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THESIS

**BY LAND, SEA, OR AIR? A COMPARATIVE ANALYSIS
OF CARTEL SMUGGLING STRATEGIES**

by

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June 2017

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SMUGGLING STRATEGIES**

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ABSTRACT

Cartels are known for their innovative smuggling techniques, across land, sea, or air, which allow them to clandestinely transport drugs across any point of entry into the United States. With this in mind, it is worth asking: why do cartels choose a certain drug smuggling technique over another, which domain is more commonly used and potentially more successful, and what sorts of structural changes would it take to shift from one method or domain to another? When seeking answers, there are several things to take into consideration: law enforcement is limited in funding, personnel, and assets, which creates endless smuggling opportunities for cartels. Additionally, cartels exploit weak law enforcement and judicial systems, as well as corrupt officials in several countries throughout South and Central America and the Caribbean. Even though cartels sometimes fail, their persistence and motivation are what cause them to be successful. The last consideration is money, which is the main driving factor that causes cartels to switch from one domain to another, or from one method to another. The end result stands firm: cartels benefit most and are more successful using methods in the land domain, specifically tunnels.

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LIST OF ACRONYMS AND ABBREVIATIONS

AMO	air and marine operations
CARSI	Central America Regional Security Initiative
CBSI	Caribbean Basin Security Initiative
CNN	Cable News Network
DEA	Drug Enforcement Administration
DHS	Department of Homeland Security
DOD	Department of Defense
DOJ	Department of Justice
EEZ	economic exclusion zone
FMSO	Foreign Military Studies Office
GA	general aviation
GPS	Global Positioning System
ICE	Immigration and Customs Enforcement
INCSR	International Narcotics Control Strategy Report
JIATFS	Joint Interagency Task Force South
LS	large scale
NAFTA	North Atlantic Free Trade Agreement
NDTA	National Drug Threat Assessment
RPM	radiation portal monitors
ROTHR	relocatable over-the-horizon radar
RVSS	remote video surveillance system
SS	small scale
TSA	Transportation Security Administration
UNODC	United Nations Office on Drugs and Crime
USCBP	United States Customs and Border Protection
USCG	United States Coast Guard
USN	United States Navy
USNAVSO	United States Naval Forces Southern Command
USSOUTHCOM	United States Southern Command

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I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

Cartel kingpins, such as El Chapo Guzman, have proven that in their organizations they are able to apply advances in technology and to innovate so as to continue illicit drug smuggling operations into the United States. Additionally, not only do cartels use innovation and technology for smuggling, they also use it for other things, such as assisting in El Chapo's escape from jail. El Chapo is notoriously known for escaping from jail in 2001, and in 2015, he was able to escape a second time using a tunnel that began at a construction site in a neighborhood just under a mile away from the prison where he was being held.¹ Additionally, according to a *New York Times* article, "The tunnel was equipped with lighting, ventilation and a motorcycle on rails that was probably used to transport digging material and cart the dirt out."² Fortunately, in early 2017, the drug lord was captured once again and extradited to the United States.³ While most operations remain clandestine, it is important to note that cartels are willing to do whatever it takes to liberate their leaders so that business can resume.

Why are cartels becoming more powerful, especially in their ability to adapt and use technology? Cartels generate huge revenues and use these monies to hire engineers, farmers, and other subject matter experts to gain the upper hand on how to most effectively smuggle drugs into the United States or other countries. Most individuals are motivated by money, and in the cartels case, money well spent on new forms of technology and innovation goes a lot further than what money can do for the overwhelmed law enforcement agencies. Law enforcement agencies are limited in funds, while cartels are not. With all of this in mind, the major questions guiding this research

¹ Larry Buchanan, Josh Keller, and Derek Watkins, "How Mexico's Most-Wanted Drug Lord Escaped from Prison (Again)," *The New York Times*, January 8, 2016, https://www.nytimes.com/interactive/2015/07/13/world/americas/mexico-drug-kingpin-prison-escape.html?_r=0.

² Ibid.

³ Phil Gast, Catherine E. Shoichet, and Evan Perez, "Extradited 'El Chapo' Guzman Arrives in US; Hearing Set for Friday," CNN, January 20, 2017, <http://www.cnn.com/2017/01/19/us/el-chapo-guzman-turned-over-to-us/>.

project are: why do cartels choose a certain drug smuggling technique over another; which domain is more commonly used and potentially more successful; and what sorts of structural changes would it take to shift from one method or domain to another? The purpose of this thesis is to explore these questions and to develop an explanation for which domain (land, sea, or air) is most beneficial to cartels for transportation of drugs, and what changes in current methods determine the conversion to another.

B. LITERATURE REVIEW

This literature discusses how different researchers have answered the following questions: how and why has drug smuggling historically happened; what have states done to repress it; what are the prevalent methods and techniques in the air, land, and sea domains that cartels practice; which domain is more successful or more efficient; and how, or why, do cartels change from one domain to another? It is important to compare these discussions among scholars because there is a gap in literature in regard to analyzing the three domains; and which one is more beneficial over the other. Although, some things to consider that could cause change is most likely law enforcement presence, profits, assets, availability, and risks. The following sections provides insight from many different scholars on the different domains and the business of cartels.

1. How Has Smuggling Evolved?

The illicitness of drugs is contextually bound. In some periods, certain drugs are legal while in other periods they are not. According to Peter Watt and Roberto Zepeda,

cocaine, coca wine or tonic, morphine, heroin and marijuana—were widely available in the late nineteenth century and were readily prescribed by practitioners ignorant of the possible dangers, who recommended them to patients by virtue of their many therapeutic benefits, particularly pain relief.⁴

As these drugs became abused, they also became a concern within the political arena. For instance, in the American context, the “Harrison Narcotics Tax Act of 1914 allowed

⁴ Peter Watt and Roberto Zepeda, *Drug War Mexico: Politics, Neoliberalism and Violence in the New Narcoeconomy* (New York: Zed Books, 2012), 13.

narcotics to be used only for medical purposes.”⁵ Furthermore, after the temperance movement, not only alcohol, but all “drug use was publicly condemned.”⁶ While drug production in the United States began to deteriorate, individuals were no longer seeking drugs within the United States, but in other drug producing countries,⁷ which resulted in the rise of drug smuggling. Peter Andreas stated that due to “their compact size and low weight relative to value, smuggled drugs were much harder to detect than smuggled alcohol.”⁸ The political agenda sets the stage for drug smuggling. In the American context, drugs were outlawed to help drug addicts gain control of their lives.⁹ However, the demand for drugs would only increase through to present day. The attempt to supply, while inelastic demand remained high, creates the space for major profits in the shadows of the law.¹⁰ Additionally, due to implemented laws and increased law enforcement, drug smuggling was the only way, other than prescriptions, that addicts could get their drugs.

To repress the drug smuggling problem, the United States has consistently detained individuals and removed drugs from streets around major cities and suburbs. Additionally, according to Andreas, “The war on drugs was ramped up even further by Reagan’s successor, George H. W. Bush, including drafting the military to take on a more frontline antidrug role.”¹¹ He also stated,

The fiscal 1989 National Defense Authorization Act charged the Defense Department with three new responsibilities.... It was made the lead agency for detecting drug traffic into the country; given responsibility for integrating all command, control, and communications for drug interdiction into an effective network; and told to approve and fund state

⁵ Ibid., 15.

⁶ Peter Andreas, *Smuggler Nation: How Illicit Trade Made America* (New York: Oxford University Press, 2013), 256.

⁷ Ibid., 263.

⁸ Ibid., 266.

⁹ Ibid., 273.

¹⁰ Ibid.

¹¹ Ibid., 284.

governors' plans for using the National Guard in interdiction and enforcement.¹²

While the military and all forms of law enforcement increased their role in drug interdiction, they did not and cannot halt the flow of illicit drugs entering the United States.

Mexico has been directly affected by the United States' actions to counter drug smuggling. According to Watt and Zepeda, "By 1914 counternarcotic legislation in the United States had led to the first major organized offensives against the smuggling of contraband from Mexico."¹³ This offensive led to "an illegal industry and became a major source of revenue for those involved in it."¹⁴ Watt and Zepeda describe smuggling as "providing handsome profits, due to regions blighted by extreme poverty, hardship and inequality."¹⁵ Additionally, according to Watt and Zepeda, smuggling can be found "particularly in a land marked by official corruption and a lack of legitimate employment opportunities."¹⁶ Corruption and poverty thrives in many countries around the world and can be motivation to commit acts, such as drug smuggling, because the individuals' perceptions of becoming corrupt and committing said acts means they will quickly rise out of poverty. Corruption and poverty are two motivating factors for some individuals, however, law enforcement and legitimate governments adapt and continue the fight against drug smuggling.

2. The Research on Land Drug Smuggling

What do we know about land drug smuggling into the United States? The land border between the United States and Mexico is approximately 1,900 miles. Andreas argues, "the U.S.-Mexico border was the main entry point for smuggling drugs into the

¹² Andreas, *Smuggler Nation*, 284–285.

¹³ Watt and Zepeda, *Drug War Mexico*, 19.

¹⁴ Ibid.

¹⁵ Ibid., 20.

¹⁶ Ibid.

country,”¹⁷ but it was not until “the 1990s that the policing of smuggling became a high-profile and high-intensity militarized border campaign commanding enormous public and media attention.”¹⁸ According to Peter Chalk, “Mexico serves as the principal point of entry to mainland United States, with the country presently accounting for as much as 90 percent of all illicit imports to the United States.”¹⁹ In addition to Mexico, the president of the United States, as well as the *International Narcotics Control Strategy Report* (INCSR), have listed all seven countries in Central America, and the big three from South America (Bolivia, Colombia, and Peru) “as major illicit drug producing and/or drug-transit countries.”²⁰ Since these countries have been listed as producers or transit countries of illicit drugs for many years, one can assume that these countries will continue to be on the list due to a “combination of geographic, commercial, and economic factors that allow drugs to transit or be produced, even if a government has carried out the most assiduous narcotics control law enforcement measures.”²¹ As these countries continue the fight against drug smuggling, it is important to identify the methods and techniques cartels use to smuggle drugs through Central America, to Mexico, and ultimately across the border into the United States. Figure 1 depicts Mexican drug smuggling routes into the United States, and Figure 2 provides an example of drug smuggling routes through Panama. Figure 2 can be used as a reference for the other Central American countries.

¹⁷ Andreas, *Smuggler Nation*, 291.

¹⁸ Ibid.

¹⁹ Peter Chalk, *The Latin American Drug Trade: Scope, Dimensions, Impact, and Response* (Santa Monica, CA: RAND Corporation, 2011), http://www.rand.org/content/dam/rand/pubs/monographs/2011/RAND_MG1076.pdf, 6.

²⁰ U.S. Department of State, Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report*, Vol. 1, Drug and Chemical Control (Washington, DC: U.S. Department of State, Bureau for International Narcotics and Law Enforcement Affairs, 2017), <https://www.state.gov/documents/organization/268025.pdf>, 4.

²¹ Ibid.



Figure 1. Mexican Drug Smuggling Routes into the United States²²



Figure 2. Example of Drug Smuggling Routes through Panama: Same Potential for the Other Six Countries in Central America²³

²² Source: Suvy Boyina, "The Largest American Security Threat is the North American Drug War," *Suvy's Thoughts* (blog), February 24, 2015, <http://suvysthoughts.blogspot.com/2015/02/the-largest-american-security-threat-is.html>.

²³ Source: United Nations Office of Drugs and Crime, "Cocaine from South America to the United States," in *Transnational Organized Crime in Central America and the Caribbean: A Threat Assessment* (Vienna: United Nations Office of Drugs and Crime, 2012), https://www.unodc.org/documents/data-and-analysis/Studies/TOC_Central_America_and_the_Caribbean_english.pdf, 33.

As technology rapidly advanced, and inventions create new possibilities, cartels manage to grab ahold and quickly revolutionize methods and techniques of smuggling. For example, Christian Borys stated that “Technological evolutions like liquid cocaine, hyperspeed boats, and cartel submarines, have completely changed the game when it comes to policing drugs.”²⁴ Scott Decker and Margaret Chapman gathered information from a detained smuggler who stated, “crossing the border between the two countries was very easy, with the eight thousand kilos hidden in a compartment in the gas tank of a commercial vehicle.”²⁵ To add to this list, Phelps, Daily, and Koenigsberg stated, “cars, trucks, rail cars, cattle, turkeys, cannons, and even dead bodies”²⁶ are used to conceal shipments of drugs into the United States. While mules are typically known as being body packers; “those who swallow packets of drugs or hide them in their vagina or rectum to avoid detection by customs officials.”²⁷ Phelps, Daily, and Koenigsberg have also explained, “Knowing that the U.S. will not prosecute a minor for illegally bringing drugs across the border, cartels are using more 16- and 17-year olds, and younger kids, to bring across drug shipments.”²⁸ However, the human body is fairly limited in the amount of drugs it can hold. Now that the evolution of drug smuggling methods has been explained, it is important to understand what measures the United States and foreign countries have taken to respond to this.

The United States Customs and Border Protection (USCBP) currently has “315 large-scale (LS) and 4,204 small-scale (SS) NII systems, 1,281 radiation portal monitors

²⁴ Christian Borys, “Drug Smuggling is Getting a High Tech Makeover,” *Vice Motherboard* [blog], December 11, 2014, https://motherboard.vice.com/en_us/article/drug-smuggling-is-getting-a-high-tech-makeover.

²⁵ Scott H. Decker and Margaret Townsend Chapman, *Drug Smugglers on Drug Smuggling: Lessons from the Inside* (Philadelphia: Temple University Press, 2008), 63.

²⁶ James R. Phelps, Jeffrey Daily, and Monica Koenigsberg, *Border Security* (Durham, NC: Carolina Academic Press, 2014), 294.

²⁷ M. J. R. Lancashire et al., “Surgical Aspects of International Drug Smuggling,” *British Medical Journal* 296, no. 6628 (1988): 1035, <http://www.jstor.org/stable/pdf/29530344.pdf>.

²⁸ *Ibid.*

(RPMs), and 35,538 SS RDEs.”²⁹ In addition to its inspection and detection equipment, USCBP also uses a wide range of surveillance equipment. For example, Randolph Alles, Mark Borkowski, and Ronald Vitiello report using the following surveillance systems:

Integrated Fixed Tower (IFT) systems, Remote Video Surveillance Systems (RVSS), Mobile Vehicle Surveillance Systems (MVSS), Agent Portable Surveillance System (APSS), Unattended Ground Sensors (UGS), the Tactical Aerostats and Re-locatable Towers program and many aircraft equipped with radar systems that assist the ground systems.³⁰

They also report that “the absence of surveillance technology would limit their ability to detect, identify, classify, track, and rapidly respond to illicit activity.”³¹ Technology plays a major role in USCBP operations.³²

In 2007, the United States established the Mérida Initiative, developing further into the Central America Regional Security Initiative (CARSI), to support Mexico and Central American countries in their fight against drug smuggling.³³ The Mérida Initiative, as Clare Seelke described, “is a U.S. counterdrug and anticrime assistance to Mexico and Central America, which mainly provides equipment and training, resulting in a new kind of regional security partnership.”³⁴ Since 2008, the United States has provided \$2.5 billion for the Mérida Initiative.³⁵ However, according to Clare Seelke and Kristin

²⁹ U.S. Customs and Border Protection, *Inspection and Detection Technology: Multi-Year Investment and Management Plan* (Washington, DC: U.S. Customs and Border Protection, 2016), <https://www.cbp.gov/sites/default/files/assets/documents/2016-Aug/inspection-detection-multiyearinvest-plan.pdf>, 5.

³⁰ *Border Security Gadgets, Gizmos, and Information: Using Technology to Increase Situational Awareness and Operational Control: Hearing before the United States House of Representatives, Committee on Homeland Security, Subcommittee on Border and Maritime Security*, 114th Cong., 2 (2016) (joint statement of Randolph D. Alles, Executive Assistance Commissioner, Air and Marine Operations, Mark Borkowski, Assistant Commissioner, Office of Technology Innovation and Acquisition, and Ronald Vitiello, Acting Chief, U.S. Border Patrol), <https://www.hsdl.org/?view&did=796062>, 3–4.

³¹ *Ibid.*, 4.

³² *Ibid.*

³³ Clare Ribando Seelke, “Mérida Initiative for Mexico and Central America: Funding and Policy Issues,” in *The Mérida Initiative: U.S. Counterdrug and Anticrime Assistance for Mexico*, ed. Isabella A. Vaughne (New York: Nova Science Publishers, Inc., 2010), 3–8.

³⁴ *Ibid.*, 3.

³⁵ “Mérida Initiative,” U.S. Department of State, accessed October 15, 2016, <https://www.state.gov/j/inl/merida/>.

Finklea, “while bilateral efforts have yielded some results, the weakness of Mexico’s criminal justice system may have limited the effectiveness of those efforts.”³⁶ They report that Mexico struggles with its ability to seize drugs before they are smuggled into the United States, even though it has received a multitude of equipment and supplies from the United States supposed to increase interdiction at the borders.³⁷ Additionally, they stated, “while Mexico has made arresting drug kingpins a top priority, it has not given equal attention to the need to increase drug seizures,”³⁸ which shows more or less that Mexico is still not emphasizing drug seizures as a priority.

Similar to Mexico, countries in Central America receive “equipment, training, and technical assistance to support immediate law enforcement operations”³⁹ from the United States. However, according to Peter Meyer and Clare Seelke, “Despite indications of progress in certain communities, most country-level security indicators have yet to show significant improvements.”⁴⁰ Natasha Everheart argues, “without evaluation tools, policy coordination remains difficult: everyone is measuring the success of slightly different programs differently without a strong connection to the long-term goals of the initiative.”⁴¹ While the United States has done a lot for Mexico and the Central American countries, Congress should reevaluate these initiatives.

3. Maritime Drug Smuggling

What do we know about maritime smuggling into the United States? Unlike the limited 1,900-mile U.S.-Mexico border that drug smugglers face, the open ocean is a much bigger playing field, which increases the number of routes smugglers can take to bypass

³⁶ Clare Ribando Seelke and Kristin Finklea, *U.S.-Mexican Security Cooperation: The Mérida Initiative and Beyond* (CRS Report No. R41349) (Washington, DC: Congressional Research Service, 2015), <https://www.hsdl.org/?view&did=765713>, 1.

³⁷ *Ibid.*, 20.

³⁸ *Ibid.*

³⁹ Peter Meyer and Clare Ribando Seelke, *Central America Regional Security Initiative: Background and Policy Issues for Congress* (CRS Report No. R41731) (Washington, DC: Congressional Research Service, 2015), <https://fas.org/sgp/crs/row/R41731.pdf>, 16.

⁴⁰ *Ibid.*, 22.

⁴¹ Natasha Everheart, “Revisiting the Central America Regional Security Initiative,” *Journal of Public and International Affairs* (2016): 50, <http://jpia.princeton.edu/sites/jpia/files/jpia-book-2016.pdf#page=44>.

law enforcement and get their illicit drugs into the United States. According to the United States Coast Guard (USCG), “the marine areas under U.S. jurisdiction are enormous, covering over 4.5 million square miles of ocean area and 95,000 miles of coastline.”⁴²

The USCBP strategic plan *Vision and Strategy 2020*, determines that the USCBP will share the same patrolling responsibilities as the USCG.⁴³ Smugglers do not need specific points of entry. Every inch of coastline, including but not limited to ports, is of potential value. Michael Atkinson, Moshe Kress, and Roberto Szechtman note that there are three corridors that smugglers use to make their way towards the United States:⁴⁴ “the Eastern Pacific (EastPac), the Western Caribbean (WCarib), and the Eastern Caribbean (ECarib).”⁴⁵ Figure 3 illustrates these corridors.

⁴² U.S. Coast Guard, *Western Hemisphere Strategy* (Washington, DC: U.S. Coast Guard, 2014), https://www.uscg.mil/seniorleadership/docs/uscg_whem_2014.pdf, 37.

⁴³ U.S. Customs and Border Protection, *Vision and Strategy 2020: U.S. Customs and Border Protection Strategic Plan* (Washington, DC: U.S Customs and Border Protection, 2016), <https://www.cbp.gov/sites/default/files/documents/CBP-Vision-Strategy-2020.pdf>, 18.

⁴⁴ Michael P. Atkinson, Moshe Kress, and Roberto Szechtman, “Maritime Transportation of Illegal Drugs from South America,” *International Journal of Drug Policy*, 39 (2017): 44, http://calhoun.nps.edu/bitstream/handle/10945/51547/Atkinson_Maritime_Transportation.pdf?sequence=1&isAllowed=y.

⁴⁵ Ibid.



Figure 3. Major Drug Smuggling Corridors into the United States⁴⁶

Gaps in maritime security is detrimental to the economy of the United States. According to Phelps, Daily, and Koenigsberg, “An expansive network of cooperation has developed between government and the private sector, to accomplish the objective to secure the Maritime Domain while maintaining the smooth flow of international commerce.”⁴⁷ They also state that while “Human error, corruption, and compromise exists, the Maritime Domain has an unlimited number of potential threats.”⁴⁸ However, they explain, “In an era of Global Positioning Satellites, Automatic Identification Systems, and RFID tracking, every effort is being made to secure the Maritime Domain and ensure Maritime Commerce moves unimpeded.”⁴⁹ This statement specifically identifies maritime commerce is moving unimpeded; however, the same could be said for all maritime vessels. Now that the main corridors for drug smuggling have been identified, and factors that allow smugglers to be successful has been explained, it is

⁴⁶ Source: “The CARICOM Blueprint for Illicit Drug Trafficking,” Council on Hemispheric Affairs, December 28, 2011, <http://www.coha.org/wp-content/uploads/2011/12/cbean.jpg>.

⁴⁷ Phelps, Daily, and Koenigsberg, *Border Security*, 163.

⁴⁸ *Ibid.*, 162–163.

⁴⁹ *Ibid.*, 163.

important to capture the historical and current methods and techniques cartels use to convey drugs into the United States using the sea domain.

When cruise liners were the most common vessels for leisure transport in the late 1800s and early 1900s, individuals who came home from overseas business trips or vacations would typically smuggle jewelry, cigars, and watches.⁵⁰ According to Andreas, “virtually anything could be used as a smuggling device: trunks with false bottoms, and other hidden compartments, hollow canes and heels, and even infants and children.”⁵¹ Michael McNicholas adds, “There are hundreds of locations to hide drugs: cargo bays, ventilation shafts, crawl spaces, rope and storage lockers, engine room, accommodations, supply closets, life boats and so on.”⁵² However, cartels have steered away from commercial shipping and started building their own drug smuggling vessels, such as “low-profile vessels, semi-submersibles, submersibles, and towed narco ‘torpedoes.’”⁵³ Additionally, Patrick Keefe explains that cartels “Used crude semi-submersibles at first, then fully submersible subs, conceived by engineers and constructed under the canopy of the Amazon, then floated downriver in pieces and assembled at the coastline.”⁵⁴ If cartels are interdicted, all they have to do is “pull a level that floods the interior so that the evidence sinks; only the crew is left bobbing in the water, waiting to be picked up by the authorities.”⁵⁵ These vessels are built to avoid detection and can transport an enormous amount of drugs.

As for now, cartels have unlimited opportunities on many different vessels that transit the ocean daily including “container ships, fishing vessels and go-fast boats.”⁵⁶

⁵⁰ Andreas, *Smuggler Nation*, 184.

⁵¹ Ibid., 185.

⁵² Michael McNicholas, *Maritime Security: An Introduction* (Boston, MA: Elsevier Inc., 2008), 215.

⁵³ Jeremy Bender, “Cartels Are Using These ‘Narco-Submarines’ to Move Tens of Thousands of Pounds of Drugs at a Time,” *Business Insider*, April 6, 2015, <http://www.businessinsider.com/cartel-narco-submarines-2015-4>.

⁵⁴ Patrick Radden Keefe, “Cocaine Incorporated,” *The New York Times*, June 15, 2012, <http://sweasel.com/wp-content/uploads/2013/07/How-a-Mexican-Drug-Cartel-Makes-Its-Billions-NYTimes.pdf>, 4.

⁵⁵ Ibid.

⁵⁶ Ibid.

Cartels need only befriend or coerce someone or hijack someone's vessel to transport their drugs; money is a great motivator to facilitate this. As drone technology improves and becomes even more accessible, cartels could take advantage and use underwater drones to transport their product across the ocean, totally eliminating the risk of capture, or death. Now that historical and current methods and techniques for maritime drug smuggling have been explained, it is important to understand what the United States and partnering countries have done to respond to the threat of drug smuggling in the sea domain.

The United States has partnered with several Caribbean countries to create the Caribbean Basin Security Initiative (CBSI). Just like the Merida Initiative and the Central America Initiative, the CBSI has problems of its own, even though "The Department of Defense also supports partner countries in the Caribbean through training, equipment, and information sharing, which complement CBSI."⁵⁷ Senators Dianne Feinstein and Charles Grassley describe the Caribbean countries' vulnerabilities to drug trafficking as "their geographic location, large coastlines, and small criminal justice systems."⁵⁸ Feinstein and Grassley also say that

Many Caribbean countries lack the domestic capacity to fully respond to drug trafficking and other transnational threats. As small islands, many Caribbean countries have limited ability to fund the law enforcement coverage needed to control their large coastlines and territorial waters. Further, many Caribbean states face domestic challenges related to poverty, high rates of unemployment, social inequality, and inadequate criminal justice systems, further hampering their ability to combat the influence of the region's drug trade.⁵⁹

Because the Caribbean countries are unable to control their territorial waters, drug smugglers are more likely to exploit these waters.

⁵⁷ Dianne Feinstein and Charles Grassley, *Status of Funding, Equipment, and Training for the Caribbean Basin Security Initiative* [memo] (GAO-13-167R) (Washington, DC: U.S. Government Accountability Office, 2013), <http://www.gao.gov/assets/660/653173.pdf>, 5.

⁵⁸ *Ibid.*, 1.

⁵⁹ *Ibid.*, 3–4.

The Deputy for Operations Policy and Capabilities of the USCG, Rear Admiral William D. Lee, said, “last year, our cutter and aircraft crews removed over 77 metric tons of cocaine and 35 tons of marijuana in the 6-million-square-mile Transit Zone,”⁶⁰ which “is a decrease of approximately 30 metric tons from fiscal year 2012, which is attributed, in part, to the reduction in aircraft and cutter patrol hours under sequestration.”⁶¹ The USCG, United States Navy (USN), and USCBP are seizing drugs on the high seas, but lack of assets greatly affect their ability to increase drug interdiction efforts. Admiral Papp ruminates, “much like the weather and the seas we face on a daily basis, the Coast Guard cannot control the fiscal environment in which we operate.”⁶²

Multiple high-ranking U.S. military officers are talking about the need for additional assets for drug interdiction, which is why it is so confusing to see that there has been a proposal to cut the budget of the USCG and additional federal agencies. General John Kelly, former Commander, United States Southern Command (USSOUTHCOM), and Secretary of Homeland Security in President Trump’s administration stated,

USSOUTHCOM has limited Intelligence, Surveillance, and Reconnaissance assets, limited Coast Guard cutter assets due to their own limitations, and limited surface combatants provided by the Navy due to the entire decommission of the *Oliver Hazard Perry* class guided missile frigates.⁶³

While this statement is now echoed by Admiral Tidd in his posture statement before the 115th Congress, Senate Armed Services Committee,⁶⁴ fiscal year 2017 funding for the

⁶⁰ *What Does a Secure Maritime Border Look Like: Hearing before the Subcommittee on Border and Maritime Security of the Committee on Homeland Security, House of Representatives*, 113th Cong., 1 (2013) (statement of Rear Admiral William Lee, Deputy for Operations Policy and Capabilities, U.S. Coast Guard), <https://www.hsdl.org/?view&did=755693>, 8.

⁶¹ *Ibid.*

⁶² *USCG FY 2014 Budget: Hearing before the House Appropriations Subcommittee on Homeland Security* (2013) (testimony of Admiral Robert J. Papp, Jr., Commandant, U.S. Coast Guard), https://www.uscg.mil/seniorleadership/SPEECHES/House%20Budget_Apr_2013_Oral%20HearingStatement%204%2016%20FINAL%20POSTED.pdf.

⁶³ *Posture Statement: Hearing before the Senate Armed Services Committee*, 114th Cong. (2015) (statement of General John F. Kelly, U.S. Marine Corps, Commander, U.S. Southern Command), https://www.armed-services.senate.gov/imo/media/doc/Kelly_03-12-15.pdf, 14–15.

⁶⁴ *Posture Statement: Hearing before the Senate Armed Services Committee*, 115th Cong. (2017) (statement of Admiral Kurt W. Tidd, Commander, U.S. Southern Command), https://www.armed-services.senate.gov/imo/media/doc/Tidd_04-06-17.pdf, 30–31.

USCG is predicted to decrease.⁶⁵ According to Richard Sisk, “Coast Guard Admiral Paul Zukunft has been outspoken in calling for more resources for a service struggling to maintain more than 50-year-old cutters amid increasing demands to cut off the flow of drugs from South America.”⁶⁶ While the USCG, USN, and USCBP are interdicting as much as they can with what they have, they are not making nearly as big of a dent in counter drug smuggling operations as they would like.

4. Air Drug Smuggling

What do we know about air smuggling into the United States? Ever since the invention of the aircraft, the government, private companies, and individuals conducting research and development have been actively seeking multiple ways to use aircraft for multiple reasons ranging from personnel transport, to cargo transport, to combat payloads. One thing that law enforcement did not count on was the cartels’ vision of what these aircraft could do for their organizations. According to Andreas, “One of Escobar’s business partners, Carlos Lehder Rivas, is credited with pioneering the transportation of cocaine through the Caribbean to the United States by small aircraft.”⁶⁷ Additionally, Andreas has described,

At the height of his trafficking career in the late 1970s and early 1980s, Lehder took over Norman’s Cay, a tiny island in the Bahamas, and turned it into his own private airstrip. Government authorities in Nassau were suspected of taking hefty bribes to look the other way, tolerating Lehder’s transport business until U.S. pressure and media coverage finally prompted them to shut it down.⁶⁸

While Andreas speaks about exploiting the Caribbean countries, Keefe posits, “Cartel operatives moved cocaine into Mexico in small private aircraft and in baggage smuggled on commercial flights and eventually on their own 747s, which they could load

⁶⁵ Richard Sisk, “Opposition Grows to Proposed Coast Guard Budget Cuts,” DOD Buzz, March 8, 2017, <https://www.dodbuzz.com/2017/03/08/opposition-grows-coast-guard-budget-cuts/>.

⁶⁶ Ibid.

⁶⁷ Andreas, *Smuggler Nation*, 279.

⁶⁸ Ibid., 279–280.

with as much as 13 tons of cocaine.”⁶⁹ Robert Filippone supports both Andreas and Keefe by remarking, “trans-shipment points throughout the Caribbean, Mexico, and Central America were necessary because direct flights from Colombia to the United States are impossible for many aircraft and require so much fuel for others that the amount of cocaine that can be carried is minimal.”⁷⁰

Airports have significantly increased security and while doing so have generated pathways in catching human smugglers. According to Paul Algra, Byron Brogdon, and Roque Marugg, “the majority of smugglers enter through Amsterdam’s Schiphol Airport on flights from Venezuela, Surinam, or the Dutch Antilles.”⁷¹ In addition to the Netherlands, the United Kingdom also suffered from human smugglers entering through airports. According to Lancashire et al., “Of the 56 drug seizures at ports in the United Kingdom, 39 were made at London Heathrow Airport and 11 at London Gatwick Airport,”⁷² which is approximately 90 percent of the seizures occurring at airports. As smuggling evolved, cartels are taking to new technology, including drones and ultralight aircraft.

Kristina Davis, of *Los Angeles Times*, reported in a news article that “28 pounds of heroin made it across the U.S.-Mexico border by drone, making it the first cross-border seizure by U.S. law enforcement involving the new smuggle-by-air tactic.”⁷³ As for the ultralight aircraft, Dave Demarjian of *Wired*, reported, “According to Dick Knapinski, a spokesperson with the Experimental Aircraft Association, the ultralights currently being used by smugglers are so small that they’re not even classified as aircraft

⁶⁹ Keefe, “Cocaine Incorporated,” 4.

⁷⁰ Robert Filippone, “The Medellin Cartel: Why We Can’t Win the Drug War,” *Studies in Conflict & Terrorism* 17, no. 4 (1994): 332, doi: 10.1080/10576109408435960.

⁷¹ Paul Algra, Byron Brogdon, and Roque Marugg, “Role of Radiology in a National Initiative to Interdict Drug Smuggling: The Dutch Experience,” *American Journal of Roentgenology* 189, no. 2 (2007): 331, doi: 10.2214/AJR.07.2306.

⁷² Lancashire et al., “Surgical Aspects of International Drug Smuggling,” 1035.

⁷³ Kristina Davis, “Two Plead Guilty in Border Drug Smuggling by Drone,” *Los Angeles Times*, August 12, 2015, <http://www.latimes.com/local/california/la-me-drone-drugs-20150813-story.html>.

by the FAA.”⁷⁴ Both, drones and ultra-lights, are extremely hard to detect on radar, but cannot hold large quantities of drugs. In January 2015, *Cable News Network (CNN)* reported that smugglers used a drone to transport approximately six pounds of crystal meth from Mexico to the United States, but the operation failed when the drone went down because of the weight of the payload. The drone carrying crystal meth landed in a parking lot in Tijuana, Mexico.⁷⁵ Now that we know drug smugglers use commercial airliners, drones, ultralight vehicles, and humans to smuggle drugs, it is important to understand how the United States and partner countries have responded to this threat.

The United States employs the USCG, USN, and USCBP personnel to combat drug smuggling operators trying to penetrate ports of entry into the United States. While this is a major threat, the use of relocatable over-the-horizon radar (ROTHR) systems have been effective in countering it. For example, according to Ellen Ferraro and Drew Ganter, “On May 1, 1989, ROTHR provided the joint Coast Guard/Customs center in Miami with critical detection information that led to an involved chase and the seizure of an aircraft carrying drugs to the Bahamas.”⁷⁶ However, better technology and radar systems have evolved since 1989 and continue to be a critical piece of detecting and tracking illicit activity. For example, according to Alles, Borkowski, and Vitiello, “the Multi-Role Enforcement Aircraft (MEA) has a multi-mode radar for use over water and land, an electro-optical/infrared camera system, and a satellite communications system that is highly capable and a critical investment in CBP’s maritime, land, and aerial surveillance capabilities.”⁷⁷ There are approximately 240 aircraft in the air and marine operations inventory,⁷⁸ which include, but are not limited to: “P-3 Long Range Trackers and Airborne Early Warning Aircraft, DHC-8 Maritime Patrol Aircraft, AS-350

⁷⁴ Dave Demerjian, “Mexican Drug Smugglers Try Flying the Unfriendly Skies,” *Wired*, March 18, 2009, <https://www.wired.com/2009/03/drug-smugglers/>.

⁷⁵ Nick Valencia and Michael Martinez, “Drone Carrying Drugs Crashes South of U.S. border,” *CNN*, January 23, 2015, <http://www.cnn.com/2015/01/22/world/drug-drone-crashes-us-mexico-border/>.

⁷⁶ Ellen Ferraro and Drew Ganter, “Cold War to Counter Drug,” *Microwave Journal* 41, no. 3 (1998): 82.

⁷⁷ *Border Security Gadgets, Gizmos, and Information*, 5.

⁷⁸ U.S. Customs and Border Protection, *Air and Marine Operations: Fact Sheet* (0602-0117) (Washington, DC: U.S. Customs and Border Protection, 2017), https://www.cbp.gov/sites/default/files/assets/documents/2017-Jan/FS_2017_AMO_Fact%20Sheet.pdf.

helicopter, and various Unmanned Aerial Systems.”⁷⁹ While the USCBP has many aircraft to patrol the waters surrounding the United States, the USCG and USN have a significantly larger arsenal, which shall not be discussed in this research due to its immensity.

Caribbean countries give their due diligence in attempting to interdict drug smuggling operations. However, according to Mark Sullivan, “Despite these significant efforts, many governments in Latin America continue to suffer from overtaxed criminal justice systems, overwhelmed law enforcement and border control agencies, and extensive government corruption entrenched by deeply influential criminal kingpins.”⁸⁰ He adds, “many Latin American observers perceive that the continuing U.S. demand for illicit drugs is largely to blame.”⁸¹ Many Caribbean countries are not as sophisticated as the United States, which results in some countries unable to provide its own aircraft surveillance capabilities or other surveillance capabilities.⁸²

5. Debate on Which Domain Is More Successful or Most Efficient

There is a gap in academic literature on which domain is more successful or most efficient for drug cartels. This is potentially because most scholars focus on economics and fluctuation of prices rather than the modes and techniques used across all domains, which could provide an explanation for why cartels use one domain over the other and which one generates more revenue in a given time. What this means is that scholars are looking at the supply and demand side of drug smuggling and their causes. Additionally, many scholars focus on the flow of money and how cartels use money to fund innovation or corruption to continue their illicit activities.

⁷⁹ *Border Security Gadgets, Gizmos, and Information*, 5.

⁸⁰ Mark P. Sullivan, *Latin America and the Caribbean: Key Issues and Actions in the 114th Congress* (CRS Report No. R43882) (Washington, DC: Congressional Research Service, 2017), <https://fas.org/sgp/crs/row/R43882.pdf>, 20.

⁸¹ *Ibid.*, 21.

⁸² Michel S. Laguerre, “National Security, Narcotics Control and the Haitian Military,” in *Security Problems and Policies in the Post-Cold War Caribbean*, ed. Jorge Beruff and Humberto Muniz (New York: St. Martin’s Press, Inc., 1996), 109.

My thesis attempts to fill this gap in literature, which is there is no real debate as to whether land, sea, or air domain is the most successful or efficient. This is important because cartels can easily alter from one domain to another, which allows them to be masters of evasion and detection. Due to this fluctuation, it is hard to determine which domain cartels decidedly used over another. However, further research on this topic provides a general comparison of domains and how law enforcement could counter the organization, which could result in a potential switch from one domain to another, or simply a pause in operations. No one else debates these concepts, so my research is of the few comparisons of operating domains out there, which could benefit many organizations dealing directly with drug smuggling interdiction.

C. THEORY

While conducting research for this thesis, I concluded that cartels are more efficient and successful using methods of land smuggling than air or sea. Cartels can choose from multiple methods to get their drugs into the United States, including millions of vehicles or people, rail systems, tunnels, catapults, improvised launchers, or any other ingenious transportation devices. This is possible because for some of these transportation methods, cartels only need to have a receiving member of the organization on the other side of the border ready to pick up the transported drugs to attain custody of them. Additionally, cartels are constantly moving up and down the 1,900-mile border while alternating between methods to keep law enforcement guessing.

Of the many methods I have listed, the cartels are most efficient at and benefit the most from using tunnels. Even though law enforcement has uncovered multiple tunnels, it is conceivable that law enforcement has not uncovered all tunnels leading from Mexico to the United States. That being said, the potentially undiscovered tunnels could generate never ending profits and provide a method that cartels can use whenever they want. Vehicles and mules pass through security at the border and must adhere to inspection regulations if drivers or mules desire entry into the United States. Law enforcement utilizes advanced technology in order to detect illegal immigrants and suspicious vehicle operators. Even President Trump's administration is considering building a wall between

the United States and Mexico; however, this wall will not keep cartels from penetrating it. Building a wall will only motivate cartels even more.

Cartels may continue to use maritime methods of transportation for smuggling; however, sea smuggling may never be as successful or efficient for cartels as land smuggling. There are several reasons why sea smuggling may never be as successful or efficient for cartels as land smuggling: 1) the ocean is an unforgiving force that could disrupt an operation by itself; 2) not only is there a large U.S. law enforcement presence on the ocean, there are also many international countries that patrol international waters and interdict smuggling operations; and 3) it is much harder to transport drugs through the ocean due to long trips that require fuel, food, and water for its crew, not to mention the possibility of the vessel breaking down. Cartels use three different methods to smuggle drugs in the sea domain: semi-submersible narco subs, panga go-fast boats, and container vessels. Of these three, panga-go fast boats are the most efficient and benefit cartels the most. This is because they are easily accessible and fairly inexpensive. Also, cartels can abandon these small vessels after the operation is complete with peace of mind knowing that law enforcement cannot track where the vessel originated from. Law enforcement can usually track the origin of semi-submersibles because they commonly use GPS and can track the origin of container vessels using the manifest paperwork. Panga boats are fast, making it difficult for law enforcement to catch them.

Air smuggling methods are less efficient for cartels than either land or sea smuggling methods, and they are the least beneficial for cartels. Ever since 9/11, any suspicious activity on an aircraft catches the eye of law enforcement. Additionally, increased security at airports and detailed inspections at gate entries has somewhat deterred cartels. However, there have been a few cases of drug smuggling attempts reported on aircraft. Since security increased at airports, cartels have transitioned from using private aircraft to ultralight aircraft, which is the most common form of air smuggling cartels use. Cartels use these aircraft so often because it is easy for one pilot to cross the border, drop the drugs, and fly back across the border without being apprehended. While ultralight aircraft are the least risky option cartels use in the air domain, land domain methods are still preferable to cartels.

Cartels find it necessary to adjust from one domain to another for a variety of reasons. Most notably, as costs in one domain become more expensive, as law enforcement increases in a specific area or overall becomes more efficient at the border preventing and seizing larger amounts of drugs, or as return profits compared to expenditures are not as significant as they used to be, then cartels will most likely alter from land smuggling to sea, or air smuggling. As technology continues to develop and proves to be of further benefit to cartels, technology could be a determining factor of which method and domain they decide to use when attempting their smuggling operations.

D. RESEARCH DESIGN

This thesis conducts plausibility probes, which, according to Alexander George and Andrew Bennet, “are preliminary studies on relatively untested theories and hypotheses to determine whether more intensive and laborious testing is warranted.”⁸³ Additionally, in conjunction with plausibility probes, this thesis uses counterfactual methods “which is the exploration of things that did not happen, but (conceivably) could have.”⁸⁴ I will provide a cost-benefit model reflecting the initial expenditure of a cartels’ operation to the end profit while comparing across air, land, and sea domains. First, I examine different methods and techniques among land, sea, and air domains and make a determination as to which individual method is the most beneficial and most profitable for a cartels business. Second, I examine the domains as a whole and provide an explanation and analysis for the most beneficial and profitable domain for a cartels business. Third, I determine which domain is the largest threat to law enforcement based on a final table that will show the overall cost-benefit analysis and comparisons. Finally, given the realm of possibilities and which method is the most problematic, I provide a policy approach for law enforcement and Department of Defense (DOD) to use in their future operations of combating drug smuggling.

⁸³ Alexander George and Andrew Bennett, *Case Studies and Theory Development in the Social Sciences* (Cambridge, MA: MIT Press, 2004), 75.

⁸⁴ John Gerring, *Social Science Methodology: A Criterial Framework* (New York: Cambridge University Press, 2001), 221.

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II. THE LAND DOMAIN OF DRUG SMUGGLING

Metropolitan San Diego and Tijuana have become mega metropolis. On any given day in border cities between Mexico and the United States, millions of people cross back and forth. The same is true for most ports of entry, as North Atlantic Free Trade Agreement (NAFTA) has dramatically increased trade between and crossings. However, people are not the only thing crossing the border. For instance, on October 24, 2015, “authorities confiscated at least 12 tons of marijuana with a street value of \$6 million and arrested 22 people in San Diego and Tijuana in connection with one of the largest tunnels uncovered in recent years.”⁸⁵ According to USCBP in October 18, 2016, “officers at the DeConcini pedestrian lanes referred a 50-year-old Mexican woman for further inspection and, thanks to a drug canine’s alert, discovered more than \$57,000 worth of cocaine wrapped around her midsection.”⁸⁶ The USCBP also reports that on May 1, 2017, “Border Patrol agents stopped a vehicle attempting to avoid the immigration checkpoint and found more than 67 pounds of marijuana, worth over \$33K, concealed within a coffin in the hearse.”⁸⁷ The uniting feature of all of these methods is that they are based on a land smuggling logic. In this chapter, I address three questions: 1) what are the prevalent land methods; 2) what are the institutional strategies to stop them; and 3) how much profit versus risk does this method engender?

To contribute an answer to these questions, this chapter proceeds as follows. First, I discuss the effectiveness of USCBP. Second, I elaborate a brief history of land drug smuggling, which includes specific methods for smuggling and means of transportation, as well as current methods and means of transportation of land drug smuggling. Third, I provide a cost-benefit analysis of drug flow using specific examples of transportation and

⁸⁵ Michael Martinez, “Feds Raid Drug ‘Super Tunnel’ with Railway on U.S.-Mexico Border,” CNN, October 24, 2015, <http://www.cnn.com/2015/10/23/us/drug-super-tunnel-tijuana-san-diego/>.

⁸⁶ U.S. Customs and Border Protection, “Busy Week for Drug Smuggling at Port of Nogales,” news release, October 21, 2016, <https://www.cbp.gov/newsroom/local-media-release/busy-week-drug-smuggling-port-nogales>.

⁸⁷ “Agents Discover over 67 Pounds of Marijuana Concealed in a Funeral Hearse,” U.S. Customs and Border Protection, news release, May 1, 2017, <https://www.cbp.gov/newsroom/local-media-release/agents-discover-over-67-pounds-marijuana-concealed-funeral-hearse>.

the costs given other examples of degree of enforcement. Fourth, I discuss the estimations of cocaine flows through overland routes, which are identified in a few sources for specific years because current year estimations are not available as of yet. Finally, I create a table that compares each method and determine which is best for cartels given lowest costs and highest benefits.

A. THE RISKS OF DRUG TRAFFICKING ENFORCEMENT: ORIGIN AND DESTINATION INSTITUTIONS

Two factors present possible risks to drug trafficking. First, domestic enforcement by countries where drugs originate present the first risky set of hurdles. The second challenge, and arguably the more pronounced, is the United States enforcement mechanism. In this section, I discuss each in turn beginning with origin institutional problems.

Corruption found in Central American countries is one of the biggest reasons drug smugglers are able to transport illicit drugs from the point of origin (mainly Colombia, Peru, or Bolivia) to the United States. The 2017 INCSR determines that all seven Central American countries continue to be “major illicit drug producing or drug-transit countries in Central America,”⁸⁸ and Mexico and Colombia emulate Central America.⁸⁹

Since 2007, the amount of drugs smuggled through Central American countries has increased significantly from initially only small amounts of cocaine smuggled as destined for the United States to almost 85 percent of what is smuggled as destined for the United States.⁹⁰ According to Meyer and Seelke, “stepped-up enforcement efforts in Mexico and instability in certain Central American countries have provided incentives for traffickers to use the region as a transshipment point.”⁹¹ Instability in Central American countries is not the only reason traffickers use the region as transshipment points. According to Clare Seelke et al., “Central America is a region with fewer resources and weaker institutions

⁸⁸ Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report*, 4.

⁸⁹ Ibid.

⁹⁰ Meyer and Seelke, *Central America Regional Security Initiative*, 7.

⁹¹ Ibid.

with which to combat drug trafficking.”⁹² Additionally, President Obama’s *Presidential Determination—Major Drug Transit or Major Illicit Drug Producing Countries for Fiscal Year 2017* states, “a combination of geographic, commercial, and economic factors allow drugs to transit or be produced, even if a government has carried out the most assiduous narcotics control law enforcement measures.”⁹³

All of these countries have similar commonalities: corrupt governments willing to turn a blind eye, are weak, and sometimes have absent law enforcement agencies, geographical locations that benefit drug smugglers, and easily accessible ports and porous borders. Any government or law enforcement individual who is willing to take a bribe, so that drug smugglers can control their smuggling routes, may not be directly involved in the effects of the drug smuggling operation, but they are directly responsible for the continuous flow of drugs in and out of their respective countries.

Conversely, U.S. institutions present more risk for overland routes. Specifically, the USCBP, which patrols nine sectors that range across the U.S.-Mexico border. Sectors in Texas include Big Bend, with 12 stations; Del Rio, with 10 stations; El Paso, with 11 stations; Laredo, with nine stations; and Rio Grande Valley, with nine stations—for a total of 51 stations.⁹⁴ Sectors in California include El Centro, with four stations, and San Diego, with eight stations for a total of 12 stations.⁹⁵ Sectors in Arizona include Tucson, with eight stations; and Yuma, with three stations for a total of 11 stations.⁹⁶ There are 74 stations along the Mexico-U.S. border, and there are 11 other sectors with 62 stations throughout the rest of the United States, which is a grand total of 20 sectors with 136

⁹² Clare Ribando Seelke et al., *Latin America and the Caribbean: Illicit Drug Trafficking and U.S. Counterdrug Programs* (CRS Report No. R41215) (Washington, DC: Congressional Research Service, 2011), <https://fas.org/sgp/crs/row/R41215.pdf>, 17.

⁹³ White House, *Presidential Determination—Major Drug Transit or Major Illicit Drug Producing Countries for Fiscal Year 2017* [memorandum for the secretary of state] (Washington, DC: White House, September 12, 2016, <https://obamawhitehouse.archives.gov/the-press-office/2016/09/12/presidential-determination-major-drug-transit-or-major-illicit-drug>).

⁹⁴ “Border Patrol Sectors,” U.S. Customs and Border Protection, accessed January 31, 2017, <https://www.cbp.gov/border-security/along-us-borders/border-patrol-sectors>.

⁹⁵ Ibid.

⁹⁶ Ibid.

stations throughout the United States.⁹⁷ According to the Bureau of Transportation Statistics, there are 25 official ports of entry along the U.S.-Mexico border, six in Arizona, six in California, two in New Mexico, and 11 in Texas.⁹⁸ It is important to note that New Mexico has two official ports of entry, but does not have a single sector or station for which the USCBP is responsible. Obviously, cartels are not restricted to these 25 official ports of entry. However, cartels have probably mastered blending in with traffic at these locations and, nevertheless, could use the official ports of entry.

USCBP's arsenal of technology includes fixed surveillance systems, mobile surveillance systems, and air and marine capabilities. For example, according to Alles, Borkowski, and Vitiello, "integrated fixed tower (IFT) systems are fixed surveillance assets that provide long-range persistent surveillance, cover very large areas and incorporate a Common Operating Picture (COP)."⁹⁹ Additionally, they report, "the tower systems automatically detect and track items of interest, and provide the COP operator(s) with the data, video and geospatial location of selected items of interest to identify and classify them."¹⁰⁰ They further explain that remote video surveillance systems (RVSS), provide "short-, medium-, and long-range persistent surveillance mounted on stand-alone towers, or other structures,"¹⁰¹ and use "cameras, radio and microwave transmitters to send video to a control room and enables a control room operator to remotely detect, identify, classify and track targets using the video feed."¹⁰² Mobile surveillance capabilities can enhance fixed surveillance capabilities.

With advanced technology, Border Patrol agents found it easier to detect the movement of illicit drugs. For example, USCBP Deputy Commissioner Kevin McAleenan stated, "secure radio and satellite communication technology, fixed and

⁹⁷ Ibid.

⁹⁸ "Border Crossing/Entry Data: Query Detailed Statistics," U.S. Department of Transportation, Bureau of Transportation Statistics, accessed April 13, 2017, https://transborder.bts.gov/programs/international/transborder/TBDR_BC/TBDR_BCQ.html.

⁹⁹ *Border Security Gadgets, Gizmos, and Information*, 3.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

¹⁰² Ibid.

mobile surveillance capabilities, Tactical Aerostats and Re-Locatable Towers, and Integrated Fixed Towers assist with detecting, identifying, classifying, and tracking illegal activity.”¹⁰³ Also, according to Alles, Borkowski, and Vitiello, “Mobile Surveillance Capability (MSC) systems provide long-range mobile surveillance and consist of a suite of radar and camera sensors mounted on Border Patrol vehicles.”¹⁰⁴ Without fixed and mobile surveillance technology, Alles, Borkowski, and Vitiello report, “the Border Patrol’s ability to detect, identify, classify, track, and rapidly respond to illicit activity would be decreased”¹⁰⁵ and that “these technologies not only provide significant security benefits and multiply the capabilities of law enforcement personnel to detect, identify, and respond to suspicious activity, but they also assist with public safety along the border.”¹⁰⁶

However, smugglers have taken advantage of technological changes as well. For example, according to Borys, “technological evolutions like liquid cocaine, hyper speed boats, and cartel submarines, have completely changed the game when it comes to policing drugs.”¹⁰⁷ Smugglers may need to change their smuggling routes to remain undetected by border patrol. Continuously changing routes and methods of transportation keep border patrol agents and law enforcement guessing as to which route, or method smugglers would use to remain clandestine. While border patrol agents and law enforcement continue to pursue cartels and seize drugs, it is extremely difficult to locate and identify cartel organizations, which are masters of evasion.

Without these various systems and capabilities, interdiction of drug smugglers would be more difficult than it currently is. Moreover, as technology continues to develop, seizures of illicit drugs have the potential to increase. Combining surveillance

¹⁰³ *FY 2017 Budget Request: Hearing before the Senate Appropriations Committee, Subcommittee on Homeland Security* (2016) (testimony of Kevin K. McAleenan, Deputy Commissioner, U.S. Customs and Border Protection), <https://www.appropriations.senate.gov/imo/media/doc/030816%20-%20MCALEENAN%20-%20CBP%20-%20Testimony.pdf>, 4–5.

¹⁰⁴ *Border Security Gadgets, Gizmos, and Information*, 3.

¹⁰⁵ *Ibid.*

¹⁰⁶ *Ibid.*, 4.

¹⁰⁷ Borys, “Drug Smuggling is Getting a High Tech Makeover.”

systems and new technology results in better situational awareness for those who conduct counter drug smuggling operations. These systems, when used simultaneously, can increase detection and tracking, while also identifying suspicious activity in multiple places simultaneously. USCBP will continue to use advanced technology to detect and track suspicious activity; however, it will continue to interdict only small amounts of cocaine at the U.S.-Mexico border.¹⁰⁸ Therefore, USCBP is not very effective when comparing its equipment and resources to the amount of drugs it seizes yearly.

B. HISTORICAL METHODS OF LAND SMUGGLING

Before the Controlled Substances Act of 1970 made certain drugs illegal, Congress implemented an alcohol prohibition, which began on January 16, 1920¹⁰⁹ and ended on December 5, 1933.¹¹⁰ This prohibition motivated Mexicans and Canadians to smuggle alcohol into the United States. For example, according to Phelps, Daily, and Koenigsberg, “Tequila and Mescal began to flow north from Mexico in wagons and on the backs of donkeys and pack mules, and rum, ale and beer began to flow south from Canada, in boats, cars and trucks.”¹¹¹ After alcohol prohibition ended in 1933 and drug prohibition gradually came into effect, Border Patrol manning steadily rose from 723 to 1531 by the end of World War II and continued to increase over time.¹¹² Today, USCBP employs 19,828 border patrol agents, making up approximately one third of the agency.¹¹³ What was once a severely undermanned agency fighting against illicit drug smuggling is now a combined federal and state effort in the face of adaptation and change.

¹⁰⁸ “Sector Profile—Fiscal Year 2014 (Oct. 1st through Sept. 30th),” U.S. Border Patrol, accessed April 15, 2017, <https://www.cbp.gov/sites/default/files/documents/USBP%20Stats%20FY2014%20sector%20profile.pdf>.

¹⁰⁹ Phelps, Daily, and Koenigsberg, *Border Security*, 61.

¹¹⁰ *Ibid.*, 62.

¹¹¹ *Ibid.*, 61.

¹¹² “Border Patrol History,” U.S. Border Patrol, April 3, 2014, <https://www.cbp.gov/border-security/along-us-borders/history>.

¹¹³ U.S. Border Patrol, *Snapshot: A Summary of CBP Fact and Figures* (Washington, DC: U.S. Border Patrol, 2017), <https://www.cbp.gov/sites/default/files/assets/documents/2017-Apr/cbpsnapshot-april2017.pdf>.

Wagons, donkeys, boats, cars, and trucks were not the only forms of transporting illicit drugs across the border. Suit cases and luggage were, and continue to be, forms of transportation of contraband. What was once used for smuggling exotic animals into the United States,¹¹⁴ can currently be used to smuggle in illicit drugs. Phelps, Daily, and Koenigsberg explain the main reason individuals would smuggle exotic animals into the United States is because “a bird caught in the rain forest and sold there is worth \$20, but that same bird sells for \$2,000 to \$4,000 in the United States.”¹¹⁵ The same can be said for cocaine. For example, Scott Stewart reports in his *Business Insider* news article that “a kilogram of cocaine can be purchased for \$2,200 in the jungles in Colombia’s interior, \$5,500 to \$7,000 at Colombian ports, and \$24,000 to \$27,000 wholesale on the street in the United States depending on the location.”¹¹⁶ While the wholesale figures seem like a lot, the retail value can be upward of \$200,000 per 100 milligrams.¹¹⁷ One could claim that cartels may be solely motivated by the foreseeable profits. Figure 4 determines the cocaine value chain.

¹¹⁴ Phelps, Daily, and Koenigsberg, *Border Security*, 173.

¹¹⁵ *Ibid.*, 173.

¹¹⁶ Scott Stewart, “From Colombia to New York City: The Narconomics of Cocaine,” *Business Insider*, June 27, 2016, <http://www.businessinsider.com/from-colombia-to-new-york-city-the-economics-of-cocaine-2015-7>.

¹¹⁷ Peter Reuter, “DRAFT Transnational Crime: Drug Smuggling,” paper prepared for conference on Transnational Crime, University of Cambridge, January 7, 2000, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.200.849&rep=rep1&type=pdf>, 5.

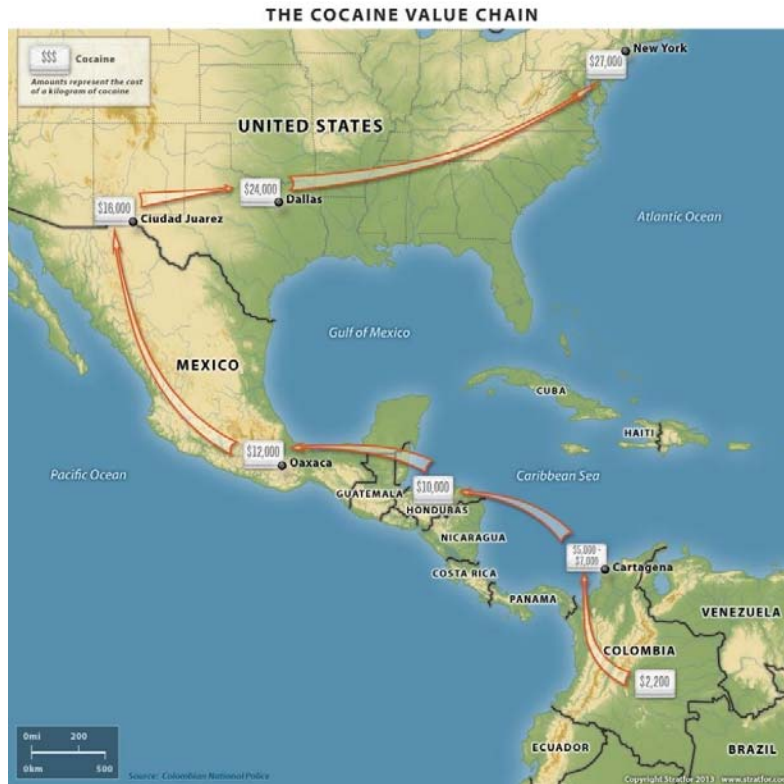


Figure 4. Cocaine Value Chain¹¹⁸

C. THE BENEFITS OF CURRENT METHODS OF LAND SMUGGLING

According to a *Vice News* article, “Some 196 tons of cocaine are needed to satisfy U.S. demand, a flow valued at \$38 billion.”¹¹⁹ Cartels continuously resupply drugs into the United States because they know some Americans yearn for drugs. Despite historical methods, cartels have used innovation and advanced technology to create successful methods and techniques of getting their drugs into the United States. Current methods of land smuggling include all possible hiding places in the millions of cars and trucks crossing the border daily; donuts sprinkled with cocaine; watermelons, pineapples, stuffed chili peppers, fake carrots, and other produce; catapults; and tunnels. Since the United States must have a sustained flow of \$38 billion in drugs yearly, one can assume

¹¹⁸ Source: Stewart, “From Colombia to New York City.”

¹¹⁹ Keegan Hamilton, “The Golden Age of Drug Trafficking: How Meth, Cocaine, and Heroin Move Around the World,” *Vice News*, April 25, 2016, <https://news.vice.com/article/drug-trafficking-meth-cocaine-heroin-global-drug-smuggling>.

that if cartels increase their production and attempt more cross border smuggling operations, then the value of \$38 billion is a modest estimate.

D. SEEING LIKE A CARTEL: THE COSTS AND BENEFITS OF LAND SMUGGLING

Cartels rely on many resources to transport their drugs. Furthermore, according to Phelps, Daily, and Koenigsberg, “Cartels are extremely innovative in getting their drug shipments across borders.”¹²⁰ As technology continues to advance and remain accessible to everyone, cartels may develop unlimited means of avoiding law enforcement. This means that law enforcement must remain vigilant and continue using innovative technology to not only stay with but stay ahead of drug smuggling operations.

Cartels may run into certain risks during drug smuggling operations. Putting aside these risks, cartels really focus on the cost of transportation versus the profit of a successful smuggling operation. In the following sections, cars, trucks, tunnels, and mules, the most common overland modes of transportation, are examined to show potential profits if cartels are successful. This is possible by using counterfactual methods.

1. Potential Profit via Personal Vehicles

Since the invention of the automobile, individuals have sometimes hid things they did not want law enforcement to see, and this stays true in the present day. People use cars for many different things, but one reason cartels use them is specifically to hide illicit drugs from law enforcement when crossing into the United States. How much does a car cost for this type of mission? That depends. If cartels want to have the most profit, they will buy a cheap car. Cheap cars on the Internet can range from hundreds to thousands of dollars. If individuals who are smuggling want to evade law enforcement by speeding away, those cars get more expensive, tipping into the hundreds of thousands. But what does this mean? It does not matter how expensive the car is because even if the cartels go with a more expensive car, they can still generate a huge profit. For example,

¹²⁰ Ibid.

David Hernandez reports in a news article, “U.S. Customs and Border Protection (CBP) officers confiscated 808 pounds of narcotics, valued at almost \$2.8 million, hidden in various vehicles—inside a fuel tank, spare tire, dashboard, quarter panels and other areas—at several ports of entry.”¹²¹ If the operation was successful, the cartels could have claimed at least \$2 million in potential revenue. Although \$2 million seems like a lot, if cartels were to use SUVs or vans that could hold more drugs, they could generate even higher profits.

Analyzing data from the Bureau of Transportation Statistics reveals nearly 76 million personal vehicles crossed the U.S.-Mexico border in 2016.¹²² A typical car, for example a Honda Accord, can transport 38 pounds of cocaine worth approximately \$500,000.¹²³ That being said, suppose 10 percent of personal vehicles were transporting illicit drugs into the United States, and only 2 percent of those vehicles were successful. Cartels would still be able to generate a revenue of \$76 billion. Even if 0.5 percent of vehicles transporting cocaine were successful, the revenue would be \$19 billion. These revenues would not necessarily be generated all at once because with increased border security, cartels must be careful when and where they send vehicles containing illicit drugs.

2. Big Rigs and Big Profits?

There are not as many big rig (semi) trucks that transit the U.S.-Mexico border as there are private vehicles; however, there are still a significant amount that do transit the border. According to the Bureau of Transportation Statistics, nearly six million trucks and an additional four million loaded truck containers crossed the border in 2016.¹²⁴ Trucks crossing the southern border have increased significantly since 2002, which at that time

¹²¹ David Hernandez, “19 Fugitives Arrested, \$2.8 Million in Drugs Seized at Border Crossings,” *The San Diego Union-Tribune*, March 27, 2017, <http://www.sandiegouniontribune.com/news/public-safety/sd-me-cbp-arrests-20170327-story.html>.

¹²² “Border Crossing/Entry Data.”

¹²³ Johanna Li, “Half a Million Dollars Worth of Cocaine Found Inside Car Driven by Mom with 2 Kids: Cops,” *Inside Edition*, August 4, 2016, <http://www.insideedition.com/headlines/17908-half-a-million-dollars-worth-of-cocaine-found-inside-car-driven-by-mom-with-2>.

¹²⁴ “Border Crossing/Entry Data.”

had a total of 1.4 million truck crossings.¹²⁵ However, since 80 percent of trade with Mexico is via land, the increase was necessary. Policy specialists Wasem et al. report former CBP Commissioner Robert Bonner as stating in 2004 that “two years ago, 10.3% of trucks entering the United States were inspected either intrusively or non-intrusively;”¹²⁶ however, that percentage increased to 15.1 percent in 2004.¹²⁷ It is impossible to inspect every container and every truck because doing so would unnecessarily inhibit the flow of economical trade. It would also take a great deal of resources to inspect every container and every truck.

While only 15.1 percent of trucks entering the United States at the southern border are inspected,¹²⁸ 84.9 percent of trucks are not. This means cartels have ample opportunities to utilize trucks in their smuggling operations. In January 2016, Christopher Woody reported, “In December, police in Chicago were tipped off to the arrival of a tomato shipment with 54 kilos of cocaine in it—drugs with a street value of almost \$7 million.”¹²⁹ Despite this, cartels are extremely organized and are able to get their drugs a significant distance from the southern border.

Over six million trucks cross the border. Suppose cartels targeted 100 trucks to transport illicit drugs into the United States? Alternatively, if cartels wanted buy a truck and simply camouflage it to resemble a legitimate container truck, they would need to purchase three pieces: the tractor, trailer, and container worth anywhere from \$40,000 to a few hundred thousand dollars collectively. If one truck can transport 54 kilos of cocaine, and cartels use 100 trucks and are successful with each one, the profit is \$700 million. Comparing expenditure to profit, cartels might spend \$10 million on 100 trucks, but get \$700 million for cocaine in the United States. Risks tend to be the same for any

¹²⁵ Ruth Wasem et al., *Border Security: Inspections Practices, Policies, and Issues* (CRS Report No. RL32399) (Washington, DC: Congressional Research Service, 2004), <https://fas.org/sgp/crs/RL32399.pdf>, 36.

¹²⁶ *Ibid.*, 34.

¹²⁷ *Ibid.*, 35.

¹²⁸ *Ibid.*

¹²⁹ Christopher Woody, “Frozen Sharks, Fake Carrots, and Catapults: The Bizarre Ways Smugglers Like ‘El Chapo’ Guzman Get Drugs across Borders,” *Business Insider*, January 26, 2016, <http://www.businessinsider.com/el-chapo-guzman-strange-drug-smuggling-methods/#tunnels-1>.

vehicle. There is a chance of secondary inspection, which would lead to a possible physical inspection of all compartments; there is a chance that USCBP may identify false plates or a random inspection with a K-9 unit could lead to detecting drugs.

3. The Underground World of Smuggling

Land border smuggling can be complicated by many factors such as weather, terrain, and manmade obstacles. While it is difficult to go unnoticed at a well patrolled border, innovation and technology assist cartels in their clandestine operations. For example, cartels use boring machines, which create underground tunnels for transporting illicit drugs from Mexico into the United States.¹³⁰ On April 20, 2016, the Drug Enforcement Administration (DEA) discovered one of the longest tunnels, around 800 yards, running from Tijuana, Mexico into Otay Mesa industrial park in California.¹³¹ It is only one of 75 tunnels from Mexico to the United States that have been detected over the last five years;¹³² there are doubtlessly more tunnels yet undiscovered.

Drug smugglers have been using tunnels since the late 1980s.¹³³ According to Polly Mosendz, “more than 80 tunnels have been discovered between Mexico and the United States since 2006.”¹³⁴ How much would it cost to construct a tunnel that runs from Mexico to the United States? According to Mosendz, “even with slave labor, tunnels of this kind can cost \$1 million to \$2 million to build.”¹³⁵ Additionally, he posits, “it would take roughly six months to complete a tunnel that runs about 2,880 feet.”¹³⁶ With this in mind, a tunnel creates endless deliveries of cocaine into the United States,

¹³⁰ Brian Anderson, “Mexican Cartels Are Using Firetruck-Sized Drillers to Make Drug Pipelines,” *Motherboard* [blog], January 6, 2014, <http://motherboard.vice.com/blog/mexican-cartels-are-using-firetruck-sized-drillers-to-make-drug-pipelines>.

¹³¹ “Feds Seize Longest Tunnel on California-Mexico Border,” Drug Enforcement Administration, April 20, 2016, <https://www.dea.gov/divisions/sd/2016/sd042016.shtml>.

¹³² *Ibid.*

¹³³ Woody, “Frozen Sharks.”

¹³⁴ Polly Mosendz, “Drug Tunnels Along the U.S.-Mexico Border: High Costs, High Rewards,” *Newsweek*, October 25, 2015, <http://www.newsweek.com/us-mexico-border-drug-tunnel-costs-rewards-386978>.

¹³⁵ *Ibid.*

¹³⁶ *Ibid.*

which results in endless profits so long as the tunnel can remain hidden from law enforcement. The risks involved are individuals being detained by USCBP, losing a large shipment of drugs, or authorities seizing the tunnel.

In 2016, one of the largest tunnels ever was uncovered in California. A news release summary, produced by the Southern District of California, provided a statement from U.S. Attorney Laura Duffy in which she said, “few would ever suspect that traffickers were moving multi-ton quantities of cocaine and marijuana worth tens of millions of dollars in such an unassuming way.”¹³⁷ Tunnel investigations take several months,¹³⁸ and USCBP and local law enforcement will continue to pursue the relentless tunnel smugglers.

4. The Human Mule Packers and Drug Enforcement

Many people have heard of the term “mule” or simply, body packer. When an individual decides to become a mule, “they can swallow 50–100 packets of up to 1 kg where each packet has a life-threatening dose,”¹³⁹ according to Stephen Traub, Robert Hoffman, and Lewis Nelson. Some individuals can swallow a total of 160 grams of cocaine in multiple balloons, estimated to be worth \$50,000 to \$100,000.¹⁴⁰ However, Peter Reuter estimates the retail value of cocaine delivered per person to be around \$1 million, which is a huge profit for cartels.¹⁴¹ Mules can be used anywhere at any time with any method because most methods require the presence of a human operator. Despite the risk of getting caught, mules face the risk of rupturing the capsule that their drugs are in and in turn gamble with their lives. Additionally, it is much easier getting

¹³⁷ U.S. Attorney’s Office Southern District of California, “Feds Seize Longest Tunnel on California-Mexico Border,” news release, April 20, 2016, <https://www.justice.gov/usao-sdca/pr/feds-seize-longest-tunnel-california-mexico-border>.

¹³⁸ Daniel Hernandez, “US Authorities Find 1,600 Pounds of Weed in a Drug Tunnel under California-Mexico Border,” *Vice News*, April 20, 2016, <https://news.vice.com/article/longest-drug-tunnel-ever-found-under-california-mexico-border>.

¹³⁹ Stephen J. Traub, Robert S. Hoffman, and Lewis S. Nelson, “Body Packing—the Internal Concealment of Illicit Drugs,” *New England Journal of Medicine* 349, no. 26 (2003): 2519.

¹⁴⁰ T. A. Freed, Larry N. Sweet, and Peter J. Gauder, “Balloon Obturation Bowel Obstruction: A Hazard of Drug Smuggling,” *American Journal of Roentgenology* 127, no 6 (1977): 1033.

¹⁴¹ Reuter, “DRAFT Transnational Crime,” 8.

caught as a mule because, according to Nathan Meehan, Michael McClary, and Christopher Strange, “it is possible for trained law enforcement to identify persons carrying illegal drugs that exhibit certain types of behaviors.”¹⁴² While some cartel members can hide these behaviors, others make it obvious to law enforcement that they are packing drugs.

E. ESTIMATING COCAINE FLOWS THROUGH OVERLAND ROUTES

The United Nations Office on Drugs and Crime (UNODC) releases a world drug report annually in hopes to identify potential illicit drug profits as one result from the research.¹⁴³ The report used 2014 data instead of 2015 data due to the later not being available as of yet and identified global cocaine production at 943 tons.¹⁴⁴ According to the INCSR released by the U.S. Department of State, pure cocaine production estimates in 2014 was 310 tons in Colombia,¹⁴⁵ 225 tons in Bolivia,¹⁴⁶ and 330 tons in Peru,¹⁴⁷ which is a total of 865 tons. In addition, 92 percent of global cocaine production is supplied by these three countries. For 2015, the INCSR reported that pure cocaine production in Bolivia, Colombia, and Peru was 1,100 tons, resulting in a 27 percent increase from 2014.¹⁴⁸ Now that production estimates have been calculated, estimates for cocaine flow into the United States can be calculated.

Estimating the amount of cocaine that flows from Colombia through Central America into the United States is difficult due to its illicit nature and the cartels’ ability to keep their operations clandestine and evade law enforcement detection. That said, in

¹⁴² Nathan Meehan, Michael McClary, and Christopher Strange, *Behavioral Indicators of Drug Couriers in Airports* (NRL/MR/5508--15-9595) (Washington, DC: Naval Research Laboratory, 2015), www.dtic.mil/get-tr-doc/pdf?AD=ADA620185, 16.

¹⁴³ United Nations Office on Drugs and Crime, *World Drug Report* (New York: United Nations Office on Drugs and Crime, 2016), https://www.unodc.org/doc/wdr2016/WORLD_DRUG_REPORT_2016_web.pdf, iii.

¹⁴⁴ *Ibid.*, 35.

¹⁴⁵ Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report*, 132.

¹⁴⁶ *Ibid.*, 27.

¹⁴⁷ *Ibid.*

¹⁴⁸ *Ibid.*

2014, USCBP reported that a total of 4,534 pounds (2.26 tons) of cocaine was seized,¹⁴⁹ which is .26 percent of total pure cocaine produced by Colombia, Bolivia, and Peru. Suppose 10 percent of the original 865 tons of cocaine, 86.5 tons, was successfully smuggled into the United States. With the example of a seizure of 2.26 tons, USCBP would still have only seized 2.6 percent of drugs smuggled into the United States. While USCBP is vigilant and determined to interdict drug smuggling operations, it is still not seizing a fraction of what cartels are smuggling into the United States.

A global cocaine market report released by the UNODC was able to provide the amount of cocaine flowing across the border. According to the report, “Mexican cartels moved some 191 metric tons of pure cocaine across the border to the United States in 2008.”¹⁵⁰ The INCSR shows that for 2008, pure cocaine production was 720 metric tons,¹⁵¹ which means that 26.5 percent of pure cocaine production made it into the United States. Additionally, the cocaine market report identified 191 metric tons of cocaine as worth potentially \$6.4 billion in the United States; however, with seizures, the wholesale price was brought down to \$5.8 billion.¹⁵² The report stated, “the difference between the wholesale purchase price and the retail value of cocaine in the United States was US\$29.5 billion in 2008.”¹⁵³ While Bolivia, Colombia, and Peru all helped generate 720 metric tons in 2008, “90 percent of the cocaine entering the country crosses the US/Mexico land border.”¹⁵⁴ By that calculation, 171.9 metric tons of cocaine originated in Colombia and crossed the land border in 2008.

¹⁴⁹ U.S. Border Patrol, “Sector Profile.”

¹⁵⁰ United Nations Office on Drugs and Crime, “The Global Cocaine Market,” in *World Drug Report 2010* (Vienna: United Nations Office on Drugs and Crime, 2010), https://www.unodc.org/documents/wdr/WDR_2010/World_Drug_Report_2010_lo-res.pdf.

¹⁵¹ Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report*, 27.

¹⁵² United Nations Office on Drugs and Crime, “The Global Cocaine Market,” 79.

¹⁵³ *Ibid.*

¹⁵⁴ *Ibid.*, 74.

F. ANALYSIS

Table 1 represents my analysis when comparing methods of drug smuggling to domestic law enforcement, U.S. law enforcement, estimated costs/risks, benefits, and finally, their ranking compared to each other. When determining domestic law enforcement risks, I ranked them as low because Mexico, like all Central American countries, “are contending with personnel constraints, assigning other missions to military forces, and seize less than 2% of cocaine that transits through the country.”¹⁵⁵ Law enforcement is not willing to chase cocaine that enters its respective country; therefore, I determine that domestic enforcement risks are minimal.

Table 1. Rating of Land Methods

	Method			
	Car	Big Rig	Tunnel	Mules/ Packers
Domestic Enforcement Risks	Low	Low	Low	Low
U.S. Enforcement Risks	Low	Low-Medium	Very Low	High
Estimated Costs/Risks	Low	Low-Medium	Low- Medium	Medium
Benefit	Low Per Car/ High in Aggregate	Medium Per Rig. Very High In Aggregate	Very High	Very Low
Cost Benefit Ranking	Third Best	Second Best	Best	Worst

U.S. law enforcement concerning drug smuggling by cars is low and somewhat medium for big rigs because law enforcement cannot pull over every car into a secondary inspection area due to resource constraints and the enormous number of vehicles that

¹⁵⁵ Seelke and Finklea, *U.S.-Mexican Security Cooperation*, 20–21.

cross the border daily. Additionally, USCBP has technology that can allow officers to quickly scan the vehicle and continue on to the next, which is beneficial for cartels because quick inspections hinder USCBP's thoroughness and accuracy in detecting drugs. Tunnels are rated very low because of their secretive nature. The *National Drug Threat Assessment* (NDTA) reported that as of March 2016, 224 tunnels have been uncovered on the southwest border since 1990.¹⁵⁶ Despite this, there are undeniably more tunnels that have not been uncovered yet by law enforcement or that were uncovered after cartels had already used them to transport drugs across the border. Cartels have endless resources that could allow them to work on multiple tunnels at a time. Mules are rated at very high due to better physical inspections by law enforcement and due to specialized training law enforcement has to locate and identify suspicious individuals who could possibly be body packing.

The estimated costs to risks is rated low for cars because cars are relatively inexpensive, and they are likely to pass through ports of entry into the United States undetected. Big rigs pose a bigger risk than cars due to their larger sizes; however, they are still rated at low-medium due to the inability of law enforcement to inspect every big rig. Tunnels are also rated at low-medium due to their history of being uncovered, but the expenditures to build a tunnel are significantly less than what it can transport across the border. Mules and body packers are rated medium because it is extremely risky for the individual carrying the illicit drugs as compared to the small amount they can actually carry on their person.

The benefits of cars and trucks are rated low to medium because just one successfully crossing the border does not yield as much profit as hundreds of vehicles crossing the border successfully with drugs. Benefits of tunnels is very high because if law enforcement does not uncover the tunnel, the potential profit is endless. Once a tunnel is open to business, cartels can send through as much product as they want and as often as they want. The benefits of mules or body packers is very low because the human body is limited to the amount of drugs it can carry. To gain a significant profit, hundreds,

¹⁵⁶ Drug Enforcement Administration, *2016 National Drug Threat Assessment Summary*, (Washington, DC: Drug Enforcement Administration, 2016), <https://www.hsdl.org/?view&did=797265>, 7.

if not thousands, of human smugglers must be successful in smuggling and in removing the drugs from their body. Overall, I have determined that tunnels have the best cost-benefit ranking, while mules or body packers have the worst ranking.

What does the determinations in Table 1 mean for cartels? It provides a reasonable explanation for which methods will be the most beneficial for cartels to use while smuggling overland. In this case, tunnels, big rigs, and personal vehicles are the most beneficial, and mules are the least beneficial due to the human body's limitations. For example, suppose cartels smuggled similar volumes of drugs for tunnels, big rigs, vehicles, and mules. In 2016, the *BBC News* reported that "in the latest incident about 1,016 kg of cocaine and 6,350 kg of marijuana suspected of being transported through a tunnel was seized."¹⁵⁷ While a tunnel can transport over 1,000 kg of cocaine in one operation, it would take approximately 18 big rigs, 59 personal vehicles, or 1,000 individuals to transport the same amount. This means that there are more chances of drug busts using big rigs, personal vehicles, or mules than tunnels, assuming tunnels remain hidden from authorities. The method that would cost the least to get drugs across the border and yet have the greatest success is tunnels, followed by personal vehicles, big rigs, and then mules. If there were multiple tunnels operating at the same time, transporting over 1,000 kg of cocaine per operation, the profits could potentially become endless, which is why this method is the best for cartels to use, even if there are risks. While there are risks for each method, building a tunnel on Mexico's side of the border is easy due to corruption and weak law enforcement.

G. CONCLUSION

Tracking the flow of cocaine from Central American into the United States continues to puzzle many scholars, congressional researchers, and military personnel. While there are estimates for 2008 cocaine flow into the United States, no recent data has been collected that provides this information, which causes issues when calculating flows and prices. There are multiple reasons, such as geographical location, corruption, limited

¹⁵⁷ "Huge US-Mexico Drugs Tunnel Found in San Diego," *BBC News*, April 21, 2016, <http://www.bbc.com/news/world-us-canada-36099336>.

law enforcement, that contribute to the success of drug flow over land. Cartels are more likely to use tunnels first, trucks or personal vehicles second, and mules or body packers third when determining how efficient or inefficient law enforcement may be.

USCBP's effectiveness in countering drug smuggling operations is crucial to the security of the United States. This is because, just like the USCG is the first line of defense for the United States' territorial waters, USCBP is the first line of defense for the United States' border with Mexico. It is "one of the world's largest law enforcement organizations charged with border security, management, and control."¹⁵⁸ The factors that contribute to overall cartel success may include but are not limited to porous portions and unpatrolled sections of the U.S.-Mexico border allowing cartels to use them as penetration points, advancements in technology, limited number of patrol agents along the 1900-mile border, and the cartels' ability to adapt to the ever-changing environment and enforcement. Drug smuggling has always been, and continues to be, a game of cat and mouse.

The next chapter focuses on the sea domain of drug smuggling. In it, I discuss the roles of military and law enforcement; historical and current methods and techniques cartels use in the maritime domain; the costs and benefits of maritime smuggling, estimation of cocaine flow through maritime routes; and an analysis of the methods used by cartels compared to law enforcement, risks, and costs.

¹⁵⁸ "About CBP," U.S. Customs and Border Protection, November 21, 2016, <https://www.cbp.gov/about>.

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III. THE SEA DOMAIN OF DRUG SMUGGLING

Improvised submarines used by cartels have become an example of the future of drug smuggling. The USCG has been involved in many counter drug smuggling operations. Yet, according to a *New York Times* article, Rear Admiral Charles Michel stated, “my staff watches multi-ton loads go by,”¹⁵⁹ which is “simply because there are not enough ships and aircraft available for the missions.”¹⁶⁰ Vessels that are typically tracked by the USCG are

semi-submersible, low-slung, diesel-propelled vessels, painted a dark shade to blend with the water capable of carrying several tons of cocaine; fully submersible vessels that would only surface at night capable of hauling 10 tons of cocaine and could sail beneath the surface all the way from Ecuador to Los Angeles; and fast boats, the high-powered fishing and leisure boats that can carry about a ton of cocaine.¹⁶¹

The vessel detected in the article was “only a semi-submersible which has a range of about 3,000 miles.”¹⁶² After being detected, the crew of the semi-submersible “scuttled the vessel and abandoned ship, and the Coast Guard was able to salvage only two 66-pound bales of narcotics.”¹⁶³ What seems like a big win for the USCG is merely a small infraction in a cartels organization.

The ocean is difficult to navigate let alone search for illicit activity. This is because the ocean has such a vast, ever-changing environment, making it impossible for law enforcement to solely focus on one mission. Why do cartels choose to smuggle across such precarious conditions? To answer this question, this chapter proceeds as follows. First, I discuss the effectiveness of the USCG and USN. Second, I elaborate a brief history of maritime drug smuggling that includes specific methods for smuggling

¹⁵⁹ Michael Schmidt and Thom Shanker, “To Smuggle More Drugs, Traffickers Go under the Sea,” *The New York Times*, September 9, 2012, <http://www.nytimes.com/2012/09/10/world/americas/drug-smugglers-pose-underwater-challenge-in-caribbean.html>.

¹⁶⁰ Ibid.

¹⁶¹ Ibid.

¹⁶² Ibid.

¹⁶³ Ibid.

and means of transportation, as well as current methods of smuggling and means of transportation. Third, I provide a cost-benefit analysis of drug flow, using specific examples of transportation, such as semi-submersible narco submarines, panga go-fast boats, and cargo vessels. Fourth, I examine the estimations of cocaine flow through the maritime domain and the potential profits if the operation is successful. Finally, I create a table comparing each method and determine, which is best for cartels given lowest costs and highest benefits.

A. DRUG TRAFFICKING ENFORCEMENT ON THE HIGH SEAS: ORIGIN AND DESTINATION INSTITUTIONS

According to Seelke et al., four Caribbean countries “have been identified as major drug-producing or drug-transit countries.”¹⁶⁴ They are the Bahamas, the Dominican Republic, Haiti, and Jamaica.¹⁶⁵ As Senators Feinstein and Grassley have noted, “because of their geographic location, large coastlines, and small criminal justice systems, Caribbean countries are uniquely vulnerable to drug trafficking.”¹⁶⁶ Figure 5 depicts how drugs travel from South America through, specifically, Jamaica, Haiti, the Dominican Republic, and the Bahamas to the United States. However, these are not the only routes that drug smugglers may take; plenty more options and routes are available.

¹⁶⁴ Seelke et al., *Latin America and the Caribbean*, 18.

¹⁶⁵ Ibid.

¹⁶⁶ Feinstein and Grassley, *Status of Funding*, 1.



Figure 5. Trafficking Routes through the Caribbean to the United States¹⁶⁷

In May 2010, the CBSI was formed with the intent of reducing illicit trafficking in the Caribbean.¹⁶⁸ According to Feinstein and Grassley,

CBSI funding has come from five foreign assistance accounts: International Narcotics Control and Law Enforcement (INCLE); Economic Support Fund (ESF); Development Assistance (DA); Nonproliferation, Antiterrorism, Demining, and Related Programs (NADR); and Foreign Military Financing (FMF).¹⁶⁹

Additionally, the senators reported that “the Department of Defense supports partner countries in the Caribbean through training, equipment, and information sharing.”¹⁷⁰ Seelke et al. posit that even with all of the funding, assistance, and support from the U.S.

¹⁶⁷ Source: “Drugs Trafficking in the Caribbean,” International Drug Policy Consortium, May 28, 2014, <http://idpc.net/alerts/2014/05/drugs-trafficking-in-the-caribbean>.

¹⁶⁸ Feinstein and Grassley, *Status of Funding*, 4.

¹⁶⁹ *Ibid.*, 1.

¹⁷⁰ *Ibid.*, 5.

government, “some policymakers in the region have concluded that the current U.S.-led counterdrug approach needs to be re-evaluated,”¹⁷¹ and that “the current U.S.-led international drug control regime, which has focused on criminalizing drug production and use, has largely failed.”¹⁷² Even though these countries remain on President Obama’s list in the *Presidential Determination—Major Drug Transit or Major Illicit Drug Producing Countries for Fiscal Year 2017*, U.S. institutions add to the presence of risk.¹⁷³

U.S. institutions present risk for maritime routes. Specifically, the USCG, which is responsible for

guarding and protecting U.S. ports and waterways, 100,000 miles of coastline and inland waterways, and an Exclusive Economic Zone (EEZ) encompassing 4.5 million square miles stretching from North of the Arctic Circle to South of the equator, from Puerto Rico to Guam, encompassing nine time zones—the largest EEZ in the world.¹⁷⁴

The USCG has a significantly smaller workforce when compared to the enormous territory for which it is responsible. While seizing drugs on the ocean is inevitable, it is impossible for it to keep all illicit drugs from entering the United States.¹⁷⁵

The USCG maintains approximately 88,000 employees with 40,992 active duty, 7,000 reserve, 8,577 civilian, and 31,000 auxiliary.¹⁷⁶ Some employees are scattered across the United States. The force laydown is as follows:

¹⁷¹ Seelke et al., *Latin America and the Caribbean*, 25.

¹⁷² Ibid.

¹⁷³ White House, *Presidential Determination*.

¹⁷⁴ “Overview,” U.S. Coast Guard, accessed April 29, 2017, <http://www.overview.uscg.mil>.

¹⁷⁵ “How Long is the U.S. Shoreline?” National Oceanic and Atmospheric Administration, accessed February 1, 2017, <http://oceanservice.noaa.gov/facts/shorelength.html>.

¹⁷⁶ “Workforce,” U.S. Coast Guard, accessed February 1, 2017, <http://www.overview.uscg.mil/Workforce/>.

two geographic commands, the Atlantic Area and Pacific Area, are broken down into nine district command, which, in the Atlantic Area, includes five district commands covering the Eastern United States, the Atlantic Ocean, the Great Lakes and the Gulf of Mexico, and in the Pacific Area, includes four district commands covering the Western United States and the Pacific Ocean.¹⁷⁷

Not only does the USCG assign personnel throughout the United States, it also deploys personnel to various regions around the world, including Central and South America, Africa, Europe, Middle East, and Far East Asia.¹⁷⁸ According to the USCG, “the largest unit outside of the United States is Patrol Forces Southwest Asia (PATFORSWA), which supported the United States Navy’s Fifth Fleet in Operation Enduring Freedom.”¹⁷⁹ Additionally, also according to the USCG, “the Coast Guard also has personnel assigned to eight DOD Combatant Commands and often has a presence on all seven continents and the world’s oceans.”¹⁸⁰ Countering drug smuggling operations is far from its only focus.

Such a large footprint creates multiple roles and responsibilities for the USCG. It manages six major operational missions: “Maritime law enforcement, maritime response, maritime prevention, marine transportation system management, maritime security operations, and defense operations.”¹⁸¹ Furthermore, there are 11 missions which the six major operational missions oversee classified as either homeland security or non-homeland security missions.¹⁸² Homeland security missions include “ports, waterways, and coastal security; drug interdiction; migrant interdiction; defense readiness; and other law enforcement.”¹⁸³ In addition, non-homeland security missions include “marine safety; search and rescue; aids to navigation; living marine resources; marine

¹⁷⁷ “Force Laydown,” U.S. Coast Guard, accessed February 1, 2017, http://www.overview.uscg.mil/Force_Laydown/.

¹⁷⁸ Ibid.

¹⁷⁹ Ibid.

¹⁸⁰ Ibid.

¹⁸¹ “Missions,” U.S. Coast Guard, accessed February 1, 2017, <http://www.overview.uscg.mil/Missions/>.

¹⁸² Ibid.

¹⁸³ Ibid.

environmental protection; and [I]ce operations.”¹⁸⁴ In order for USCG personnel to counter drug smuggling operations, drug smugglers basically need to fall into their laps as the smugglers are passing by, because the USCG must fit drug interdiction among all of its other responsibilities.

The USN controls the globe with its dominance in sea power. Admiral John Richardson states, “Navy Capt. Alfred Thayer Mahan argued that American growth required access to overseas markets, which in turn required a preeminent navy to protect that access.”¹⁸⁵ Admiral Richardson also goes on to say that “in an increasingly globalized world, America’s success is even more reliant on the U.S. Navy.”¹⁸⁶ Without the access to vendors abroad, the United States’ economy would not be what it is today, which is one reason why it is important for the USN to be deployed around the world.

The USN is broken down into five numbered fleets: 3rd fleet is part of the United States Pacific Fleet, located in San Diego, California; 4th fleet is part of USSOUTHCOM, located in Mayport, Florida; 5th fleet is part of the United States Central Command, located in Manama, Bahrain; 6th fleet is part of the United States European Command, located in Naples, Italy; and 7th fleet is also part of the United States Pacific Fleet, located in Yokosuka, Japan.¹⁸⁷ The fleet that deals directly with drug smuggling routes into the United States from Central and South America, and the Caribbean is USSOUTHCOM. USSOUTHCOM’s area of responsibility (AOR) “encompasses 31 countries, 16 dependencies, the land mass of Latin American south of Mexico, the waters adjacent to Central and South America, and the Caribbean Sea.”¹⁸⁸ Figure 6 depicts USSOUTHCOM’s AOR.

¹⁸⁴ Ibid.

¹⁸⁵ U.S. Navy Chief of Naval Operations, *A Design for Maintaining Maritime Superiority* (version 1.0) (Washington, DC: U.S. Navy Chief of Naval Operations, 2016), http://www.navy.mil/cno/docs/cno_stg.pdf, 2.

¹⁸⁶ Ibid.

¹⁸⁷ U.S. Naval War College, *Joint Military Operations Reference Guide: Forces/Capabilities Handbook* (NWC 3153L), (Newport, RI: U.S. Naval War College, 2011), <http://keystone.ndu.edu/Portals/86/Documents/JointMilitaryOperationsReferenceGuide.pdf>, 5.

¹⁸⁸ “Area of Responsibility,” U.S. Southern Command, accessed April 29, 2017, <http://www.southcom.mil/About/Area-of-Responsibility/>.



Figure 6. USSOUTHCOM's AOR¹⁸⁹

There are eight entities within USSOUTHCOM, but only one is directly responsible for counter drug smuggling operations, the Joint Interagency Task Force South (JIATFS).¹⁹⁰ The JIATFS is the first line approach to countering drug smuggling operations. According to the *Western Hemisphere Drug Interdiction Efforts*, “the majority of illegal drugs flowing into the United States come from South America, and transit through the Caribbean Sea, the Gulf of Mexico, and the Eastern Pacific Ocean.”¹⁹¹ However, this single entity is not enough to patrol and control the seven million mile transit zone, in which there is an abundance of routes for drug smugglers to

¹⁸⁹ Source: “Area of Responsibility.”

¹⁹⁰ “SOUTHCOM Component Commands and Units,” U.S. Southern Command, accessed February 2, 2017, <http://www.southcom.mil/About/SOUTHCOM-Components-and-Units/>.

¹⁹¹ *Western Hemisphere Drug Interdiction Efforts: Hearing before the Subcommittee on Coast Guard and Maritime Transportation of the Committee on Transportation and Infrastructure, House of Representatives, 114th Cong., 1 (2015)* (statement of Vice Admiral Charles D. Michel, Deputy Commandant for Operations, U.S. Coast Guard, Rear Admiral Karl L. Schultz, Director of Operations, U.S. Southern Command, and Michael P. Botticelli, Director, Office of National Drug Control Policy), <https://www.gpo.gov/fdsys/pkg/CHRG-114hhrg95072/pdf/CHRG-114hhrg95072.pdf>, iv–v.

avoid detection.¹⁹² The USN has the same problem as USCBP and the USCG; there are too many responsibilities and not enough funding, personnel, and assets to disrupt the drug smuggling organization. According to General Kelly, “the Coast Guard faces its own limitations, and an increase of an additional two to three cutters still puts us far below the 16 flight-deck equipped vessels required to conduct our detection and monitoring mission.”¹⁹³ Along the same vein, Admiral Tidd explained, “for every additional ship and air asset we are able to dedicate to the detection and monitoring mission, we can disrupt approximately 20 more metric tons of cocaine.”¹⁹⁴ Things may be headed that way, since General Kelly, former Commander, USSOUTHCOM and now DHS Secretary, and Admiral Tidd, Commander, USSOUTHCOM, are now working closely together.

The bodies of water surrounding the United States, Central and South America, and the Caribbean Islands are guarded by the USCG, and USN. Both of these assets provide aircraft for surveillance, maritime vessels to patrol the high seas, and a wide range of personnel who train in specific mission sets. Due to budget constraints, there is a lack in overall success for maritime interdiction. The Deputy for Operations Policy and Capabilities of the USCG, Rear Admiral William D. Lee, said that “last year, our cutter and aircraft crews removed over 77 metric tons of cocaine and 35 tons of marijuana in the 6-million-square-mile Transit Zone,”¹⁹⁵ which “is a decrease of approximately 30 metric tons from fiscal year 2012, which is attributed, in part, to the reduction in aircraft and cutter patrol hours under sequestration.”¹⁹⁶ The USCG, and USN are seizing drugs on the high seas, but lack of assets greatly affect their ability to increase drug interdiction. Cartels use the sea domain because detection is difficult, and even if they are tracked and identified by the USCG or USN, they usually have a contingency plan to keep from

¹⁹² Ibid.

¹⁹³ *Posture Statement* [Kelly], 14.

¹⁹⁴ *Posture Statement: Hearing before the Senate Armed Services Committee*, 114th Cong., (2016) (statement of Admiral Kurt W. Tidd, Commander, U.S. Southern Command), https://www.armed-services.senate.gov/imo/media/doc/Tidd_03-10-16.pdf, 20.

¹⁹⁵ *What Does a Secure Maritime Border Look Like*, 8.

¹⁹⁶ Ibid.

getting caught. Additionally, cartels understand that the United States and partner nations are limited to their own funds and assets, and they exploit this weakness.

B. HISTORICAL METHODS OF MARITIME SMUGGLING

When cruise liners were the most common vessels for leisure transport in the late 1800s and early 1900s, individuals who came home from overseas business trips or vacations would typically smuggle jewelry, cigars, and watches to avoid paying tariff.¹⁹⁷ According to Andreas, “virtually anything could be used as a smuggling device: trunks with false bottoms, and other hidden compartments, hollow canes and heels, and even infants and children.”¹⁹⁸ While anything could have been used as a smuggling device, inspections at ports of entry were not as strict or detailed as they are today. As time went on, merchant vessels and cargo ships started to take over the economic ties between the United States and countries around the globe. As this happened, the least expensive and most reliable way of trade became the use of these merchant vessels and cargo ships.

Sea trade has come a long way in the last century or so. The *Cooperative Strategy for 21st Century Seapower* reports that “ninety percent of world trade by volume travels across the oceans.”¹⁹⁹ Additionally, according to Phelps, Dailey, and Koenigsberg, “the U.S. in particular is dependent upon its sea lines of communication and attachment to a global market for its economic survival.”²⁰⁰ With several thousand cargo vessels and tankers worldwide containing nearly 3,000 containers per ship come endless possibilities for smugglers to hide their drugs.²⁰¹ As the inventory for these type of ships continued to increase over the years, there is potential for cartels to use them as transportation for their illicit cargo.

¹⁹⁷ Andreas, *Smuggler Nation*, 184.

¹⁹⁸ *Ibid.*, 185.

¹⁹⁹ U.S. Navy, U.S. Marine Corps, and U.S. Coast Guard, *A Cooperative Strategy for 21st Century Seapower* (Washington, DC: U.S. Navy, U.S. Marine Corps, and U.S. Coast Guard, 2015), https://www.uscg.mil/seniorleadership/DOCS/CS21R_Final.pdf.

²⁰⁰ Phelps, Dailey, and Koenigsberg, *Border Security*, 127.

²⁰¹ John F. Frittelli, *Port and Maritime Security: Background and Issues for Congress* (CRS Report No. RL31733) (Washington, DC: Congressional Research Service, 2005), <https://fas.org/sgp/crs/homesec/RL31733.pdf>, 3.

C. THE BENEFITS OF CURRENT METHODS OF MARITIME SMUGGLING

Smuggling drugs in frozen sharks, semi-submersible narcosubs, submarines, and what tends to look like legitimate produce are some examples of how cartels are becoming innovative with the way they conduct business on the high seas.²⁰² Not only is there a significant chance that these methods remain undetected, there is also a chance that even if they may seem suspicious, inspectors may not conduct a thorough inspection and may let smugglers and their product pass through anyway. This game of cat and mouse comes down to one thing: who is luckier? Luck is the determining factor because, like Admiral Papp put it, “much like the weather and the seas we face on a daily basis, we cannot control the fiscal environment in which we operate.”²⁰³ Additionally, Admiral Papp argues, “the growing threat of small go-fast vessels that smugglers are using to avoid the increased security along the southwest U.S. border,”²⁰⁴ is an “increasing danger to our homeland.”²⁰⁵ It is unlikely that all methods of smuggling could be removed from the maritime domain because there are potentially so many due to the cartels’ persistence. Cartels may be motivated to convert from the land domain to the sea domain because of the endless route possibilities.

The DEA has been uncovering underground tunnels leading from Mexico to the United States, which cause drug smugglers to alter their routes from land to sea to avoid detection. For example, by taking panga boats up to Big Sur, California, approximately 500 miles north of the U.S.-Mexico border, smugglers have been able to move drugs into the United States without being initially detected.²⁰⁶ According to Rahaim, “few people who make land in Big Sur ever get apprehended due to the extensive wilderness and

²⁰² Woody, “Frozen Sharks.”

²⁰³ Ibid.

²⁰⁴ *USCG FY 2014 Budget*, 2.

²⁰⁵ Ibid.

²⁰⁶ Nick Rahaim, “Cartels Target Big Sur for Big Drug Shipments,” *Monterey County Weekly*, February 4, 2016, http://www.montereycountyweekly.com/news/cover/cartels-target-big-sur-for-big-drug-shipments/article_9fca2270-cad3-11e5-a844-4ba7691eb648.html.

minimum law enforcement.”²⁰⁷ He also explained not only do “the pangas’ low profile and two high-horsepower engines make them hard to spot and speedy in case of pursuit,”²⁰⁸ but “they are common for local fisherman to use.”²⁰⁹ Figure 7 shows a panga go-fast boat with four powerful engines.



Figure 7. Panga Go-Fast Boat Containing Four Engines²¹⁰

In addition to panga boats, smugglers use cargo vessels and any other type of vessel they can get their hands on to move illicit drugs into the United States.²¹¹ According to Lee Fang, a cargo vessel was stopped before exiting Colombian territorial waters, and when they searched it, authorities found 90 pounds of cocaine hidden in a locker.²¹² The cargo vessel, *Ping May*, which contained the cocaine, has ties back to U.S. Senator Mitch McConnell, the Majority Leader of the Senate, and his father-in-law James

²⁰⁷ Ibid.

²⁰⁸ Ibid.

²⁰⁹ Ibid.

²¹⁰ Source: Tyler Hayden, “More and More Smugglers Take to the Sea,” *Independent*, February 3, 2012, <http://www.independent.com/news/2012/feb/03/drug-and-migrant-smugglers-take-sea/>.

²¹¹ McNicholas, *Maritime Security*, 224.

²¹² Lee Fang, “Mitch McConnell’s Freight Ties to a Shadowy Shipping Company,” *The Nation*, October 30, 2014, <https://www.thenation.com/article/mitch-mcconnells-freighted-ties-shadowy-shipping-company/>.

Chao, “founder of the Foremost Maritime Corporation; a New York-based shipping, trading, and finance enterprise.”²¹³ Senator McConnell’s wife is Elaine Chao, the 2017 U.S. Secretary of Transportation. While this is only one specific case, there are probably more cases that either no one has knowledge of or that simply gets over looked due to corrupt officials willing to turn a blind eye for money. Cartels are willing to exploit corrupt officials and use large cargo vessels precisely because, if successful, these vessels produce an enormous profit.

D. SEEING LIKE A CARTEL: THE COSTS AND BENEFITS OF MARITIME SMUGGLING

While there are many types of vessels, there are only a few different types of vessels that cartels utilize when smuggling drugs via the maritime domain. In the past, these vessels may have been limited in their ability to navigate, remain hidden from law enforcement, and lack speed. However, improvements, and advancements in technology have made cartels’ job easier because now most vessels are equipped with current global positioning systems, as well as powerful engines, and are built stealthily to remain undetected. With these improvements, cartels continue to see their drugs successfully entering the United States, resulting in a continuous influx of profit.

1. Profit on the Horizon?

Semi-submersibles are commonly used by cartels because the top of the vessel is situated a few inches below the surface of the water, allowing them to go undetected.²¹⁴ Some vessels recently seized can transport up to 7.5 tons of cocaine;²¹⁵ and, if needed, the operators can abandon the craft and sink it so that there is no incriminating evidence. Wholesale value of 7.5 tons of cocaine would be \$405 million. A *Vice News* article stated, “A report by the U.S. Foreign Military Studies Office (FMSO) found that, in 2012, 80 percent of illicit drugs smuggled into the U.S. came via maritime routes, of

²¹³ Ibid.

²¹⁴ Tess Owen, “US Agents Watch as ‘Narco Sub’ Carrying \$194 Million Worth of Cocaine Sinks after Bust,” *Vice News*, March 26, 2016, <https://news.vice.com/article/us-agents-watch-as-narco-sub-carrying-194-million-worth-of-cocaine-sinks-after-bust>.

²¹⁵ Bender, “Cartels Are Using These ‘Narco-Submarines.’”

which 30 percent were found to have been smuggled in narco-sub.”²¹⁶ Additionally, a news article from the *Business Insider* reported that “one in four of the vessels are interdicted.”²¹⁷ In this case, if we take data from the Foreign Military Studies Office in 2012, where 214 narco submarine events were documented, but only 45 were interdicted, the one in four seizure ratio is proven correct.²¹⁸ However, while these were documented events, there could potentially have been more vessels that went undetected.

Suppose 214 documented narco submarine events doubled from 2012 to 2017, in which case there would be 428 narco submarine events. Therefore, in this case, 107 vessels would be interdicted while 321 vessels would be undetected. Assuming this, the wholesale value that is brought into the United States by cartels is around \$130 billion. However, the profit increases when drugs are sold at retail value. The major risks that are associated with moving drugs via semi-submersible are: potential break down of said submersible, potential interdiction from the USCG, USN or international countries, and potential navigation failure causing the smuggling operation to end in a different location. Even with all of these risks, cartels are willing to pursue this option due to low expenditures that yield vast profits. Figure 8 shows a semi-submersible narco sub being boarded by the USCG.

²¹⁶ Owen, “US Agents Watch.”

²¹⁷ Bender, “Cartels Are Using These ‘Narco-Submarines.’”

²¹⁸ Byron Ramirez and Robert J. Bunker, eds. *Narco-Submarines: Specially Fabricated Vessels Used for Drug Smuggling Purposes* (Fort Leavenworth, KS: Foreign Military Studies Office, 2015), <http://fmso.leavenworth.army.mil/Collaboration/Interagency/Narco-Submarines.pdf>, 146.



Figure 8. Semi-submersible Boarded by the United States Coast Guard²¹⁹

2. Fast Boats and Fast Profits

Go-fast boats have been a common method of smuggling because they are propelled by extremely powerful engines, they are very small and hard to detect on radar, and they can carry upwards of 2,000 pounds of drugs.²²⁰ From November 2016 to January 2017, the USCG seized approximately 13 tons of cocaine from 21 separate interdiction operations.²²¹ Additionally, a 2017 *Coast Guard News* article reports that “During Fiscal Year 2016, the United States Coast Guard seized more than 416,600 pounds of cocaine and taken 585 suspected smugglers into custody from the Eastern Pacific.”²²² While the USCG may have seized 416,600 pounds of cocaine, this is only a fraction of what cartels attempt to bring into the United States, and it has only disrupted a minimal amount of cartel profit.

²¹⁹ Source: Christopher Woody, “Watch the U.S. Coast Guard Seize a Narco Sub Laden with More Than 5,600 Pounds of Cocaine,” *Business Insider*, October 31, 2016, <http://www.businessinsider.com/us-coast-guard-seize-narco-submarine-cocaine-pacific-ocean-2016-10>.

²²⁰ Stephen Baxter, “Surge in Drug Smuggling Boats on Central Coast,” *Santa Cruz Sentinel*, March 15, 2014, <http://www.santacruzsentinel.com/article/ZZ/20140315/NEWS/140317609>.

²²¹ “Coast Guard Offloads 13 Tons of Cocaine in San Diego,” *Coast Guard News*, February 17, 2017, <http://coastguardnews.com/coast-guard-offloads-13-tons-of-cocaine-in-san-diego/2017/02/17/>.

²²² *Ibid.*

For the sake of an example, suppose every time the USCG interdicts a panga go-fast boat, there is approximately 2,000 pounds of cocaine onboard. If the USCG interdicted 416,600 pounds of cocaine in 2016, then it interdicted around 208 panga go-fast boats, which is close to the number of pangas seized or spotted in fiscal year 2012 and 2013.²²³ As the number increased from 204 in 2012 to 231 in 2013, suppose approximately 40 pangas were successful in their clandestine operations. While 2,000 pounds of cocaine on one panga goes for \$54 million, 80,000 pounds of cocaine from the successful pangas would go for \$2.1 billion. As one can see, there is still an enormous potential for cartels to generate a profit, even if a huge percent of their pangas are seized. However, it is still hard to calculate how many are successful because law enforcement does not know what it does not get.

3. What is in the Box? Container Shipments and Drug Trafficking

Container vessels are some of the largest vessels transiting the ocean to conduct international trade. Without container vessels, economies around the world would not be as sufficient as they are today. According to Frittelli, “The estimated world inventory of containers is about 12 million, 9 million of which enter U.S. sea ports each year.”²²⁴ He also goes on to say that “Unlike other cargo ships whose loading process occurs at the port...container ships carry cargo from hundreds of companies and the containers are loaded away from the port at individual company warehouses,”²²⁵ and “with each transfer of the container from one party to the next is a point of vulnerability in the supply chain.”²²⁶ Loading the containers away from the port is an incentive for cartels to take the risk. In addition to containers, according to McNicholas, “The insides of cargo bays, ventilation shafts, crawl spaces, rope and storage lockers, engine room, accommodations, supply closets, life boats, etc., provide an almost infinite number of places to hide a box or duffle bags containing kilos of drugs.”²²⁷

²²³ Baxter, “Surge in Drug Smuggling Boats.”

²²⁴ Frittelli, *Port and Maritime Security*, 3.

²²⁵ *Ibid.*, 8.

²²⁶ *Ibid.*

²²⁷ McNicholas, *Maritime Security*, 215.

For an illustrative case, suppose out of nine million containers that enter the United States every year,²²⁸ only .1 percent of those containers were used to smuggle drugs, or nearly 9,000. Further suppose that of the 9,000 containers that are used in an attempt to smuggle drugs, only 1 percent (or 90 containers) were successful. If some containers onboard vessels are known for carrying two tons of drugs,²²⁹ totaling \$108 million, then the total amount that 90 containers can carry would be worth \$9.7 billion. While this seems like an unrealistic profit, it actually can be viewed as perfectly realistic because, according to Wasem et al., “In terms of customs inspections, approximately 5.2% of sea containers entering the United States were physically inspected in 2004, up from 2%.”²³⁰ One can assume that since 2004, sea container inspections have increased. However, inspections can only increase so much due to resource constraints and schedules that are necessary to keep the economy flowing.

E. ESTIMATING COCAINE FLOW THROUGH MARITIME ROUTES

With reference back to Chapter II, assuming that 90 percent, or 171.9 metric tons, of smuggled cocaine crossed the land border into the United States in 2008, then only 19.1 tons, or 38,000 pounds, of cocaine was brought in by sea. By 2012, almost 80 percent of illicit drugs entering the United States came via maritime routes,²³¹ which means if it is assumed that the same amount, 191 metric tons, entered the United States in 2012, then 152.8 tons, or 316,000 pounds, of cocaine entered by sea. In 2016, Office of Inspector General released the *Review of U.S. Coast Guard’s Fiscal Year 2015 Drug Control Performance Summary Report*, reported that in fiscal year 2012, the USCG removed approximately 107 metric tons of cocaine out of potentially 796 metric tons of

²²⁸ Frittelli, *Port and Maritime Security*, 3.

²²⁹ Alex Pasternack, “To Move Drugs, Traffickers Are Hacking Shipping Containers,” *Motherboard* [blog], October 21, 2013, <https://motherboard.vice.com/enus/article/how-traffickers-hack-shipping-containers-to-move-drugs>.

²³⁰ Wasem et al., *Border Security*, 34–35.

²³¹ Owen, “US Agents Watch.”

cocaine flow, resulting in a 13.4 percent removal rate.²³² While a 13.4 percent removal rate does not seem like a large amount, in fiscal year 2015, the USCG removed 144.8 metric tons of cocaine out of 1254 potential flow, resulting in a smaller removal rate of 11.5 percent.²³³ Removal rates fluctuate from year to year, but the rates show that the USCG only removes a fraction of cocaine that enters the United States.

F. ANALYSIS

Table 2 represents my analysis comparing at sea methods of drug smuggling to domestic law enforcement, U.S. law enforcement, estimated costs to risks, benefits, and finally, their ranking against each other. I rated semi-submersible narco subs as medium when compared to domestic law enforcement risks because not only does the USCG seize them, but the Colombian military does as well. According to Byron Ramirez and Robert Bunker, “narco-submarines and related maritime drug trafficking methods are being carried out with relative impunity, with only about 1 in 4 craft presently being interdicted.”²³⁴ They go on to report that approximately 82 narco-sub subs have been seized since 2013.²³⁵ If 82 narco-sub subs have been seized, and only one in four are usually interdicted, then there were possibly 244 total narco-sub subs identified. Panga go-fast boats are rated as low because their small size helps them avoid radar detection, they travel faster than most other vessels, and they blend in well with other small maritime vessels, such as fishing vessels. Container vessels are also rated as low because there are thousands of them on the ocean, and it is hard to inspect every single one. However, this does not mean that law enforcement gets lucky once in a while and boards a vessel that is being used to smuggle drugs.

²³² U.S. Department of Homeland Security, Office of Inspector General, *Drug Budget: Review of U.S. Coast Guard’s Fiscal Year 2015 Drug Control Performance Summary Report* (Washington, DC: U.S. Department of Homeland Security, Office of Inspector General, 2016), <https://www.oig.dhs.gov/assets/Mgmt/2016/OIG-16-28-Jan16.pdf>, 2–3.

²³³ Ibid.

²³⁴ Ramirez and Bunker, *Narco-Submarines*, 7.

²³⁵ Ibid., 39.

Table 2. Rating of Sea Methods

	Method		
	Semi-submersible Narco Sub	Panga Go-Fast Boat	Container Vessel
Domestic Enforcement Risks	Medium	Low	Low
US Enforcement Risks	Low-Medium	Low-Medium	Low
Estimated Costs/Risks	Medium	Low-Medium	Medium-Low
Benefit	High	Medium	Low
Cost Benefit Ranking	Second Best	Best	Worst

U.S. law enforcement slightly mirrors domestic law enforcement in regard to ratings. I rated narco subs as low to medium because one of the USCG and USN's mission is to interdict drug smuggling operations, and it is somewhat successful in doing such. However, even though they do interdict some narco subs, there are inevitably others that make it to the United States. I rated go-fast boats as low to medium also for the same reasons as the narco subs. I rated container vessels as low because it is impossible for customs inspectors to inspect every vessel that comes through a port of entry into the United States. Additionally, unless the USCG or USN gets intelligence that a container vessel has loaded drugs onto the vessel, they may never know exactly what is on the vessel.

Determining the estimated costs to risks takes into account the expenditures that cartels must endure and the risks law enforcement pose on drug smuggling operations. I rated narco subs as medium because cartels spend anywhere from \$1 million to \$2 million building narco subs and lose one in four to law enforcement. If cartels send 20

narco subs, and five are seized, they would end up losing anywhere from \$5 million to \$10 million. However, it would be estimated that 15 narco subs would be successful and transport drugs to the United States, which would result in a higher profit.

I rated go-fast boats as low to medium because these types of boats are fairly easy to build and the only expenditure cartels would have to endure is the engines that propel the boats, which could add to tens of thousands of dollars. However, law enforcement is known for seizing these types of boats, therefore using this type of boat poses somewhat of a risk to cartels' operations. However, if successful, go-fast boats could generate a bold profit.

I rated container vessels as medium to low because cartels must rely on companies to move illicit containers on and off the container vessel, while also risking inconsistencies in inventory paperwork. Law enforcement has been known to seize drugs on container vessels. However, the security and control over these vessels is improving; therefore, they pose an even greater risk if cartels use them.

Using either of these methods can potentially benefit cartels. However, if successful, use of narco subs has the highest potential to generate profits for cartels, while container vessels have the lowest potential. I rated the narco sub as high because if successful, they can benefit the cartels the most by generating the most profit. It has already been stated that narco subs can transport multi-ton loads of drugs and when combined with other successful narco subs, they can generate profits in the billions. I rated go-fast boats as medium because their benefit is not as high as narco subs. Unlike narco subs, go-fast boats cannot transport as much, but they still generate a profit in the hundreds of millions. Finally, I rated container vessels as low because, even though container vessels could generate a large profit, cartels may not take the risk of not being able to directly control their drugs. Meaning that container vessels have become more closely monitored and are controlled by the captain and ship's crew, and unless the price is right, corruption on a container vessel may be limited.

After rating these methods, it is important to rank them appropriately. I ranked panga go-fast boats as best, narco subs as second best, and container vessels as worst.

While container vessels may seem like a prime target for cartels, I ranked them as worst because it seems unrealistic for cartels to put their drugs at risk on vessels that they cannot control. Narco subs seem like the obvious choice for ranking them as the best; however, I ranked them second best because they are not as fast as go-fast boats. If they need to evade law enforcement, their only option is to scuttle the craft and abandon ship, which means cartels would lose one to two million for building the sub, millions in drug profit, and potential detainment of the smugglers who could provide law enforcement with information on the cartels' operations. I ranked go-fast boats as best because they are low profile vessels that are hard to detect on radar, have powerful engines that will allow them to outrun law enforcement, and are inexpensive to operate. Additionally, these boats can carry drugs that have an estimated worth in the millions, and can be easily and quickly offloaded once ashore.

What does Table 2 mean for cartels? It provides a reasonable explanation in determining which methods are the most beneficial for cartels to use while smuggling on the ocean. In this case, panga go-fast boats, and semi-submersible narco subs are the most beneficial, while container vessels are the least beneficial due to legitimate scrutiny they must go through when entering port. Suppose cartels smuggled similar volumes of drugs using these three methods. In 2016, *Fox News* reported, "a Northern California U.S. Coast Guard crew seized more than 6 tons of cocaine from a semi-submersible vessel."²³⁶ While a semi-submersible narco sub can transport over six tons of cocaine in one operation, it would take approximately three container vessels, or six panga go-fast boats to transport the same amount. This means that there are more chances of drug busts against container vessels or panga go-fast boats than semi-submersible narco subs. However, narco subs are limited in number due to ongoing seizures both in Colombia and on the ocean by law enforcement. The method in which it would cost the least to get drugs across the border but have the greatest success would be panga go-fast boats because they are inexpensive or could be built by cartels, and they can offload drugs at any point of entry into the United States. However, some pangas do get seized by law

²³⁶ "Video of Coast Guard's \$200 Million Cocaine Bust Off Panama Released," *Fox News*, March 29, 2016, <http://www.foxnews.com/us/2016/03/29/california-us-coast-guard-crew-seizes-cocaine-off-panama.html>.

enforcement. There are numerous more small boats than container vessels or semi-submersibles which blend into legitimate traffic creating a headache for law enforcement personnel when they are trying to detect suspicious small boats.

G. CONCLUSION

The vessels discussed earlier are and continue to be the most common sea going methods cartels use in their drug smuggling operations. Even so, there is no doubt that cartels will use any vessel they can get their hands on. The problem with estimating the flow of drugs through the maritime domain is that cartels may not stick to a maritime route for the entire transit. Meaning that cartels can alter back and forth from maritime routes to land routes. What determines whether cartels will use land or maritime routes depends on several factors, such as terrain or natural barriers that prevent vessels from getting where they need to go, law enforcement presence on land or sea, corrupt governments, or weather. Additionally, cartels can alter routes as quickly as necessary, resulting in variation from year to year.

There are endless opportunities for cartels on the open ocean because the ocean is too large for law enforcement to control, unlike the smaller (in comparison) U.S.-Mexico land border. Additionally, law enforcement may not be able to control the air domain; however, air traffic controllers, who use radar, and air marshals have improved their ability to identify, detect, and track suspicious aircraft. The next chapter focuses on the air domain. Specifically, I discuss the role and responsibility of the Transportation Security Administration (TSA), historical and current methods and techniques cartels use in the air domain, the costs and benefits of air smuggling, estimating cocaine flow through air routes, and an analysis of the methods used by cartels compared to law enforcement, risks, and costs.

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IV. THE AIR DOMAIN OF DRUG SMUGGLING

In October 2016, a grandmother was arrested in Detroit and charged with “sneaking \$500,000 worth of cocaine onto a Detroit-bound plane from Las Vegas and then trying to deliver the coke after landing.”²³⁷ According to the news report, the 63-year old woman “was acting suspicious and alerted federal drug agents, who arrived and set up surveillance.”²³⁸ Additionally, according to an article in the *Detroit Free Press*, “They saw her looking at the tags on several pieces of luggage on the carousel....eventually, she picked up two large suitcases and headed for the taxi stand.”²³⁹ Eventually, authorities pulled her over and a police K9 sniffed out the drugs.²⁴⁰ The woman “tucked eight bundles of cocaine wrapped in plastic in one suitcase and nine in the other, which estimated to be about 17 kilos.”²⁴¹ This example shows the cartels’ willingness to target senior citizens as mules.

While the incident in Detroit was fairly recent, airport security increased many years earlier. After 9/11, airport security increased and tightened its grasp on all travelers throughout the United States. With increased security came longer inspection lines, better technology to identify and detect contraband (including drugs), and random anti-terrorism measures. Random anti-terrorism measures do not single out a specific individual but randomly select individuals for further inspection. These are necessary because they keep bad people, including drug smugglers, from being able to guess when a secondary inspection will be, which would result in the bad person being able to avoid inspection. Security measures at airports have become overly strict; however, the strictness is necessary to prevent drug smugglers from entering the country.

²³⁷ Tresa Baldas, “Feds: Grandma Snuck \$500k in Cocaine into Detroit,” *Detroit Free Press*, October 17, 2016, <http://www.freep.com/story/news/local/michigan/wayne/2016/10/17/feds-grandma-snuck-500000-cocaine-airplane-caught-detroit/92295140/>.

²³⁸ Ibid.

²³⁹ Ibid.

²⁴⁰ Ibid.

²⁴¹ Ibid.

The air domain, just like the sea domain, is enormous and hard to control; however, the United States does its best with what it has available. Why do cartels insist on smuggling drugs in a fairly secure domain, especially after 9/11 and tightened security? To answer this question, this chapter proceeds as follows. First, I discuss the effectiveness of the TSA. Second, I elaborate a brief history of air drug smuggling, which includes specific methods and techniques, as well as current methods and techniques cartels use to smuggle in this domain. Third, I provide a cost-benefit analysis of drug flow using specific examples of transportation, such as ultralight aircraft, drones, and private jets. Fourth, I examine the estimations of cocaine flow through the air domain, and the potential profits if cartels are successful. Finally, I provide a table showing which method of smuggling is most beneficial to the cartel and which one is the most profitable.

A. DRUG TRAFFICKING ENFORCEMENT IN THE AIR: ORIGIN AND DESTINATION INSTITUTIONS

Several countries in Central America and the Caribbean are potential hub stations for cartels to exploit. According to a 2010 AZCentral news report, “Long range flights from Colombia to areas in northern Mexico are gone because they raise too much suspicion on radar.”²⁴² Now, traffickers use “short-distance aerial trafficking to transport cocaine from South America to Mexico.”²⁴³ Additionally, “As U.S. counternarcotic cooperation with Venezuela has diminished.... The Bahamas continues to serve as a major transit country for both Jamaican marijuana and South American cocaine.”²⁴⁴ Even though Caribbean countries can still be used as transit points for cartels, cartels are finding themselves using the Central American corridor more and more as their primary transit zone.²⁴⁵ However, determining where and how cartels transport their drugs remains difficult due to their ability to adapt and quickly change routes or means of transportation.

²⁴² Chris Hawley, “As Drug Planes Get Seized, Cartels Adapt,” AZCentral, March 17, 2010, <http://archive.azcentral.com/news/articles/20100316mexico-drug-smugglers-planes.html>.

²⁴³ Seelke et al., *Latin America and the Caribbean*, 2.

²⁴⁴ Ibid.

²⁴⁵ Ibid.

In addition to the risks associated with transitioning drugs through Central American and Caribbean countries, U.S. institutions, specifically, the TSA and the Air and Marine Operations (AMO) department within USCBP, present risk for using air routes for drug smuggling. TSA became stricter after 9/11. For example, according to TSA, in November 2001, “President Bush signed the Aviation and Transportation Security Act into law requiring screening conducted by federal officials, 100 percent checked baggage screening, expansion of the Federal Air Marshal Service and reinforced cockpit doors.”²⁴⁶ Security measures continued to increase as additional threats were identified. For instance, according to TSA’s website, in September 2006, “TSA enhances security measures to include more random screening of employees, additional canine patrols, stronger air cargo security measures, more rigorous identity verification standards and deploying more trained security officers in observation techniques.”²⁴⁷ Security measures increased again in 2008 when “TSA increased its canine use to screen 100 percent of air cargo loaded onto U.S. passenger aircraft,”²⁴⁸ and by 2014, “TSA made numerous operation enhancements to advanced imaging technology to complement technologies already in use.”²⁴⁹ These past developments and improvements have created a deterrence shield around commercial aircraft and airports.

AMO, a department that falls under the USCBP, is responsible for “securing America’s borders and carries out an important and related Homeland Security mission, fulfilled with partner agencies, to secure America’s national airspace.”²⁵⁰ AMO agents “exercise legal authorities under federal law...with respect to inspection of GA airman and medical certificates, photo identification, and aircraft certificates of registration.”²⁵¹

²⁴⁶ “Transportation Security Timeline,” Transportation Security Administration, accessed May 8, 2017, <https://www.tsa.gov/timeline>.

²⁴⁷ Ibid.

²⁴⁸ Ibid.

²⁴⁹ Ibid.

²⁵⁰ U.S. Customs and Border Protection, *CBP and Domestic General Aviation* (Washington, DC: U.S. Customs and Border Protection, 2016), https://www.cbp.gov/sites/default/files/assets/documents/2016-May/601367%20-%20CBP%20and%20Domestic%20General%20Aviation%20Trifold%20Brochure%20EDIT_AMO%20FINAL.pdf.

²⁵¹ Ibid.

The Office of Air and Marine stated its roles and responsibilities in two plans, as explained in the following:

the Air Domain Surveillance and Intelligence Integration Plan (ADSII) and the Aviation Operational Threat Response Plan (AOTR), identify CBP responsibilities with respect to domestic aviation security. The AOTR specifies that the Secretary of Homeland Security, acting through U.S. Customs and Border Protection (CBP), is responsible for conducting aviation law enforcement operations, including detecting, identifying, and interdicting potential air threats to national security, as well as investigative case support for prosecution of criminal law violations within its jurisdiction. The ADSII specifies that CBP is responsible for detecting and identifying potential air threats to the United States, including aircraft involved in the aerial transit of contraband in the United States.²⁵²

In addition to these plans, USCBP has utilized aircraft and advanced surveillance technology to prevent aircraft from smuggling drugs into the United States.

Several upgrades and new additions of useful technology assist USCBP with identifying, detecting, and tracking, ultimately leading to interdiction operations. According to Alles, Borkowski, and Vitiello, “the Multi-Role Enforcement Aircraft (MEA) has a multi-mode radar for use over water and land, an electro-optical/infrared camera system, and a satellite communications system that is highly capable and a critical investment in CBP’s maritime, land, and aerial surveillance capabilities.”²⁵³ There are approximately 240 aircraft in the AMO inventory,²⁵⁴ which include: “P-3 Long Range Trackers and Airborne Early Warning Aircraft, DHC-8 Maritime Patrol Aircraft, AS-350 helicopter, and various Unmanned Aerial Systems.”²⁵⁵ In addition to these assets, CBP reported that “full operations of eight helium-filled balloon surveillance systems will provide radar coverage of the U.S./Mexico border, south Florida and Puerto Rico

²⁵² U.S. Customs and Border Protection, *Domestic General Aviation Law Enforcement Operations: A Top-Down Review* (Washington, DC: U.S. Customs and Border Protection, 2014), https://www.cbp.gov/sites/default/files/documents/Top%20Down%20Review%20GA_09302014a.pdf, 6.

²⁵³ *Border Security Gadgets, Gizmos, and Information*, 5.

²⁵⁴ “Air and Marine Operations: Fact Sheet.”

²⁵⁵ *Border Security Gadgets, Gizmos, and Information*, 5.

areas.”²⁵⁶ USCBP’s AMO Center uses “these powerful surveillance tools to provide border monitoring and enforcement of low-level aircraft.”²⁵⁷

B. HISTORICAL METHODS OF AIR SMUGGLING

Since the 1970s, small aircraft have been used by cartels to transport drugs from Colombia to the Bahamas.²⁵⁸ According to Andreas, “Carlos Lehder Rivas is credited with pioneering the transportation of cocaine through the Caribbean to the United States by small aircraft.”²⁵⁹ Exploiting the Bahamas was easy because “government authorities in Nassau were suspected of taking hefty bribes to look the other way.”²⁶⁰ Decker and Chapman explained that many smugglers they spoke to “identified a strip on the Guajira Peninsula controlled by drug traffickers and often used by planes departing with drugs.”²⁶¹ They also explained that these airplanes “would drop a load or land in such countries as the Bahamas, Cuba, Aruba, Haiti, Honduras, and Puerto Rica.”²⁶² The Bahamas seem to be a cartels’ favorite transit point because

they are made up of more than seven hundred islands, half of which are uninhabited; it is as difficult for Bahamian officials to patrol these islands as it is for U.S. law enforcement to follow a smuggler through the islands during a chase; the islands are only forty miles from Miami, which makes travel in all types of boats feasible; and corruption on the island allows for the purchase of flight plans and for landing planes from Colombia, making the transfer of loads more secure.²⁶³

The Bahamas were not the only countries in the Caribbean that were favored by the cartels.

²⁵⁶ “CBP Completes Upgrade of Aerostat Surveillance System,” U.S. Customs and Border Protection, news release, October 3, 2014, <https://www.cbp.gov/newsroom/national-media-release/cbp-completes-upgrade-aerostat-surveillance-system>.

²⁵⁷ Ibid.

²⁵⁸ Andreas, *Smuggler Nation*, 279.

²⁵⁹ Ibid.

²⁶⁰ Ibid.

²⁶¹ Decker and Chapman, *Drug Smugglers on Drug Smuggling*, 63.

²⁶² Ibid., 62–63.

²⁶³ Ibid., 64.

Cuba was a significant transit point for cartels to use when smuggling drugs on aircraft. Some smugglers told Decker and Chapman that “the government could be paid off and U.S. law enforcement could not enter the flight zone around it.”²⁶⁴ The smugglers also explained to the authors that “first the plane would fly over Cuba to let officials know it was there, and then the smugglers would airdrop the load off the coast of Cuba for boats that would bring it to Florida.”²⁶⁵ Additional transit points were “Puerto Rico, Mexico, Haiti, Jamaica, Honduras, and the Dominican Republic because of the possibilities for corruption and payoffs for information.”²⁶⁶ The reason why it was necessary to have multiple options of transit points was because “direct flights from Colombia to the United States are impossible for many aircraft and require so much fuel for others that the amount of cocaine that can be carried is minimal.”²⁶⁷ Once an airplane successfully makes it to a transit point, cartels must then transport drugs by either the same airplane or a different airplane into the United States. According to Filippone, this “is the most dangerous part of the operation due to the emphasis on interdiction by U.S. law enforcement agencies, and for this reason the cocaine acquires most of its value here.”²⁶⁸ Cartels are able to succeed in their operations due to their sophisticated aircrafts, as well as being able to infiltrate U.S. armed forces communication systems that will tell the cartel movements of these forces.²⁶⁹ Historical methods of smuggling by air reveal that cartels were using the Caribbean more often than Central America for a while; however, current methods show that cartels are using Central America more often and are also incorporating drones into their methods of transportation.

C. THE BENEFITS OF CURRENT METHODS OF AIR SMUGGLING

Cartels continue to use the Caribbean as a major transit point for smuggling drugs into the United States. However, according to Seelke et al., “The overwhelming use of

²⁶⁴ Ibid., 65.

²⁶⁵ Ibid.

²⁶⁶ Ibid.

²⁶⁷ Filippone, “The Medellin Cartel,” 332.

²⁶⁸ Ibid., 333.

²⁶⁹ Ibid., 341.

the Central America-Mexico corridor as a transit zone represents a major shift in trafficking routes; the primary pathways today for illegal drugs entering the United States from abroad is through the Central America-Mexico corridor.”²⁷⁰ Figure 9 depicts routes that cartels have used, since 2010, to smuggle drugs to a staging point before proceeding north to the United States. Additionally, Figure 9 shows how cartels are no longer primarily using the Caribbean, 30 percent of total use, but are mostly using the Central America-Mexico corridor, 70 percent of total use.

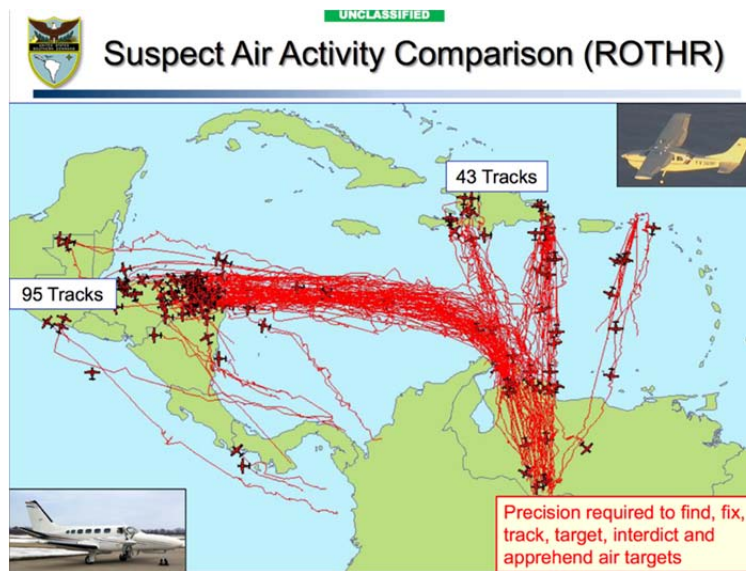


Figure 9. USSOUTHCOM: Suspected Routes of Drug Smuggling Aircraft²⁷¹

In addition to small aircraft, cartels have been testing and utilizing drone technology. Alternatively known as unmanned aerial vehicles, drones can be small and lightweight, and some can even be completely undetectable on radar. The military uses drones in a variety of mission sets, but recently drones have become more popular with civilian users. If someone wants to buy a drone and use it for smuggling drugs across the border, all one needs to do is go to BestBuy or online to Amazon and order one. In

²⁷⁰ Seelke et al., *Latin America and the Caribbean*, 2.

²⁷¹ Source: U.S. Southern Command, *Precision Targeting: A USSOUTHCOM Perspective* (Washington, DC: U.S. Southern Command, 2011), http://www.dtic.mil/ndia/2011/PSA_AnnualReview/Day2Droz.pdf.

January 2015, the *New York Times* reported that a drone crash landed on the lawn of the White House.²⁷²

It is not just civilian users that have been using drones. In January 2015, *CNN* reported that smugglers used a drone to transport approximately six pounds of crystal meth from Mexico to the United States, but the operation failed when the drone went down because of the weight of the payload and landed in a parking lot in Tijuana, Mexico.²⁷³ Six pounds of crystal meth goes for approximately \$48,000 in the United States.²⁷⁴

D. SEEING LIKE A CARTEL: THE COSTS AND BENEFITS OF AIR SMUGGLING

Cartels are limited with the type of aircraft they can use to smuggle drugs. However, this limitation does not pose any risks to cartels because the countries they are flying their drugs into are notoriously corrupt or have weak law enforcement capabilities. The most common modes of transportation cartels use to smuggle their drugs is by ultralight aircraft, drones, or private jets. Cartels may continue to hide their drugs on private jets either by human packing, in personal luggage, or in cargo. However, it is impossible for cartels to hide drugs on ultralight aircraft or drones due to their small nature; only relatively small amounts can be transported this way. Additionally, cartels intend to offload drugs immediately after landing, or the pilot drops the drugs and returns to base. Even though law enforcement agencies are sometimes successful in interdicting suspicious aircraft, they will never interdict 100 percent of the aircraft that are used to smuggle drugs.

1. Invasion of the Ultralight

Cartels will do anything to transport drugs from Mexico into the United States, including experimenting with new technologies such as ultralights. Ultralight aircraft

²⁷² Michael S. Schmidt, "A Drone, Too Small for Radar to Detect, Rattles the White House," *The New York Times*, January 26, 2015, https://www.nytimes.com/2015/01/27/us/white-house-drone.html?_r=0.

²⁷³ Valencia and Martinez, "Drone Carrying Drugs Crashes."

²⁷⁴ *Ibid.*

have become a common method for avoiding checkpoints at ports of entry into the United States. Steven Luke explain that these aircraft “are like gliders, but with engines and the pilots are seated.”²⁷⁵ The operation is simple, the pilot flies the ultralight across the border, drops the package of drugs from the aircraft, and simply flies back across the border to Mexico to avoid incarceration.²⁷⁶ Luke states, “the pilots fly at night to avoid detection and carry hundreds of pounds of drugs in a basket-type contraption beneath the aircraft.”²⁷⁷ Ultralight aircraft may pose risks to cartels when using them because sometimes they can crash and kill the pilot if the load of drugs is too heavy.²⁷⁸ Alternatively, if the pilot successfully drops the package, law enforcement may get to the location of the package before the cartel member receiving the package does.²⁷⁹ Figure 10 depicts what an ultralight aircraft looks like after crashing due to heavy loads of drugs.

²⁷⁵ Steven Luke, “Ultralight Aircraft Used to Smuggle Drugs Across Border,” *NBC San Diego*, March 26, 2014, <http://www.nbcsandiego.com/news/local/Ultralight-Aircraft-Border-Drug-Smuggling-Agents-San-Diego-252461841.html>.

²⁷⁶ Ibid.

²⁷⁷ Ibid.

²⁷⁸ “Fatal Ultralight Aircraft Crash Highlights Latest Risky Tactic for Smuggling Drugs Into US,” *Daily Mail*, March 11, 2009, <http://www.dailymail.co.uk/news/article-1161135/Fatal-ultralight-aircraft-crash-highlights-latest-risky-tactic-smuggling-drugs-US.html>.

²⁷⁹ Cissel, “Two Arrested after Ultra-Light Aircraft Carrying Drugs Crosses U.S.-Mexico Border,” *Justice in Mexico*, November 9, 2014, <https://justiceinmexico.org/two-arrested-after-ultra-light-aircraft-carrying-drugs-crosses-u-s-mexico-border/>.



Figure 10. Downed Ultralight Aircraft Carrying Drugs²⁸⁰

If someone wants to purchase an ultralight aircraft, all he or she would need to do is go to EBay and bid for one. Prices for ultralight aircraft vary anywhere from a couple thousand dollars to tens of thousands of dollars, depending on the quality and with what the craft is equipped. Ultimately, these aircraft are relatively cheap when compared to the profit cartels generate after one airdrop. The USCBP released a news report that revealed “an ultralight aircraft dropped several bundles of marijuana, weighing approximately 219 pounds with an estimated worth of \$109,500.”²⁸¹ According to Senator Kamala Harris, “Since 2008, there have been more than 200 incidents involving ultra-lights.”²⁸² For the sake of speculation, suppose at least 200 ultralight aircrafts have been successful, and each dropped \$109,500 worth of drugs into the United States. The result would have been \$21.9 million in potential revenue for cartels. Since we do not know how many undetected ultralight aircrafts have been successful, it is hard to determine the potential profit for cartels when using said aircrafts. However, it may be safe to say that cartels can

²⁸⁰ Source: “Ultralight Aircraft Carrying Marijuana Crashes in Mountains,” U.S. Immigration and Customs Enforcement, March 20, 2014, <https://www.ice.gov/news/releases/ultralight-aircraft-carrying-marijuana-crashes-mountains>.

²⁸¹ “Ultralight Aircraft Observed Dropping Drugs into U.S.” U.S. Customs and Border Protection, June 22, 2015, <https://www.cbp.gov/newsroom/local-media-release/ultralight-aircraft-observed-dropping-drugs-us>.

²⁸² Kamala Harris, *Gangs Beyond Borders: California and the Fight Against Transnational Organized Crime* (Sacramento, CA: Office of the Attorney General, California Department of Justice, 2014), https://oag.ca.gov/sites/all/files/agweb/pdfs/toc/report_2014.pdf, 45.

generate a revenue of hundreds of millions of dollars due to the number of identified ultralight aircrafts.

2. Drones: Vehicles of the Future? Or Short Lived Test Platform?

Commonly known as unmanned aerial vehicles, drones have become popular in cartel operations. For example, as reported in the *Los Angeles Times*, in early 2015, “28 pounds of heroin made it across the U.S.-Mexico border near Calexico by drone.”²⁸³ There were two men on the receiving end “who pleaded guilty to retrieving the drugs near California Highway 98 in Imperial County.”²⁸⁴ The news article concluded, “small drones, which have become easily accessible and affordable to the general public, can fly up to an hour and as far as five miles, and some can be navigated by preset GPS coordinates.”²⁸⁵ Not only are drones being used to smuggle drugs across the U.S.-Mexico border, drones are also used to smuggle drugs into prison. For example, in 2016, “a Maryland inmate arranged to have a drone fly the cargo over a 12-foot barbed-wire fence and drop them in the yard.”²⁸⁶ According to Heather Kelly, “most prisons are fortified with spotlights, armed guards, and cameras, but don’t have the technology to detect unmanned aerial vehicles.”²⁸⁷ The threat of drones continues to rise because “more than 700,000 drones ship every month around the world.”²⁸⁸ However, not all drops are successful; sometimes the drones crash. They can be tossed around and forced down by wind very easily. Even if drones do crash, cartel members can still retrieve the drugs and sell them for a massive profit. Figure 11 shows a crashed drone that was carrying drugs.

²⁸³ Davis, “Two Plead Guilty.”

²⁸⁴ Ibid.

²⁸⁵ Ibid.

²⁸⁶ Heather Kelly, “How to Catch Drones Smuggling Drugs into Prison,” *CNN*, June 24, 2016, <http://money.cnn.com/2016/06/24/technology/dedrone-drone-prisons/>.

²⁸⁷ Ibid.

²⁸⁸ Ibid.



Figure 11. Crashed Drone Recovered by Authorities in Tijuana²⁸⁹

For an illustrative example, suppose a member of the cartel wanted to purchase a drone for drug smuggling purposes. Some of the more expensive drones cost anywhere from a few thousand dollars to tens of thousands of dollars. Depending on what the cartels want, the more expensive ones may be more reliable. Some drones are known for carrying 28 pounds of drugs, which can be worth approximately \$756,000 in wholesale value. The number of drug smuggling drones is unknown because drones are so popular that it is hard to determine whether a drone has smuggled drugs if the drugs are not present. In any case, suppose 50 drones successfully made drops in a destination across the border. This means that cartels would bring in a revenue of \$37.8 million. It is conceivable to think that 50 drones have been successful because they are hard to detect visually and on radar. However, since there is a lack of data, the total success of using drones remains unknown. Due to flight distance limitations of drones, cartel members must be within a five-mile distance of the border if they want to use a basic drone. However, there are some drones that are built for further distances. For example, a

²⁸⁹ Source: Andrea Noel, "Drone Carrying Three Kilos of Meth Crashes in Tijuana," *Vice News*, January 21, 2015, <https://news.vice.com/article/drone-carrying-three-kilos-of-meth-crashes-in-tijuana>.

Colombian regional police commander, Jose Acevedo, told Christopher Woody of *Business Insider* that “a drone was used to carry cocaine to Panama, it had capacity to transport 10 kilos [22 pounds] on each trip and to travel a distance of 100 kilometers [62 miles].”²⁹⁰ This example shows the persistence of cartels in their use of drones to transport drugs further than they did previously. The benefit of using drones is that it reduces risk of prosecution for the cartels to zero. Cartel members will do anything to evade capture and more so, to continue succeeding.

3. Private Jets to Ghost Fleet

In July 2011, an article was written about John Charles Ward, a pilot for Mexico’s Sinaloa cartel.²⁹¹ The amount of drugs that he was able to transport in one trip weighed approximately 242 pounds, which has an estimated value of \$6.5 million.²⁹² According to a news article released by *Motherboard*, “Mexico has seized 599 airplanes and helicopters linked to the Sinaloa Cartel alone, nearly five times the size of Aeromexico’s fleet.”²⁹³ Additionally, Hawley informs that “since 2006, authorities have seized more than 400 drug planes—a fleet bigger than the Mexican air force itself.”²⁹⁴ Mexican authorities have seized 400 plus aircraft; however, actual number of aircraft in a cartels inventory is unknown. Figure 12 shows a drug seizure from a private aircraft with 450 kilos of drugs onboard.

²⁹⁰ Christopher Woody, “Colombian Traffickers Have Added Drones to Their Smuggling Arsenal,” *Business Insider*, November 18, 2016, <http://www.businessinsider.com/colombian-cocaine-drug-smuggler-using-drones-2016-11>.

²⁹¹ Richard Marosi, “Flying High for the Sinaloa Drug Cartel,” *Los Angeles Times*, July 27, 2011, <http://articles.latimes.com/2011/jul/27/local/la-me-cartel-20110727>.

²⁹² Ibid.

²⁹³ Robert Beckhusen, “The Sinaloa Cartel Has More Planes than Mexico’s Biggest Airline,” *Motherboard* [blog], May 9, 2016, https://motherboard.vice.com/en_us/article/the-sinaloa-cartel-has-more-planes-than-mexicos-biggest-airline.

²⁹⁴ Hawley, “As Drug Planes Get Seized, Cartels Adapt.”



Honduran police with a privately owned plane that was seized after it was found to be holding 450 kilos of drugs in Brus Laguna, Honduras, 600 km (372 mi) east of Tegucigalpa along the border with Nicaragua, July 22, 2010.
REUTERS/Honduran Police/Handout

Figure 12. Private Aircraft Carrying Drugs Seized²⁹⁵

Bearing in mind the true numbers of cartel aircraft are unknown, suppose 400 airplanes successfully delivered drugs across the border. These successes would generate a revenue of \$2.6 billion. This revenue alone explains the persistence of cartels using private airplanes, even though more than 400 drug planes have been seized since 2006.²⁹⁶ Additionally, suppose cartels only used 100 airplanes, but the planes have made multiple trips back and forth across the border. If each plane makes five trips, the cost of employing 100 airplanes would go down, but the revenue generated by five trips per aircraft would go up to \$3.25 billion. No matter which combination cartels decide to deploy their aircraft, if successful, they will generate guaranteed, enormous profits. Moreover, airplanes are quite easy to get ahold of, especially if cartels are willing to pay full price.

²⁹⁵ Source: Woody, “Frozen Sharks.”

²⁹⁶ Hawley, “As Drug Planes Get Seized, Cartels Adapt.”

E. ESTIMATING COCAINE FLOW THROUGH AIR SMUGGLING ROUTES

In fiscal year 2016, the USCG estimated cocaine flow into the United States to be around 2,834 metric tons.²⁹⁷ In the same year, of the out of the 2,834 tons, the USCG removed approximately 201.3 metric tons from the sea.²⁹⁸ However, calculating the flow of cocaine through the air domain is difficult. Increased airport security and surveillance has more than likely caused this trend. For instance, data from a 2010 NDTA states that “the amount of drugs smuggled into the United States by couriers and in cargo aboard commercial aircraft is significantly less than the amount smuggled by other means.”²⁹⁹ Additionally, the same NDTA reported that “6 percent of cocaine seizures were from commercial air conveyances.”³⁰⁰ Such a low percentage was “partially attributable to a shift in the smuggling by couriers on commercial flights to overland transportation across the Southwest Border as well as increased airport interdiction.”³⁰¹ Smuggling by aircraft has changed significantly since 9/11, and cartels are more willing to risk smuggling overland than by air.

F. ANALYSIS

Table 3 represents my analysis comparing air methods of drug smuggling interdiction of domestic law enforcement and U.S. law enforcement, the estimated costs to risks, benefits, and finally, their ranking against each other. I rated ultralight aircraft as low when compared to domestic law enforcement risks because they are hard to detect and their missions are quick. According to Richard Marosi, “flying at night with lights out, and zipping back across the border in minutes, ultralight aircraft sightings are

²⁹⁷ Source: U.S. Department of Homeland Security, Office of Inspector General, *Review of U.S. Coast Guard’s Fiscal Year 2016 Drug Control Performance Summary Report* (Washington, DC: U.S. Department of Homeland Security, Office of Inspector General, 2017), <https://www.oig.dhs.gov/assets/Mgmt/2017/OIG-17-33-Feb17.pdf>, 3.

²⁹⁸ Ibid.

²⁹⁹ “National Drug Threat Assessment 2010,” U.S. Department of Justice, National Drug Intelligence Center, accessed on May 7, 2017, <https://www.justice.gov/archive/ndic/pubs38/38661/movement.htm>.

³⁰⁰ Ibid.

³⁰¹ Ibid.

rare.”³⁰² While many ultralights remain undetectable, some are detected simply because “agents are instructed to turn off their engines and roll down their windows so they can listen for incursions by air.”³⁰³ I rated drones as low because, just like ultralight aircraft, drones are hard to detect on radar and are smaller than ultralight aircraft. Private jets are rated as high because there have been over 400 aircraft seized by authorities.³⁰⁴ Private jets are also easier to identify on radar and must have a flight plan coordinated with air control towers.

Table 3. Rating of Air Methods

	Method		
	Ultralight Aircraft	Drones	Private Jets
Domestic Enforcement Risks	Low	Low	High
US Enforcement Risks	Medium	Low	High
Estimated Costs/Risks	Low-Medium	Low	High
Benefit	Medium	Low-Medium	Medium
Cost Benefit Ranking	Best	Second Best	Worst

U.S. law enforcement poses increased risk to these methods. I rated ultralight aircraft as medium because U.S. law enforcement has significantly better technology for detecting small aircraft than other countries. Additionally, advanced surveillance systems

³⁰² Richard Marosi, “Ultralight Aircraft Now Ferrying Drugs Across U.S.-Mexico Border,” *Los Angeles Times*, May 19, 2011, <http://articles.latimes.com/2011/may/19/local/la-me-border-ultralight-20110520>.

³⁰³ Ibid.

³⁰⁴ Hawley, “As Drug Planes Get Seized, Cartels Adapt.”

and other aircraft assist with detection. Drones are still rated as low because they are difficult to pick up on radar. However, innovation may clear up this issue by developing technology that can pick up drones on radar. Private jets are rated as high because air traffic control towers are great at picking up these aircraft. Additionally, airspace is tightly controlled by the military.

Determining the estimated costs to risks takes into account how much cartels must spend on aircraft, while also looking at the possible risks law enforcement puts on cartels' operations. Ultralight aircraft is rated as low to medium because the relative cost of an ultralight aircraft is low, while law enforcement is increasing its situational awareness of ultralight aircraft and continuously seeking further developed technology to detect these types of aircraft. Drones are rated as low because everybody has access to the internet and could have one shipped to their house in days. Additionally, the relative cost for a basic drone can be a few hundred dollars, although a more sophisticated one is going to cost in the several thousand-dollar price range. Drones are difficult to detect on radar, which forces law enforcement to detect them using their eyes and ears.³⁰⁵ Private jets are rated as high due to their relatively high cost as compared to ultralight aircraft and drones. For instance, a Cessna Citation III goes for \$650,000 on avbuyer.com.³⁰⁶

While determining whether these methods are beneficial for cartel operations, I took into account the potential money spent on each aircraft, while also looking at the potential revenue each one generates. I rated ultralight aircraft as medium based on an ultralight aircraft going for \$8,000 on EBay and by comparing it to the "219 pounds of drugs it can hold worth an estimated \$109,500."³⁰⁷ Ultralight aircraft are clearly beneficial to cartels. I rated drones as low to medium due to their limitation regarding the weight they can carry. Cartels can only weigh down a drone a certain amount before it can no longer fly. However, drones are relatively inexpensive and can generate \$756,000 from one drop. I rated private jets as medium because cartels have an arsenal of them,

³⁰⁵ Marosi, "Ultralight Aircraft Now Ferrying Drugs."

³⁰⁶ "Private Jets for Sale," AVBUYER, accessed May 8, 2017, <https://www.avbuyer.com/aircraft/private-jets>.

³⁰⁷ "Ultralight Aircraft Observed Dropping Drugs into U.S."

and they can carry hundreds of pounds of drugs. Even though law enforcement may detect, identify, and track these aircraft, cartels still benefit from a few successful missions.

After rating these methods, it is important to rank them appropriately. I ranked ultralight aircraft as the best, drones as second best, and private jets as the worst. Private jets are ranked as the worst because they are easily detected on radar, and they must have a flight plan. Otherwise, it raises a red flag with authorities, who immediately hail the aircraft. Additionally, radars show where the aircraft is coming from, and if authorities are suspicious, they can greet the aircraft upon landing and conduct an inspection of the pilot and aircraft. Drones are ranked as second best because they can go undetected on radar and sometimes visually; however, they are limited in weight and are uncontrollable in weather. Drones reduce the human operator to a human controller, eliminating any possibility of arrest. I ranked ultralight aircraft as the best because the missions are quick, they fly fairly low to the ground to avoid detection, and all they have to do is release the drugs and travel back across the border before being identified. Ultralight aircraft have the greatest potential to continuously benefit cartels.

What does Table 3 mean for cartels? Table 3 provides a reasonable explanation in determining which methods are the most beneficial for cartels to use in the air. In this case, ultralight aircraft are the most beneficial, followed by drones, and then private jets. For a hypothetical case, suppose cartels smuggled similar volumes of drugs through each of these methods. Both ultralight aircraft and drones are limited in the amount of drugs they can carry, while private jets can carry more. In 2015, Snejana Farberov reported, “a 1976 Gulfstream II jet transported 485lbs of cocaine worth \$6.5 million into South Florida last year.”³⁰⁸ While one private jet was able to transport 485lbs of cocaine, it would take 22 drones or two ultralight aircraft. This means that there are more chances for law enforcement to interdict drones or ultralight aircraft; however, private jets are riskier due to the scrutiny they undergo when entering U.S. controlled air space.

³⁰⁸ Snejana Farberov, “Pictured: \$6.5 Million of Cocaine Stuffed Under Seats and Floorboards of Private Jet Unsuccessfully Smuggled from Venezuela,” *Daily Mail*, July 7, 2015, <http://www.dailymail.co.uk/news/article-3152345/Pictured-6-5million-cocaine-stuffed-seats-floorboards-private-jet-unsuccessfully-smuggled-Venezuela.html>.

Additionally, given the easy access to ultralight aircraft and drones, cartels are more likely use these methods for smuggling operations.

G. CONCLUSION

The aircraft discussed in this chapter are the most common air smuggling methods cartels use in their operations. Cartels will continue to find innovative ways to get their drugs across the border, including evolving air methods. The air domain has transformed from free flying to requiring flight plans and oversight from air traffic controllers. It is commonly known that the incidents of 9/11 have caused major shifts in the air domain, resulting in significantly increased security and scrutiny. Increased security has deterred cartels from primarily using the air domain, which is why methods in the land and sea domains are reported more frequently on the news.

In the following chapter, I explain why this research matters to the U.S. government, military, and citizens, the international community, and scholars who conduct research on this topic. Additionally, I created a table comparing all methods under each domain. This provides a collective visual of how each method ranks against another and shows which major domain is the best and why, as well as which sub-method is the best and why. Upon this conclusion, I discuss how changes in technology might change the calculation of which method is better. Furthermore, I write a policy approach for law enforcement and DOD to address the most likely method now and also to prepare them for the future of drug smuggling.

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V. CONCLUSION

In this chapter, I explain why the United States government, military and citizens, the international community, and scholars should care about this research and issue. Second, I provide a complete analysis of land, sea, and air domains by generating a table to identify the most beneficial domain for cartels, as well as the most beneficial sub-method. Also, I discuss how I arrived to this conclusion by summarizing each domain. Third, upon completion of my analysis, I discuss how changes in technology might change the calculation of which method is better. Furthermore, I provide a policy approach that will explain the new use of technology and resources to address the most likely method now and also to prepare the DOD for the future of drug smuggling and what should happen.

A. SIGNIFICANCE

The answer to the research question is critical to the United States government, military, and citizens, the international community, and scholars who conduct research on this topic. Each of these entities are affected either directly or indirectly due to the potential dangers associated with cartel organizations. Not only is conducting research on this topic important to critical thinking among important individuals, it provides the framework to allow these individuals to make important decisions in their daily lives that affect the security of the United States. Furthermore, nothing is more important than individual, national, and international security, as well as to promote further awareness on this topic, where it is currently weakest.

1. Why Should the United States Government Care about This Research?

A national drug control strategy is submitted from the president to Congress each year. The strategy for 2016 aimed to

strengthen efforts to prevent drug use in our communities; seek early intervention opportunities in health care; increasing access to treatment and supporting long-term recover; criminal justice reform: making the system more effective and fair; disrupt domestic drug trafficking and

production; strengthen law enforcement and international partnerships to reduce the availability of foreign-produced drugs in the United States; and improve information systems for analysis, assessment, and local management.³⁰⁹

Weak law enforcement and dysfunctional international partnerships are at the heart of the drug smuggling problem, but increased efforts from DHS and the Department of Justice (DOJ) can generate stronger national security, which is important to all Americans. Because agencies within DHS and DOJ deem drug smuggling as a major threat to national security and to American individuals, agencies should increase assets and patrolling of land, sea, and air drug smuggling routes.

DHS's responsibility is to "effectively secure U.S. air, land, and sea points of entry; safeguard and streamline lawful trade and travel; and disrupt and dismantle transnational criminal and terrorist organizations."³¹⁰ DOJ has three overarching, strategic goals; however, the second is to "prevent crime, protect the rights of the American People, and enforce federal law"³¹¹ while also "enforcing and upholding federal law against the flow of drugs across the Southwest Border and the associated violent crimes."³¹² These two departments within the United States government are designated with securing U.S. borders and coastline, and they are directly responsible for interdicting land, sea, and air drug smuggling routes.

The United States has implemented a national southwest border counternarcotic strategy that "involves drug trafficking, alien smuggling, weapons trafficking, and money laundering which highlights some of the national security implications of criminal

³⁰⁹ White House, *National Drug Control Strategy* (Washington, DC: White House, 2016), https://obamawhitehouse.archives.gov/sites/default/files/ondcp/policy-and-research/2016_ndcs_final_report.pdf.

³¹⁰ "Mission: Secure and Manage Our Borders," U.S. Department of Homeland Security, accessed September 29, 2016, <https://www.dhs.gov/secure-and-manage-borders>.

³¹¹ U.S. Department of Justice, *Strategic Plan: Years 2014–2018* (Washington, DC: U.S. Department of Justice, 2014), <https://www.justice.gov/sites/default/files/jmd/legacy/2014/02/28/doj-fy-2014-2018-strategic-plan.pdf#s7>, 21.

³¹² Ibid.

activity along the SWB.”³¹³ Despite this, illicit drugs are still being smuggled into the United States today. Some routes could be initiated on land, but end up transitioning to sea or air routes along the way. For example, drugs could be smuggled out of Colombia and then transported through the three maritime corridors that enter the United States. However, illicit drugs do not need to remain on a vessel while penetrating the United States’ shoreline. Before reaching the United States, illicit drugs can be offloaded in Mexico and then continue via an air or land route.

2. Why Should the United States Military Care about This Research?

One of the USCG’s primary missions is drug interdiction operations. According to the USCG, “Coast Guardsmen are the nation’s first line of defense against smugglers seeking to bring illicit substances into the United States by sea, and account for more than half of all U.S. Government seizures of cocaine each year.”³¹⁴ One of USN’s AOR is Central and South America (USNAVSO), from where most cocaine sold in the United States comes.³¹⁵ The USN’s goal, in conjunction with the USCG, is to protect and defend the nation against illicit drugs brought into the United States from smugglers in the Caribbean and Central and South America. While the USCBP interdicts drug smuggling operations at sea and on land whenever possible, only 334 personnel are assigned as marine interdiction agents, who complete 76 hours of underway per day,³¹⁶ which means approximately 10 boats are underway on a given day. Nearly 20,000 personnel are assigned as border patrol agents responsible for processing and inspecting everything that enters the United States.³¹⁷ These three entities are pivotal in securing and protecting the

³¹³ Office of National Drug Control Policy, *National Southwest Border Counternarcotics Strategy* (Washington, DC: Office of National Drug Control Policy, 2016), <https://www.hsdl.org/?view&did=795944>, 16.

³¹⁴ “Drug Interdiction,” U.S. Coast Guard, accessed October 16, 2016, <https://www.gocoastguard.com/about-the-coast-guard/discover-our-roles-missions/drug-interdiction>.

³¹⁵ Drug Enforcement Administration, *2015 National Drug Threat Assessment Survey* (Washington, DC: Drug Enforcement Administration, 2015), <https://www.dea.gov/docs/2015%20NDTA%20Report.pdf>, 59.

³¹⁶ U.S. Customs and Border Protection, *Snapshot: A Summary of CBP Facts and Figures* (Washington, DC: U.S. Customs and Border Protection, 2017), <https://www.cbp.gov/sites/default/files/assets/documents/2017-Apr/cbpsnapshot-april2017.pdf>.

³¹⁷ Ibid.

United States, which is why the United States government cares about cartels and the success they have in the land, sea, and air domains. Otherwise, the United States government would dictate that the USCBP, USCG, and USN concentrate on other missions.

3. Why Should United States Citizens Care about This Research?

Air, land, and maritime domains, as well as the drug smuggling routes associated with them, exist due to the demand of illicit drugs by American citizens. If demand continues to exist, so will the routes that are used to get the drugs into the United States. Drug smuggling routes, whether land, sea or air, play a significant role in the continuous cycle of U.S. security operations. With all of the traffic at the border between U.S. and Mexico as well as all ships at ports of entry and all aircraft entering and exiting the United States comes the potential for serious harm to Americans not only living near ports of entry or at the southern border, but throughout the United States. One of the harms that comes with drugs is deaths related to drug use. According to the National Institute on Drug Abuse, “About 570,000 people die annually in the United States due to drug use, of which 22,000 die due to overdose from illicit drugs,”³¹⁸ which is nearly 4 percent of the total number of drug-related deaths. In 2015, according to the National Survey on Drug Use and Health, “approximately 27.1 million people were illicit drug users.”³¹⁹ While only a small percentage of drug users die of illicit drug overdose, there are many more who admit to using illicit drugs. Illicit drug use has been and continues to be a problem plaguing the United States and its citizens.

³¹⁸ “How Many People Die Each Year from Drug Use?” National Institutes of Health, National Institute on Drug Abuse, April 24, 2017, <https://teens.drugabuse.gov/national-drug-facts-week/how-many-people-die-each-year-drug-usage>.

³¹⁹ Jonaki Bose et al. *Key Substance Use and Mental Health Indicators in the United States: Results from the 2015 National Survey on Drug Use and Health* (Washington, DC: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, 2016), <https://www.samhsa.gov/data/sites/default/files/NSDUH-FFR1-2015/NSDUH-FFR1-2015/NSDUH-FFR1-2015.pdf>, 7.

4. Why Should the International Community Care about This Research?

The UNODC is “the global leader in the fight against illicit drugs and international crime.”³²⁰ Not only is drug smuggling a problem for the United States, it is a global problem. According to the UNODC’s *World Drug Report of 2016*, other regions combating drug smuggling operations that have reported continued drug abuse reflects “information updated by 20 countries, mostly in North America, South America and Western and Central Europe.”³²¹ Even though only 20 countries have reported their drug problem over recent years, many other countries could have drug issues but did not have the resources or desire to report their issues to the UNODC.

Human rights abuses caused by cartels, such as killing innocent civilians to transport drugs across the border or forcing individuals to become human smugglers have become common abuses perpetrated by drug cartels. In addition to human rights abuses, corruption of law enforcement authorities is another major issue related to cartels. It is common for cartels to pay off local law enforcement or use other forms of coercion to corrupt officials. These are the main reasons why international countries should care about illicit drugs that flow through their countries because not only does it cause an issue of individual drug abuse, it also causes problems among the government and law enforcement, which in turn makes the country a dangerous place in which to live.

5. Why Should We as Academics Care about This Research?

Academic scholars have been providing research on this topic for over a decade, and it continues to be a topic of interest for scholars. While many researchers study specific cartels and their respective home countries, some researchers study the methods and techniques that cartels use to smuggle their drugs into the United States. Scholars add beneficial insight into how drug smugglers think and their adaptability to law enforcement interdiction. This research is then used by many law enforcement agencies to determine their approach to countering drug smuggling operations. That being said,

³²⁰ “About UNODC,” United Nations Office on Drugs and Crime, accessed October 15, 2016, <https://www.unodc.org/unodc/en/about-unodc/index.html?ref=menutop>.

³²¹ United Nations Office on Drugs and Crime, *World Drug Report*.

this project will also assist law enforcement agencies in determining which domain cartels are most likely to use to smuggle drugs, this in turn will allow law enforcement agencies to focus their resources on the most beneficial and successful domain used by cartels.

B. OVERALL ANALYSIS

Table 4 represents my analysis of all methods across each domain determining which method is the best to which method is the worst for cartels. I referenced the tables from Chapters II, III, and IV to generate Table 4 that provides my final ranking of each method among all others. Tunnel take first place. The reason why I chose tunnels for first place is because they have the potential to generate unlimited profits. Even though multiple tunnels have been seized recently, and in the past, it is still possible that some tunnels have not been found, in which case cartels could transport drugs as frequently as they want to without law enforcement’s knowledge of their operations. Additionally, if only one tunnel remains operable, cartels could generate enough revenue to sustain their operations solely using this method.

Table 4. Overall Ranking of Methods

	All Methods of Drug Smuggling									
	Tunnels	Semi-Submersible Narco Sub	Panga Go-Fast Boats	Big Rig	Car	Ultralight Aircraft	Drone	Container Vessels	Private Jet	Mules/Packers
Final Ranking: 1st=best 10th=worst	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th

Semi-submersibles are ranked second because they cannot self-sustain themselves like a tunnel can. Also, even though they generate \$405 million for one trip, they must travel at least 3,500 miles if initially transiting from Colombia, traveling up the Pacific corridor and ending in the United States. Farther distances require longer travel times, and in this case, tunnels are much shorter (2,400 feet) and require less time to transit. These reasons are why semi-submersibles are ranked second to tunnels.

Panga go-fast boats are ranked third because they do not generate as much profit as tunnels or semi-submersibles, however, they do generate more profit than big rigs or cars if one trip is successful. Pangas generate approximately \$54 million in one trip and when compared to big rigs, which generate \$3.2 million, or cars, which generate \$1 million, the profit is considerably larger. Pangas may transport up to 2,000 pounds of drugs, while big rigs transport 119 pounds and cars transport 38 pounds. The difference here is that pangas are not mandated to cross a border inspection checkpoint while big rigs and cars are. Since big rigs and cars could be further inspected at these checkpoints, cartels must place their drugs in strategic hiding spaces and must limit the amount they carry. For these reasons, a big rig was ranked as fourth and a car fifth.

Ultralight aircraft is ranked sixth because it is limited in the amount of drugs it can transport, while also facing cutting-edge technology better equipped in detecting these ultralight aircrafts than before. Drones are facing similar problems but are further limited in the amount of drugs they can transport than ultralight aircraft, which is why they are ranked seventh. Ultralight aircraft can transport approximately 219 pounds of drugs while drones can transport approximately 28 pounds. Ultralight aircraft and drones have been used recently, however, environmental factors such as rain or wind pose severe risks to these methods, which lead to loss of drugs, loss of aircraft, and specifically for ultralight aircraft, loss of life.

Container vessels are ranked eighth because of the scrutiny they go through when entering port. Unless the vessel is cleared for entry prior to entering territorial waters, it must go through a rigorous document inspection and query as to what they have onboard. Most vessels are usually cleared before entering port so they do not need to go through said process. Even though container vessels are known for transporting 4,000 pounds of drugs, it would be difficult to both on load and offload said drugs without being suspicious. Private jets face the same scrutiny as container vessels, which is why it is ranked ninth. Some private jets have been known to transport nearly 250 pounds of drugs, however, this number is much smaller than what tunnels or semi-submersibles can transport. Additionally, aircraft surveillance systems and air traffic controllers have provided increased oversight on small and large aircraft, resulting in a more secure

domain. As security at ports of entry increased over the years, cartels have steered away from these types of methods.

Mules are ranked tenth because the human body can only transport .35 pounds of drugs, and the individual willing to perform this type of smuggling operation risks their life every second those drugs are in their body. Additionally, law enforcement is well trained in detecting suspicious activity, especially that of a mule. If cartels seek large profits, they must use thousands of mules to generate anything significant. Of the top five ranked methods, land domain has three while sea domain has two. Cartels prefer to use land domain methods due to its accessibility, dependability, and originality.

C. CAUSES OF SHIFTS IN DOMAIN OR METHOD

What may cause a cartel to shift from one domain to another? This is evident when cartels shifted from the Caribbean corridor to the Central America-Mexico corridor.³²² According to Chair of the House Committee on Homeland Security Michael T. McCaul, “Operational control of the border must be predicated on full situational awareness—meaning a complete picture as to whom and what are crossing the border.”³²³ Additionally, he went on to caution, “If situational awareness is not obtained, then DHS cannot know for certain that the border is truly secure, nor can it make informed decisions as to where to deploy its agents, infrastructure, and technology,”³²⁴ and for now “DHS has not been able to gain full situational awareness.”³²⁵ If DHS cannot control the southern border, then cartels have a leg up over law enforcement and will be able to randomly choose which method they will use to transport drugs without law enforcement being able to guess when and where the operation will take place. Additionally, cartels will exploit this and use it to their advantage and continuously alternating between domains and methods—as seen in the past.

³²² Seelke et al., *Latin America and the Caribbean*, 2.

³²³ Michael T. McCaul, *Blueprint for Southern Border Security* (Washington, DC: Committee on Homeland Security, U.S. House of Representatives), accessed May 12, 2017, <https://homeland.house.gov/files/documents/100614-Blueprint-Southern-Border-Security.pdf>, 3.

³²⁴ *Ibid.*

³²⁵ *Ibid.*

Technology plays a vital role in both drug smuggling operations and law enforcement agencies. Without technology, it would be extremely hard for law enforcement to detect, identify, track, and ultimately, interdict smuggling operations. For example, Border Patrol Acting Chief Ronald Vitiello warned, “The Border Security IPT, consisting of senior representatives from S&T, CBP, USCG, ICE, Department of Nuclear Detection Office (DNDO), and Joint Requirements Council (JRC), has identified several key R&D needs, including small dark aircraft detection, tunnel detection, surveillance and forensics, and maritime surveillance and communications in remote environments.”³²⁶ While USCBP is actively engaged in searching for cartels’ clandestine operations, there is still a need for continued research on advanced technology to create an easier way of detecting and identifying suspicious smuggling activities. Technology has a huge potential to force cartels to alter smuggling routes from one domain to another or one method to another. As technology proves to benefit law enforcement on land, cartels may alter to sea or air. As technology proves to benefit law enforcement on the sea, cartels may alter to land or air, and so on.

Money is a major contributing factor as to why cartels may alter from one domain or from one method to another. There could be many reasons: 1) cartels are not yielding as much profit in one domain as they could in another; 2) cartels may find it more expensive to transport drugs in one domain as compared to another; 3) cartels may find it less expensive to operate in one domain; however, the ratio of expense to profit remains low; or 4) law enforcement is seizing drugs at a higher rate causing cartels to lose more money than they were making in the respective domain. Potential profits and revenue is the driving force of cartel operations and dictates which methods under which domain cartels will use in future operations.

One final example of why cartels may alter their operations from one domain or one method to another is interdiction rates by law enforcement agencies. Land, sea, and air domains are guarded by USCBP, USCG and USN, and TSA respectively. These four

³²⁶ *National Security: Threats at Our Borders: Hearing before the House Committee on Oversight and Government Reform, Subcommittee on National Security, and Subcommittee on Government Operations* (2016) (statement of Acting Chief Ronald Vitiello, CBP U.S. Border Patrol).

entities operate within their respective domains with limited funding, personnel, and assets due to the large funding required by other defense entities. However, even with limitations, these entities are successful at interdicting cartels' drug smuggling operations. Despite this, there are still issues with interdiction success. One entity may be stronger at a certain point in time than another. For example, while the USCBP interdicts tons of drugs at the U.S.-Mexico border, the USCG and Navy could interdict minimum amounts, allowing cartels to be more successful at sea. The same scenario could happen for the other domains.

D. POLICY ISSUES

The most problematic domain to interdict on is land, with tunnels being the most problematic method with which that law enforcement must contend. Tunnels are the most problematic because they are almost always invisible to law enforcement, unless officers get information from either informants or previously caught cartel members of operations currently ongoing, or randomly stumble across a tunnel while on patrol.³²⁷ According to the USCBP, a Border Patrol agent was on patrol when “the agent noticed a depression in the soil along the banks of the All-American Canal, and upon approach, the soil began to give way exposing a hole 18 inches in diameter.”³²⁸ Some investigations take nearly eight months before gathering enough information to move in and seize the tunnel.³²⁹ After discovery, some tunnels are filled in with concrete, and “since 2007, it has cost Customs and Border Protection \$8.7 million to fill drug tunnels, according to a 2016 report by the Department of Homeland Security.”³³⁰ However, Mexico has not been able to fill tunnels on its side due to limited funds and so have sealed the entrances.³³¹

³²⁷ “Location, Location, Location: Drug Smugglers Build Elaborate Border Tunnels from Mexico,” AZCentral, March 10, 2017, <http://www.azcentral.com/story/news/politics/border-issues/2017/03/10/mexico-border-tunnels-drug-smuggling/98977026/>.

³²⁸ “Third Tunnel in One Year Discovered in Calexico,” U.S. Customs and Border Protection, April 15, 2016, <https://www.cbp.gov/newsroom/local-media-release/third-tunnel-one-year-discovered-calexico>.

³²⁹ Hernandez, “US Authorities Find 1,600 Pounds.”

³³⁰ Elizabeth Llorente, “Cartels Reviving Sealed Tunnels along U.S.-Mexico Border,” *Fox News*, January 16, 2017, <http://www.foxnews.com/us/2017/01/16/cartels-reviving-sealed-tunnels-along-u-s-mexico-border.html>.

³³¹ Llorente, “Cartels Reviving Sealed Tunnels.”

Therefore, cartels are starting to resurrect certain tunnels.³³² This shows how the United States and Mexican governments need to better cooperate and communicate with each other. Additionally, as technology improves and detection of underground tunnels improves, cartels may be forced away from using tunnels and switch to sea routes, changing my ranking from tunnels to panga go-fast boats as most beneficial to cartels.

Many congressional researchers already discuss the issues for policy in regard to illicit drug smuggling and the threat it poses on Americans. Many discuss the importance of reducing both supply and demand sides of drug production and consumption.³³³ However, according to Seelke et al., “at the same time, others argue that further emphasis on supply-side drug control activities is warranted.”³³⁴ While law enforcement continues to focus on these areas, interdiction funding should be increased. Without increased funding for law enforcement personnel, assets, technology, and research and development, cartels will always find a way to get drugs into the United States. The focus of policy makers and should no longer be on demand or supply. Instead, their focus should be on increasing law enforcement presence to deter cartels from risking seizure of their illicit drugs. However, to some extent, cartels will inevitably cross the border as their business continues to flourish in the United States.

Funding for assets and personnel continue to plague U.S. entities. For example, in his congressional testimony, General Kelly stated, “force allocation cuts by the Services are taking their toll on operational results; in 2013, Operation MARTILLO disrupted 132 metric tons of cocaine, compared with 152 metric tons of cocaine in 2012, due to limited assets.”³³⁵ Additionally, he explained “when better resourced several years ago, we were able to disrupt a significant amount—more than 240 metric tons—of cocaine heading towards the United States.”³³⁶ Kelly also testified, “last year, 20 more metric tons of cocaine reached the United States due to reduced asset availability, a number that will

³³² Ibid.

³³³ Seelke et al., *Latin America and the Caribbean*, 31–32.

³³⁴ Ibid., 31.

³³⁵ *Posture Statement* [Kelly], 17.

³³⁶ Ibid.

increase inversely as the availability of U.S. government assets decreases.”³³⁷ A general perception here is that the United States government deals with the flow of drugs into the United States fairly well and is not willing to invest in a higher budget, more personnel, more assets, and more time to prevent a larger amount of drugs from getting into the United States. While it may be inevitable that some drugs will cross the borders, policy makers can take some steps to reduce the flow.

E. WHAT ABOUT THE FUTURE?

The United States and international community have a good idea of how cartels smuggle drugs within and throughout South and Central America, the Caribbean, and Mexico into the United States. Since there are so many diverse methods and means of smuggling drugs, law enforcement agencies should concentrate on developing and implementing better technology, as well as introducing better training methods for their personnel. Law enforcement agencies are only limited with what they have, how they use it, and who can be trained to use it. While law enforcement agencies are limited in funding, they can adapt and overcome this limitation by becoming proficient with patrols, and hiring individuals that actually care about the mission at hand. No one can predict the future; however, learning from the past can shape and improve how law enforcement agencies adapt in the future.

³³⁷ Ibid.

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