that mitigate the effects of an attack. One could argue that these are defensive measures, rather than deterrents, because they focus on responding to an active threat. Both arguments are correct. These measures provide defensive readiness by preparing to respond to an attack, if it happens, and they provide deterrence by sending a message of strength and resolve that may cause an attacker to question his probability of operational success and achieving his strategic objectives. A better example of strategic denial may be Washington’s continued work “with mainstream Muslim clerics to point out that suicide is contrary to Islamic teachings.”¹³ In this way, the U.S. government attempts to indirectly deny terrorist organizations by affecting the cost-benefit equation of potential bombers if they believe that suicide is sinful.

¹⁰ Uri Fisher, “Deterrence, Terrorism, and American Values,” *Homeland Security Affairs* 3, Article 4 (February 2007). <https://www.hsaj.org/articles/152> (accessed October 12, 2016).

¹¹ Alex Wilner, “Fencing in Warfare: Threats, Punishment, and Intra-War Deterrence in Counterterrorism,” *Security Studies* 22, no. 4 (October 2013): 746.

¹² Kroenig and Pavel, 27-31.

¹³ *Ibid.*, 32.

Another strategy that originates with Israeli deterrence activities and proposed by Doron Almog is the controversial cumulative deterrence strategy.¹⁴ Wilner describes cumulative deterrence as occurring between adversaries “within enduring, iterated, and protracted conflicts” where the objective “is to bank previous military and counterterrorism successes figuratively, ... and use that accumulated wealth of strategic might to persuade an organization that further violence is altogether futile.”¹⁵ Opponents of this strategy, like Martha Crenshaw, argue that this is coercion rather than deterrence. As she states, “deterrence by retaliation involves a threat from the defender to do something new, not to continue a course of action. The defender does not say ‘we will keep hitting you over the head with this hammer so you don’t even think of attacking us’ but rather ‘we are not hitting you now but will hit you really hard later if you cross this line.’”¹⁶ This argument, however, assumes that punishments are directed at deterring the offender of the violation. Alternatively, repeated and consistent punishment may communicate the capacity and resolve necessary to deter another adversary that might consider a similar violation.

The last two deterrence strategies presented by Wilner, deterrence by delegitimization and intra-war deterrence, receive much less acknowledgement throughout the community of deterrence scholars. One could consider these as sub-sets of previously mentioned strategies. “Deterrence by delegitimization attempts to change an adversary’s behavior by manipulating the rationales and justifications that inform its

¹⁴ Knopf, 14.

¹⁵ Wilner, “Contemporary Deterrence Theory and Counterterrorism,” 450.

¹⁶ Martha Crenshaw, “Will Threats Deter Nuclear Terrorism?,” in *Deterring Terrorism: Theory and Practice*, ed. Andreas Wenger and Alex Wilner (Stanford, California: Stanford Security Studies, an imprint of Stanford University Press, 2012), 143.

preferences.”¹⁷ With respect to Islamic extremism, goals of this strategy might include denouncement of extremist religious interpretations by more conservative and mainstream clerics and attempts to separate extremists from the population by highlighting violent behavior directed within their own community. Finally, intra-war deterrence is the application of deterrence strategies in conjunction with conventional military strategies within the context of the same conflict.¹⁸

Considering the different strategies presented here, the lethality of drone strikes and targeted killing clearly places them within the strategy of deterrence by punishment, either directly or indirectly. One might argue that deterrence by denial may apply if drone strikes target resources necessary for a violent extremist organization’s success, but this still requires a direct threat of punishment against a necessary sub-component of the organization. If one accepts the validity of cumulative deterrence, then repeated drone strikes against terrorist leaders may achieve a deterrent effect over time by deterring others from stepping into leadership roles or by convincing new leaders that the risk of using terror tactics outweighs the benefits.

The intent of this analysis is not to draw conclusions as to the effectiveness of the U.S. drone strike program in past or future deterrence efforts (see chapter 5 for that discussion). Rather, it simply highlights how these strikes fit into deterrence theory. It is also not the intent of this analysis to suggest that any particular strategy is best suited for deterring terrorism. One thing that does appear certain is that deterrence cannot be the sole strategy for combating terrorism and violent extremism. Combating these threats will require the integration of deterrence strategies with conventional operations,

¹⁷ Wilner, "Contemporary Deterrence Theory and Counterterrorism," 449.

¹⁸ Ibid.

diplomacy, and incentives for extremist organizations to utilize legitimate avenues for addressing their strategic goals.

Chapter 4 – U.S. Policy for Drone Strikes

In researching United States policy on the employment of drones to combat violent extremism, it is unsurprising to discover that the U.S. government does not have any publicly acknowledged policies or guidance that specifically address this topic. Like manned aircraft and cruise missiles, drones are merely a tool to execute a specific task or mission. To begin understanding that mission and the rules that govern the use of drones in its execution, a person must look at national strategy, international law, and Presidential guidance. This chapter provides an overview of the relevant portions of those items and presents some of the scholarly views with regards to its implementation.

National Strategy

The United States' National Security Strategy (NSS) and National Military Strategy (NMS) provide the starting point to understand the mission and use of armed drones. One year after the September 11th attacks, President George W. Bush stated in the 2002 NSS that “we will disrupt and destroy terrorist organizations by...direct and continuous action using all the elements of national and international power.”¹ He continued this stance in the 2006 NSS describing “the way ahead” as a “fight [that] involves using military force and other instruments of national power to kill or capture the terrorists, deny them safe haven or control of any nation; prevent them from gaining access to weapons of mass destruction (WMD); and cut of their sources of support.”² Under President Obama, the 2010 NSS continued to state the goal to “disrupt, dismantle,

¹ U.S. President, *The National Security Strategy of the United States* (Washington DC: Government Printing Office, September 2002), 6.

² U.S. President, *The National Security Strategy of the United States* (Washington DC: Government Printing Office, March 2006), 9.

and defeat Al-Qa'ida and its violent extremist affiliates;” however, less emphasis was placed on the military to accomplish the mission. In fact, the 2010 NSS specifically addressed the danger of the military’s “overuse” and its being “overstretched,” signaling a move away from the use of conventional forces and towards alternative means (i.e. armed drones) to accomplish the mission.³ The most recent NSS continues to stress a shift from conventional to less costly means to conduct “targeted counterterrorism operations.”⁴ It is only in the 2015 National Military Strategy that we continue to see the objective to “disrupt, degrade, and defeat violent extremist organizations.”⁵

International Law

The legality of targeted killing, by drone or other means, under international law is a highly debated subject and beyond the scope of this thesis. The U.S. government, however, stands by its assertion that it is well within its legal rights to execute these operations. The two key pieces of law in question are international humanitarian law (IHL) and international human rights law (IHRL).⁶

International humanitarian law (IHL) applies to situations involving armed conflict. Per a 2016 RAND study, the threshold for armed conflict “involves ‘violence reaching a minimum level of intensity and duration’ (meaning, more than isolated attacks), and in the cases of conflicts involving nonstate actors, . . . those actors are

³ U.S. President, *National Security Strategy* (Washington DC: Government Printing Office, May 2010), 18-19.

⁴ U.S. President, *National Security Strategy* (Washington DC: Government Printing Office, February 2015), 9.

⁵ Chairman, U.S. Joint Chiefs of Staff, *The National Military Strategy of the United States of America* (Washington DC: Government Printing Office, June 2015), 5.

⁶ Lynn E. Davis, Michael J. McNerney, and Michael D. Greenberg, *Clarifying the Rules for Targeted Killing: An Analytical Framework for Policies Involving Long-Range Armed Drones* (Santa Monica, CA: RAND Corporation, 2016), 4.

‘sufficiently identifiable and organized.’”⁷ Under the rules of IHL, a determination to conduct a drone strike requires the application of the principles of distinction, proportionality, humanity, and military necessity, as it would in any other type of combat operation. These principles help to reduce unnecessary harm to non-combatants and differentiate between valid combat operations and terrorism.⁸ Though there is little available documentation to support how the U.S. government justified its past strikes, it appears that the rules of IHL support most, if not all, operations in Afghanistan and Pakistan. The intensity, and now duration, of violent conflict between the U.S. and Al Qaeda, the Taliban, and their affiliates provides a basis for viewing these strikes as part of an armed conflict and thus under the IHL rules.

“International Human Rights Law (IHRL)...governs the extraterritorial use of force by a sovereign state even in the absence of an armed conflict.”⁹ Under IHRL, the principles of proportionality and necessity from IHL continue to apply, but at a more restrictive level. Additionally, IHRL adds the principle of imminence, requiring that a violent threat is “both immediate and unavoidable”. Consequently, action under IHRL is only justifiable “when there is no alternative for preventing a threat to life.”¹⁰ Though justification for a drone strike outside of armed conflict is possible, the more restrictive nature of IHRL makes their use under these rules more difficult and less likely.

Signature strikes are a concern under both IHL and IHRL and represent one of the most significant criticisms of the United States’ drone program. Since these strikes are based on patterns of behavior, rather than individual identities (as is the case with

⁷ Ibid., 4.

⁸ Ibid., 5.

⁹ Ibid., 7.

¹⁰ Ibid., 9.

personality strikes that target specific high value targets), questions arise with regards to the application of distinction, proportionality, and military necessity. With regards to distinction, the fact that terrorists typically do not wear uniforms, or any other identifying insignia, makes it challenging to distinguish between legitimate militant targets and the civilian population in which they hide. Additionally, signature strikes tend to focus more on lower level militants such as foot-soldiers, bomb-makers, and other support personnel, which brings the principles of proportionality and military necessity into question. Combined with the distinction challenges, one must question if the value of killing these lower level militants meets the threshold necessary to justify the action under international law, balanced against the risks of collateral damage and civilian deaths.

Presidential Policy Guidance

For the first decade of armed drone usage, clear policy for its application was either non-existent or highly classified. President Obama's remarks during a speech on May 23, 2013 at the National Defense University support this belief when he said, "over the last four years, my administration has worked vigorously to establish a framework that governs our use of force against terrorists – insisting upon clear guidelines, oversight and accountability that is now codified in Presidential Policy Guidance that I signed yesterday."¹¹ The White House released a three-page overview of this document the

¹¹ President Barack Obama, "Obama's Speech on Drone Policy," *The New York Times*. <http://www.nytimes.com/2013/05/24/us/politics/transcript-of-obamas-speech-on-drone-policy.html> (accessed January 1, 2017.)

same day; however, the full 18-page President's Policy Guidance (PPG) remained top secret until August 6, 2016, when a lawsuit by the ACLU led to its declassification.¹²

The PPG, titled "Procedures for Approving Direct Action Against Terrorist Targets Located Outside the United States and Areas of Active Hostilities," provides specific guidance with regards to captured terrorists, the use of lethal force, the coordination and review process, and congressional notification.¹³ Though capture operations are outside the scope of this thesis, it is notable that the PPG strongly emphasizes a preference to capture terrorists to support greater opportunities for intelligence exploitation.

With regards to targeted killing, using armed drones or other means, the PPG separates the guidance into three categories: identified high value targets (HVTs), terrorists other than HVTs, and targets not directly addressed in the PPG. In all cases, the PPG requires the following criteria prior to the use of lethal force:

- (a) near certainty that an identified HVT [or other lawful target] is present;
- (b) near certainty that non-combatants will not be injured or killed; (c) [redacted];
- (d) an assessment that capture is not feasible at the time of the operation;
- (e) an assessment that the relevant governmental authorities in the country where action is contemplated cannot or will not effectively address the threat to U.S. persons; and
- (f) an assessment that no other reasonable alternative to lethal action exists to effectively address the threat to U.S. persons.¹⁴

The next portion of the PPG explains the interagency nomination and review process for all lethal actions. To begin, the nominating department or agency must prepare a targeting approval packet that includes a legal review by the nominating

¹² Kevin Bohn, "Newly released US drone policy explains how targets can be chosen," CNN. <http://www.cnn.com/2016/08/06/politics/obama-administration-drone-policy/> (accessed October 14, 2016).

¹³ U.S. President, Policy Guidance Memorandum, "Procedures for Approving Direct Action Against Terrorist Targets Located Outside the United States and Areas of Active Hostilities," (May 22, 2013), 1-18;

¹⁴ *Ibid.*, 11.

agency's general counsel. Once prepared, the nominating agency submits the packet to the National Security Staff (NSS) to receive another legal review by its general counsel before presentation to the Restricted Counterterrorism Security Group (RCSG). The RCSG reviews the nomination packets ensuring that it meets all necessary criteria and addresses any outstanding questions prior to submission for consideration by the Deputies Committee. If approved by this committee, the nominating agency's deputy presents the nomination packet to the President and/or the Principle of the nominating agency for approval. Under specific conditions, the President has authorized Principles to approve lethal action if there is no disagreement and that the Deputy National Security Advisor notifies the President of the approval.¹⁵

Finally, the PPG prescribes procedures for producing after action reports and notifying appropriate members of congress of these types of operations. Nominating agencies must submit after action reports to the NSS within 48-hours of an operation. These reports provide a summary of the operation and its outcome along with assessments of collateral damage and numbers of killed and wounded (both combatant and non-combatant). Additionally, the PPG prescribes that appropriate members of Congress receive notification of any planned operations, the outcome of those operations, and quarterly updates on approved HVTs.¹⁶

¹⁵ Ibid., 11-14.

¹⁶ Ibid., 17-18.

Chapter 5 – Analysis of Drone Strikes

Any research into the use of drones for targeted killing immediately shows a wide range of opinions as to both its effectiveness and usefulness. This chapter attempts to present the more significant arguments and make an analysis of their influence on the potential for using drone strikes as a deterrent for violent extremism. It is important to note, that for the past fifteen years the United States used armed drones, primarily, to disrupt and defeat al Qaeda and its affiliates. However, an analysis of their past usage and the concerns surrounding it can provide insights into what deterrent value drones may provide and U.S. policy changes necessary to support their usage for deterrence.

The Pros and Cons of Drones

Many scholars provide commentary on both the positive and negative points of armed drone use in the War on Terrorism. This section provides a brief synopsis of the more prominent points for each side's arguments and presents counter-arguments where available.

The most obvious advantage of armed drones is the reduced cost in blood and treasure that these machines provide. Significantly cheaper to fly and maintain than conventional aircraft, drones provide zero risk of U.S. casualties. Additionally, one of the drone's greatest advantages is its unique ability to loiter over a target area for extremely long periods of time compared to conventional manned reconnaissance craft. Per specifications provided by General Atomics Aeronautical Systems, the MQ-9 Reaper has a maximum flight endurance of 27-hours without external fuel pods.¹ This ability to

¹ General Atomics Aeronautical Systems, Inc., "MQ-9 Reaper/Predator B," General Atomics Aeronautical Systems, Inc. <http://www.ga->

persist on station allows U.S. drone operators to apply due diligence in target identification and wait for the most opportune moment to strike and avoid unnecessary collateral damage. In fact, unlike many other conventional munitions and cruise missiles, “drone-fired missiles can be – and have been – diverted at the last moment if noncombatants enter the likely blast radius.”² The essential point for supporters is that when it comes to finding, tracking, and eliminating a target, “nobody does it better” than armed drones.³ Drones are simply less expensive, invasive, and destructive than alternate options like cruise missiles or ground assaults by armed forces.

Despite strong support for the technological advantages that drones provide over other means of prosecuting targets, critics of drone strikes provide some strong points that the United States must address if it wishes to use threats of drone strikes as a deterrent in the future. Audrey Cronin argues that armed drones “are not helping to defeat al Qaeda, and they may be creating sworn enemies out of a sea of local insurgents.”⁴ Though she concedes that targeted killings can, and have had, some positive effects, she argues that al Qaeda’s continued existence after more than 15 years of war is proof of the ineffectiveness of this tactic. In fact, al Qaeda and other terrorist organizations have used “footage of drone strikes [to portray] them as [acts of] indiscriminate violence against Muslims.”⁵ Additionally, the lack of reliable casualty data, the secrecy surrounding the U.S. drone policy (prior to its public release on August

asi.com/Websites/gaasi/images/products/aircraft_systems/pdf/MQ9%20Reaper_Predator_B_032515.pdf (accessed January 3, 2017).

² Micah Zenko, *Reforming U.S. Drone Strike Policies*, (New York, NY: Council on Foreign Relations, 2013), 6.

³ Daniel Byman, "Why Drones Work: The Case for Washington's Weapon of Choice," *Foreign Affairs* 92, no. 4 (July 2013): 33.

⁴ Audrey Kurth Cronin, "Why Drones Fail," *Foreign Affairs* 92, no. 4 (July 2013): 44.

⁵ *Ibid.*, 46.

6, 2016), and questionable legal justification for targeted killings exacerbated negative public opinion.

Cronin supports her argument that drone strikes foster more terrorism with several points. First, she provides the example of Faisal Shahzad. After a failed attempt to explode a bomb in Times Square and his capture, Shahzad claimed that the U.S. policy of drone strikes was a motivation for his actions.⁶ Next, she provides data from a 2012 Pew survey that shows that the average disapproval rate for U.S. drone strikes is 85% within Muslim-majority countries (Turkey, Jordan, and Egypt).⁷ Finally, Cronin argues that over the long term, drone strikes led to the dispersion and decentralization of terror organizations to ensure their own security, speeding up the world-wide expansion of extremism.⁸

In contrast to Cronin's arguments and the example provided with Faisal Shahzad, others provide more positive views of drone strikes and their effects. Brian Williams provides a quote from a Pakistani man, named Hamood, saying, "drone attacks may be wrong, but they are effective and precise compared to full-fledged army onslaught which normally has more collateral damage."⁹ In his book *Predators*, Williams' provides numerous other examples, as well, of Pakistani locals supporting both sides of the drone argument. Perhaps his most valuable observation was made following a 2010 research trip. "Although many Pakistanis supported the killing of terrorists – just so long as it was

⁶ Ibid., 49.

⁷ Ibid., 49-50.

⁸ Ibid., 50-51.

⁹ Brian Glyn Williams, *Predators: The CIA's Drone War on Al Qaeda* (Washington, D.C.: University of Nebraska Press, 2013), 174-175.

done cleanly – they felt that there was no such thing as an ‘acceptable’ number of civilians being killed in the process.”¹⁰

Empirical Data

As a result of the highly classified nature of the U.S. drone strike program, the lack of empirical data on its effectiveness is unsurprising. What data is available is based on the aggregation of press reports from regional and international news agencies. *The Bureau of Investigative Journalism* and *The Long War Journal* serve as two of the most reputable sources of information frequently cited by scholars. Though there are some deviations in the numbers of strikes and casualties reported by these two sources, most scholars consider their deviation to occur within an acceptable range.

Figure 5 and Figure 6 in appendix 2 (pages 49-50) provide information from *The Long War Journal* on the number of U.S. airstrikes from 2004-2016 in Pakistan and Yemen, respectively. This data shows its first significant increase in 2008, when drone strikes in Pakistan increased seven-fold because of the initiation of signature strikes. Drone strikes reached their peak level in 2010 with 121 total strikes between the two countries. Since then, annual strikes continued to drop to a low of thirty-four in both 2015 and 2016.¹¹

Figure 7 and Figure 8 (pages 51-52) provide information from *The Long War Journal* on the number of civilian and terrorist casualties caused by drone strikes from

¹⁰ Ibid., 206.

¹¹ Bill Roggio, “Charting the data for US airstrikes in Pakistan, 2004 – 2016,” *The Long War Journal*, <http://www.longwarjournal.org/pakistan-strikes/> (accessed December 31, 2016); Bill Roggio and Bob Barry, “Charting the data for US airstrikes in Yemen, 2002 – 2016,” *The Long War Journal*, <http://www.longwarjournal.org/yemen-strikes> (accessed December 31, 2016).

2004-2016 in Pakistan and Yemen, respectively. This data does not provide any clear pattern that supports a correlation between total number of strikes and civilian and militant casualties. However, by combining the data from Figure 5 through Figure 8, Figure 9 (page 53) does show an average civilian casualty rate of 6.8% across the 553 recorded strikes. Though the lack of strike specific data prevents an analysis of civilian casualty rates for signature strikes versus personality strikes, data between 2008 and 2013, when the U.S. more regularly used signature strikes, shows some of the highest civilian casualties of the entire period. It is also possible that civilian casualties are much higher than those reported here. Though *The Long War Journal* attempts to corroborate its data across multiple sources, it is difficult to confirm the exact number of civilian casualties due to disagreements over how casualties are designated as a militant vice a civilian. Daniel Byman states it best saying, “the truth is that all the public numbers are unreliable, [because] who constitutes a civilian is often unclear,” and subject to disagreement based on definitions.¹²

Figure 10 (page 53) provides data from the Global Terrorism Database (GTD) on the number of terrorist incidents perpetrated by four of the primary extremist organizations targeted by U.S. drone strikes in Pakistan and Yemen. Its purpose is to identify any correlation between terrorist incidents and drone strikes recorded in the previous figures. Apart from Al-Qaida in the Arabian Peninsula (AQAP), the other data appears to indicate that drone strikes had a positive effect on the deterrence or disruption of these organizations. Though there is no definitive evidence to explain the drastic increase in AQAP attacks starting in 2010, one might suspect that the higher rates of

¹² Byman, 36.

civilian casualties in 2009 and 2010 (74.5% and 37.5%, respectively, in Yemen) may have influenced its increase. However, the remainder of the evidence makes this conclusion suspect. If terrorist incidents are linked to civilian casualties from drone strikes, then an analysis of the data should show incident levels adjusting with civilian casualty levels. An analysis of AQAP incidents versus strikes in Yemen and militant casualties shows a similar lack of correlation between the events, making it difficult to draw any clear conclusions from the data about the effects of drone strikes.

Overall, the small amount of available empirical data does not lead to any solid conclusions. Based on the increased percentages of casualties between 2009 and 2013, one could conclude that signature strikes lead to increased casualties. Although this appears evident based on the targeting model alone, the casualty data seems to support this conclusion as well. Without additional data that links the type of targeting with its outcome, one cannot draw more definitive conclusions.

Feasibility of Using Drone Strikes for Deterrence

The research for this thesis began with one simple question; can armed drones deter violent extremism? If a person evaluates this question using Wilner's four elements of a successful deterrence strategy (see Chapter 3 – Deterrence Theory What is Deterrence?), then the answer is also simple. Armed drones, by themselves, are not a deterrent for violent extremism, just as nuclear weapons are not a deterrent for attacks on the United States. These are merely tools used in a deterrence by punishment strategy. The better question is: can a nation deter the use of terrorism tactics by violent extremists by employing a strategy that uses armed drones to threaten punishment by the targeted

killing of key adversaries? This question does not intend to infer that this is the only, or even a good, strategy to deter the use of terrorism. Rather, it seeks to limit the scope of the question to the use of armed drones. The answer to this question is the subject of some debate and depends on how the person making the argument frames their understanding of the environment and the problem.

Charles Kirchofer argues that “targeted killings are by their nature provocative and therefore always compelling rather than deterrent.”¹³ This argument assumes a direct deterrence approach where the target audience is an adversary that is already involved in terrorist activities. From this perspective, the purpose of drone strikes is to compel the adversary to discontinue their use of terror tactics. The flaw in this perspective is that it assumes a binary system that only includes an adversary and a defender, versus recognizing a complex system that may include multiple adversaries and the potential for anybody to become an adversary in the future. This binary view of deterrence is a remnant of Cold War deterrence theories in which the limited number of nuclear capable states enabled a simple system analysis.

When applying deterrence theory against terrorism and violent extremism, the system becomes extremely complex. Unlike nuclear or conventional military attacks that are available to a limited number of adversaries, terrorism is low cost and available to an unlimited number of potential adversaries. Within this complex system, one finds multiple disconnected adversaries and an unlimited number of neutral actors that may interact with or become adversaries themselves.

¹³ Charles Kirchofer, "Targeted Killings and Compellence: Lessons from the Campaign against Hamas in the Second Intifada," *Perspectives on Terrorism* 10, no. 3 (June 2016): 19.

The acceptance of this complex system, along with the challenges and opportunities it presents, leads to the indirect approach as a method to achieve some level of deterrence. Wilner argues that targeted killings (by drones or other methods) “degrade terrorist capabilities by removing individuals who play important organizational roles,” and that “targeted leadership strikes might also influence a surviving militant’s motivation and confidence while weakening the group’s ability to attract and retain new recruits.”¹⁴ Wilner’s arguments present the potential for armed drones to provide both direct effects on an extremist’s capability to execute acts of terror and indirect effects by deterring other extremists from using terrorism in the future.

Some research attempts to identify the effects of drone strikes; however, the inability to verify a deterrence measure’s effect on an adversary’s motivations makes it impossible to prove or disprove any deterrence measure’s effectiveness.¹⁵ Consequently, it is impossible to know how often swift punishment from one deterrence failure leads to successful deterrence of another person or group considering the use of terrorism tactics. By considering the potential for deterrence within the framework of a complex system and using an indirect approach, it is plausible that a nation could deter the use of terrorism by employing a strategy that uses armed drones to threaten punishment by the targeted killing of key adversaries. Though drone strikes are a feasible deterrent to

¹⁴ Alex Wilner, "Fencing in Warfare: Threats, Punishment, and Intra-War Deterrence in Counterterrorism," *Security Studies* 22, no. 4 (October 2013): 760.

¹⁵ See research by Patrick B. Johnston and Anoop K. Sarbahi, "The Impact of US Drone Strikes on Terrorism in Pakistan," *International Studies Quarterly* 60, no. 2 (June 2016); and Alex S. Wilner, "Targeted Killings in Afghanistan: Measuring Coercion and Deterrence in Counterterrorism and Counterinsurgency," *Studies in Conflict & Terrorism* 33, no. 4 (April 2010).

terrorism, the effectiveness of any deterrence strategy depends on how the United States defines, communicates, and demonstrates its resolve in national policy.¹⁶

Policy Implications

The United States' lack of a clear policy or strategy for its use of armed drones was the root cause of much of the controversy surrounding their use over the past decade. In fact, until the publication of the May 2013 Presidential Policy Guidance (PPG) on procedures for approving direct action against terrorist target, the limited information available with regards to U.S. armed drone operations came from speeches by political policy makers or through the observations of news agencies. The PPG tightened the reigns on their usage and codified the procedures for approving targets for drone strikes, but it still does not describe an actual strategy for their use. If the U.S. government intends to use armed drones to deter the use of terrorism by violent extremists, then it must establish and publish a clear policy that incorporates Wilner's elements of effective deterrence and addresses the critical issues from the past decade.

The most critical, and potentially the most challenging, of Wilner's elements of effective deterrence is to "clearly define the behavior considered unacceptable."¹⁷ In speeches and other strategic communications documents, U.S. policy makers usually define the unacceptable behavior as *terrorism*, but this term is too ill-defined. The broad range of definitions for terrorism, even within the U.S. government, creates several issues with its application in deterrence. If an adversary cannot clearly identify the line between

¹⁶ Alex S. Wilner, "Targeted Killings in Afghanistan: Measuring Coercion and Deterrence in Counterterrorism and Counterinsurgency," *Studies in Conflict & Terrorism* 33, no. 4 (April 2010): 314.

¹⁷ *Ibid.*, 314.

acceptable and unacceptable levels of violence, then why should he limit his tactical options. This broad definition also creates an issue for the defender's ability to provide a consistent and effective response to an attack. Responding to widely defined terrorist attacks risks the defender appearing oppressive and heavy handed. Likewise, failing to respond to even a lone-wolf terror attack (e.g. the 2016 Orlando nightclub shooting) reduces the defender's credibility and may embolden other potential terrorists.

To establish an effective deterrence policy, the U.S. must either use a whole of government approach to re-evaluate and redefine its definition of terrorism, or it must articulate its deterrence policy in more clear and concise terms. The refined definition must specify what activities and targets are unacceptable, but also accept that a certain level of violence is unavoidable and acceptable. For example, the U.S. may choose to redefine its unacceptable behavior as 'acts of violence perpetrated against United States civilians, children, and non-governmental properties for creating fear amongst the population and/or making a political statement.' This definition would exclude normal criminal behavior and accept the risk of attacks on military and government employees and property. Regardless of the definition, effective deterrence requires that both the adversary and defender have a mutual understanding of the threshold between acceptable and unacceptable behavior.

The next criteria for an effective deterrence policy is the need to "communicate a willingness to punish violations."¹⁸ This requirement goes along with the first criteria and requires a strong strategic communications plan. Policy makers must ensure that any deterrence policy and responsive actions remain unclassified and in the public domain to

¹⁸ Ibid., 314.

ensure the message reaches its intended audience. Though the distributed nature of most violent extremist networks makes direct communications unlikely, U.S. government agencies could communicate deterrent threats through known social media sites as well.

Wilner's last two elements of effective deterrence require that the U.S. "retain [its] coercive capability" and "demonstrate resolve to punish another if, and when, compliance is not met."¹⁹ In the past decade, the U.S. government has demonstrated both the capability and resolve to prosecute targets throughout the world. Regardless of the frequency in which deterrence may fail, the U.S. must continue its relentless pursuit of the offending adversaries. A public account of deterrence failures and the United States' retaliatory response may deter another adversary from committing the unacceptable act in the future.

The previous policy elements will ensure that the United States develops a feasible strategy for deterring terrorism, but additional policy issues remain with regards to drone use. Prior to the publication of the Presidential Policy Guidance (PPG) in May 2013, Micah Zenko published a report titled *Reforming U.S. Drone Strike Policies*. In it, he describes "four critical issues confronting U.S. drone strike policies: coordination with broader U.S. foreign policy objectives, signature strikes and civilian casualties, transparency and oversight, and legality."²⁰ Though the PPG addressed some of these issues, it did not fully resolve them and left several areas in which the government can continue to improve and assuage public concerns.

The first issue of "coordination with broader U.S. foreign policy objectives," relates to much of the confusion within and outside of the U.S. government about the

¹⁹ Ibid., 314.

²⁰ Zenko, 9.

purpose of targeted killings and who is a legitimate target. Separate supervisory chains under the CIA and Joint Special Operations Command (JSOC), and poor coordination with the State Department, resulted in politicians presenting a strategic message to the public that was at odds with the realities of U.S. actions.²¹ By establishing an approval process for drone strikes that goes through the National Security Council, the PPG alleviates some of this confusion. U.S. leaders can eliminate this issue by consolidating all drone strikes under a single chain of command. Given the public's high levels of trust for the military and potential concerns about using the CIA to conduct lethal operations, the Joint Special Operations Command (JSOC) is the logical choice to provide that single chain of command. Additionally, the consolidation of authorities to execute these strikes under one organization helps to ensure the accuracy and consistency of historical strike data and collateral damage assessments.

Another concern within the context of coordinating broader foreign policy issues and strategic communications is Wilner's "deter-defeat paradox." Simply stated, a defender can either deter or defeat an adversary, but it cannot do both. If an adversary believes that the U.S. wants it destroyed and will continue to attack until it achieves that objective, then the adversary has no reason to stop using terror tactics.²² Similarly, if the U.S. pursues a deterrence strategy and must respond to a deterrence failure, then the punishment must have a limit and allow the adversary to survive if it no longer uses terrorism. This requires a great level of restraint from U.S. leaders to ensure that passions do not force an escalation of the conflict.

²¹ Ibid., 9-11.

²² Wilner, "Fencing in Warfare," 742.

Zenko's second issue with past U.S. drone strike policies refers to their use of signature strikes when prosecuting targets. As discussed previously, signature strikes target unspecified persons or a group of people based off traits and/or actions that indicate their involvement in terrorism.²³ This tactic is analogous to police profiling within the United States. If the U.S. goal is to defeat an extremist organization, signature strikes provide a tool to expand the target population and increase the likelihood of disrupting the group's operations. However, signature strikes, like police profiling, also increase the chances that drone operators will misinterpret the observed indicators and kill innocent civilians.

When applied within a deterrence strategy, signature strikes are counter-productive to the defender's overall strategic message. If used to identify and attack potential terrorists before they take violent action, then the message falls prey to Wilner's deter-defeat paradox. Even when used for punishment after deterrence fails, signature strikes create a public perception of heavy handed retaliation that negatively affects innocent civilians more than specific perpetrators. Consequently, this feeds the extremist's strategic message and may turn neutral civilians toward their cause.

Future drone policies should eliminate the use of signature strikes and only use personality strikes based on a pre-approved and legally vetted target list. The current PPG established approval procedures that make the use of signature strikes much less likely, but it does not fully eliminate them. Additionally, to reduce false claims of civilian casualties, the U.S. and its partner nations must make every effort to secure and document the target site as quickly as possible following a drone strike. This

²³ Zenko, 12.

documentation can support the strategic communications effort to deter other potential adversaries and reduce the chances that an adversary will manipulate the scene to represent a very different outcome that supports their strategic goals.

In his January 2013 article, Zenko cited his third critical concern with U.S. drone policy as “transparency and oversight.” His argument focused on his concerns that the program lacked sufficient Congressional oversight and the lack of publicly available information on the highly classified drone program.²⁴ The subsequent Presidential Planning Guidance (PPG) addressed the former issue by establishing immediate notification standards and quarterly reports to select members.²⁵ However, the top-secret classification of this document continued to limit official public information about the program until the PPG was declassified on August 6, 2016.²⁶ In an effort to provide more U.S. government transparency about the armed drone program, President Obama signed an executive order on July 1, 2016 regarding “Pre- and Post-Strike Measures to Address Civilian Casualties in U.S. Operations Involving the Use of Force.” In addition to addressing best practices to reduce civilian casualties, this executive order tasks the Director of National Intelligence (DNI) with publishing an annual report that details the “number of strikes undertaken” and an “assessment of combatant and non-combatant deaths resulting from those strikes” since the last report.²⁷ Though the first report is not due for public release until May 1, 2017, the information it provides may help scholars

²⁴ Ibid., 14-15.

²⁵ U.S. President, Policy Guidance Memorandum, “Procedures for Approving Direct Action Against Terrorist Targets Located Outside the United States and Areas of Active Hostilities,” (May 22, 2013), 18.

²⁶ Kevin Bohn, “Newly released US drone policy explains how targets can be chosen,” CNN. <http://www.cnn.com/2016/08/06/politics/obama-administration-drone-policy/> (accessed October 14, 2016).

²⁷ U.S. President, Executive Order, “United States Policy on Pre- and Post-Strike Measures to Address Civilian Casualties in U.S. Operations Involving the Use of Force,” (July 1, 2016), 3.

and news reporters develop a more accurate picture of how the U.S. assesses casualties and takes actions to mitigate their occurrence.²⁸

It is understandable that any information that might reveal how the United States collects information and tracks terror suspects will remain highly classified. However, if the U.S. wants to achieve a deterrent effect, then drone strike operations cannot remain clandestine in the future. The United States' ability to communicate a credible deterrent threat depends upon publicizing both its capacity to deliver on a threat and the results of retaliatory strikes in response to a deterrence failure. The U.S. should consider publishing its approved target list along with a brief account of the crimes and evidence that warrant punishment. This could support a deterrence message by demonstrating the consequences of unacceptable behavior. Also, it may reduce the chances that the local population will provide the adversary with resources and support if they fear becoming caught in a potential drone strike.

Finally, Zenko's last concern is with regards to the legality of how the United States has used armed drones in the last decade and a half.²⁹ Though a brief synopsis of relevant international law was provided in Chapter 3, a thorough analysis of the legal justifications for and applications to armed drone strikes is beyond the scope of this thesis. The ability to use armed drone strikes as a tool for deterrence, however, depends on the United States' ability to justify its actions and gain international support because lack of support reduces credibility and may reduce public resolve.

²⁸ Ibid.

²⁹ Zenko, 16.

Chapter 6 – Conclusions

The goal of this thesis was to investigate the utility of using U.S. armed drone strikes to deter the use of terrorist tactics by violent extremists. Through research of the available literature on the United States' armed drone program, applicable U.S. policies, and fourth wave deterrence theory, this thesis endeavored to answer two questions. Can drone strikes support a larger deterrent strategy, and what policy changes are necessary to support achieving the desired effect?

A simple review of past armed drone usage indicates that prior operations primarily sought objectives designed to defeat an adversary and disrupt his ability to use terror tactics. To identify how armed drones can support a deterrence strategy, this thesis looked to fourth wave deterrence theory to provide a framework. Though this thesis concedes that armed drone strikes, alone, are unlikely to achieve the desired deterrent effect, it does conclude that they may provide some indirect deterrence. While the execution of an armed drone strike indicates a deterrence failure, the United States' capability and resolve to execute that response in a consistent manner may deter other adversaries from using terrorism in the future. Deterrence research, however, cannot prove the effectiveness of this, or any other deterrence theory, due to its inability to verify any specific factor's effect on an adversary's motivations.

Once this thesis established the possibility of using armed drones to support deterrence, it attempted to identify areas of concern from previous drone usage and make recommendations to improve future policy guidance. Though this these addresses many concerns with U.S. drone use and deterrence policy, there are four critical recommendations that stood out.

The first critical recommendation is that the U.S. must clearly define terrorism and the actions that it seeks to deter. The broad range of activities that politicians and pundits use to describe terrorism create significant challenges to maintaining a strategic message. An adversary must have a clear understanding of what actions are acceptable and which unacceptable actions cross a threshold that warrants a lethal response. It is important that this threshold establishes at a point within which the U.S. can respond to every conceivable violation, since a failure to respond would create doubts about U.S. resolve and may embolden the enemy.

The second critical recommendation is that the U.S. must control the strategic message with regards to armed drones. During the past decade, the classification of the U.S. drone program has allowed its adversaries and critics to control the message through speculation. The U.S. drone policies and operations must become more transparent and remain in line with U.S. national values. To the greatest extent possible, the United States must provide the world with clear evidence of its efforts to minimize collateral damage and focus on legitimate targets that have engaged in activities that support terrorism.

Third, this thesis recommends that the U.S. only use personality strikes and eliminates its use of signature strikes. This recommendation supports the strategic message by eliminating one of the most controversial aspects of past drone use and taking away the adversary's ability to represent U.S. actions as oppressive and haphazard. Admittedly, definitive evidence does not exist to support the positive or negative impacts of signature strikes on terrorist operations or recruiting. However, an analysis of the data in Figure 9 (page 53) does indicate an increased incidence of civilian casualties during

the timeframe in which signature strikes were most predominant (2009-2013). The negative impact of these casualties on the strategic message warrants their removal.

Finally, this thesis recommends that the U.S. government publish its target list for personality strikes as part of its strategic messaging and deterrence strategy. Like the FBI's most wanted list, public knowledge of which individuals are on the target list and what egregious acts they committed may discourage others from providing them support or refuge. Additionally, it helps reinforce indirect deterrence by demonstrating U.S. resolve to punish known offenders whose whereabouts are unknown.

In conclusion, this thesis argues that the U.S. can use armed drones as part of a greater terrorism deterrence strategy, but must make some significant policy changes to improve the strategic message that it sends to the world. As with the use of any new weapon, technology, or tactic, the U.S. employment of armed drones has met some strong criticisms and not necessarily achieved its objectives as well as desired. However, as armed drone usage proliferates throughout the globe, it is imperative that the United States recognize and correct its past shortcomings and lead the way in establishing international norms for their future.

Appendix 1 – UAV Characteristics

MQ-1B Predator¹

General characteristics

Primary function:	armed reconnaissance, airborne surveillance, and target acquisition
Contractor:	General Atomics Aeronautical Systems Inc.
Power plant:	Rotax 914F four-cylinder engine
Thrust:	115 horsepower
Wingspan:	55 feet (16.8 meters)
Length:	27 feet (8.22 meters)
Height:	7 feet (2.1 meters)
Weight:	1,130 pounds (512 kilograms) empty
Maximum takeoff weight:	2,250 pounds (1,020 kilograms)
Fuel capacity:	665 pounds (100 gallons)
Payload:	450 pounds (204 kilograms)
Speed:	cruise speed around 84 mph (70 knots), up to 135 mph
Range:	770 miles (675 nautical miles)
Ceiling:	25,000 feet (7,620 meters)
Armament:	two laser-guided AGM-114 Hellfire missiles
Crew (remote):	two (pilot and sensor operator)
Unit cost:	\$20 million (includes four aircraft with sensors, ground control station and Predator Primary satellite link) (fiscal 2009 dollars)
Initial operational capability:	March 2005
Inventory:	total force, 150

* All specifications and pictures on this page copied from the U.S. Air Force website.

Figure 1 – MQ-1B Predator



¹ U.S. Air Force, "MQ-1B Predator," U.S. Air Force. <http://www.af.mil/AboutUs/FactSheets/Display/tabid/224/Article/104469/mq-1b-predator.aspx> (accessed December 30, 2016). All specifications and pictures on this page copied from this website.

MQ-9 Reaper²

General characteristics

Primary function:	find, fix, and finish targets
Contractor:	General Atomics Aeronautical Systems, Inc.
Power plant:	Honeywell TPE331-10GD turboprop engine
Thrust:	900 shaft horsepower maximum
Wingspan:	66 feet (20.1 meters)
Length:	36 feet (11 meters)
Height:	12.5 feet (3.8 meters)
Weight:	4,900 pounds (2,223 kilograms) empty
Maximum takeoff weight:	10,500 pounds (4,760 kilograms)
Fuel capacity:	4,000 pounds (602 gallons)
Payload:	3,750 pounds (1,701 kilograms)
Speed:	cruise speed around 230 mph (200 knots)
Range:	1,150 miles (1,000 nautical miles)
Ceiling:	Up to 50,000 feet (15,240 meters)
Armament:	combination of AGM-114 Hellfire missiles, GBU-12 Paveway II and GBU-38 Joint Direct Attack Munitions
Crew (remote):	two (pilot and sensor operator)
Unit cost:	\$64.2 million (includes four aircraft, sensors, GCSs, and Comm.) (fiscal 2006 dollars)
Initial operating capability:	October 2007
Inventory:	total force, 93

* All specifications and pictures on this page copied from the U.S. Air Force website.

Figure 2 – MQ-9 Reaper



² U.S. Air Force, "MQ-9 Reaper," U.S. Air Force.
<http://www.af.mil/AboutUs/FactSheets/Display/tabid/224/Article/104470/mq-9-reaper.aspx> (accessed December 30, 2016). All specifications and pictures on this page copied from this website.

RQ-4 Global Hawk³

General Characteristics

Primary function:	high-altitude, long-endurance ISR
Contractor:	Northrop Grumman (Prime), Raytheon, L3 Comm
Power Plant:	Rolls Royce-North American F137-RR-100 turbofan engine
Thrust:	7,600 pounds
Wingspan:	130.9 feet (39.8 meters)
Length:	47.6 feet (14.5 meters)
Height:	15.3 feet (4.7 meters)
Weight:	14,950 pounds (6,781 kilograms)
Maximum takeoff weight:	32,250 pounds (14628 kilograms)
Fuel Capacity:	17,300 pounds (7847 kilograms)
Payload:	3,000 pounds (1,360 kilograms)
Speed:	310 knots (357 mph)
Range:	12,300 nautical miles
Endurance:	more than 34 hours
Ceiling:	60,000 feet (18,288 meters)
Armament:	None
Crew (remote):	three (LRE pilot, MCE pilot, and sensor operator)
Initial operating capability:	2011 (Block 30); 2015 (Block 40)
Inventory:	active force, 33 (three more Block 30s purchased, to be fielded in 2017)

* All specifications and pictures on this page copied from the U.S. Air Force website.

Figure 3 – RQ-4 Global Hawk



³ U.S. Air Force, "RQ-4 Global Hawk," U.S. Air Force.
<http://www.af.mil/AboutUs/FactSheets/Display/tabid/224/Article/104516/rq-4-global-hawk.aspx> (accessed December 30, 2016). All specifications and pictures on this page copied from this website.

RQ-11 A/B – Raven⁴

General Characteristics

Payloads:	Dual Forward and Side-Look EO Camera Nose, Electronic Pan-tilt-zoom with Stabilization, Forward and Side-Look IR Camera Nose (6.5 oz payloads)
Range:	10 km
Endurance:	60–90 min
Speed:	32–81 km/h, 17–44 knots
Operating Altitude (Typ.):	100–500 ft (30-152 m) AGL, 14,000 ft MSL max launch altitude
WingSpan:	4.5 ft (1.4 m)
Length:	3.0 ft (0.9 m)
Weight:	4.2 lbs (1.9 kg)
Ground Control Station:	Common GCS with Puma™ AE and Wasp® AE
Launch Method:	Hand-Launched
Recovery Method:	Deep Stall Landing

* All specifications and pictures on this page copied from the manufacturers website.

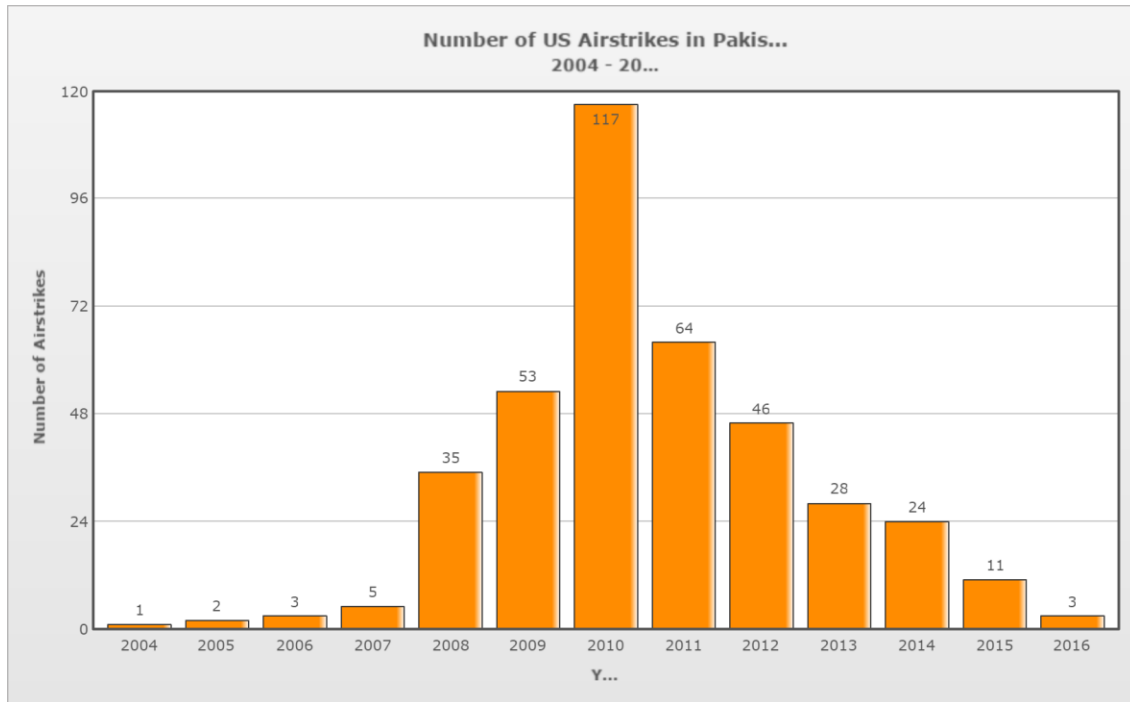
Figure 4 – RQ-11A/B Raven



⁴ AeroVironment, “UAS: RQ-11B Raven,” AeroVironment. <https://www.avinc.com/uas/view/raven> (accessed December 30, 2016). All specifications and pictures on this page copied from this website.

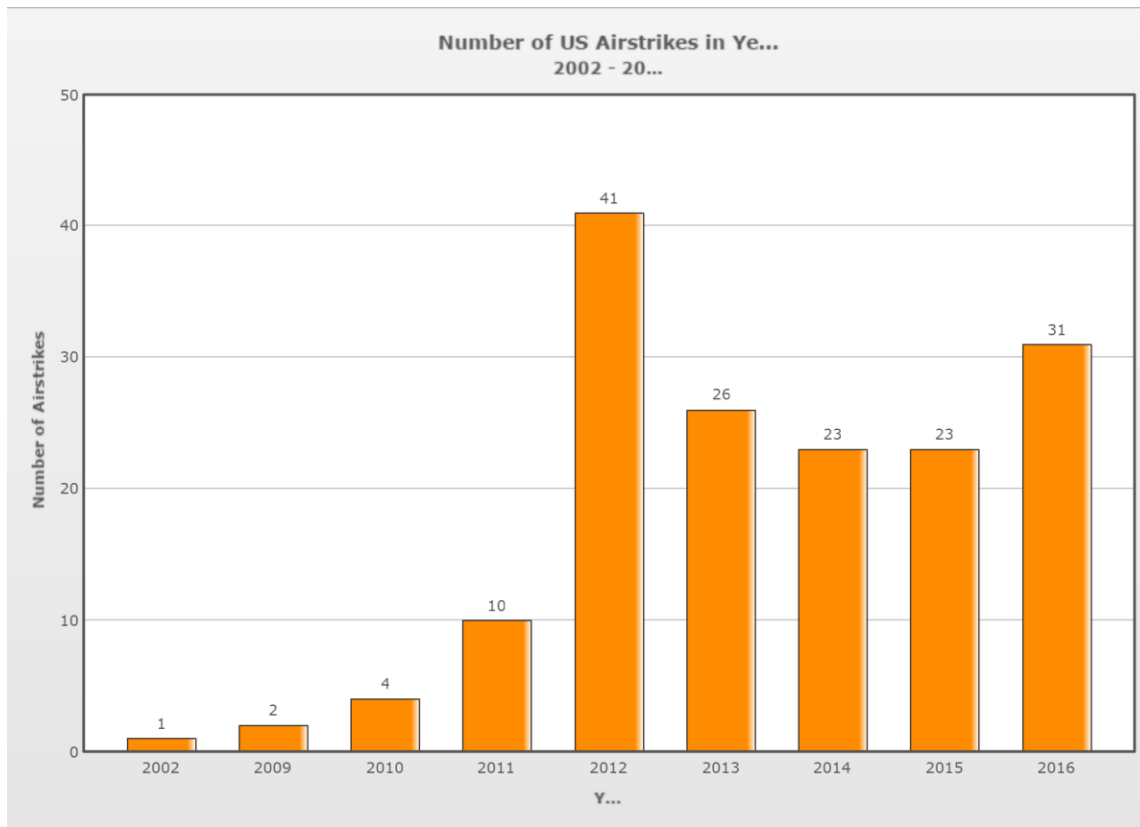
Appendix 2 – Drone Strike Data

Figure 5 – Number of US Airstrikes in Pakistan (2004-2016)¹



¹ Bill Roggio, "Charting the data for US airstrikes in Pakistan, 2004 – 2016," *The Long War Journal*, <http://www.longwarjournal.org/pakistan-strikes/> (accessed December 31, 2016).

Figure 6 – Number of US Airstrikes in Yemen (2002-2016)²



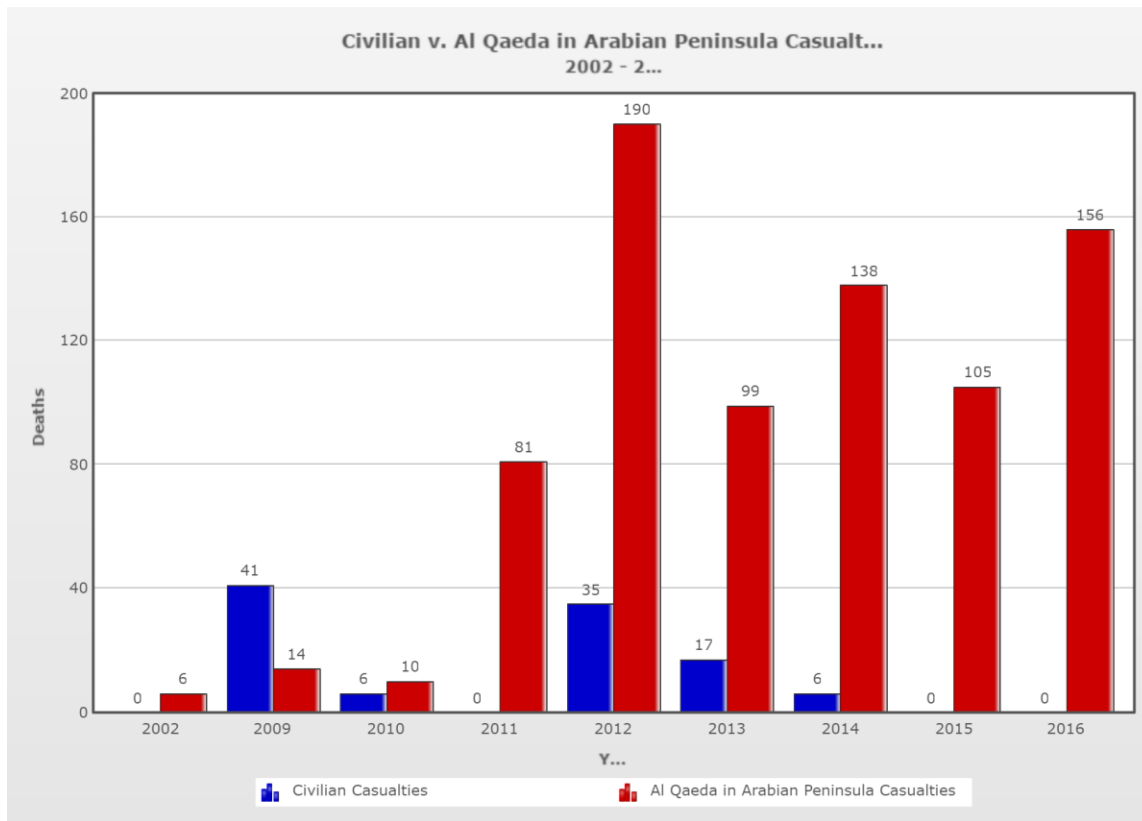
² Bill Roggio and Bob Barry, “Charting the data for US airstrikes in Yemen, 2002 – 2016,” *The Long War Journal*, <http://www.longwarjournal.org/yemen-strikes> (accessed December 31, 2016).

Figure 7 – Civilian vs. Taliban / al Qaeda Deaths in US Airstrikes in Pakistan (2004-2016)³



³ Bill Roggio, “Charting the data for US airstrikes in Pakistan, 2004 – 2016,” *The Long War Journal*, <http://www.longwarjournal.org/pakistan-strikes/> (accessed December 31, 2016).

Figure 8 – Civilian vs. Al Qaeda in Arabian Peninsula Casualties (2002-2016)⁴

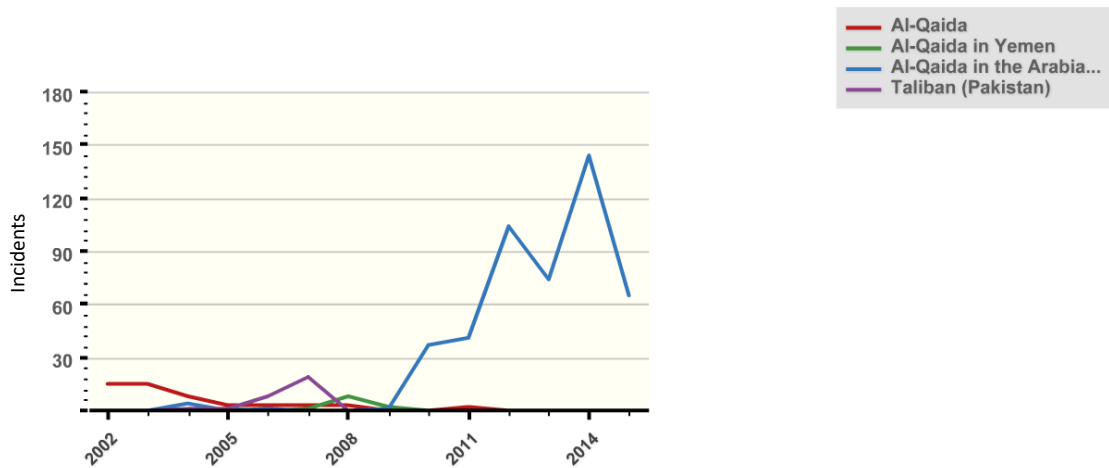


⁴ Bill Roggio and Bob Barry, “Charting the data for US airstrikes in Yemen, 2002 – 2016,” *The Long War Journal*, <http://www.longwarjournal.org/yemen-strikes> (accessed December 31, 2016).

Figure 9 – Civilian Casualty Percentages (2002-2016)⁵

		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pakistan	Strikes			1	2	3	5	35	53	117	64	46	28	24	11	3
	Militants			0	1	122	73	286	463	801	405	300	123	152	63	10
	Civilians			0	0	20	0	31	43	14	30	4	14	0	2	0
	% Civilians				0.0%	14.1%	0.0%	9.8%	8.5%	1.7%	6.9%	1.3%	10.2%	0.0%	3.1%	0.0%
Yemen	Strikes	1							2	4	10	41	26	23	23	31
	Militants	6							14	10	81	190	99	138	105	156
	Civilians	0							41	6	0	35	17	6	0	0
	% Civilians								74.5%	37.5%	0.0%	15.6%	14.7%	4.2%	0.0%	0.0%
Total	Strikes	1	0	1	2	3	5	35	55	121	74	87	54	47	34	34
	Militants	6	0	0	1	122	73	286	477	811	486	490	222	290	168	166
	Civilians	0	0	0	0	20	0	31	84	20	30	39	31	6	2	0
	% Civilians	0%			0%	14.1%	0.0%	9.8%	15.0%	2.4%	5.8%	7.4%	12.3%	2.0%	1.2%	0.0%

Figure 10 – Terrorist Incidents (2002-2015)⁶



⁵ This table is compiled from data found in Tables 5-8.

⁶ Global Terrorism Database,

https://www.start.umd.edu/gtd/search/Results.aspx?chart=perpetrator&casualties_type=b&casualties_max=&start_yearonly=2002&end_yearonly=2015&criterion1=yes&criterion2=yes&criterion3=yes&ctp2=some&success=no&perpetrator=20029,20032,20496,20529 (accessed January 2, 2017).

Bibliography

- Adams, Gordon E. "U.S. Lethal Drone Policy in the Execution of the Global War on Terrorism: The Case for Reforming the Tactics, Techniques, and Procedures for the Tactical Application of Lethal Drone Strikes." *Center for Public Policy Administration Capstones*, Paper 32 (May 2014).
http://scholarworks.umass.edu/cppa_capstones/32 (accessed October 11, 2016).
- AeroVironment. "UAS: RQ-11B Raven," AeroVironment.
<https://www.avinc.com/uas/view/raven> (accessed December 30, 2016).
- Bohn, Kevin. "Newly released US drone policy explains how targets can be chosen." CNN. <http://www.cnn.com/2016/08/06/politics/obama-administration-drone-policy/> (accessed October 14, 2016).
- Byman, Daniel. "Why Drones Work: The Case for Washington's Weapon of Choice." *Foreign Affairs* 92, no. 4 (July 2013): 32-43.
- C., Chris. "Unmanned Deterrence: Deterring Terrorism with Armed Drones." SecBrief.org (May 22, 2013). <http://www.secbrief.org/2013/05/unmanned-deterrence-deterring-terrorism-with-armed-drones/> (accessed October 11, 2016).
- Chairman, U.S. Joint Chiefs of Staff. *The National Military Strategy of the United States of America*. Washington DC: Government Printing Office, June 2015.
- Crenshaw, Martha. "Will Threats Deter Nuclear Terrorism?." In *Deterring Terrorism: Theory and Practice*, edited by Andreas Wenger and Alex Wilner, 136-158. Stanford, California: Stanford Security Studies, an imprint of Stanford University Press, 2012.
- Cronin, Audrey Kurth. "Why Drones Fail." *Foreign Affairs* 92, no. 4 (July 2013): 44-54.
- Davis, Lynn E., Michael J. McNerney, and Michael D. Greenberg. *Clarifying the Rules for Targeted Killing: An Analytical Framework for Policies Involving Long-Range Armed Drones*. Santa Monica, CA: RAND Corporation, 2016.
http://www.rand.org/content/dam/rand/pubs/research_reports/RR1600/RR1610/RAND_RR1610.pdf (accessed October 14, 2016).
- De Luce, Dan. "Obama's Drone Policy Gets an 'F'." *Foreign Policy: The Cable* (February 23, 2016). <http://foreignpolicy.com/2016/02/23/obamas-drone-policy-gets-an-f/> (accessed October 11, 2016)
- Fisher, Uri. "Deterrence, Terrorism, and American Values." *Homeland Security Affairs* 3, Article 4 (February 2007). <https://www.hsaj.org/articles/152> (accessed October 12, 2016).

- General Atomics Aeronautical Systems, Inc. "MQ-9 Reaper/Predator B," General Atomics Aeronautical Systems, Inc. http://www.ga-asi.com/Websites/gaasi/images/products/aircraft_systems/pdf/MQ9%20Reaper_Predator_B_032515.pdf (accessed January 3, 2017).
- Johnston, Patrick B., and Anoop K. Sarbahi. "The Impact of US Drone Strikes on Terrorism in Pakistan." *International Studies Quarterly* 60, no. 2 (June 2016): 203-219. <http://patrickjohnston.info/materials/drones.pdf> (accessed September 7, 2016).
- Jones, Seth G. *A Persistent Threat: The Evolution of al Qaeda and Other Salafi Jihadists*. Santa Monica, CA: RAND, 2014.
- Kirchofer, Charles. "Targeted Killings and Compellence: Lessons from the Campaign against Hamas in the Second Intifada." *Perspectives on Terrorism* 10, no. 3 (June 2016): 16-25.
- Knopf, Jeffrey W. "The Fourth Wave in Deterrence Research." *Contemporary Security Policy* 31, no. 1 (April 2010): 1-33.
- Kroenig, Matthew, and Barry Pavel. "How to Deter Terrorism." *Washington Quarterly* 35, no. 2 (Spring 2012): 21-36.
- Miller, Greg. "Why CIA drone strikes have plummeted." *The Washington Post* (June 2016). https://www.washingtonpost.com/world/national-security/cia-drone-strikes-plummet-as-white-house-shifts-authority-to-pentagon/2016/06/16/e0b28e90-335f-11e6-8ff7-7b6c1998b7a0_story.html (accessed September 5, 2016).
- Northrop Grumman. "RQ-40 Block 30 Global Hawk." Northrop Grumman. http://www.northropgrumman.com/Capabilities/GlobalHawk/Documents/GH_Brochure_B30.pdf (accessed December 30, 2016).
- Obama, Barack. "Obama's Speech on Drone Policy." *The New York Times*. <http://www.nytimes.com/2013/05/24/us/politics/transcript-of-obamas-speech-on-drone-policy.html> (accessed January 1, 2017.)
- Roggio, Bill. "Charting the data for US airstrikes in Pakistan, 2004 – 2016." *The Long War Journal*. <http://www.longwarjournal.org/pakistan-strikes/> (accessed October 16, 2016).
- Roggio, Bill and Bob Barry. "Charting the data for US airstrikes in Yemen, 2002 – 2016." *The Long War Journal*. <http://www.longwarjournal.org/yemen-strikes> (accessed October 16, 2016).
- Rouse, Margaret. "Definition: Drone (Unmanned Aerial Vehicle, UAV)." TechTarget. <http://internetofthingsagenda.techtarget.com/definition/drone> (accessed December 30, 2016).

- Schelling, Thomas C. *The Strategy of Conflict*. Cambridge: Harvard University Press, 1960.
- Shaw, Ian G. R. “The Rise of the Predator Empire: Tracing the History of U.S. Drones.” Understanding Empire. <https://understandingempire.wordpress.com/2-0-a-brief-history-of-u-s-drones/> (accessed December 30, 2016).
- The White House. “U.S. Policy Standards and Procedures for the Use of Force in Counterterrorism Operations Outside the United States and Areas of Active Hostilities.” WhiteHouse.gov (May 23, 2013). https://www.whitehouse.gov/sites/default/files/uploads/2013.05.23_fact_sheet_on_ppg.pdf (accessed October 14, 2016).
- U.S. Air Force. “MQ-1B Predator.” U.S. Air Force. <http://www.af.mil/AboutUs/FactSheets/Display/tabid/224/Article/104469/mq-1b-predator.aspx> (accessed December 30, 2016).
- U.S. Air Force. “MQ-9 Reaper.” U.S. Air Force. <http://www.af.mil/AboutUs/FactSheets/Display/tabid/224/Article/104470/mq-9-reaper.aspx> (accessed December 30, 2016).
- U.S. Air Force. “RQ-4 Global Hawk.” U.S. Air Force. <http://www.af.mil/AboutUs/FactSheets/Display/tabid/224/Article/104516/rq-4-global-hawk.aspx> (accessed December 30, 2016).
- U.S. President. Executive Order. “United States Policy on Pre- and Post-Strike Measures to Address Civilian Casualties in U.S. Operations Involving the Use of Force.” (July 1, 2016).
- U.S. President. *The National Security Strategy of the United States*. Washington DC: Government Printing Office, September 2002.
- U.S. President. *The National Security Strategy of the United States*. Washington DC: Government Printing Office, March 2006.
- U.S. President. *National Security Strategy*. Washington DC: Government Printing Office, May 2010.
- U.S. President. *National Security Strategy*. Washington DC: Government Printing Office, February 2015.
- U.S. President. Policy Guidance Memorandum. “Procedures for Approving Direct Action Against Terrorist Targets Located Outside the United States and Areas of Active Hostilities.” (May 22, 2013). <https://www.aclu.org/foia->

- [document/presidential-policy-guidance?redirect=node/58033](#) (accessed October 14, 2016).
- Wenger, Andreas, and Alex Wilner. *Detering Terrorism: Theory and Practice*. Stanford, California: Stanford Security Studies, an imprint of Stanford University Press, 2012.
- Williams, Brian Glyn. *Predators: The CIA's Drone War on Al Qaeda*. Washington, D.C.: University of Nebraska Press, 2013.
- Wilner, Alex. "Contemporary Deterrence Theory and Counterterrorism: A Bridge Too Far?." *New York University Journal of International Law & Politics* 47, no. 2 (January 2015): 439-462.
- Wilner, Alex. "Fencing in Warfare: Threats, Punishment, and Intra-War Deterrence in Counterterrorism." *Security Studies* 22, no. 4 (October 2013): 740-772.
- Wilner, Alex S. "Targeted Killings in Afghanistan: Measuring Coercion and Deterrence in Counterterrorism and Counterinsurgency." *Studies in Conflict & Terrorism* 33, no. 4 (April 2010): 307-329.
- Zegart, Amy. "Deterrence in the Drone Age." The Hoover Institution. http://www.hoover.org/sites/default/files/fw_hoover_foreign_policy_working_group_unconventional_threat_essay_series/201411%20-%20Zegart.pdf (accessed September 5, 2016)
- Zenko, Micah. *Reforming U.S. Drone Strike Policies*. New York, NY: Council on Foreign Relations, 2013.

Vita

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