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UNIVERSITY OF CALIFORNIA SAN DIEGO

Competing for the U.S. Market: Assessing Heroin Industries in the Western Hemisphere

A Thesis submitted in partial satisfaction of the requirements
for the degree Master of Arts

in

Latin American Studies

by

Scott Ray Alvarez

Committee in charge:

Professor Christine Hunefeldt, Chair
Professor Scott Desposato
Professor David Mares

2018

The Thesis of Scott Ray Alvarez is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

Chair

University of California San Diego

2018

DEDICATION

To my wife.

EPIGRAPH

Heroin is emerging as the ideal product for a global [narcotics] industry that is streamlining for the post 9/11 age—slashing payrolls, flattening hierarchies, marketing aggressively and keeping a low profile.

Matthew Brzezinski, “Re-engineering the Drug Business”

Here was a panacea for all human woes; here was the secret of happiness...

Thomas de Quincey “Confessions of an English Opium-Eater”

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LIST OF ABBREVIATIONS

AUC	United Self-Defenders of Colombia / Independent Militias
CENAPI	Center for the Analysis and the National Center for Planning, Analysis and Information for Combating Crime
CNP	Colombian National Police
CTPA	U.S. – Colombia Free Trade Agreement
CUSFTA	U.S. Free Trade Agreement
DEA	Drug Enforcement Agency
DMP	Domestic Monitoring Program
DOS	Department of State
DTO	Drug Trafficking Organization
FARC	Revolutionary Armed Forces of Colombia
GDP	Gross Domestic Product
HDMP	The Heroin Domestic Monitoring Program
HSP	Heroin Signature Program Report
INL	Bureau of International Narcotics and Law Enforcement Affairs
INC-SA	Inconclusive of South American Origin
MEX-SA	Mexicano f South American Origen
MT	Metric Ton
NAFTA	North American Free Trade Agreeemnt
NDTA	National Drug Threat Assessment Summary
ODC	Colombian Drug Office
PGR/AIC	Criminal Investigation Agency Department of Drug Policy
PRI	Institutional Revolutionary Party

SAMHSA	Substance Abuse and Mental Health Services Administration
SEDENA	Secretariat of Defense / Mexican Army and Air Force
SEMAR	Secretariat of the Navy / Mexican Navy and Marine Corps
SIMCI	Illicit Crops Monitoring and Information System
SPSS	Self-Propelled Semisubmersibles
UN	United Nations
UNODC	United Nations Office on Drugs and Crime
USD	United States Dollar

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ABSTRACT OF THE THESIS

Competing for the U.S. Market:
Assessing Heroin Industries in the Western Hemisphere

by

Scott Ray Alvarez

Master of Arts in Latin American Studies

University of California San Diego, 2018

Professor Christine Hunefeldt, Chair

According to historical samples obtained through the Drug Enforcement Agency's "Domestic Monitor Program", in 1986 Colombian and Mexican produced heroin constituted 32% of the U.S. heroin market. Despite decades of aggressive political rhetoric and the commitment of billions of dollars to the "War on Drugs", in 2007 Colombian and Mexican Drug Trafficking Organizations produced 98% of all heroin available within the United States. In just over 20 years heroin produced in the Western Hemisphere rose from a niche market in the

Western United States to the dominant product available to U.S. consumers. What factors contributed to this change in the U.S. market? Where was heroin available to the U.S. being produced during that same time period and what happened to it?

The purpose of this thesis is to identify the economic and political factors that explain the entrance into and domination of the U.S. heroin market by Colombian and Mexican sourced heroin. In this thesis, I seek to answer the question How did drug trafficking organizations in Colombia and Mexico successfully remove Asian produced heroin from the U.S. market? This feat can be recognized as especially impressive when placed in proper historical context. While Mexican and Colombian sourced heroin was aggressively increasing its share of the U.S. heroin market, the U.S. government was committing unprecedented resources to the reduction in flow of illicit drugs from Colombia and Mexico. My thesis seeks to address the aforementioned research question and provide insight into the history of U.S. – Latin American relations through the study of heroin.

Heroin is a plant-based narcotic that undergoes a simple production process before it is ready for market. It is a commodity that connects sustenance farmers in ungoverned corners of the globe to consumers in the world's most developed countries. My research aims to explain heroin as a commodity and analyze its role in an illicit commodity chain. This thesis concludes that heroin is unique as an illicit commodity because from 1986 to 2012 it required less economic input for production than other drugs, was transported from point of origin to U.S. markets with minimal coordination or resources, and it remained profitable in U.S. markets with no considerable increases in price thanks to the formation of new markets. These characteristics make it an ideal commodity for drug trafficking organizations facing state intervention. The Counter-Narcotics policies of the United States, Mexico, and Colombia from 1986 to 2012

aimed at arresting the leaders of large drug trafficking organizations and intercepting large shipments of drugs. In response to these challenges, drug trafficking organizations have been forced to adopt tactics that decentralize their operations and decrease the size of their shipments. By analyzing heroin as a commodity, my thesis will provide ample evidence to explain the following contradictory phenomenon; as central governments have increased their efforts to dismantle drug trafficking organizations and curtail the flow of drugs across international borders, Colombian and Mexican produced heroin has increased in volume and come to dominate the U.S. heroin market.

Introduction.

The study of illegal drugs is challenging. The mere mention of the issue invokes strong reactions that are frequently associated with value judgements and political beliefs. As a result, debates concerning counter drug policies morph into proxies for the debater's already formulated position along the ideological-political spectrum. A person's longstanding beliefs, personal experience, and perceptions about illegal drugs corrupt their attempts to view the phenomenon of illegal drug use in a scientific, bias-less manner. The study of illegal drugs is so difficult because it forces you to remove your bias and distance yourself from your personal experiences.

Of course, one could say that about any topic. Further difficulties in the study of illegal drugs arise when you consider the nature of the data and information available for consideration. Measurable data on illegal drugs is limited to a limited number of sources. For instance, information regarding the actual consumption of illegal drugs in the United States is derived from surveys conducted by institutions such as the Substance Abuse and Mental Health Services Administration (SAMHSA). Figures derived from SAMHSA surveys can be verified or validated by published figures on the volume of illegal drugs confiscated each year by the Drug Enforcement Agency (DEA) and other law enforcement organizations. Estimates on the amount of land dedicated to the cultivation of base substances for the production of illegal drugs, the volume of illegal drugs produced, and the amount of land dedicated to drug production destroyed by security forces are gathered then published by the United Nation Office on Drugs and Crime (UNODC) or by foreign governments. Periodically a think tank or research institute such as the RAND Corporation or Wilson Center will provide additional ways to gather data on illegal drugs, but their efforts are hamstrung by the same variables that effect all data collection efforts on the illegal drug industry. In the end marijuana, coca leaf, and opium poppy farmers don't

collectively record their farm size or output, drug producers don't have a 'one millionth customer served' sign over their door with a tally of units sold, and traffickers tend to shy away from sharing any accurate guess at the volume of illegal drugs they have slipped past authorities in order to service consumers in the United States.

This thesis examines the heroin industry in the western hemisphere. More specifically it examines the heroin commodity chain that services consumers in the United States. It aims to answer questions such as; How is opium poppy farmed and then converted into heroin in Colombia and Mexico? How does heroin reach the United States? What types of organization are formed along the heroin commodity chain? And how is the heroin commodity chain influenced by the international relationship the United States enjoys with heroin producing countries in the Western Hemisphere (predominantly Colombia and Mexico)? I chose to analyze the heroin commodity chain because it connects peoples of various backgrounds. It tells a story of how a small poppy that grows in the towering heights of the Colombian Andes or Pacific highlands of Mexico can connect a rural farmer to an American heroin user on the streets of New York City. My intent is not to create an overly sentimental gesture that there is beauty in how heroin brings people together. On the contrary the heroin industry is dominated by poor farmers looking for a dependable source of revenue, traffickers willing to conduct violent acts to protect their market or stay out of jail, overzealous cops that confuse ethnic background with drug cartel affiliation, and addicts and casual users alike who have to conceal their dependency or relaxation ritual from society. I want to use commodity chains as a tool for the examination of the different variables that shape the process of how heroin is produced then smuggled into the United States and how that process has changed from the mid-1980s to present.

Terence Hopkins and Immanuel Wallerstein define commodity chains as “a network of labor and production processes whose end result is a finished commodity”.¹ Straightforward and laconic, Hopkins and Wallerstein’s definition serves to explain the essence of how things are made. Commodity chains can be expansive, interconnected networks of goods at varying degrees of completion being passed between borders and factories. Commodity chains connect farmers, workers, businesses, states, and consumers. They are “situationally specific, socially constructed, and locally integrated, underscoring the social embeddedness of economic organization.”² Commodity chains are studied because they emphasize process and shed light on the nature of markets, industries, states, and people.³

Commodities that are harvested, manufactured, and then purchased outside the legal framework of society are no different. While some commodities do not enjoy the protection of the law, their commodity chains provide insight into the nature of markets, criminal organizations, and consumers. In order to obtain a better understanding of how criminal organizations connect farmers in the most remote regions on earth to markets in the world’s most developed cities, additional research on commodity chains of illegal drugs must be conducted. In contemporary history numerous economic studies have been conducted on cocaine. Media reports covering the immense wealth of drug lords such as Pablo Escobar capture the imagination and have helped fill books shelves with histories of cocaine and Colombia. Historical and economic studies of heroin have been less forthcoming. Despite its continued prevalence on U.S. streets only a handful of studies cover the history of the heroin industry in the Western Hemisphere. This study aims to shed light on the characteristics of opium and heroin that make them unique commodities linked in complex and global commodity chain. It will include a brief history of the drug trafficking organizations in Colombia and Mexico and the role

heroin played in their development. The procedures required at almost every node of the commodity chain from poppy field to street drug dealer will be outlined. Through this study I hope to provide insight into the dynamic nature of the world heroin market. Special emphasis will be placed on analyzing heroin produced in Colombia and Mexico. This will demonstrate that the world heroin industry is organized as a segmented market and is therefore dominated by producers who enjoy geographic, social, and economic advantages over potential competition.

The study of heroin as commodity breaks perceptions that illegal markets are rigid and destined for monopoly. On the contrary, the study of Colombian and Mexican produced heroin proves that a distinct advantage in production does not guarantee a monopoly or market dominance and that small-scale producers can obtain dominant market positions in large markets with the right blend of streamlined logistics, lower operating costs, and quality assurance. This study provides insight as to why Mexico and Colombia heroin producers can gain a dominant position in the U.S. heroin market while only producing one – one hundredth (or less) of the heroin produced in Afghanistan and Myanmar.

Purpose.

This thesis focuses on heroin as a commodity and the heroin commodity chain in the Western Hemisphere. Despite the long and interesting story of how opium and heroin were first introduced to Mexico (it was first smuggled from Mexico into the United States on a large scale following the passage of the 21st Amendment to the U.S. Constitution), this thesis will almost exclusively focus on the heroin industry in Colombia and Mexico from 1986 to 2016. A section of the conclusion will be dedicated to the resurgence of the Mexican heroin industry in the 21st century and the future of heroin production in the Western Hemisphere. The purpose of this thesis is to analyze the role heroin has played in the evolution of the drug industry in Colombia

and Mexico. Heroin is easy to process and generates immense revenue for Drug Trafficking Organizations (DTO) capable of transporting it to U.S. markets. Heroin's qualities as a commodity make it an ideal product for DTOs facing state intervention such as police or military action. Heroin should be studied because it is in part responsible for the historical paradox of the drug war in the 20th century; the more the U.S., Colombia, and Mexico pursue DTOs and attempt to intercept large drug shipments, the more efficient criminal organizations become at providing drugs to U.S. markets.

Literature Review.

This thesis covers a wide array of topics from economic theory to best gardening practices for growing opium poppies. In an effort to organize the literature review in a manner most agreeable to the reader, a single paragraph has been dedicated to each major academic field utilized in this study. The first paragraph consists of the economic histories referenced to explain how a commodity chain operates and how to best study the different elements of a commodity. The second paragraph is focused on opium poppies and heroin. The third paragraph discusses the evolution of DTOs and their relationship to Colombia's heroin industry. In the fourth paragraph the literature available on Mexico's heroin industry is discussed. In the fifth paragraph the sources of the data referenced throughout the thesis are discussed to ensure the reader understands the different sources of information available on heroin. The final paragraph reveals a number of media outlets that are doing an outstanding job in reporting on heroin production in Mexico and consumption in the United States. The works mentioned in the literature review were the most influential to the thesis, but they are only a part of the larger project. Please reference the bibliography and end notes for a better understanding of all the referenced works.

Steven Topik, Carlos Marichal, and Zephyr Frank's book *From Silver to Cocaine; Latin American Commodity Chains and the Building of the World Economy 1500-2000*, provided some of the motivation for this project. *From Silver to Cocaine* is composed of twelve distinct chapters, each outlining a commodity chain that played a central role in the development of colonial or post-independence Latin America. Chapter 12 is written by Paul Gootenberg and describes the evolution of the cocaine commodity chain from its legal origins in the 19th century to its current state as an illicit drug. This chapter provides an excellent example of a method for assessing an illicit commodity chain. Although the book provides a great framework of society-shaping commodities, it does not specifically offer any data on heroin as a distinct commodity in Latin America. Furthermore, the chapter by Gootenberg on cocaine places more emphasis on the early and legal cocaine commodity chain and doesn't apply sufficient study to the shape of the industry in its modern state. This should not be mistaken for a critique of all of Gootenberg's work. His books *Andean Cocaine* and *Cocaine: Global Histories* do an excellent job of exploring every facet of the cocaine industry, but they provide no insight into the important overlap of the cocaine and heroin industries. Gary Gereffi and Miguel Korzeniewicz's book *Commodity Chains and Global Capitalism* is organized in a similar fashion as *From Silver to Cocaine*, but the books differ on their subject of analysis. Where Topik utilizes the historic subject of commodity chains to reveal historical connections between peoples and countries, Gereffi analyzes commodity chains throughout history to pinpoint organizational advantages. Gereffi's work aims to use historical case studies to exemplify modern economic principles. I used Gereffi's model for analysis to determine how Colombia and Mexico established a dominant position in the U.S. market despite being at a distinct disadvantage in production means compared to their Asian competition. Gereffi's final chapter is about cocaine but the

chapter focuses on how the cocaine commodity chain is influenced by its position within the global economy (i.e. how the cost of precursor chemicals necessary to make cocaine influences the overall cost of the product) but does not provide much analysis on the commodity chain as a whole. Through my work I hope to provide a more in-depth understanding of the entire illicit commodity chain for heroin, not just its susceptibility to the price of other overlapping commodities. The economic theorist, Albert O. Hirschman's collection of essays, *Rival Views of Market Society*, and his 1978 book *The Strategy of Economic Development* provide a framework of analysis for this thesis. As will be discussed in the next section, Hirschman's economic linkages theory assesses national economies and industries by dividing them into four subsections; backward, forward, fiscal, and consumption linkages. These four subsections will assist me in building a model of analysis for the heroin commodity. Hirschman's linkages theory also provides an excellent tool for evaluating the adaptive capabilities of DTOs in shifting their business model when confronted with state intervention. Understanding how DTOs continuously change aspects of their products' commodity chain provides insight into how Colombian and Mexican heroin producers and distributors have come to dominate the U.S. market.

The most influential history on opium and heroin is Martin Booth's *Opium*. Booth provides an excellent history of opium from ancient Greece to the end of the 20th century. While a lot of his work was outside the boundaries of this directed study, *Opium* provides an excellent foundation on the opium cultivation process, and how raw opium is converted into heroin. Booth's work is well paired with Jim Hogshire's book *Opium for the Masses; Harvesting Nature's Best Pain Medication*. Hogshire provides a farmer's eye view on the opium poppy cultivation process. He provides a step by step guide on growing your very own poppy garden. The book is a must for anyone trying to understand the farmer's lot in the poppy cultivation

process. Guillermo Andres Ospina, Jorge Hernandez Tinajero, and Martin Jelsma's work for the Transnational Institute, *Poppies, Opium, and Heroin; Production in Colombia and Mexico*, stands out as the most detailed collection of information about heroin production in Colombia and Mexico. Their work consolidates a wealth of data from the Drug Enforcement Agency (DEA), the Department of State (DOS), and a number of medical journals to summarize how heroin is produced and how it fits into the U.S. market, but it is a better source for the consolidation of data than for analysis. *Poppies, Opium, and Heroin* doesn't provide context for the world that heroin inhabits. Little consideration is given as to how heroin and cocaine interact as illicit commodities or how U.S. trade policy effects heroin trafficking. This study attempts to explain where the heroin commodity chain interacts with politics, migration, and trade in an effort to better portray the complexity of the industry. For a macro view of the heroin industry that provides more context, Letzia Paoli, Victoria A. Greenfield, and Peter Reuter's *The World Heroin Market; Can Production be Cut*, provides an excellent summary of the current global heroin industry and explains Colombia's niche role in supplying the U.S. market. *The World Heroin Market* concludes that heroin industries can form in any geographical location that is suited for opium poppy growth and exists in a country that lacks a strong central government. While this view is interesting and well supported little attention is given to the effect different heroin markets have on their source of origin and production. The U.S. and European heroin markets are not the same and as a result the commodity chains that support them differ in numerous ways. This work focuses on the heroin commodity chain that supports the U.S. market and does not aim to draw broad conclusions but rather make observations about the system that provides heroin to U.S. consumers.

Francisco E. Thoumi's *Illegal Drugs, Economy, and Society in the Andes* provides insight into the effects the illicit drug industry has had on communities in the northern Andes. Thoumi provides summaries of labor conditions for coca leaf and opium poppy farmers in Colombia. His book also demonstrates the positive economic benefits provided to isolated Colombian villages involved in drug production. Thoumi's work was my favorite on the topic of cocaine in Colombia. His work consolidates a number of studies conducted by Colombian journalists and academics to gain a better understanding of what is happening behind the militia curtain in rural Colombia. Thoumi dedicates some time to discussing the heroin commodity chain but it pales in comparison to his analysis of cocaine's effects on modern Andean society. In my thesis I wanted to emulate Thoumi's work but with an emphasis on heroin instead of cocaine. Paul Gootenberg's *Cocaine; Global Histories* and Ron Chepesiuk's *Hard Targets; The U.S. War Against International Drug Trafficking 1982-1997* provide details into the formation of Colombian cartels and the state response to the formation of those cartels. Both authors provide an excellent account into how Colombian cartels adapted after facing intense state intervention. In *An Industrial Geography of Cocaine*, Christian M. Allen outlines the geographical, historical, and social advantages Colombia has in the global drug industry. According to Allen the formation of the Colombian cartels of the 1980s and 1990s were a natural economic progression unique to Colombia at the time. In chapter 5 Allen outlines the comparative advantage Mexico enjoys in the drug industry. This chapter is insightful with regard to the rise of the Mexican cartels and their developing role in the world drug industry. Both Gootenberg and Allen's books were immensely useful to my research but, once again, they were focused almost exclusively on cocaine. This thesis hopes to capture their level of analysis but with heroin as its focus.

George W. Grayson's *The Cartels; The Story of Mexico's Most Dangerous Criminal Organizations and their Impact on U.S. Security*, provides a history of the formation and evolution of Mexico's leading DTOs. *The Cartels* provides insight into heroin's changing role in the Mexican drug industry. Nathan P. Jones' *Mexico's Illicit Drug Networks and the State Reaction* has a similar outline to *The Cartels*, but it is focused on Mexico's newest generation of DTOs. Jones also provides a number of visual aids outlining the organizational structure and sources of revenue for each DTO discussed in the book. Unfortunately, their work is built for a wider audience and focuses on outlandish criminal details, such as decapitations and inter cartel rivalries. While these details do have a place in the heroin commodity chain they are not the focus of my thesis. I was able to learn a lot on the structure of DTOs from the above-mentioned works, but it lacks insight into the economic management of each organization. Through my thesis I aim to provide better insight into which DTOs manage heroin production, which simply extort heroin producers and don't involve themselves in the commodity chain absence security services, and which ones vertically integrate their organization to handle heroin from the farmers to the consumers.

On a similar topic Jonathan D. Rosen and Roberto Zepeda's book *Organized Crime, Drug Trafficking, and Violence in Mexico* is one of the more recent books available about Mexican DTOs. Rosen and Zepeda discuss the negative consequences of President Felipe Calderon's war on drugs and President Enrique Pena-Nieto's initial response to the violence upon taking office. *Organized Crime, Drug Trafficking, and Violence in Mexico* provides insight into how Mexican DTOs responded to the heavy-handed state intervention of Calderon's administration. In a similar manner, both of these books focus on the organization elements of Mexican DTOs and how they adapted to the Calderon administration. Echoing a popular

sentiment in the literature the authors point how the targeting of “king-pins” fracture DTOs which increases competition and violence. My thesis analyzes how DTOs continued to gain revenue from the drug industry in the face of Calderon’s war on drugs and inter-DTO competition. I intentionally avoid addressing the inter-workings of particular DTOs such as the Sinaloa Cartel but rather focus on how heroin production increased during this period and if transportation and distribution methods changed in the days following the Calderon administration and the Merida Initiative.

In *The Drug War and the Resurgence of Mexico’s Heroin Trade*, Nancy Cortes links the increase in heroin cultivation in Mexico with Felipe Cauldron’s “kingpin” strategy. According to Cortes, by removing the leaders of Mexico’s most powerful DTOs, the Cauldron administration effectively split up Mexico’s most powerful drug organizations and initiated an era of increased violence and competition. Her initial assumption on this matter reflects a large consensus of the literature. In the immediate aftermath of Calderon’s war, Cortez argues, that numerous DTOs re-invested in heroin production in order to maintain sources of revenue and capitalize on heroin’s low input costs. Cortez’s work is more closely aligned with my research than any of the aforementioned books or essays. She tries to answer questions such as why heroin production is making a comeback in Mexico despite increased efforts to dismantle DTO leadership. I hope to expand on Cortez’s work and address not only why heroin production increased in Mexico during a period of intense state intervention but how that same dynamic occurred in Colombia throughout the mid to late 1990s and early 2000s. I also hope to provide additional details on the heroin commodity chain to explain why heroin has such low production costs and why it is an ideal commodity for DTOs who lack ready capital or are facing intense scrutiny from security forces.

While Cortes explains increased production on conditions in Mexico, José Díaz-Briseño argues that Mexican DTOs are meeting an increase demand in the U.S. In *Crossing the Mississippi: How Black Tar Heroin Moved into the Eastern United States*, Díaz-Briseño explains that a new business model utilized by a group of young men from Xalisco, Mexico in Nayarit are expanding their heroin distribution network to suburban and rural communities in the U.S. *Crossing the Mississippi* was published in 2010 and is proving to be prophetic. Mexican heroin, both black tar and white powder, are starting to infiltrate the more traditional heroin markets of the East Coast, as well as new ones such as Charlotte, NC and Columbus, Ohio. Díaz-Briseño's work will serve as the foundation for future studies on heroin markets in the United States. Díaz-Briseño's work focuses on the lowest possible level. He cites numerous interviews with street level drug dealers and runners to gain a better understanding as to how small, independent Mexican DTOs are revolutionizing the U.S. heroin market. I relied heavily on Díaz-Briseño's sources because I did not have the opportunity to conduct my own field research on the matter, but I used his extensive research for a different aim. Where Díaz-Briseño focuses on criminology and providing insight into effective law enforcement techniques to combat this innovative wave of heroin traffickers, my work views this new development as a natural progression of the heroin industry that can be explained through in-direct factors such as new heroin consumption patterns and the continued specialization of DTOs throughout the heroin commodity chain.

The U.S. Drug Enforcement Agency (DEA) routinely publishes intelligence estimates on the relevance of drugs in the United States. *The Heroin Domestic Monitoring Program* (HDMP), *Heroin Signature Program Report* (HSP), and the *National Drug Threat Assessment Summary* (NDTA) are all DEA publication and each provide data on heroin in the United States. The HDMP and HSP are published on a non-routine basis. The most recent HDMP and HSP

publications were released in 2017 and cover available data up through 2015. Both programs conduct chemical analyses on available heroin samples to identify the geographical point of origin of heroin being sold in the United States. HDMP reports provide the source of heroin that was purchased by undercover DEA agents in 23 U.S. cities and the purity and price of heroin at the retail level. HSP reports give information on the origins of heroin seized at the wholesale and retail level throughout the United States. Simply put the two reports differ on where their samples are obtained. HDMP tests samples that are obtained through undercover heroin purchases in 23 U.S. cities. The cities remain constant year in and year out. The HSP utilizes the same testing procedure as the HDMP but the HSP obtains its samples from random shipments of heroin that are seized in ongoing DEA operations. The data obtained through the HDMP and HSP was criticized by the U.S. Government Office of Accountability in 2002 for basing their finding on nonrepresentative samples of their respective populations. The HDMP and HSP methods for collecting samples provide insight into the constant 23 U.S. cities and areas with a high preponderance of DEA operations, but it is not an accurate sample for building a national estimate. In order to overcome the gap in available data from the DEA, this thesis will also utilize information gathered from the Office of National Drug Control Policy in their report entitled *What America's Users Spend on Illegal Drugs: 2000-2010*. This report balances the data published by the HDMP and HSP to provide readers with a more accurate snapshot of information on heroin in the U.S.

Table 1: Geographic origin of heroin and percent change (absolute) between 1993 and 1994

MSA	South American heroin (median %)	Change South American heroin (mean yearly %)	Mexican heroin (median %)	Change Mexican heroin (mean yearly %)	Southeast Asian heroin (median %)	Change Southeast Asian heroin (mean yearly %)	Southwest Asian heroin (median %)	Change Southwest Asian heroin (mean yearly %)
Eastern cities								
Atlanta	43.47%	8.70% ^{***}	0.00%	ns	11.72%	-3.53% ^{***}	4.55%	1.44% [*]
Baltimore	78.57%	7.31% ^{***}	0.00%	ns	3.22%	ns	3.85%	ns
Boston	74.29%	7.93% ^{***}	0.00%	ns	0.00%	-1.20% ^{**}	0.00%	ns
Chicago	46.01%	7.61% ^{***}	0.00%	ns	17.75%	-6.66% ^{***}	4.00%	2.00% [*]
Detroit	64.50%	6.96% ^{***}	0.00%	ns	6.47%	-4.02% ^{***}	9.29%	2.11% ^{**}
Miami	62.50%	7.36% ^{***}	0.00%	ns	0.00%	ns	0.00%	ns
New Orleans	69.63%	6.95% ^{**}	0.00%	ns	0.00%	ns	0%	ns
New York City	84.78%	7.14% ^{***}	0.00%	ns	0.00%	ns	1.43%	ns
Newark	85.15%	5.83% ^{***}	0.00%	ns	1.47%	-1.35% [*]	0.00%	ns
Philadelphia	90.46%	5.17% ^{**}	0.00%	ns	0.00%	ns	0.00%	ns
Washington, DC	59.26%	6.08% ^{**}	0.00%	ns	5.88%	-3.58% [*]	6.45%	ns
Western cities								
Dallas	0.00%	ns	86.96%	ns	0.00%	ns	0.00%	ns
Denver	0.00%	ns	92.24%	3.65% ^{***}	0.00%	ns	0.00%	ns
Houston	0.00%	ns	94.33%	ns	0.00%	-0.37% ^{**}	0.00%	ns
Los Angeles	0.00%	ns	91.63%	ns	0.00%	ns	0.00%	ns
Phoenix	0.00%	ns	100%	3.98% [*]	0.00%	ns	0.00%	ns
San Diego	0.00%	ns	98.81%	ns	0.00%	ns	0.00%	ns
San Francisco	0.00%	ns	97.30%	4.28% ^{***}	0.00%	ns	0.00%	ns
Seattle	0.00%	ns	95.00%	2.52% [*]	0.00%	ns	0.00%	ns
St. Louis	0.00%	ns	91.67%	ns	0.00%	ns	0.00%	ns

ns: no significant change.

In addition to scholarly sources, my thesis utilizes media coverage on the Mexican heroin industry. The topic of heroin and the ongoing opiate crisis has spurred major media outlets in the U.S. to commit reporters to the story. The Washington Post is leading the way with excellent articles comprised of interviews with Mexican poppy farmers, drug traffickers, and hired gun men. Both Todd Frankel and Joshua Partlow have also compiled information gathered from published court documents concerning the persecution of Mexican drug mules arrested in the United States. Reporters for the New York Times, Drew Jordan and Mark Scheffler are also covering the same topic but have published less in-depth articles and have focused on President Donald J. Trump's border wall and the potential effects it will have on the drug trade. While not a pure media publication, InSight Crime is a great source for staying abreast of current trends in international organized crime. InSight Crime analysts provide excellent summaries on the tactics, techniques, and procedures criminal organizations and DTOs utilize to remain ahead of law enforcement. These sources help fill in the gaps with regard to the heroin industry after 2015.

There exists a wealth of information regarding every aspect of the cocaine trade. Ranging from DEA reports to academic studies and non-fiction books made for public consumption, few aspects of the cocaine industry escape scrutiny. The cocaine and crack inspired public outcries of the Reagan and Bush administrations combined with the romanticization of the cocaine industry of the late 1980s and 90s generated sufficient public interest to inspire a generation of academics, journalists, and writers to cover the cocaine industry. The same cannot be said for the contemporary heroin market. The heroin epidemic following the Vietnam war inspired scrutiny, but the heroin industry slipped from public consciousness sometime between the early 1980s and the present. This is not to say that no one was covering the heroin industry. Books such as Martin Booth's *Opium* or Eric Schneider's *Smack* do an excellent job of providing historical background to the history of heroin but fail to provide analysis or commentary regarding the contemporary U.S. heroin market. More analytical publications such as Letizia Paoli's *The World Heroin Market* provides a macro-assessment of the world heroin market but focuses almost exclusively on Asian produced heroin. What information they do provide on the production of heroin in the Western Hemisphere is derived from cocaine studies, such as Francisco Thoumi's *Illegal Drugs, and Society in the Andes* and Paul Gootenberg's *Andean Cocaine*, that mention opium poppy and heroin as side notes to the focus of their work. More recent publications such as José Díaz-Briseño's *Crossing the Mississippi*, Nancy Cortes' *The Drug War and the Resurgence of Mexico's Heroin Trade*, and Daniel Ciccarone's *Impact of South American heroin on the US*, provide a wealth of knowledge on the heroin market in the U.S. but do not cover the emergence of the production of heroin in Colombia and Mexico in the late 20th century. Guillermo Andrés Ospina's *Poppies, Opium, and Heroin* is an excellent study on the production and transportation of heroin from Colombia and Mexico to the U.S. but it aims to provide a snapshot of the current

increase in heroin consumption in the United States and how it is being supplied through Mexican and Colombian producers. My thesis aims to fill the information gaps between the works cited above. Through an analysis of each phase of the production and transportation of heroin and a brief history of the Colombian and Mexican drug industry and how heroin fits in, I plan on telling the story of how Colombian and Mexican heroin came to dominate the U.S. market, and how the industry has developed over the past two decades. My work aims to provide the reader with an in-depth description of how opium poppies in the highlands of Colombia and Mexico are grown, harvested, converted into heroin then trafficked into the United States. From there it will describe the nature of the criminal organizations that produce and traffic heroin, and the political environment that inadvertently supports the heroin industry. My work is not wholly novel. It mimics studies on cocaine, but it aims to give focus to Colombian and Mexican produced heroin. As the United States struggles with the resurgence of large scale heroin consumption I hope my work can be of service to educate politicians, diplomats, law enforcement professionals, educators, and students on the nature of the heroin commodity chain that supports U.S. heroin consumption habits.

Explanation of Albert O. Hirschman's Theory on Economic Linkages.

Albert O. Hirschman was an economic theorist and prolific writer who published numerous books and essays on development economics, political economy, and public policy. His lifetime (1917-2012) spanned almost every paradigm shifting event of the 20th century and his work bares the mark of man who escaped Nazi Germany, fought as a Republican in the Spanish Civil War, helped Nazi dissidents escape Vichy France, worked for the U.S. Office of Strategic Services and Federal Reserve Board and the Colombian National Planning Board before settling into a life of scholarly pursuit. Hirschman received degrees from the Friedrich-

Wilhelms University in Germany, Sorbonne in Paris, and the London School of Economics where he received his doctorate in 1938.

In 1958, while working in an academic appointment in economics at Yale University, Hirschman published *The Strategy of Economic Development*. The book proved to be one of his most influential pieces on development economics because it introduced a new theory that broke from the traditional and revisionist schools of thought. His book revolted against the “transparent, self-evident, all-inclusive plans” promoted by such dominant economists as Walt Rostow and W. Arthur Lewis.⁴ Instead he focused on the role of investment in development and committed to the idea that lockstep plans were limited in their utility. In the *Strategy for Development*, Hirschman introduced the idea of linkages as a way to assess the potential opportunities a country or industry might be able to capitalize on in their quest for development. *The Strategy of Development* introduced two kinds of linkages; forward and backward. Backward linkages are the economic inputs necessary for the production of goods.⁵ As demand increases, Backward Linkages form and expand leading to net capital formation.⁶ Hirschman coined the term “backward” since the direction of the stimulus for further investment flowed from the finished product back to the raw material.⁷ Forward linkages consist of the economic activity generated as a product gets refined or marketed in preparation for consumers.⁸ Forward linkages are summarized by every activity that does not cater to demands, and therefore never occurs in pure form absent a connection to backward linkages and the pressure instigated by demand.⁹ The term forward was incorporated because forward linkages provide stimulus toward additional investment points in the direction of the consumer, not the raw material.¹⁰

The Strategy of Development offered a dissenting opinion to modernization theory that avoided Marxist or anticolonial critiques of capitalism. The thesis of the book was sympathetic

to the power of market forces but presented a case for reform that did not demand that third world states fall in line and develop their economies in the exact image of post-industrial countries in the first world. Despite critiques that the book laid out a theory of development more easily applied to psychology than economics, it went on to be a highly influential success.¹¹ Contemporary authors utilized Hirschman's linkages theory as a tool to assess economic and political developments in the third world. In 1973 Argentinian economists and political scientist, Guillermo O'Donnell, published *Modernization and Bureaucratic Authoritarianism*. In his book O'Donnell used the linkages theory to define and categorize the economic factors that led to the crisis of economic growth in Latin America which precipitated the rise of dictators throughout the region. Hirschman vehemently disagreed with the concept that economic conditions alone could result in the formation of authoritarian regimes and published his grievances with O'Donnell's theory. Their debate led to the publication of *The New Authoritarianisms in Latin America* (1979) which was accepted as one of the keynote anthologies in Latin American social sciences.¹² O'Donnell's *Modernization and Bureaucratic Authoritarianism* and *The New Authoritarianisms in Latin America* introduced the abstraction that Hirschman's linkages theory could be used as an analytical tool for other studies.

Hirschman would go on to write on a myriad of subjects but his work on linkages would remain a constant point of discussion and would inspire other students of economics and politics. In 1982 he was asked to join O'Donnell at the Wilson Center in Washington D.C. to explore the idea of transitions to democracy in Latin America and Southern Europe. While working with the Wilson Center he was invited to sit in on a presentation by a Stanford graduate student who applied economic linkages to explain the fate of big oil exporting countries. He also met a Cuban historian at a seminar on the politics of export societies and during the discussion found himself

considering further reflection on his earlier work on economic linkages.¹³ These interactions inspired Hirschman to contribute additional thought to his original work on linkages and resulted in the essay “Linkage in Economic Development”. In “Linkage” Hirschman introduced the concept of fiscal and consumption linkages. Both were introduced as additional tools, along with backward and forward linkages, that could be used for assessing national economics or industries. Consumption linkages are defined as the stimulus toward domestic production of consumer goods that will be undertaken as new incomes are spent on such goods.¹⁴ They describe a familiar process: incomes are earned in a new activity and are spent on goods that are initially imported but will eventually be produced domestically.¹⁵ Fiscal linkages are activities or actions that states can adopt to interfere with market forces.¹⁶ Fiscal linkages can be divided into two subcategories; direct and indirect fiscal linkages. Direct fiscal linkages consist of export taxes while indirect fiscal linkages refer to tariffs. The utilization of fiscal linkages can then initiate a sequence where revenue from both can then be used by the state to finance public or publicly supported investment projects.

For my thesis I will be using Hirschman’s Linkages Theory to define and organize components of the heroin industry in the Western Hemisphere. In the same vein as Guillermo O’Donnell, I hope to apply the linkages theory to assist me in explaining contemporary economic and political phenomenon. The terms backward, forward, consumption, and fiscal linkages will be utilized throughout my thesis to divide the heroin industry into segments. For the most part they will be referred to in the manner intended by Hirschman but since heroin is an illicit commodity within the illegal drug industry I will provide additional information as to how the terms can be applied in this thesis.

In Summary.

The heroin commodity chain that serves the United States is streamlined and diverse. The physical nature of the drug provides it with a marked advantage over other illicit drugs that are farmed and processed in the Western hemisphere. Coca leaf farming is limited to the Northern Andean mountain range and the finished product of cocaine must be moved in bulk to satiate U.S. demand. These limitations place Colombian cocaine traffickers in the unfavorable position of having to rely on middlemen to get their product to market. Returns on cocaine shipments are limited due to the high cost of using intermediaries. As a result, Colombian cocaine traffickers work on relatively narrow profit margins and are dependent on their relationships with intermediary traffickers.

Similar to cocaine, marijuana must be moved in bulk to generate sufficient revenue. The legalization of the drug across numerous parts of the United States opens up traffickers to competition from legal sources of production. While marijuana can grow throughout the Western hemisphere it is mostly limited to northern Mexico because the cost of moving it to market would make it a poor investment for any other regionally aligned group of growers or traffickers.

Unlike marijuana and cocaine, heroin is routinely transported in small parcels. Access to the U.S. market is not monopolized by Mexican DTOs and the return on a single kilo of heroin can generate upwards of tens of thousands of dollars. These factors eliminate the necessity of shipping heroin in large shipments. The opium poppy grows in numerous locations throughout the Western Hemisphere but is mainly cultivated in Colombia and Mexico. Both Colombian and Mexican heroin producers have direct access to U.S. markets and are not always dependent on a middleman to move their product. Colombian and Mexican produced heroin enjoys distinct advantages over Asian sourced heroin on the U.S. market. This is made evident by the fact that in less than 25 years heroin grown in the Western Hemisphere has eliminated its Asian sourced

competitors. My thesis will analyze every segment of the heroin commodity chain using Hirschman's economic linkages theory to demonstrate that heroin is ideally suited for the rigors of the 21st century geo-political environment. Contrary to its intent, U.S. foreign policy in the Western Hemisphere over the past 65 years created a heroin commodity chain that will ensure that the U.S. heroin market will be dominated by heroin produced in Colombia, Mexico, and other locations throughout Latin America into the distant future.

Chapter 1 Backwards Linkages.

Albert O. Hirschman's theory of linkages on economic development characterized agriculture by its scarcity of linkage effects.¹⁷ Agriculture, as a means of primary production, "should exclude any substantial degree of backwards linkages".¹⁸ The exception, according to Hirschman, was the introduction of modern methods to large scale agricultural projects. According to his theory on linkages, underdeveloped economies typically suffered from a lack of interdependence and linkage among industries. This in turn led to the development of a single aspect of an industry and did not create economic opportunities for parallel industries or service-based industries in support of agriculturally sourced commodities. As a result, he discouraged developing economies from investing too heavily in the development of agricultural industries that were not connected through linkages to other sectors of the domestic economy.¹⁹

Hirschman's assessment that agriculture is defined by its scarcity of linkage effects is circumstantially true with regards to legal goods but is an oversimplification of illicit industries. In the face of state intervention (executed through security forces), DTOs trading in illicit goods require interdependence among different segments of the heroin industry. Legal, agriculturally sourced commodities fail to generate economic opportunities because they operate within a system where many of the services they depend on are provided by the state. Highways,

railroads, and ports are maintained by the State. Security is provided by the police or other security forces. In contrast to legal agriculturally sourced commodities, illegal commodities generate numerous service-based industries to facilitate the harvesting, production, and distribution of the commodity. Criminal organizations routinely provide transportation services to farms not accessible by roads in Colombia or Mexico. Other organizations provide security for farmers and traffickers so that they can conduct their business without the risk of facing violent opposition from a rival business. The lack of state authority in poppy producing regions of Colombia and Mexico allow for the formation of entire service-based industries committed to assisting DTOs move heroin from point of origin to market. As a result of this environment, DTOs that participate in the heroin trade are not monolithic. They are diverse, specialized, opportunistic, and capable of navigating the myriad of illegal activity required to bring heroin to market. By the very nature of illegal industries, criminal organizations or DTOs must develop interdependence among segments of the industry to escape persecution and bring their products to market. Despite Hirschman's claim that agriculture should exclude backward linkages, his assessment was not made with consideration to illegal industries or markets (this is somewhat ironic considering contemporary history because many of his theories were based on the experience he acquired while working in Colombia). Assessing the heroin industry in Colombia and Mexico through an analysis of their backwards linkages is an excellent way to develop an understanding of heroin as a commodity.

In this chapter I will discuss heroin and its economic linkages. The first section of the chapter discusses Colombian and Mexican heroin's backwards linkages. Backwards Linkages refer to the direction of stimulus toward further investment flows from the finished product (in this case black tar or white heroin) back to the raw material from which it is made.²⁰ In the case

of heroin, backwards linkages include the raw material (opium poppy), the labor system utilized for poppy cultivation, the land dedicated to poppy cultivation, and the way the raw material is planted, grown, then harvested. Backwards linkages explain the foundation of the heroin industry and give insight into the organizations that provide the raw material necessary for the production and eventual exportation of heroin.

1.1 The Poppy.

To those not directly engaged in its cultivation, the poppy is a delicate ornamental flower that grows wild throughout the Northern Hemisphere. The poppy comes from a large botanical family of 28 genera and over 250 individual species.²¹ Popular varieties such as the Welsh poppy, Syrian tulip poppy, alpine poppy, the Iceland poppy, and the California poppy can be found in well-kept gardens across the globe. In the wild the poppy enjoys an annual single flower bloom, but botanists have been able to breed the plant to provide double flower blooms. The flowers from the poppy come in a full range of colors. Pink Chiffon and the paeony-flowered poppy flowers are considered some of the most exquisite and both are variations of the opium poppy.²²

The opium poppy is botanically classified as *Papaver Somniferum*(*p. somniferum*) . The genus, papaver, comes from the Greek noun for poppy, the species, somniferum, is derived from the Latin word for ‘sleep inducing’.²³ It is one of two poppies that naturally produce opium in significant amounts (the other is *Papaver Bracteatum* but it is not used for opium cultivation). *P. somniferum* has a 120-day growth cycle and requires rich, recently cultivated soil. The best growing climate is temperate, relatively warm with moderate to low humidity and plenty of sunshine. An overabundance or insufficient access to water can kill the plant or reduce its sap (raw opium) output. The opium poppy is a long day photo-responsive plant that thrives in

latitudes that provide long days and short nights, conditions generally found 20 degrees (latitude) north of the equator.²⁴ It does not grow well under canopy or cloudy weather and is known to produce the best sap when exposed to upwards of 12 hours of direct sunlight a day.²⁵ P. somniferum's roots are delicate and initially grow down a few inches then spread out horizontally below the surface of the soil. Although opium poppies can be grown in clay or sandy clay, the best growing climate is sandy loam because it retains nutrients and moisture and remains soft enough for the spread of poppy roots.²⁶



Photo 1: Opium poppies in a field



Photo 2: Opium sap

Despite these requirements, the opium poppy is easy to grow. Unless residing in an unusually arid climate, it does not require irrigation and requires no special fertilizers. The bitter taste of the alkaloids in the opium poppy drives away small animals and is deadly to insects. The plant can fall prey to aphids but only after the plant has fully matured and spread its seeds.²⁷ Poppies require no insecticides or fungicides and are only susceptible to insects following the process in which sap is drawn from the plant.²⁸

The seeds of the opium poppy are commonplace. They are the size of a pinhead, are typically black or white (though they are available in a myriad of colors) and are used to garnish bagels and Turkish pastries. They are sown when the wind blows through the plant's seed pod, dispensing them as if being shaken from a pepper shaker. About 500 grams of seeds are sown for half a hectare of production.²⁹ When planted for cultivation the seeds are inserted in shallow holes between 6-18 inches apart. The timing of the sowing process is dependent on the local climate. Opium poppies can be planted alongside other cash crops such as beans, peas, and tobacco, thus ensuring the highest possible yield from a piece of land.³⁰

Poppy seeds germinate quickly in the conditions outlined above and by 6 weeks, the plant is established and resembles a young cabbage with green leaves that have a dull grey or bluish tint.³¹ At 8 weeks the plant reaches a height of about 23 inches and "consists of a main stem the upper portion of which (the peduncle) bears no leaves or secondary stems."³² Secondary stems (tillers) extend up from the leaf base and connects to the main stem below the peduncle. As the plant reaches its maturity it can grow from 35 to 60 inches with leaves 3 to 15 inches long protruding from the main stem. The poppy gets its distinct look from the tillers all connecting in a single flower bud.³³

At full maturation a four-petal flower emerges from the flower bud. At this stage fertilization between the poppies is carried out by insects. Opium poppy flowers are normally white but can vary between pink, crimson, light purple, or any variation of these colors. The beautiful flowers are short lived. Within 2-4 days the petals drop exposing a round pod the size of a small olive. The pod rapidly grows into an ovoid or globular shape roughly the size of a chicken egg (diameter of 2-3 inches).³⁴ The poppy's pod is bluish green, has a waxy appearance, and on top has a small crown with stigmas protruding upwards.

1.2 Farming Opium Poppies in Colombia and Mexico.

Harvesting opium is conducted in one of two fashions. The first is the farming and production of morphine destined for sale as a legal pharmaceutical. This process is modern and partially industrialized. The entire poppy plant is uprooted and then dried, milled and processed in order to achieve maximum output. This process is utilized in Australia, France, Hungary, Turkey, Spain, and India to produce raw opium for the legal production of morphine.³⁵ While the production and sale of morphine as a legal commodity is interesting I will not be discussing it further because it lies outside the bounds of this study. The second fashion consists of the farming techniques used to cultivate opium poppies and the production process used to make heroin. This will be explored to give the reader a better understanding of heroin and the labor system required for poppy cultivation and heroin production.

Harvesting opium is exhaustive and labor intensive but it is limited to a few weeks of the year. In the absence of expensive, state of the art machinery reserved for legal morphine production, the process is done by hand. The processes used today have changed little over the centuries. As previously mentioned the opium poppy requires about 120 days to grow. Both Mexico and Colombia can sustain 2-3 harvests a year due to their warm, temperate climates. In

the highlands central and Western Mexico, growers typically conduct two annual growing seasons culminating in a summer harvest and a more substantial winter harvest.³⁶ The harvest begins about two weeks after the flower petals have dropped from the plant. The alkaloids essential for producing heroin are only produced by the poppy over a period of 10 to 12 days, so a farmer needs to be cognizant of his crop.³⁷ Not all poppy plants will mature at the exact same time, so a farmer will need to keep a close eye over his whole crop for a period of weeks. Experienced farmers who reside near the poppy field know when their crop is ready for harvesting because they will awake with headaches and mild nausea. On the eve of harvesting it is not unusual for the sap from the poppies to be so rich with alkaloids that individuals passing by a poppy field will often report mild headaches and lack of appetite.³⁸ Once the flower petals have fallen, the pods have darkened from their initial green grey color to a brown or black, and the points of the poppy's crown are standing straight up, the pods of the poppy plant are ready to be tapped for their sap.³⁹

Opium farmers require very little equipment to tap opium poppies. The tapping tool is a specialized knife consisting of 3 or 4 small steel or glass blades mounted in a vertical line on a handle. The farmer uses the knife to make incisions on each side of the pod (3-4 total). The incisions need to be about .03 to .06 inches deep into the pod of the poppy. If the farmer is inexperienced and cuts too deep or too shallow he will limit the output of his poppies. If done in the correct manner the farmer is assured maximum output.⁴⁰ Experienced poppy farmers can even use something as rudimentary as the sharpened ring of a tin can to make the necessary incisions. The expedience of this method is highlighted in the Mexican state of Guerrero, where poppy farmers are known to cut the opium pod with the can's lid, scoop the resulting gum with the can itself, and then sell or trade the full can on the local economy.⁴¹ Tapping is usually done

in the late afternoon to ensure the sap from the pod can ooze out overnight without evaporating in the sun. The sap coagulates on the exterior of the pod and the poppy stem. The sap is a cloudy white liquid but on contact with air, it oxidizes and changes into a dark brown, viscous substance which is sticky to the touch. By the morning after the initial tapping the sap is gum like in texture. The farmer scrapes it from the pod using a sharp edge or knife and collects it in a container. Opium farmers moisten the blade between pods by licking it or dipping it into water. Farmers complain of the bitter taste of the opium sap provided by the former method but come to enjoy its analgesic effect.⁴² The process is repeated for each poppy in a field. The opium pods will secrete sap for a few days and farmers will routinely tap the pod about 6 times during harvesting time. Once harvesting is complete the farmer will walk through his crop and uproot the most prolific poppy plants. This is done to collect the seeds of the most productive plants and gradually improve the farmer's lot.⁴³

In Colombia and Mexico opium poppies thrive between 5,500 and 10,000 feet above sea level. Opium poppies are illegal in both countries and therefore their cultivation is restricted to difficult to access areas with little to no infrastructure. The introduction of opium poppies to rural farming communities is linked to preexisting drug trafficking networks and territory controlled by illegal armed groups.⁴⁴ While the process of farming opium poppies in Colombia and Mexico are similar, the physical geographic traits of each country necessitate procedural deviations. Opium poppy farmers in Colombia have adopted their farming techniques to overcome constantly high humidity and an overabundance of rainfall. As previously stated, opium poppies generally grow 20 degrees (latitude) north of the equator (regions in Mexico which grow poppy generally straddle the 23-25th parallel). The entire country of Colombia rests between 0 and 10 degrees north of the equator. Through careful selection of where to plant their crops, Colombian

opium farmers have overcome the high temperatures, and rainy seasons typical of geography located within the tropics. Colombia's opium growing regions include the highlands of 14 of the country's 32 departments. The most productive areas include the departments of Cauca, Huila, and Tolima, all located along the central Andean ridge. Colombian poppy farms are generally located between 5,500 and 8,800 feet above sea level.⁴⁵ The higher elevations bring cooler temperatures more suited for poppy growth. Colombian opium farmers plant their crops on inclined planes. This makes cultivation more difficult but keeps the soil at the base of the poppy plants from becoming waterlogged. While the rain and cloud cover are a challenge for Colombian poppy farmers it does provide a very important advantage over Mexican grown poppy. It conceals poppy farms from aerial reconnaissance flights. Despite the success of aerial fumigation in suppressing coca leaf production in the 1990s and early 2000s (the practice was halted for health concerns in the late 2000s), opium poppy harvests were never successfully targeted on a routine basis by U.S. or Colombian security forces. This minimized the risk of the crop being destroyed thus lowering production costs.⁴⁶



Photo 3: Opium farm on a hill in Mexico

The ambient humidity of the Colombian highlands creates additional challenges in how poppy farmers collect then process their raw opium. Rather than allow the poppy sap to dry on the pod overnight, Colombian farmers collect the sap 5-10 minutes after puncturing the pod.⁴⁷ Unlike other opium growing regions, farmers in Colombia do not sun dry their raw opium (this will be discussed further in the next section). Prior to the mid-1990s Colombian farmers sold their raw opium (when it is in liquid form due to high humidity it is referred to as opium latex) in plastic bags by weight. This practice fell out of style in the later 1990s after a number of farmers were accused of diluting their opium latex to increase its weight. As a consequence, a relationship of convenience was established between buyers and farmers and opium latex began being processed into morphine on the farm. In the end this benefitted both the opium buyer and farmer for it decreased the risk of the opium latex being captured as it was transferred from the farm to a “cook”.⁴⁸ Morphine is less bulky and more difficult to detect than opium latex so the sooner the latex is processed into morphine in the commodity chain the less likely the product is to be seized by security forces.

Opium poppies in Mexico are typically grown in the rolling hills along the Pacific coast. Opium is known to be grown in states such as Guerrero, Sonora, Michoacán, and Nayarit (among others). The Pacific coast of Mexico provides plenty of sunlight for the poppies and the elevation of the hills keep the temperature from rising too high. The only drawback of this region is its lack of rainfall, but this has been overcome through the ingenuity of Mexican poppy farmers. Opium farms in Mexico often utilize gravity fed irrigation systems which transport water from mountain streams or creek beds to poppy fields. Black plastic tubing is placed between rows of poppies and constructed to provide a drip or spray system that delivers the ideal amount of water to each plant.⁴⁹ In addition to innovative irrigation systems, Mexican opium farmers have also

developed selective breeding techniques. These techniques have created a strand of opium poppy that is shorter (better for concealing them from security force foot patrols) and produces up to 10 pods per opium poppy.⁵⁰

1.3 Labor – Opium Farmers and their Relationship to the Land.

Opium poppies are an ideal crop for geographically isolated rural economies that are dependent on agriculture and far from large markets. When done on a small-scale poppy cultivation does not require extensive land clearing efforts and does not interfere with sustenance farming. The ease in which poppy cultivation can be included into a traditional, bucolic lifestyle makes it a popular crop for communities in which the culture of the local population is closely linked with the land.⁵¹ No form of opium is consumed at recognizable rates in rural Colombia or Mexico, so farmers avoid any community backlash for growing illegal crops.⁵² The crop has persisted despite the potential for state eradication efforts, and price fluctuations because there has always been someone willing to buy poppy gum, and this justifies the risk of cultivating an illegal substance.

Opium cultivation fits seamlessly into the agrarian lifestyle of rural Colombia and Mexico. In order to supplement their more traditional crops, poppy farmers can utilize crop association to optimize the output of their land. Crop association is the practice of sowing various types of plants on the same plot of land to obtain the harvest of several crops simultaneously. In Colombia's poppy growing regions farmers have used crop association to grow poppy alongside beans and quinoa.⁵³ In Mexico, poppy farmers grow papaya, lentils, corn, pumpkins, and some legumes on the same plots utilized to grow opium poppies.⁵⁴ This technique allows farmers to provide sustenance for their family, sell surplus food, and make a profit from the sale of their opium gum.⁵⁵

In both countries poppy farmers can utilize crop rotation as a technique to incorporate opium into their seasonal farming routine. Crop rotation is the practice of seasonally changing the types of crops grown on a given plot of land. This allows farmers to plan their year according to their needs and is conditioned on demand for each one of their goods, and availability of capital to purchase inputs. Opium poppies fit well into crop rotation systems because, as I will discuss in detail later, there is always a market for raw opium, and local criminal organizations regularly provide protection and basic supplies to farmers willing to grow opium.

Crop association and rotation provide several advantages to opium poppy farmers. After sowing poppy seeds, the crop requires minimal effort until cultivation. This provides farmers with ample time to grow and oversee other crops, work on someone else's land for a salary, or have another job entirely assuming it does not interfere with poppy cultivation. This brings welcomed revenue to poor farmers who normally live in economically depressed regions of Colombia and Mexico. Crop association and rotation also allows farmers to diversify their crops to ensure they are not victimized by the failing of a single plant, or government efforts to eradicate poppies. Both farming techniques also make poppy cultivation less susceptible to state action. On a macro level it becomes more difficult for a state to eradicate large portions of poppy production if it is widely dispersed across private lands in geographically isolated regions. On a local level, farmers growing poppy as a secondary crop appear further removed from criminal activity and thus more likely to receive sympathy from security forces looking to eradicate opium poppies. In Mexico, journalist interviews of rural Mexican farmers in poppy producing regions indicate that state security forces are less likely to cause unnecessary damage if farmers are growing staple crops with poppy.⁵⁶

Small scale poppy growing operations are believed to be the predominant method of cultivation but, poppy is also grown in homogenous fields to increase overall production.⁵⁷ When grown on a large scale in homogeneous fields, poppy cultivation loses its support from segments of the local populace. In Colombia, poppy cultivation has been blamed for deforestation in poppy growing regions where DTOs or local militias cleared forests and converted the land to poppy farming to increase the potential output of their territory.⁵⁸ In some instances, this has resulted in local communities cooperating with security forces to eradicate poppy from their community. Infighting among competing DTOs has also led to diminished support from local farmers.⁵⁹ This support is essential in maintaining enough available labor to cultivate poppies. A DTOs inability to incentivize local farmers to grow opium poppy has the potential to escalate to harsh measures or acts of violence. In 2013 and 2014 DTOs in the Mexican state of Guerrero were forced to erect barricades in the municipalities of San Miguel Totolapán, Heliodoro, and the town of Coahuayutla to ensure the surrounding farm labor did not leave the area prior to the upcoming harvesting season.⁶⁰

1.4 Land – Areas of Colombia and Mexico dedicated to Opium Poppy Cultivation.

Estimates for the area dedicated to poppy cultivation in Colombia is based on data generated by the Illicit Crops Monitoring and Information System (SIMCI). The SIMCI utilized satellite imagery aerial surveys, and field data reported from the Colombian Counternarcotics Office of the National Police. The figures consolidated by SIMCI make up the base of the figures used in the United Nations Office on Drugs and Crime's (ONODC) annual reports, the Colombian Drug Observatory (ODC), and the Colombian Ministry of Defense.⁶¹ Poppies in Colombia are generally grown on small plots with other types of plants. The color of poppies and the persistent weather patterns in the areas where they are harvested make it difficult to

recognize them from satellite or aerial imagery and as a result estimates are often criticized for underestimating the number of hectares dedicated to poppy cultivation in Colombia. In 2000 it was estimated that 6,500 hectares were dedicated to poppy cultivation. In 2001 the area dropped to 4,500 hectares then stabilized at 4,000 hectares until 2004. From 2004 to 2016 estimates have shown a steady decline in areas with poppy cultivation. By 2008 the number of hectares was limited to 394 hectares. Production began to rebound in 2015 when 595 hectares were recorded.⁶²



Photo 4: Opium poppy production locations in Mexico

The decrease in land dedicated to the cultivation of opium poppy has not been matched with a decrease of heroin in the U.S. market. No data exists to account for this discrepancy but in June 2016 the UNODC in conjunction with the Mexican Secretariat of Defense (SEDENA), Secretariat of the Navy (SEMAR), the Criminal Investigation Agency Department of Drug Policy (PGR/AIC), and the Center for the Analysis and the National Center for Planning, Analysis and Information for Combating Crime (CENAPI) issued a joint report titled “Mexico: Monitoring of Poppy Crops, 2014-2015”. Based on aerial and satellite imagery the report

concluded that between 21,500 and 28,000 hectares of land was dedicated to the cultivation of poppy.⁶³ If accurate the report would explain how production in Colombia has fallen without a corresponding decrease in the amount of heroin available in the U.S.



Photo 5: Opium poppy production locations in Colombia

1.5 Capital – Start Up Fees.

As a commodity heroin enjoys the advantage of requiring minimal capital when compared to other illicit drugs grown in the Western Hemisphere. The capital required to enter the Colombian or Mexican heroin industry is relatively low. Assuming a DTO has access to land capable of growing opium poppy and that labor is available in the targeted area, a DTO requires little more than poppy seeds, and the chemical components necessary for converting raw opium into heroin. Opium poppies were first introduced to Mexico in the late nineteenth century and grown throughout the country. If an organization lacked access to opium poppy seeds they can be purchased on Amazon for about \$10 - \$17 per 10,000 seeds (2018 USD). A gram of poppy

seeds consist of about 3,300 poppy seeds and 500 grams are required to sow half a hectare of land. If purchased at the retail price mentioned above it would cost between \$1,650 and \$2,805 to acquire the seeds necessary to sow half a hectare of land. Purchasing seeds is a one-time investment since each bulb of the opium poppy generally produces 1,000 seeds, all of which are easily retrieved from the plant.

In addition to the cost of the seeds, DTOs expanding into the heroin industry also need to cover the initial costs of farm labor and the chemicals necessary to process heroin. As previously discussed, opium poppy requires about 120 days from plating to cultivation. When the harvest is ready farmers collect the raw opium sap and consolidate their harvest before providing it to a lab for processing. In both Colombia and Mexico, it is estimated that one hectare of opium poppies can produce an average yield of 11 kilos of opium sap, and .5 kilos of heroin per harvest (this is based on a single harvest, some areas of Mexico and Colombia can conduct up to three harvests a year).⁶⁴ Even if a farmer only uses a single square meter of their property a modest yield can still be collected. Since a square meter of poppies produces around twenty opium bulbs per harvest, and each bulb produces half a gram of raw opium, then a single meter of poppies can produce 10 grams of raw opium. Depending on the quality of the poppy sap, and the current market price, 10 grams of raw opium can retrieve anywhere between \$.50 and \$1.80 for a farmer in Colombia. A kilo of opium sap can retrieve anywhere from \$50 to \$180. The cost of labor or opium sap is considerably less in Colombia due to several factors. Primarily the opium sap is derived from poppies in a humid climate and therefore the sap is mostly comprised of water. 22 kilos of Colombian opium sap are required to make a single kilo of heroin. In Mexico the ratio is accepted at 11 to 1 (it actually fluctuates between dry and wet seasons but 11 is the accepted average for estimates). Due to the difference in sap composition, Mexican poppy farmers can

expect to receive \$600-1200 per kilo of opium sap.⁶⁵ Mexican poppy farmers are also better compensated because their product is closer to market (the United States), and DTOs need to provide rates of compensation in competition with agricultural products farmed in the same areas as poppies, primarily avocados, limes, or in coastal communities, sugar. As a result, poppy farmers in Mexico can retrieve greater compensation for their efforts without those costs being pushed onto the heroin consumer. If a poppy farmer has access to dry storage space, he can store the sap he cultivates and wait until the accepted sales price of opium sap is more agreeable. As a commodity, opium sap's shelf life makes it a superior product to the farmer than marijuana or coca leaf.

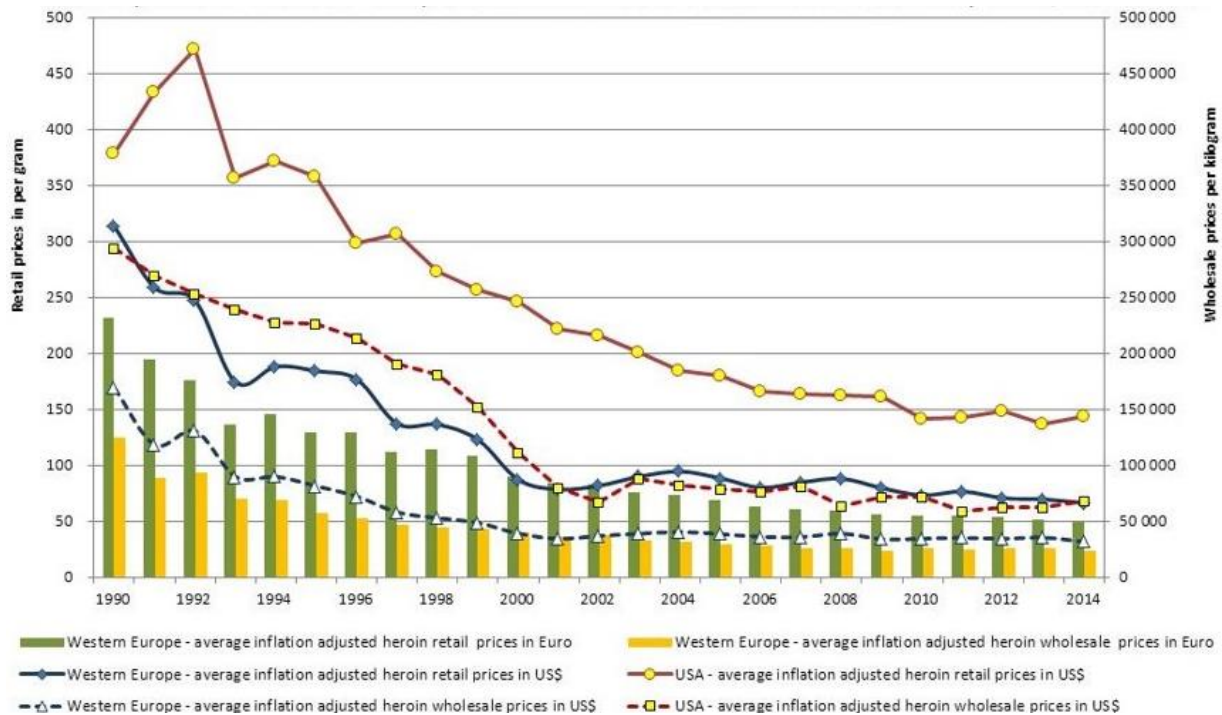
In addition to the initial capital required to compensate farm labor, DTOs also need to cover the costs of the ingredients necessary to convert opium sap into heroin. The chemical ingredients necessary for this process are inexpensive and readily available. In 2018 U.S. dollars the necessary components include acetic anhydride that costs \$88.52 per liter, activated carbon at \$30.70 per liter, ethanol at \$7.69 per liter, hydrochloric acid at \$79.44 per liter, and chloroform which costs \$114.10 per liter.⁶⁶ Opium poppies are hardy, resilient plants. They do not require herbicides, or fertilizer but some farms have introduced rubber hoses for irrigation. The ability to estimate the amount and cost of each precursor ingredient necessary in the production of a kilo of heroin is difficult and dependent on a number of variables. To simplify the estimate, I will use a common referenced rate of production that estimates that a single kilo of heroin requires \$1,000 worth of chemical ingredients.

Using these estimates, we can determine the amount of initial capital necessary to create a kilo of heroin. By finding the sum of the aforementioned resources we can assume it would cost between \$5,400 and \$10,570 to produce a kilo of heroin in Colombia and \$10,900 and

\$19,810 to produce a kilo in Mexico. Prices were reached by estimating the high and low estimate for the price of seeds, the high and low estimates for paying farm labor. From these figures it would appear that heroin producers in Colombia have an advantage in lower production costs but these costs are offset by the costs incurred by DTOs to get their products to markets. If, however, an entrepreneurial individual wanted to focus their efforts on producing heroin and not transporting it to market they could expect to receive between \$3,570 and \$5,700 for a kilo of heroin in Colombia. The small internal heroin market (i.e. demand) in Colombia coupled with Colombia's distance from the U.S. market suppresses the price. In Mexico a kilo of heroin sells for approximately \$35,000.⁶⁷ This price is higher due to Mexico's proximity to the U.S., and the availability of trafficking options available to bring heroin to U.S. markets. The disparity in price between the capital needed to purchase the necessary equipment and supplies to produce a single kilo of heroin and what a kilo of heroin sells for on the Colombian market discourages newcomers to the heroin industry. This, in part, explains why the production of heroin in Colombia is dominated by 'consorcios' or consortiums which consist of small, independent and very often family-based groups that serve as middlemen in the heroin trade (this subject will be discussed in detail in the following section).⁶⁸ They typically finance poppy farmers by providing the seeds and necessary farming equipment, collect the opium sap from the farmers, produce the heroin and then hand off the finished product to trafficking organizations that can get heroin to market in the U.S. The consorcios relinquish access to the large profits to be gained by selling heroin in the U.S., but once they've come to dominate the heroin production in a region they rarely face competition and avoid the risk of moving their illicit product over intentional boundaries.

The higher price for a kilo of heroin on the Mexican market has the opposite effect in the Mexican heroin industry. Organizations aspiring to turn a profit on the production of heroin simply require the capital mentioned above and available arable land. In contrast to Colombia, heroin production in Mexico is decentralized and dispersed. In Mexican states with strong DTOs, like Sinaloa, poppy cultivation and heroin production is dominated by the leading cartel, but in most of the country, the process is dispersed and open to new investors. A service or security charge is normally owed to the dominant criminal organization in the area, but for the most part individuals can establish themselves as independent poppy farmers, or heroin producers outside the direct control of a DTO or production syndicate or consortium.

Graph 1: UNODC Heroin Prices in Western Europe vs. USA, 1990-2014



Most of the capital provided to initiate the production and trafficking of heroin came from criminal groups already experienced in the trafficking of illegal goods. In Colombia, for example, the Cali Cartel’s founding members (Gilberto Rodriguez Orejuela, Miguel Orejuela,

and Jose Santacruz Londono) raised sufficient capital to enter the cocaine trafficking industry through a kidnapping for ransom business model. The revenue generated through cocaine trafficking was then used to start the cartels business in the heroin industry.⁶⁹ In Mexico the original trafficking organizations raised capital by smuggling alcohol into the United States during prohibition. The use of profit from one illegal business venture to provide capital to start another one follows a cyclical pattern in Mexico. The capital raised in the trafficking of alcohol started the heroin and marijuana industries which then allowed Mexican DTOs to expand their transportation networks to facilitate their role as conduits of Colombian cocaine to U.S. markets. The profits generated from cocaine trafficking then supported reinvestment into the heroin industry.

The nature of the Colombian and Mexican heroin industries influence the capital required to enter the trade. The price of heroin in Colombia discourages new enterprises from producing heroin but the large return available to those who can get it to U.S. markets encourages the decentralization of trafficking networks (more on this later). The nature of the heroin industry in Mexico leads to the formation of two separate business models. DTOs trading white, powder heroin are generally centralized and have access to the markets in U.S. cities. For example, the Sinaloa Cartel directs the production, trafficking, and distribution of heroin down to the street level in New York and Chicago.⁷⁰ In contrast to the Sinaloa cartel, other DTOs in Mexico trade in black tar heroin or white heroin of a lower quality and have created niches for themselves within the industry. Some organizations such as Los Zetas do not traffic heroin but provide protection for growers, producers, and smugglers within their territory. Other smaller organizations such as Los Rojos and Los Ardillos in central Guerrero control every facet of heroin production from poppy cultivation to inter-state transport of heroin but lack ties to

smuggling organizations capable of getting their product to U.S. markets.⁷¹ The disparity of capabilities between trafficking organizations, and the origins of the capital utilized to initiate heroin production in Colombia and Mexico provides insight into the differences between the Colombian and Mexican heroin industries.

1.6 Conclusion.

By conducting an assessment of heroin's backwards linkages, it is evident that heroin as a commodity is both low cost and high profit and benefits from an ease of cultivation giving it an advantage in the illicit drug trade. Colombian and Mexican grown heroin differ in their distinct advantages. For instance, the humidity that is prevalent in poppy growing regions of Colombia reduces the potency of the opium sap cultivated there. As a result, 22 kilos of opium sap are required to produce a single kilo of heroin. As a result, more land needs to be dedicated to the growing of poppy to achieve the desired amount of heroin. The diluted nature of opium sap in Colombia also reduces the profitability of growing opium poppies. This does deter Colombian farmers from growing poppies but encourages farmers to diversify their crops so that opium poppy is one of several crops on their land capable of generating revenue. As a result, opium poppy is more prevalent throughout the highlands of Colombia but is grown in a less concentrated fashion. Colombia's geographical distance from the U.S. market is another consideration that shapes the Colombian heroin industry. The small domestic market for heroin in Colombia coupled with the difficulty of trafficking heroin in to the United States decreases the cost of a kilo of heroin in Colombia. This works to the advantage of DTOs that have the ability to bring Colombian heroin to market but suppresses the cost of labor and production in Colombia.

Mexico's heroin industry is shaped by its proximity to the U.S. and the potency of its opium sap. In Mexico only 11 kilos of opium sap are required to make a kilo of heroin. This makes Mexico opium sap twice as strong as its Colombian counterpart and provides greater compensation for farmers in Mexico. While Mexican poppy farmers can always diversify their crop for sustenance or diversification, the high cost of opium sap provides them with an economic incentive to concentrate their efforts in producing opium sap. As a result, opium poppy fields are often grown in dense concentrations and are limited to a few states in Mexico. The proximity of Mexico to U.S. markets also increases the price of a kilo of heroin in Mexico. The structure of the market and the backwards linkages in Mexico incentivizes poppy farmers and heroin producers to enter the market but dampens the potential earnings of organizations who concentrate in trafficking drugs to the U.S. market. As we will discuss later, the structure of the Mexican heroin industry encourages DTOs to not only traffic heroin across the border, but also organize distribution networks in the U.S. in an effort to maximize their profits. The differences between the backwards linkages in the Colombian and Mexican heroin commodity chains cause a divergence in the processing procedure for converting opium to heroin. These differences will be discussed in the forwards linkages section but it is important to note that both Colombian and Mexican heroin growers and traffickers have developed effective farming systems capable of supporting a transportation system that moves upwards of 8 metric tons of heroin into the U.S. every year.

Chapter 2 Forward Linkages.

Forward Linkages are summarized by every activity that does not cater to demands, and therefore never occurs in pure form absent a connection to backward linkages and the pressure instigated by demand.⁷² The term forward was incorporated because forward linkages provide

stimulus toward additional investment points in the direction of the consumer, not the raw material.⁷³ In the case of heroin, forward linkages include the systems utilized to collect opium sap from farmers, the process of producing heroin, and methods for sneaking heroin into the U.S. Forward linkages are a major component of the heroin industry. Neither Colombia nor Mexico have sufficient domestic markets for the amount of heroin they produce and are dependent on U.S. markets for profitability. The dependable delivery of heroin into the U.S. is the key element in the heroin industry because it shapes the scope of the industry. Studying the forward linkages of the heroin industry provides insight into the organization of DTOs operating in Colombia, Mexico, and the U.S.

2.1 From the Farms to the Lab – Systems of Opium Sap Collection.

The revenue generated from the heroin industry combined with heroin traffickers' desire to minimize their risk of arrest or violent interaction with competition leads to the formation of specialized organizations focused on segments of the heroin industry. In Colombia and Mexico criminal organizations generate revenue by regulating the relationship between poppy farmers and traffickers. In Colombia these organizations utilize one of two systems to generate revenue by purchasing raw opium from poppy farmers, processing it into heroin, then selling it to trafficking organizations. The terms utilized for categorizing each type of system are borrowed from Letizia Paoli's *The World Heroin Market*. Known as the Consorcio and Plante system, each one has raised enough capital by selling heroin to traffickers to finance the spread of opium poppy cultivation across both countries.

The Consorcio system receives its name from the group that manages the business activity between farmers and traffickers. Consorcios generally consist of small, independent, sometimes family based groups that collect opium sap or morphine from farmers before selling it

as is or producing it into heroin then selling it to traffickers.⁷⁴ Consorcios use a scouting system where members will comb the countryside looking for rural communities capable of growing opium poppy. Once an area is identified it is categorized as a veredas. Each vereda consists of about 30 farmers who are willing to grow opium on their plot of land or in nearby unincorporated land such as a National Forrest or park.⁷⁵ Consorcios can then rent property from the farmer and pay the farmer to work on his land to grow poppy. The Consorcios bring in experienced poppy farmers to teach the new farmers in a vereda their new craft. Another option is to rent land from large land-owning farmers then hire landless locals to tend the poppy crop. This system allows the farmer to plead ignorance if questioned by authorities.⁷⁶ This option is popular in regions where military eradication missions are prevalent since it provides the farmer plausible deniability.

Once the consorcios have established a vereda and worked out all rental agreements a consorcio representative is left in the vereda to set and monitor rates of production. This representative maintains contact with traffickers in the nearest populated area to ensure timely delivery of morphine base or heroin. In the vereda production quotas are set by the consorcio representative. If production goals are met the farmer receives full payment and is invited to participate in the next harvest. If they are not, the farmer is paid a smaller amount and is not invited to participate in future harvest.⁷⁷ Representatives routinely visit vereda farms to ensure additional inputs such as fertilizer or fungicides are not needed on the plots. During the harvest, representatives visit the farms or plots daily. They provide daily measurements of collected opium sap and ensure famers are using proper collection techniques. On some veredas representatives set time windows (for example 4- 6p.m.) for the collection of opium sap to ensure that their plants are protected from overzealous farmers.⁷⁸ If the poppy plots or farms are

destroyed by the government, the consorcio representative promptly covers all cost of labor and returns the next grow season to provide seeds and capital.

The second system for managing the collection of opium sap is the Plante system. The plante system operates by providing the services typical of a local or community bank in a rural area. A local merchant or trafficking organization will establish a local store. The store will provide the seeds, capital, and equipment necessary to harvest opium sap.⁷⁹ In return for all of the necessary inputs, farmers will tend their poppy crop then sell the opium sap back to the plante store. Groups of indigenous farmers in the Department of Cauca have made attempts to go independent but their efforts have been undermined by competing business models.⁸⁰ Independent farmers struggle to avoid violent confrontation with their competition and do not have longstanding ties with trafficking organizations. This makes the negotiation process for agreeing on the price of a kilo of morphine base or heroin very difficult.

Some poppy growing areas of Colombia are located in regions controlled by guerillas or paramilitary groups. In this case the consorcio and plante systems still function but an established fee must be paid to the local militia or guerilla group. As we will discuss in Chapter III, the Revolutionary Armed Forces of Colombia (FARC) developed a model where they would provide protection for all illegal activities in their zone. In 1999, they were charging \$45.00 for each kilo of raw opium produced in areas under their control. They also charged \$2,631 for intern-Colombian flights and \$5,263 for international flights that departed from airstrips which were under their control. The FARC also imposed a 20% tax on all precursor chemicals shipped through their territory for the production of heroin.⁸¹

Less is known about the systems and businesses that collect opium sap from farmers before passing it on as heroin to traffickers in Mexico. While some of the inner workings of

Colombia's heroin industry have been documented by scholars and journalists such as Sergio Uribe, Ricardo Vargas, Jacqueline Barragan, and Maria Ramirez, the Mexican system remains somewhat of a mystery. Chris Kyle, an anthropologist from the University of Alabama, conducted research in the State of Guerrero, Mexico but his observations concerning poppy cultivation and heroin production are limited to the state. A number of U.S. and Mexican journalists from the New York Times, Washington Post, El Universal, and El Proceso have all written on the Mexican heroin industry but little effort has gone into studying the satellite industries that form around heroin production and trafficking. A few additional details can be gathered from Jose Diaz-Briseno and Sam Quinones who conducted interviews or referenced other people's interviews with members of a small DTO from Nayarit, Mexico.

When all of the available information is considered a general sense for the decentralized nature of the Mexican heroin industry begins to take shape. Using the sources referenced above it can be inferred that two systems currently exist in Mexico. The first system represents a fairly new development in the heroin industry. Small, close-knit organizations provide farm to consumer service. Groups such as the Xalisco Boys from Nayarit, Mexico pay farmers direct for opium sap, convert it into heroin then traffic it into the U.S.⁸² The majority of the members of the group are all from one of 3 or 4 small towns in Nayarit and they are often related to the poppy farmers. This streamlines the distribution process and saves them the cost of buying heroin from a third party. Within this system the network that farms, collects, processes, then distributes heroin generally pays a third party to ensure their safety. For instance, the Xalisco Boys pay Los Zetas for protection and in return they are left to manage their heroin business as they see fit.⁸³

The other system in Mexico is represented by the diverse group of organizations that control the heroin trade in Guerrero, Mexico. Within the state of Guerrero there are numerous

criminal groups that control every element of the heroin trade up to the shipment of the heroin across the U.S. border. Groups such as the Los Rojos, Los Ardillos, and Guerreros Unidos provide all of the inputs required to grow opium poppy.⁸⁴ Because labor in the state is limited, these groups often resort to kidnapping and violence to ensure prized poppy farmers do not leave their farms. Unlike the larger DTOs in Mexico such as the Sinaloa Cartel, these groups lack the capacity to establish a distribution network in the U.S. As a result, they control every facet of heroin production from poppy cultivation to inter-state transport of heroin but lack the capacity to smuggle their product to the U.S. Their profits are thus capped by the going rate for a heroin in Mexico.⁸⁵

2.2 Cooking and Processing – Preparing Heroin for Market

Once the opium sap is collected by any of the above-mentioned methods it is processed into heroin. In Colombia it is typical for consorcio representatives or plante managers to request that the opium sap is cooked into a morphine base before it can be purchased. As a consequence, experienced farmers may have a small “kitchen” on their property or share the services of a kitchen with a bloc of neighbors to cook opium sap into morphine. In Mexico, where the sap or opium gum is much dryer, poppy farmers can expect to sell their opium raw without the need for conversion.

When it is in its raw form as gum or dried sap, raw opium contains a high percentage of water, so it is left in the sun to dry for several days. When ready, the raw opium should be a sticky, dark brown substance (similar to bee’s wax) with a strong odor. The freshness of the raw opium is assessed through its pliability. If adequately fresh the substance should resemble putty. It will then be molded into cakes, balls or bricks which can be stored for months.⁸⁶ The raw, dried opium is wrapped in plastic and stored in the shade, as it continues to dry it hardens. Once

the dried opium has hardened it is ready to be cooked. Cooking the opium prepares it for market and is the preliminary step in converting it into heroin. Depending on the business model preferred by the distributing agent, the farmer may sell his raw opium to a second party for cooking or cook it himself into morphine base prior to selling it.

Cooking the opium is done by placing a brick of dried raw opium into boiling water. This removes any impurities such as plant matter or sand which the farmer may have added to increase the weight of his product. Once the impurities are separated the remaining liquid is passed through a cheese cloth to further remove impurities.⁸⁷ Free of additional impurities the substance at this point is a brown, mobile liquid referred to as liquid opium. The liquid is left to simmer until it is transformed into a thick, brown paste, this product is known as prepared, cooked, or smoking opium. The paste is molded into thin trays and sun dried for a second time. The drying process converts the paste into a substance resembling modeling clay which hardens as it matures. This cooked opium can now be sold as is on the market as a smokable opium or it can be transported to a basic laboratory to be converted into morphine or heroin.⁸⁸

Before raw opium can be processed into heroin it must undergo a process that converts the raw opium paste or liquid into morphine. Whether the conversion process is carried out in a medical lab or clandestine processing center, morphine and heroin manufacturing is simple, and easy.⁸⁹ The process utilized to convert 'cooked' opium into morphine is normally called "extracting morphine". Bricks or balls of cooked opium are added to hot water. Once the paste has dissipated into the water, slaked lime is added so that the morphine alkaloid reacts with the lime to form a solution. The solution forms into a white, frothy band near the surface of the container.⁹⁰ The solution is then skimmed from the top, reheated, and mixed with concentrated ammonia. The morphine solution binds to the ammonia and forms a solid which then sinks to the

bottom of the container. The solid morphine can be collected through filtration. This process produces 10 percent of the original quantity of raw opium. For example, 10 kilograms (kg) of raw opium will produce a single kg of morphine base. The morphine base is now ready for conversion into heroin.⁹¹ When considering the additional ingredients used to convert morphine to heroin, a simple one to one morphine to heroin ration can be used for planning considerations. One kg of morphine, when properly processed, will produce a kg of heroin.

Heroin or diacetylmorphine [$C_{17}H_{17}NO(C_2H_3O_2)_2$] has a single molecule structure and is a more powerful narcotic than ethylated or methylated morphine.⁹² It requires numerous steps in its production. First, equal parts morphine and acetic anhydride are heated in a glass or enamel-lined container for 6 hours at 185 degrees Fahrenheit. The morphine and acid combine and form an impure heroin. Next water and chloroform are added to the impure heroin to precipitate impurities. Once the impurities are removed sodium carbonate is added to the solution. This causes solids to form and sink to the bottom of the container. The solids are then removed from the sodium carbonate solution and, in ideal circumstances, activated carbon is added for purification.⁹³ Finally, the solids retrieved from the sodium carbonate solution are mixed into pure alcohol. Once dissolved the alcohol and heroin solution is heated to evaporate the alcohol. When the alcohol is gone the cook is left with pure heroin.⁹⁴

Once heroin has been rendered from its morphine base a number of additional steps can be taken to prepare it for a particular market. If the heroin is then mixed with ether or hydrochloric acid it will create a white, fluffy power known as white heroin. White heroin is either snorted or injected, its composition is not well suited for smoking.⁹⁵ It is a common misconception to assume that 'white' heroin is the most pure or potent form of the drug. In fact, white heroin is very often the least potent variant of heroin found on the street because it is easily

cut or mixed with starch, sugar, or strychnine.⁹⁶ Cutting heroine can occur at multiple stages of transport in the heroin chain. It can be assumed that white heroin is cut every time it is handed off from producer, to transporter, to street dealer. As a result of this capitalistic phenomenon white heroin is a favorite of dealers who can step on or cut their heroin-based product in order to increase the volume by diluting it before selling it. Afghan or Burma sourced heroin entering the United States is bought and sold at wholesale a dozen or so times, and normally cut each time, before making it into the hands of a heroin user. Because of this cycle white heroin not produced in Colombia or Mexico in the U.S. is normally only 12 percent pure.⁹⁷

Like white heroin, other forms of the drug are often named after their physical appearance. Brown heroin or brown sugar heroin is a low-grade heroin which does not undergo any additional steps of purification following the evaporation of the alcohol. Brown heroin is easier to make than white heroin which makes it ideal for producers who have to create their heroin in low tech environments. It is considered a base, does not dissolve well in water, and has a low burning temperature. These qualities make brown heroin ideal for smoking but poor options for snorting or injecting.⁹⁸ Similar to brown heroin, black tar heroin requires a less labor-intensive method of production than white heroin. Black tar heroin derives its name from its sticky or rock like form. This makes it unique compared to other forms of heroin that are normally sold as powder. Normally black but sometimes dark orange or brown, black tar heroin is made from crude and less refined processes.⁹⁹ It can be smoked or melted for injection. Black tar heroin is the ideal form of the drug for producers who cannot depend on the benefits of a static lab and must contend with law enforcement interdiction efforts. Black tar heroin can also be mixed with warm water to form liquid heroin. This process is solely conducted to make transportation or concealment of the drug from authorities easier on the trafficker.

2.3 Entering the U.S. – How Heroin Arrives in the U.S. Market.

Colombian produced heroin enters the United States in one of two ways. It is transported by sea from Colombia to Mexico then smuggled across the border, or it enters the U.S. on a commercial airline from Colombia to an airport in Florida or New York. From 1988 to 1998 54.9% of Colombian sourced heroin entered the U.S. through international airports in Florida and 41.4% entered through New York International airports.¹⁰⁰ Heroin can be smuggled into the U.S. via commercial airline by hiding it in passenger baggage, storing it in secret compartments on the plane, or utilizing the most common method, transport through human couriers or mules.¹⁰¹ Of all the heroin seized between the U.S. and Colombia in 2002, 38% (the largest single consignment) involved human couriers. A trained human courier can sneak up to 1 kilo of heroin in their digestive system. If we assume that in 2002 the U.S. consumed 8 metric tons of Colombian heroin smuggle into the U.S. via human courier. Then, on an average day, 22 kilos of heroin were being delivered to the U.S. from Colombia in a human courier. Since approximately 1,800 passengers travel by air from Colombia to the United States daily then only about 1% of travelers would have to be human couriers.¹⁰²

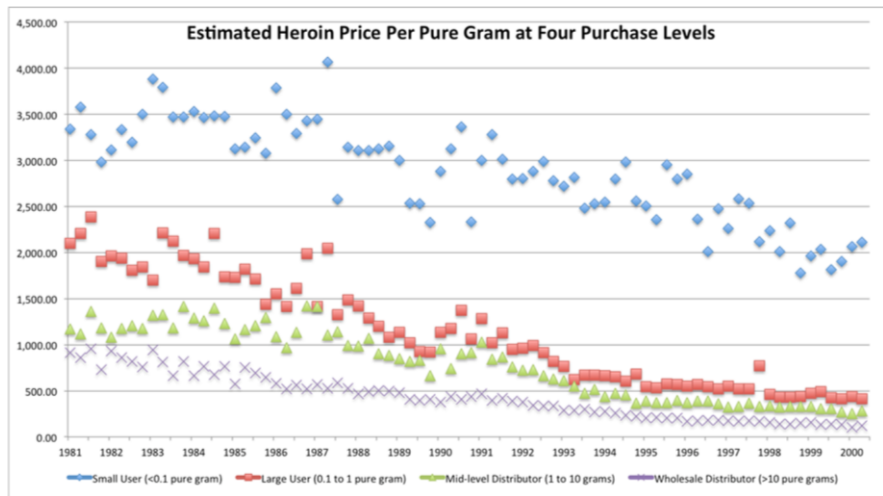
Utilizing human couriers to smuggle heroin into the U.S. is a simple way to decrease transportation costs. It is a favorite tactic of small Colombian DTOs who lack sufficient capital to expand their operations in Colombia but maintain a well-developed distribution network in the United States. Human couriers train their body for the rigors of serving as a courier by swallowing whole baby carrots then passing them. When they can demonstrate proficiency in swallowing a kilo of baby carrots without getting sick or suffering from digestive issues they are approved for duty as a courier.¹⁰³ Couriers are compensated in accordance with how much heroin they can carry and their citizenship status. Dual U.S. and Colombian or Mexican citizens are

considered assets. They can fetch upwards of \$6,000 per kilo (in 2014 USD) trafficked. The kilo of heroin is divided into 70 bags of heroin, each one containing about 15 grams of heroin. The bags are wrapped in wax paper then sealed in latex. Couriers are instructed to avoid coffee, orange juice, and food and encouraged to avoid using the bathroom until reaching their hotel in the United States.¹⁰⁴ This rudimentary system is incredibly difficult to interdict, and it can generate upwards of \$300,000 per kilo of heroin if the managing DTO has a street level distribution network in the U.S.

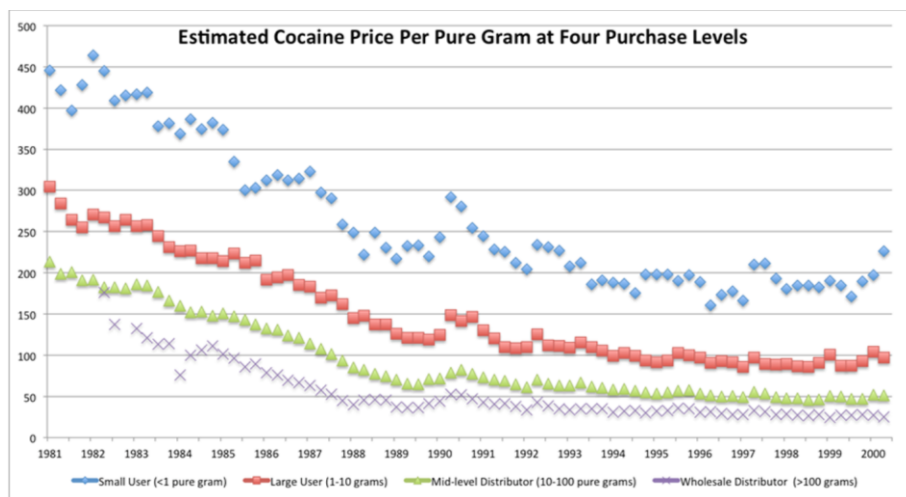
From 1995 to 1998 about .4 metric tons of Colombian heroin entered the U.S. across the U.S.-Mexico border. This pales in comparison when compared to the 6 kilos that entered the U.S. via air transport but even half a metric ton has the potential to generate upwards of \$300,000,000.¹⁰⁵ Colombian heroin that crosses into the United States over the Mexico border is transported from Colombia to Mexico via boat then smuggled across the border hidden in a secret component of a truck or car. Colombian DTOs transport about 80% of their cocaine to Mexico via boat.¹⁰⁶ These shipments routinely contain smaller parcels of heroin. When smuggling drugs via the ocean DTOs use one of three methods differentiated by the vessels used. The first method consists of loading large fishing trawlers with cocaine and heroin. The trawlers can move large sums of drugs but are slow and easy prey for U.S. Coast Guard or Navy cutters or ship borne security forces in Central America. To avoid losing a large shipment with the capture of a single boat, DTOs also use “go fast” boats. The second method utilizes Go Fasts which are speed boats modified to maximize cargo space. Go Fasts have lower pay loads than trawlers but are much faster and are therefore less likely to get captured. Their smaller size also makes the loss of a single boat less detrimental to overall transport operations. Generally, a fleet of Go Fasts are accompanied by a trawler that carries no drugs but uses the ships radar and

communication equipment to assist the Go Fasts in avoiding security forces.¹⁰⁷ The last method of seaborne transportation is self-propelled semisubmersibles (SPSS). SPSSs can store up to 6 to 10 metric tons of drugs and have a range of up to 1,500 nautical miles. To avoid detection SSPSs depart the West Coast of Colombia, head due west until they pass the Galapagos Islands, then orient north for the remainder of their trip. SPSSs are very slow but since they are semi submersed they provide very little radar feedback and are therefore less likely to be detected by security forces.¹⁰⁸

Graph 2: Price per .1 gram of heroin at different levels of distribution



Graph 3: Price per .1 gram of cocaine at different levels of distribution



Once in Mexico the heroin is separated from the cocaine and hidden by Mexican DTOs in semitrucks or passenger vehicles. Between 1988 and 1998, 2.8% of Colombian sourced heroin entered the U.S. from Mexico and into California. Another 1.5% entered through ports of entry in Texas.¹⁰⁹ Heroin that crosses into the United States via border crossing points is sold to Mexican DTOs. Its entrance into the U.S. market is dependent on Mexican transportation networks outside the influence of the Colombian DTOs who produced the original product. This method of getting Colombian heroin to market is less profitable than trafficking it with human couriers but it provides Colombian DTOs with large cocaine networks an opportunity to diversify their revenue streams.

Mexican heroin is smuggled into the United States using the same methods. Between 1988 and 1998, 64.3% of Mexican sourced heroin entered the U.S. through California, 16.3% in Texas, and 19.4% divided between New Mexico and Arizona. Busy crossing points in California and Texas are preferred to New Mexico and Arizona because the volume of traffic provides cover for illegal cargo.¹¹⁰ Mexico's proximity to the U.S. provides DTOs with more options when compared to their peers in Colombia. Human couriers can minimize the risk of detection by ingesting heroin in Tijuana or Juarez, then simply walking across the U.S. border before retrieving their load. Mexican citizens with minimal connections to DTOs can volunteer to make some extra income by carrying a backpack with them as they sneak into the U.S. on foot or hide it in a compartment of their car as they go to San Diego for a shopping trip. Large heroin shipments are just as easily smuggled into the U.S. in semitrucks carrying other non-illicit goods. The volume of traffic between Mexico and the United States along the southern border makes it almost impossible to stem the flow of heroin entering the U.S.

Once in the United States, Colombian and Mexican sourced heroin is easily transported across the country. Personal vehicles and even the mail system is used to distribute heroin from source locations to minor distribution cells.

2.4 Conclusion.

An assessment of forward linkages in the Colombian and Mexican heroin industry reveals their dependency on similar methods of reaching the U.S. market. The capabilities of the U.S. Navy and Coast Guard deny Colombian DTOs the freedom of movement their organizations enjoyed in the early to mid-1980s. No longer capable of transporting their cocaine or heroin on small planes directly to the U.S. they are forced to rely on Mexican DTOs to serve as middlemen who provide direct access to the United States but for a price. While Colombian DTOs are dependent on Mexican DTOs to move their cocaine to market, they do have the ability to ship heroin directly to the U.S. with human couriers. As we will discuss later this limit the reach of Colombian DTOs who are restricted to the markets accessible from International airports in Florida and New York. The physical characteristics of heroin and the transportation network built to transport cocaine to the United States provides heroin traffickers with multiple options for moving their product to market. Colombian heroin traffickers can move their product from Colombia to Mexico using the same process they've grown accustomed to using for cocaine or they can utilize human couriers and avoid the cost of using an intermediary. Mexican heroin traffickers have even more options. DTOs in Mexico have been known to mover heroin across the border in personal vehicles, semi-trucks, on the backs of individuals crossing on foot outside of ports of entry. Human couriers are also routinely used, but for Mexican DTOs training their couriers to withstand the rigors of a long international flight is not necessary. Mexican couriers simply need to walk across a border crossing station.¹¹¹ The plethora of options make

interdicting heroin shipments very difficult and unlike cocaine, heroin transportation networks do not require expensive nautical vessels to move their product to U.S. markets.

Chapter 3 Fiscal and Consumption Linkages.

Fiscal and consumption linkages were developed to assess the effectiveness of state actions in interfering with market activity and to set conditions for continued economic growth. In theory, fiscal linkages evaluate the state's ability to raise revenue through taxes and tariffs and then invest that revenue in projects that would increase overall economic activity. State investment in infrastructure development is the classic example. Consumption linkages are used to evaluate a state, industry, or company's ability to create a stimulus toward domestic production of consumer goods that will develop as new incomes are spent on such goods.¹¹² Consumption linkages describe a process where the revenue generated from a new economic activity is used to purchase goods that are initially imported but will eventually form a domestic industry.¹¹³ Examples of consumption linkages can cover an array of activity. Henry Ford increasing working wages in his factory to provide his employees the opportunity to purchase a Model-T, or a country placing tariffs on foreign made cars in order to protect the development of a domestic car industry can both be considered consumption linkages or the utilization of fiscal linkages (tariffs) to create consumption linkages.

Neither fiscal or consumption linkages can be directly applied to the development of illicit commodity chains. With few exceptions, state interactions with illicit industries are carried out to have a negative impact on those industries. The general aim of the state (within this study we can assume the state to be the United States, Colombia, or Mexico) is to decrease the production of a drug, interdict drug shipments, arrest leaders of drug organizations, and promote a decrease in consumption among drug users. As a result of this dynamic additional processes

must be applied to accurately assess the fiscal linkages of the heroin industry. Within this chapter the fiscal linkages subsection will be divided into two categories, direct and in-direct fiscal linkages. Direct fiscal linkages will refer to the unintended consequences generated by the state's interaction with the drug industry. For example, in the late 1980s and early 1990s the Colombian government's efforts to dismantle the Medellin and Cali cartel proved successful, but Colombia's decision to concentrate its resources to disrupt the actions of both cartels provided an opportunity for smaller DTOs in Colombia. The state lacked the requisite resources to target large cartels while also stymying the formation of smaller DTO and as a result smaller DTOs focused on the heroin trade could flourish as Colombia's security forces focused on large cartels who specialized in the trafficking of cocaine. The other category is in-direct fiscal linkages which will refer to the effects of non-drug related policies adopted by the state. For example, trade deals that allow for the increase in trade between two countries are not passed to have an effect on the drug trade, but they very often do. The portion of this chapter on in-direct linkages will discuss the effects of the U.S.-Colombian and U.S. – Mexican relationship on the heroin commodity chain.

Even more so than fiscal linkages, consumption linkages are the most difficult aspects of an illicit commodity chain to assess. States and companies generally publicize the actions they take in order to promote the development of domestic industries and markets. Organizations that operate and profit from their place along the heroin commodity chain go to great lengths to ensure the secrecy of their business operations. As a result, the information required to analyze consumption linkages is difficult to come by and some conclusions must be inferred from what information is available concerning the heroin commodity chain. In this chapter consumption linkages will be assessed through an analysis of the domestic heroin industries within Colombia

and Mexico, a discussion on how DTOs utilize their profits to re-invest in their production and distribution networks, and the role corruption plays in the heroin commodity chain. Through an analysis of the fiscal and consumption linkages we will gain a better understanding of how state actions and criminal organizations influence the development and dominance of the heroin commodity chain in the western hemisphere.

3.1 Direct Fiscal Linkages.

Direct fiscal linkages are assessed as the negative consequences of state counter drug policy on the illegal drug industry and how the industry replies and adapts in kind. When applied to the analysis of illicit commodity chains, direct fiscal linkages can be understood as the unintended consequences of counter-drug policy. The phenomenon of counter drug policy leading to the geographic movement of drug industries is commonly referred to as the “balloon effect”. The Council on Hemispheric Affairs recognizes the balloon effect as the “analogy used by drug policy analysts to illustrate the process by which drug production is displaced across national borders in order to evade eradication and interdiction efforts.”¹¹⁴ Direct fiscal linkages aim to analyze how the heroin commodity chain adapted and continues to adapt to state intervention. Where the balloon effect focuses exclusively on the displacement of drug production across boundaries, direct fiscal linkages analyze how drug trafficking organizations change their methods of collection, transportation, and distribution in order to avoid interaction with state security forces. This section will highlight the continuous adaptation of the heroin commodity chain in an effort to explain how it developed into its current state as a result of U.S., Colombian, and Mexican counter drug policy.

3.2 The Mississippi Compromise.

The threat of state intervention is the defining feature of any illicit commodity chain. If heroin or cocaine were legal pharmaceutical products they could be assessed in the same manner that sugar, coffee, or perhaps more appropriately, medical grade morphine, is produced and transported through the global economy. At every level or nexus of the heroin commodity chain actions are taken to avoid the detection of law enforcement agents. Opium poppy farmers hide their illegal crop among their sustenance farms to avoid aerial detection, heroin producers establish their labs or kitchens in remote locations near opium farms to ensure their product is easily concealed, and traffickers recruit skilled human couriers to avoid detection by drug sniffing dogs. Throughout previous sections of this study the methods DTOs use to farm, produce, transport, and distribute heroin while remaining undetected were discussed. This portion of the essay will analyze how efforts to avoid state interaction by DTOs have shaped the current heroin market in the United States. In order to accomplish this three commonly held assumptions concerning the contemporary history of the heroin industry will be analyzed to highlight how state interaction or the threat of it has shaped the manner in which DTOs conduct their illegal business. The first assumption is that sometime in the late 1980s or early 1990s Colombian drug trafficking organizations recruited advisors from Asia to assist them in developing a heroin industry.¹¹⁵ The validity of this assumption is questionable since there is no evidence to indicate that heroin producers from Asia ventured to Colombia to impart their wisdom. Within the body of literature on the history of drug industries there exists a common phenomenon where something that is commonly accepted as being true regarding DTOs cannot be verified through investigation, interview, or court records. While the idea of a Colombian “businessman” from Cali or Medellin, Colombia venturing to the high jungles of Myanmar or the Helmand province of Afghanistan to recruit veteran heroin producers is intriguing, it has no

lasting impression on the Colombian heroin industry. Through one fashion or another Colombian DTOs obtained the ability to harvest opium poppies and produce heroin. It is just as likely that Colombians farmers learned the required skill set from Chinese laborers who were brought to South America in the 19th century and passed down their peculiar and profitable farming practice to their children. Either way, at some point Colombians learned to grow opium poppy, and produce heroin at a high potency. Cultivation of the opium poppy and heroin production increased in Colombia as cocaine consumption in the United States peaked in 1988 and then plateaued with a slow downward trend from 1991 through 2000.¹¹⁶ Colombian and U.S. efforts to arrest leading members of cocaine cartels, and aerially eradicate coca leaves throughout the country further encouraged farmers, and traffickers to focus their efforts on developing the heroin industry. While the manner in which Colombians gathered the expertise to produce heroin is debatable, the rise in the production and distribution of Colombian made heroin on the U.S. market was a natural response to the heavy state intervention against the cocaine industry and declining consumption rates among U.S. consumers. While not entirely relevant to this study but as a sign of evidence of Colombian DTOs trying to adjust to new market forces, this era overlapped with Colombian DTO's attempts to establish a cocaine market in Europe as a solution to declining U.S. consumption and an abundance of coca leaf production. Just as some Colombian DTOs switched their focus from cocaine to heroin production in order to cope with a changing U.S. market, and avoid Mexican DTO's near monopoly of transportation routes to the U.S. market, others sought out new markets in Western Europe.

The second assumption is that at some point in the 1990s Colombian and Mexican DTOs convened in an undisclosed location and came to an agreement concerning the trafficking and distribution of heroin in the United States. As a result of this meeting the U.S. heroin market

developed into semi-exclusive regional markets where Colombian sourced heroin would dominate markets east of the Mississippi river and Mexican heroin would be available in heroin markets west of the river. While the U.S. heroin market was divided into two distinct geographical areas dominated by Mexican or Colombian sourced heroin, this division can more easily be explained by market forces rather than the gathering of an international DTO convention.¹¹⁷ Starting in the late 1980s, the U.S. heroin market began to develop into regional markets where Colombian and Mexican heroin gained market shares away from its Asian competitors. Prior to the introduction of Colombian heroin into the U.S. market, Mexican heroin served a niche market of consumers on the west coast who preferred brown powder or black tar heroin to the Asian produced white heroin. The introduction and success of Colombian produced white heroin weakened the dominant market position of Asian traffickers and provided opportunities for the expansion of Mexican heroin. These events did not occur in a vacuum but were connected and the result of U.S. and Colombian law enforcement efforts.

Following the overwhelming initial success of the Medellin and Cali cartels, the U.S. and Colombian governments responded by targeting the leadership of large DTOs and increasing the security presence within the Caribbean transportation corridor. No longer able to rely on the delivery of cocaine to U.S. markets through a Caribbean based air bridge, Colombian DTOs were forced to develop alternative business models. As a result, Colombian DTOs became reliant on Mexican trafficking organizations for the smuggling of their product to U.S. markets. This reliance on Mexican traffickers came with a price. Unlike their predecessors, Colombian DTOs could no longer vertically integrate their organizations for fear of gaining the attention of Colombian authorities. They were forced to rely on Mexican assistance, and as a result lost a great deal of revenue paying for the services rendered by Mexican traffickers. In an effort to ensure

adequate returns on their efforts, many Colombian DTOs diversified their trafficking activities and incorporated heroin into their business. The smaller quantities required to meet U.S. demand and the higher return on investment per kilo of heroin compared to cocaine made it an attractive commodity and it had the benefit of not relying on Mexican middlemen. Colombian DTOs could and most often did, use human couriers to sneak their product into the U.S. without having to split their profits with a second party.

The transportation and distribution networks of Colombian DTOs were concentrated around Colombian communities in Florida and New York. U.S. drug dealers or distributors contracted by Colombian DTOs for local distribution could extend the geographical reach of Colombian sourced heroin to cities along the Eastern seaboard but rural communities in the Eastern U.S. as well as the central U.S. were outside the logistical capabilities of Colombian DTOs. It is unclear if Colombian DTOs did not serve markets west of the Mississippi because of their acceptance of a drug market agreement with Mexican DTOs or if it was a conscious choice made independent of convention to avoid western U.S. markets for fear gaining the attention of U.S. authorities or because they lacked trustworthy associates in those locations to distribute their heroin. Extensive studies on trafficking and smuggling organizations have revealed that they “are not generally committed by traditional organized crime groups such as the “Cosa Nostra”, or “Yakuza”. In contrast to long standing beliefs, “they are committed by loose networks of small groups of entrepreneurs who are exposed to the opportunity to participate in these crimes by family and ethnics ties, and who engage in the crimes for personal profit and not organizational gain.” Accordingly, these networks have the advantage of being able to form quickly to conduct specific transactions then dissolve once their business is complete.¹¹⁸ With this understanding of trafficking organizations in the United States two things become clear.

First, the reach of Colombian and Mexican heroin in the U.S. market is not entirely dependent on traditional market forces such as supply and demand, but also the limits of their distribution networks in the U.S. Colombian and Mexican heroin is distributed in communities where Colombian DTOs have “partners” they trust enough to sell heroin to at wholesale. Expanding into new markets is therefore not dependent on negotiating in nefarious and clandestine agreements with other criminal organizations but finding a distribution network in the U.S. that can be trusted to consistently purchase heroin at wholesale price, and not get arrested thus disrupting the distribution network. It is therefore very likely that Colombian heroin was not geographically restricted by criminal organization dictate, but rather a lack of trustworthy distributors in U.S. communities west of the Mississippi River. Second, if we accept that drug distributor and dealers in the U.S. are “entrepreneurs who are exposed to the opportunity to participate in these crimes by family and ethnics ties, and who engage in the crimes for personal profit and not organizational gain”, we can confidently hypothesize that Colombian heroin did not come to dominate the U.S. market by muscling out Asian criminal networks, but rather by winning over U.S. distributors whose loyalty is tethered to the best business terms and not to specific overseas DTOs.¹¹⁹ This hypothesis also goes a long way into explaining why the Colombian takeover of the New York City heroin market did not devolve into the violent turf war the police were expecting, but rather happened with little reaction or fanfare. Colombian “sicarios” were not employed in a vicious turf war against agents of Asian heroin producers on the streets of New York City. More plausibly, mid-level drug distributors in the U.S. switched their preference from one product to another based on the greater economic incentives offered by Colombian DTOs.

As will be discussed in the next section, both Mexican and Colombian DTOs favor the utilization of organizations that they maintain familiar relationships with. Rather than assuming that Colombians and Mexicans have a truce regarding the U.S. heroin market, it is just as likely that both Mexican and Colombian DTOs have come to dominate their sections of the U.S. market by relying on distribution networks they trust and avoiding over extension at the expense of their security. If this is the case then state intervention with the heroin industry, or direct fiscal linkages, is responsible for the entrance of Colombian produced heroin into the U.S. market, and for the internal division of the U.S. into Colombian and Mexican spheres of distribution.

The third assumption is that in the mid-2010s Mexican DTOs hired Colombian heroin producers to assist them with producing “white” or powdered heroin. Mexico has historically only produced brown and black tar heroin. This assumption was born from the 2014 DEA realization that Mexican heroin producers were using Colombian processing techniques to produce white heroin. Upon this discovery the DEA HSP devised two new categories for heroin classification; *Mexican-South American* (MEX-SA), a “signature for Mexican white powder heroin, indicating Mexican origin with South American processing methods”, and *Inconclusive Origin-South American* (INC-SA), “which is assigned to heroin where either Mexico or South America could be the origin, but is produced or refined using South American processing methods”. Similar in its content to the first assumption, the assumption that Mexican heroin producers hired Colombians to show them how to make white, powder heroin is based on HSP results. No record exists as a smoking gun to demonstrate the existence of Colombian heroin producer touring the countryside of Mexico conducting heroin cooking clinics. Unlike the first assumption though, the historical ties developed between Mexican and Colombian DTOs in the trafficking of cocaine

lends the idea of Colombian and Mexican heroin producers sharing some trade secrets some credence.

No matter the source of the expertise by 2014 the DEA was finding Mexican produced white heroin in the United States. It is likely that Mexican DTOs expanded their illicit portfolio in order to cope with Colombian and Mexican state intervention. Beginning in 2000 the Colombian government drastically increased its efforts to eradicate opium poppy. In 1999 the Colombian government only eradicated 174 hectares through manual means (by hand). One year later they aeri ally eradicated 9254.4 hectares and manually eradicated an additional 74.61 hectares. Based on government reports, Colombian security forces decreased the number of hectares dedicated to opium poppy production in Colombia from 6,500 hectares in 2000 to a low of 298 in 2013.¹²⁰ While most monitoring sources acknowledge that Colombia's estimates as to the number of hectares dedicated to opium poppy production fail to account for small, personal poppy farms and therefore underestimate actual totals, the amount of Colombian heroin in the U.S. does indicate that their efforts are having a measurable effect. Efforts by Mexican DTOs to produce white, powder heroin is likely an attempt to profit from a lack of Colombian production in markets accustomed to white heroin. In this instance Mexican heroin producers obtained the ability to produce white heroin as response to a decrease in Colombian production brought on by state action or otherwise known as, direct fiscal linkages. This hypothesis also supports that Mexican white heroin is currently moving into Colombian markets not through violence or an aggressive take over strategy, but rather by filling a demand from U.S. distributors than Colombia currently lacks the capacity to fill.

3.3 In-Direct Fiscal Linkages.

With exception to the policies promoted by the Donald Trump administration, U.S. policy in the past 25 years worked to promote free trade with numerous economic partners in the Western Hemisphere. In 1994 the United States and Mexico signed the North American Free Trade Agreement (NAFTA) and in 2006 the United States and Colombia signed the U.S. – Colombia Trade Promotion Agreement (CTPA). Both agreements minimized the imposition of taxes and tariffs on goods exchanged between the signatories and streamlined the customs process in order to ensure that goods can cross international boundaries in an efficient manner. The conditions outlined by the trade agreements between the U.S., Mexico, and Colombia have created an environment conducive to the expansion of the heroin industry. While the technology and resources available to the United States to monitor and interdict U.S. bound drugs continues to increase, an analysis of the volume of goods that now inundate U.S. ports of entry make any attempts to seriously curb the flow of drugs without interrupting trade revenue futile. NAFTA and CTPA demonstrate how state actions and policy indirectly influence drug industries.

3.4 The North American Free Trade Agreement.

NAFTA took effect on January 1st, 1994. The agreement incorporated Mexico into the previously negotiated Canada – U.S. Free Trade Agreement (CUSFTA) and committed Mexico and the U.S. to eliminate all tariffs over a ten-year period.¹²¹ Initial exceptions included a few agricultural exports that would be phased out over a fifteen-year period. NAFTA aimed to lower cross border barriers to services and investment while setting agreed upon standards for patents, trademarks, and other forms of intellectual property rights. NAFTA was historical for it marked the first time that the U.S. entered into a major trade deal or agreement with a ‘developing country’.¹²² Despite Mexico’s initial concern over the perceived role of NAFTA in Mexico’s 1994 peso collapse, the country was quick to capitalize on the benefits the agreement. NAFTA

brought Mexico closer economic ties to the U.S. and provided tariff free trade between the two countries. These provisions increased the flow of goods across the U.S. – Mexican border, tethered the economic fate of Mexico to the United States, and increased foreign direct investment in Mexico.¹²³ NAFTA ushered in a period of sustained economic growth in Mexico and provided macroeconomic stability to a country that habitually suffered from an overreliance on the export of commodities. NAFTA’s passing was fortuitously timed with regards to the formation of Mexican cartels and trafficking organizations. The trade agreement increased cross border traffic just as Colombian cartels were beginning to rely on Mexican intermediaries to deliver their product to U.S. markets. The “opening” of the Mexico-U.S. border coincided with the successful efforts of the United States to close air corridors from the Caribbean basin to the south east United States previously used by Colombian cartels. The closing of the Caribbean transportation corridor, coupled with the effects of NAFTA on U.S. – Mexican trade set conditions for Mexican trafficking organizations to emerge as the central hub for all drugs flowing into the U.S.

Under NAFTA Mexican exports witnessed impressive growth. From 1993 to 2007 Mexico’s exports increased 311 percent in real terms and non-petroleum exports increased 283 percent¹²⁴. Manufacturing accounted for the overwhelming percentage of export growth with manufactured exports rising from 43 percent of total exports in 1990 to 77 percent in 2007. Agricultural exports over the same period doubled in real terms.¹²⁵ Overall trade between the U.S. and Mexico since the inception of NAFTA has quadrupled since 1990. Within the NAFTA framework Mexico receives 12% of all U.S. exports and 81 percent of Mexico’s exports go to the U.S. The increase in trade with the U.S. caused growth in Mexico’s Gross Domestic Product. Even accounting for the economic down turns in 1994 and 2008, Mexican GDP has increased

from \$491 billion (USD) to \$1,505 billion (USD) from 1993 to present¹²⁶. In comparison to the 1980s, NAFTA has brought inflation in Mexico down from 80 percent to about 5 percent.¹²⁷ Since 1994 the Federal Budget deficit has decreased to about one percent of GDP. All of this has been achieved as Mexico has decreased its international debt. The combination of increased trade and liberal economic policy sets conditions for rising productivity. Since 1994 productivity has increased 80 percent in the domestic manufacturing sector.¹²⁸ The rise in productivity and increase in trade of manufactured and agricultural products provides an endless flow of goods and traffic across the Southwest U.S. border for drug traffickers to conceal their product. Cocaine, methamphetamines, and heroin are routinely confiscated at the border hidden in boxes of avocados, limes, manufactured car parts, toys, televisions.

The economic activity initiated by NAFTA provided a bonanza for the narcotics industry. It is commonly perceived that increased economic activity in a region will increase the economic opportunities available to citizens and drive them away from illegal industries. While the legitimacy of this commonly held belief is debatable it has not proven true in Mexico with regards to the production and trafficking of illegal drugs. NAFTA brought jobs, and economic activity to the U.S. – Mexico border region but has failed to distribute the benefits of a productive economy throughout the entirety of the country. Northern states, particularly those that border the U.S., have increased their state GDP and demonstrated signs of prolonged economic growth. Over the same course of time numerous southern states in Mexico have suffered lackluster economic performances. NAFTA has inadvertently created an economic environment ideal for the development of the illicit drug industries. Poor economic conditions, and lack of employment opportunities are prevalent in opium poppy growing regions of Mexico while economic growth in the north allows for state investment infrastructure geared toward the

efficient movement of Mexican goods across the border and into the U.S. This is not to infer that the Mexican drug trade in Mexico is dependent on NAFTA. Mexican trafficking organizations existed long before the early 1990s and will continue to exist as long as there is a large, profitable market for illicit goods in the United States. NAFTA is cited to provide insight into the nature of the current heroin industry in Mexico. This study will analyze data available from 2016 to highlight how in-direct fiscal linkages affect the flow of heroin from Mexico into the United States.

The U.S.-Mexican border stretches 1,954 miles and is comprised of 26 official ports of entry. In 2016 over 81 million motor vehicles crossed the international border. According to the U.S. Department of Transportation the 81 million vehicles can be broken down accordingly, 75,625,000 personal vehicles, 5,802,781 semi-trucks, and 181,266 passenger buses. That same year over \$294 billion worth of goods were imported from Mexico into the United States through the 26 ports of entry. Among the more than \$290 billion worth of goods imported to the United States across the U.S. – Mexican border was more than an estimated 80 million metric tons of heroin. Along the border the DEA seized 1.695 metric tons of heroin while the Border Patrol seized .254 metric tons. The San Diego-San Ysidro port of entry was the largest single source of seizures where .683 metric tons of heroin were seized. Other significant ports of entry for cumulative seizures in 2016 were the Tucson (.429 MT) and Rio Grande Valley (.258 MT) ports. The scope of traffic crossing the U.S. – Mexican border highlights the challenges faced by the U.S. in restricting the amount of heroin that enters into the United States. Tactics such as those used by the Richard Nixon administration during Operation Intercept in 1969, where the U.S. – Mexican border was temporarily closed then re-opened with lengthy mandatory search times per

vehicle in an effort to stem the flow of marijuana to the U.S., are no longer realistic considering the amount of trade revenue generated along the border.¹²⁹

3.5 U.S. – Colombia Trade Promotion Agreement.

The CTPA is significantly more limited in scope than NAFTA and was signed in 2006, long after the heroin production peaked in Colombia in 1998 at 10 metric tons. While NAFTA proved significant to the development of the heroin trade, the effects of the CTPA are more difficult to measure. A brief discussion on the CTPA is included to bring attention to how U.S., and Colombian trade policy affects the heroin industry.

In February 2006 the United States and Colombia announced the conclusion of the negotiations outlining the CTPA. The final agreement would not be ratified by each country and signed into law until 2012 but the deal placed emphasis on the economic relationship between the U.S. and Colombia. The CTPA was originally conceptualized as part of a broader U.S. – Andean Free Trade Agreement but negotiations with Ecuador and Peru have yet to bear fruit. It is a comprehensive trade deal that eliminated tariffs on goods traded between the United States and Colombia. At the time of its conceptualization it was considered part of a larger effort to advance free trade throughout the Western Hemisphere.

In 2015 U.S. trade with Colombia totaled an estimate \$40 billion. In 2016 Colombia was the 25th largest supplier of goods to the U.S. economy and it supplied the U.S. with \$13.8 billion worth of imported goods.¹³⁰ Non-petroleum-based imports account for \$6.2 billion, these bulk shipments of other goods provide Colombian DTOs the opportunity to conceal heroin or cocaine destined to the U.S. in shipments of legal goods. Despite the ease at which human couriers sneak Colombian processed heroin into the U.S. and the enhanced scrutiny of goods imported via air or sea into the U.S. since 9/11, some Colombian DTOs still import heroin into the U.S. hidden

among legal imports. While exact estimates to the total amount of Colombian heroin brought into the U.S. through this method are difficult to estimate, the DEA and the Border Patrol seized 87 ounces of Heroin entering the U.S. through ports and airports. It is estimated that Miami and New York are the primary arrival points for heroin with 55% of all heroin entering the U.S. via air arriving in JFK International Airport in New York City. In total Colombia sourced heroin arriving in the U.S. via air transport accounts for 16% of all heroin seizures in the U.S.¹³¹ As previously stated with regard to NAFTA, the CTPA in no way started or played a significant role in the development of the cocaine or heroin industry in Colombia but it provides a geo-political framework for the study of the modern heroin commodity chain in the western hemisphere.

3.6 Immigration.

Just as state trade and economic policy inadvertently effects the drug trade, immigration policy and practice can also drive patterns in the heroin commodity chain. While U.S. immigration policy often changes from one presidential administration to the next, the cumulative effect of decades of political unrest, and economic instability in Latin America have led to the formation of large Colombian and Mexican communities throughout the United States. Through no fault or effort of their own, Mexican and Colombian communities in the United States inadvertently assist the formation of drug distribution networks. Through a consistent pattern, Colombian and Mexican DTOs utilize Hispanic communities in the United States to assist them in forming transportation and distribution networks and provide demographic cover for their operations.

From 1990 to 2013 the population of persons of Mexican origin born in Mexico and the U.S. has increased substantially. In 1990 there were 8.8 million persons of Mexican origin living in the United States, 2.2 million of them were born in the Mexico while the remaining 6.6

million were born in the United States. By 2013 there were 23.1 million U.S. citizens of Mexican origin who were born in the U.S., 11.5 million persons of Mexican origin born in Mexico and a total of 34.6 million persons of Mexican origin living in the United States. Over the course of those 23 years Mexican DTOs came to dominate the major transportation corridors that funneled illicit drugs to U.S. markets. According to their research on the point of origin of heroin on the U.S. market, José Díaz-Briseño and Sam Quinones both recount networks of individuals of Mexican origin participating in the transportation, preparation, and distribution of heroin throughout the United States. Díaz-Briseño details the inner working of heroin distribution cells given the names of the “Torres-Gutierrez Heroin Cell” in Charlotte, North Carolina and the “Raúl Villa-Guerra Cell” in Columbus, Ohio. Both Cells were entirely comprised of Mexican citizens who came to the United States for the implicit purpose of operating within a heroin distribution cell. According to his research numerous Mexicans living in the United States were responsible for the safe transport of new cell members and heroin from the Southwest border region of the United States to Charlotte, North Carolina and Columbus, Ohio. According to Díaz-Briseño the growing immigrant population in both cities allowed trafficking networks to “blend in among hard working individuals”. Their new presence in both cities coincided with a dramatic increase of Mexican immigrant communities. In Charlotte the number of persons of Mexican origin increased from 2,030 in 1990 to 42,691 by 2008. Columbus tells a similar story where the number of people of Mexican origin in Franklin County, Ohio (home of Columbus) increased from 12,005 in 2000 to 26,319 in 2008.¹³²

Sam Quinones’ book ‘Dreamland’ and his articles in the Los Angeles Times fill in some of the gaps to Díaz-Briseño’s research. According to Quinones heroin distribution cells throughout the United States are supported by a number of people of Mexican origin who guide

Mexicans recruited in their hometowns of rural Mexico across the border then to collection points in cities near the border, the book mentions Los Angeles and San Diego among others. From there these networks transport both heroin and new cell members across the United States in cars to their desired destination. Once at their destination the new cell members are put to work as runners and the heroin is prepared for sale in .1-ounce bags. Quinones' account is interesting because it highlights the central role of the Mexican immigrant community in assisting heroin distribution networks operate throughout the United States. While the vast majority of Mexican immigrants and U.S. citizens of Mexican origin have no connections to heroin cells whatsoever, their mere presence in a U.S. community provides cover and nonmaterial support to the cells. While no study has been conducted to test the correlation or causality of the presence of Mexican heroin cells in Mexican immigrant communities, Quinones does point out that the only areas he has noticed a lack of Mexican heroin cells are in localities devoid of Mexican communities such as West Virginia or urban communities that have their own heroin distribution network.¹³³

The transportation and distribution methods used by Colombian DTOs to get heroin to U.S. markets differs greatly from the cells described by Díaz-Briseño and Quinones. As previously discussed throughout this study, Colombian heroin traffickers rely on Mexican intermediaries to deliver their product to U.S. markets or utilize air transportation to move Colombian sourced heroin to major U.S. heroin markets along the eastern seaboard. Unlike some Mexican DTOs who maximize revenue by providing their employees at every node of the commodity chain, Colombian DTOs capitalize on moving their heroin to market then selling it wholesale to local organizations who will distribute it to the local level. Using this model, Colombian DTOs do not require the extensive networks formed by their Mexican competition

but still maintain a need for personnel in the U.S. to retrieve the heroin brought to the U.S. via human courier or airlift cargo and then sell that heroin to local distributors. Similar to their Mexican competition, Colombian DTOs rely on Colombian communities throughout the United States to provide cover for their employees.

From 1990 to 2013 the population of people of Colombian origin in the United States dramatically increased from 378,000 to 1.073 million. The majority of Colombian or U.S. born persons of Colombian origin living in the United States lived in states along the Eastern seaboard. For instance, 33% of all persons of Colombian origin living in the U.S. are in Florida, 14% are in New York, and 11% are in New Jersey. The large population centers of persons of Colombian origin are also the largest hubs for the “importation” of heroin into the United States. Between 1988 and 1998, 52.9% of all Colombian sourced heroin was entering the United States through Florida while 41.3% was entering through New York and New Jersey international airports. The remaining 5.8% is predominantly divided between California and Texas and can therefore be assumed to be trafficked into the United States by Mexican DTOs. A more recent estimate published by the DEA in 2017 reports that in 2016 the majority of all Colombian sourced heroin was confiscated in Miami and New York airports with JFK International Airport in New York accounting for 55% of all Colombian sourced heroin seized in the United States. As was the case with Mexican-American communities throughout the United States, Colombian-American communities demonstrate no desire or preponderance to support Colombian DTOs but their mere presence provides much needed support to heroin traffickers.¹³⁴

3.7 Consumption Linkages.

Consumption linkages are the most difficult aspects of an illicit commodity chain to assess. The heroin industries in Colombia and Mexico are competitive industries that have

avoided consolidation under a single organization. The low technical and capital bar for entry into the industry combined with most DTO's desire to remain unnoticed by authorities has yet to produce a Medellin or Cali cartel of heroin. The structures of such large dominant cartels allowed them to reinvest their profits into community development projects and expand the economies of their cities of origin. Both Francisco E. Thoumi in his book *Illegal Drugs, Economy, and Society in the Andes* and in Paul Gootenberg's *Andean Cocaine*, do an excellent job of discussing the consumption linkages or economic benefits brought to Medellin, Cali and Bogota as a result of the cocaine industry. The scale of the benefits that Thoumi and Gootenberg presented in their work was made possible by the consolidation of the cocaine industry. Prior to being dismantled by the Colombian government, the Medellin and Cali cartel were able to vertically integrate their organization to an unprecedented level in the drug industry. The consolidation of resources by large cartels provided a scale capable of economically stimulating regions of Colombia that had previously been depressed as the result of low coffee prices and failing textile industries. One glaring example of cocaine stimulating economic activity was the "la apuntada" system where regular Colombians not involved in the cocaine trade could invest by buying shares in a large cocaine shipment destined to the United States. While it lasted, this scheme allowed cartels to insure their shipments against confiscation and provided investment opportunities for Colombians who would otherwise not enjoy access to stock and bond markets.

Clear cut examples of consumption linkages in the heroin industry are harder to ascertain. In *Illegal Drugs* Thoumi points out that the departments of Colombia where opium poppy cultivation is prevalent all suffered economic crashes prior to the introduction of the heroin industry. It is also mentioned that there is a high prevalence of armed militias in the same departments where poppies are grown. While these facts are interesting they fail to draw a

correlation between heroin production and an increase in economic activity, such as funding a local protection racket in the form of a militia or attracting a predatory militia intent on squeezing the local heroin industry for money, within a given department. Slow economic growth, commodity crashes, and the proliferation of armed militias in Colombia's interior are historical trends, not the effects of a burgeoning heroin industry. Contemporary accounts of the consumption linkages created by the Mexican heroin industry are more available. In Sam Quinones' *Dreamland* the author interviews members of a heroin trafficking organization from Xalisco (Nayarit), Mexico. The interviewees describe a system where men from rural Mexico are recruited to serve as heroin runners and dealers in the United States as members of a heroin selling cell. The revenue they generate is consolidated under a local boss who is co-located with them in the United States. Each member of the heroin cell is paid a salary for their service and is required to send a large percentage of their paycheck home via Western Union in order to avoid the attention of U.S. law enforcement who typically fixate on rich minorities. While the sum of the money being returned to rural Mexico is considerable it is too dispersed and limited to have a macro-effect on a city or state's economy. Quinones tells of small hovels in Nayarit Mexico being overrun with young men in brand new pickup trucks, and Levi's 501 jeans. A telltale sign of a town in rural Nayarit that enjoys connections to the heroin industry is the scale of the annual "elote" festival. Towns that have provided young volunteers to take the journey north to traffic heroin generally draw the attention of nearby mariachi bands who flock to small towns during festival season to capitalize on the riches gained in selling heroin in the U.S.

The amount of revenue generated by the Mexican heroin industry is contested but some researchers have made great efforts to identify the money being made by Mexican heroin dealers in the U.S. In his essay "Crossing the Mississippi: How Black Tar Heroin Moved into the

Eastern United States”, José Díaz-Briseño attempts to estimate the profitability of a heroin selling sale in the United States. According to his research a Nayarit based heroin cell consisting of 6 members operating in the United States can generate upwards of \$8,300 a day. This is assuming that each runner in the organization sells about 70 servings or .08 grams hits of heroin per day (a conservative estimate by the author’s account). Assuming that the cell is operating 365 days a year without a slow down in sells for weekends or the holidays, they would generate \$3,029,500 a year. Neither Díaz-Briseño nor any other study I could find tries to estimate the consistent cost of transporting heroin across the border, bribing the necessary authority figures to grow poppies and produce heroin, or the cost of insurance against government sponsored eradication. Once these charges are taken into consideration it can be assumed that only a fraction of the \$3 million is available for investment in the community of origin or capable of generating economic activity in rural Mexico.

Table 2: Potential Profits of Torres Gutierrez Black Tar Heroin Cell: Conservative Perspective

Quantity	Price paid to source
1 ounce = .028 kilograms = 28 grams	\$1,000
Quantity	Price paid to source
1 dose = 1 balloon = .08 grams = 80 mg	\$8
1 ounce = 350 balloons = 28 grams = .028 kilograms	\$2,800
Total value of sales for 1 day (5 runners selling 5 oz)	\$14,000
Cost of drugs from source (5 ounces)	\$5,000
Daily revenue before operating costs:	\$ 9,000
Daily Operating Costs:	
\$500	
(daily salaries 5 runners)	
\$80	
(daily rent for 2 homes)	
\$16	\$630
(daily cell phone use; 6)	
\$17	
(daily gas 6 cars)	
\$17	
(daily utilities for 2 homes)	
Total net profit per day (Some stays with cell head and the rest goes to Mexico)	\$ 8,370

Outside of personal pleasure such as a new truck or new pair of jeans, DTOs reinvest in their commodity chain and community of origin but on a micro level. The continuing development of boats more capable of evading capture and carrying more drugs is an excellent example. On a larger scale the only economic activity that every DTO partakes in and has a widespread effect across Colombian and Mexican society is corruption. Estimates regarding the percentage of illicit profits that are set aside for paying off public officials or security forces are hard to come by but, it is confidently assumed that large scale corruption is commonplace. For example, during the 1994 Colombian presidential campaign. Shortly after coming into office President Ernesto Samper was accused of accepting bribes from the Cali cartel. A recorded phone conversation was released where the leader of the Cali cartel, Miguel Rodriguez Orejuela, committed to paying \$3.5 million to the Samper campaign.¹³⁵ Incidents such as this one had a crippling effect on Colombian society and still act to erode the public's trust in government institutions. While evidence of direct corruption is difficult to cite we can assume that the heroin industry has to corrupt specific personnel to ensure the safe transportation of their product from point of origin to U.S. market. It can be assumed that DTOs who move heroin must pinpoint their bribes to airport personnel and security forces surrounding poppy fields. All in all the cumulative effect of corruption erodes trust in public institutions, increases the propensity for the formation of criminal organizations, and creates a condition capable of supporting the formation and sustainment of heroin and cocaine commodity chains.

3.8 Conclusion.

Fiscal and consumption linkages provide insight into how counter drug and free trade policies effect the heroin commodity chain. The clandestine nature of the heroin industry makes it difficult to obtain data sets capable of supporting the kind of analysis available for legal

commodities such as corn or avocados, but there is sufficient work on the subject to draw a number of conclusions as to the nature of how heroin travels across continents from farmer to consumer. The average serving of heroin or amount needed for the average consumer to get high, is particularly small, even in comparison to cocaine. This fact makes it exceptionally easy to conceal and smuggle through airport or border ports of entry. The ease of transport coupled with the high volume of trade along the U.S. – Mexican border makes the task of confiscating enough heroin to effect consumption patterns in the U.S. nearly impossible. Trade agreements such as NAFTA and the CTPA increase the ease at which heroin can slip into the U.S. while limiting the U.S. options in increasing security scrutiny at ports of entry. The historical trend of Colombian and Mexican immigration to the United States also provides Colombian and Mexican DTOs with additional connections to U.S. markets not available to heroin producing countries that lack large communities in the United States of individuals indigenous to their country. The presence of Colombian and Mexican communities in the United States and the existing free trade agreements between the U.S and Colombia and Mexico give both countries an incalculable advantage in the U.S. heroin market. The revenue raised from the sale of heroin in the United States is respectable, but it is diffused among hundreds if not thousands of organizations that specialize in specific aspects of the heroin commodity chain. This makes estimating the consumption linkages of the heroin industry extremely difficult. The lack of available information concerning the price DTOs pay in bribes to conduct their business also conceals the nature of the heroin industry from the public's eye. In short, the physical nature of heroin as a drug and the desire of all members of the heroin industry to avoid confrontation with state authorities allows the industry to remain diffused and resistant to centralization. The ease at which it can be smuggled into the U.S. and then consolidated by criminals who seek refuge in Colombian and Mexican neighborhoods

throughout the United States makes heroin profitable and readily available to consumers. Because of the decentralized nature of the heroin industry, the large profits gained from the sale of heroin does not have a recognizable effect on city or state economies but does lead to debilitating corruption.

Chapter 4 Colombia's Competitive Advantage in the Heroin Trade.

The development and then rapid expansion of Colombia's opiate industry cannot be explained in a historical vacuum. Opium poppy farming and heroin production developed in rural Colombia thanks to the geographic, social, and economic conditions present in the country from the 1960s to present. In order to address how heroin production developed in Colombia and then came to dominate the U.S. market I will analyze several factors. First, a historical analysis of the development and evolution of Colombian DTOs provides insight into the role heroin plays against the backdrop of Colombian cocaine. These insights highlight the advantages heroin provided Colombian DTOs in the face of mounting state intervention. Colombia also benefits from geographic and organizational advantages available to Colombian DTOs that allowed them to establish a market advantage over Afghan and South East Asian sourced heroin. Ultimately the confluence of these factors have allowed Colombian sourced heroin to rise from obscurity to the dominant product on the U.S. market.

4.1 Origins of Colombia's Illicit Drug Trade.

The history of Colombia's modern illicit drug industry can be divided into 4 phases. Within my study I will borrow a system of categorization developed by the International Crisis Group for their "Latin America Report" series. This system divides the development of Colombian DTOs into four phases and refers to each phase as a distinct "generation".¹³⁶ I will provide a description of each generation of Colombian DTOs then describe how each generation

incorporated the heroin production process into their operating system. By organizing my study in this manner, I will explain why Colombian DTOs decided to produce heroin and how the Colombian heroin industry evolved from the 1980s to present.

Small scale drug trafficking and production have existed in Colombia since the 1950s.¹³⁷ During that time labs in Medellin processed heroin, cocaine, and morphine. Colombian produced drugs were smuggled into the United States by Cuban and Mexican criminal organizations.¹³⁸ In the early 1970s Colombian criminal organizations began to encourage farmers to grow marijuana in the Northeastern coastal region. Demand for Colombian marijuana soared in the U.S. when the U.S. partnered with the Mexican government to spray Mexican grown marijuana with paraquat. The eradication campaign destroyed only portions of the crop but succeeded in making Mexican marijuana uncompetitive in the U.S. because users were concerned with the potential effects of smoking poisoned plants.¹³⁹ The revenue generated from the sale of marijuana allowed Colombian trafficking organizations the opportunity to establish their own smuggling routes. Cuban and Mexican middlemen were removed from the marijuana commodity chain as Colombians brought their commodity straight to U.S. markets.¹⁴⁰ Colombian marijuana smugglers who purchased marijuana from local farmers and controlled the illicit trade routes to the United States represented the first generation of Colombian DTOs. 1st generation Colombian DTOs primarily focused on marijuana as a commodity but the revenue they raised from the marijuana trade would serve as capital for the development of the Colombian cocaine and heroin industry. They also established the organizational capacity necessary to move bulk illicit goods across international borders setting the stage for the rapid expansion of the entire drug industry in Colombia. By 1978 1st generation Colombian DTOs controlled the wholesale distribution of marijuana in the United States.¹⁴¹

Buoyed by the success of their eradication program in Mexico, the United States began pressuring the Colombian government to initiate a marijuana eradication program. Previously accused of corruption and wanting to prove his lack of cooperation with DTOs the Colombian President, Julio César Turbay Ayala, acquiesced to U.S. demands.¹⁴² As Colombia initiated its marijuana eradication program, the United States began to run maritime interdiction missions in the Caribbean. The combined efforts of the Colombian and U.S. governments convinced Colombian traffickers to diversify their revenue streams.¹⁴³ Impressed by the quick fortunes gained through the marijuana industry, Colombian criminal organizations began supplementing their marijuana trafficking operations with cocaine to meet an upsurge in demand emanating from the U.S. and Panama.¹⁴⁴ In comparison to marijuana, cocaine enjoys a number of advantages as a commodity. Where marijuana must be shipped as a full portion of the plant, and has a shelf life that demands speedy, efficient transport to markets, cocaine can be broken down into coca paste or cocaine prior to shipping. Cocaine enjoys a much longer shelf life than marijuana, is easily broken down into easy to ship blocks or bars and garners more return per unit sold.¹⁴⁵ For example, the average price per gram of unadulterated cocaine from 1981 to 1989 in the U.S was \$350.68 while the average price per gram of unadulterated marijuana over the same time was \$11.90.¹⁴⁶ Assuming the price per refining a kilo (1,000 grams) of cocaine was close to \$1000 in the mid-1980s, the revenue generated from cocaine was significantly higher than the sale of marijuana.¹⁴⁷

Initially Colombian traffickers purchased their coca leaf and paste from Peruvian and Bolivian growers.¹⁴⁸ In an effort to vertically integrate their business, Colombian traffickers started incentivizing local Colombian farmers to grow coca leaf. Coca leaves have a number of advantages over other commodities grown in Colombia. Unlike coffee or cacao, coca leaves do

not require years before becoming profitable.¹⁴⁹ Coca plants produce harvestable leaves 10-12 months after planting and can be harvested up to three times a year. Unlike their peers who grow legal commodities, coca leaf farmers do not require access to infrastructure since traffickers will come to them for purchase.¹⁵⁰ In addition, Coca can also grow in acidic, poor quality soil, and it does not require irrigation systems or fertilizers. The advantages of growing coca leaves became so evident that the number of farmers who participated in coca cultivation increased from 25,000 in the early 1980s to 300,000 in the late 1990s.¹⁵¹ In response to the increasing number of interested farmers, the land area designated for coca cultivation increased by almost 500% from 1978 to 2001 resulting in the dedication of 169,800 hectares to the growth of coca.¹⁵²

Colombian DTOs initially relied on mules to transport cocaine into the United States on commercial airline flights. While effective, this system could not keep up with the growing demand in the United States. A number of drug traffickers in Medellin, Colombia overcame this transportation bottleneck by utilizing small, privately owned transport aircrafts to smuggle cocaine into the United States.¹⁵³ This new transportation method vastly expanded the capability of Colombian DTOs to keep up with the growing cocaine demand emanating from the United States. Efforts by Medellin traffickers to consolidate their resources to maximize efficiencies and profits led to the development of the Medellin drug cartel. Though their organizational practices were more in line with monopolies or syndicates, the most powerful groups of consolidated DTOs adopted the moniker “cartels”. Through consolidation, the Medellin cartel was the first Colombian DTO to raise enough revenue to establish a complex organization composed of overseas distribution networks, large clandestine processing laboratories, and sophisticated money laundering systems. They employed their own security forces, purchased informants to gather information, and developed the capacity to sell transport insurance to smaller

traffickers.¹⁵⁴ The Medellin cartel represents second generation Colombian DTOs. Second generation Colombian DTOs represent DTOs at the zenith of their economic and political authority. The Colombian state had not yet identified the existential threat posed by DTOs, and as a result failed to develop tactics to curb their authority. Growing demand for cocaine on the U.S. market, matched with the superior organization capability of the Medellin cartel, created an environment where diversification seemed unnecessary. There is little evidence to suggest that the Medellin cartel processed or trafficked heroin in the United States, but they set the conditions for the development of a heroin industry in Colombia. Smaller DTOs unable to match the efficiency or low price of Medellin cartel cocaine began to explore additional revenue generating options. Heroin production in Colombia was born from smaller Colombian DTOs trying to generate revenue from the drug trade without coming into competition with the Medellin cartel or becoming the target of enforcement actions by the state.¹⁵⁵

The Medellin cartel business model was dominated by a culture of violence and open defiance to legitimate authority. During the 1980s the Medellin cartel assassinated police officers, politicians, journalists, and judges in order to dissuade the Colombian government from passing extradition treaties with the United States. Despite their dominance of the cocaine trade, the Medellin cartel's emphasis on violence and narcoterrorism ultimately led to its demise.¹⁵⁶ Between 1987 and 1993 the Colombian government arrested or killed every significant leader in the Medellin cartel.¹⁵⁷ Distracted by their efforts to dismantle the Medellin organization, the state provided other Colombian DTOs a respite from interference. The Cali cartel utilized the suppression of the Medellin cartel to expand their operations. They expanded cocaine production and introduced the large-scale cultivation of opium poppies to the Colombian Andes.¹⁵⁸ The Cali cartel represents the third generation of Colombian DTOs. Their organization matched the

operational capability of the Medellin cartel, but they exercised a more flexible business model. Rather than coerce authority or eliminate competition with violence, the Cali cartel relied on the bribe to push their agenda.¹⁵⁹ The Cali cartel proved adept at avoiding the attention of state authorities, eliminating competition through acquisition rather than violent turf wars, and diversifying their revenue streams.

Third generation DTOs, primarily the Cali cartel, began to muscle into the U.S. heroin market in the early 1990s. They integrated every component of the heroin commodity chain to minimize costs. By growing, refining and trafficking their own product, the Cali cartel was able to use its efficient cocaine distribution network to provide the U.S. market with cheaper and purer heroin.¹⁶⁰ In 1994 a gram of Colombian produced heroin was sold for \$80 to \$150 a gram. Heroin produced in South East Asia, the dominant product in the U.S. prior to the introduction of Colombian heroin, in 1994 sold for \$300 to \$400 a gram.¹⁶¹ This advantage allowed the Cali cartel to quickly expand their share of U.S. markets in areas serviced by their cocaine networks. According to DEA reports from the era, the Cali cartel expanded from 22% of the New York heroin market to 60% in the early 1990s.¹⁶² The Cali cartel's aggressive expansion in the U.S. heroin market initiated a trend that would effectively eliminate Asian heroin from the United States.

The Cali cartel's downfall was sealed during the 1994 Colombian presidential campaign. Shortly after coming into office President Ernesto Samper was accused of accepting bribes from the Cali cartel. A recorded phone conversation was released where the leader of the Cali cartel, Miguel Rodriguez Orejuela, committed to paying \$3.5 million to the Samper campaign.¹⁶³ President Samper was eventually cleared of any wrongdoing by the Colombian Congress but the incident undermined Samper's relation with the U.S. and initiated a government campaign

against the Cali cartel. Between June and August of 1995, the Colombian police captured six of the top seven leaders of the Cali cartel. The remaining leader was detained in Venezuela in April of 1997. His arrest marked the end of the Cali cartel.¹⁶⁴

The dismantling of the Cali cartel network marked an end of an era. A new generation of smaller more boutique DTOs would replace the cartels of the 80 and 90s. Organizations such as the Urdinola brothers from Cauca Valley filled the economic vacuum left by the Cali cartel. In what would become a trend among Colombian DTOs, the Urdinola brothers incorporated heroin production and trafficking into their business portfolio.¹⁶⁵ Organizations such as the Urdinola brothers represent the formulation of 4th generation DTOs, also known as “baby” or “boutique” cartels.¹⁶⁶ 4th Generation cartels bridge the historical gap from the mid-1990s to present day illicit operation in Colombia. This new generation of DTOs do not operate at the same capacity as the Medellin or Cali cartels. They do not exercise international power but wield heavy influence within their scope of operations. “They act as suppliers of a commodity”, unlike their predecessors they are not interested in controlling the whole commodity chain. They are specialized in aspects of the drug industry and routinely subcontract whole portions of the cocaine and heroin commodity chain to other organizations.¹⁶⁷ All in all, the decentralization of the Colombian drug industry has led to the creation of some four hundred 4th generation DTOs.¹⁶⁸

The ascension of 4th generation DTOs initiated a number of trends that are central to the Colombian and Mexican heroin industries. In an effort to avoid the costs of providing armed security or running a fleet of planes and boats for transportation, 4th generation Colombian DTOs have subcontracted large elements of the drug commodity chain. Starting in the late 1980s but rapidly expanding in the late 1990s, organizations such as the FARC, and the United Self

Defenders of Colombia (AUC) have provided protection and security for all farmers, producers, and inter-Colombia trafficking operations.¹⁶⁹ This system of protection became so sophisticated that by 1999 the FARC began charging \$15.70 for every kilo of coca paste and \$52.60 for every kilo of cocaine produced in its territory. They also charged \$10.50 for each kilo of cocaine and \$45.00 for each kilo of raw opium shipped through areas they controlled. Charges also extended to protection of flights. Inter-Colombian flights cost \$2,631 while international flights cost \$5,263. The FARC also imposed a 20% tax on all precursor chemicals shipped through their territory.¹⁷⁰ This system of set fees was not unique to the FARC. AUC militias, and armed criminal groups maintained similar service fees systems. This arrangement added a burdensome service fee to 4th generation DTOs but alleviated the need to hire and train non-essential security personnel. As the FARC is slowly dismantled in accordance with the 2016 Peace Accords, protection services are still provided by armed criminal groups, and break away FARC elements that want to continue their protection racket without the need for socialist ideology.¹⁷¹

The other important trend that was born from the decentralization of the Colombian drug industry is the creation of the Colombia – Mexico drug nexus. This will be discussed at length in the next section of my work, but it is worth mentioning that the potential downstream profits from cocaine and heroin gave the rising Mexican DTOs a comparative advantage which they would come to heavily exploit in the 2000s.

4.2 The Comparative Advantage of Heroin in Colombia's Drug Industry.

Colombia has no tradition of heroin consumption or production. Prior to 1986 there was no tangible evidence to suggest the presence of a heroin industry in Colombia. The earliest evidence of poppy cultivation for the intent of heroin production was recorded in 1986 in the departments of Tolima, Cundinamarca, and Santander.¹⁷² In 1990 law enforcement and military

patrols began to see the geographic expansion of land dedicated to poppy cultivation in the central highlands. In 1993 the Colombian National Police (CNP) reported that some 6,500 hectares spread across 14 of Colombia's 32 departments were committed to the cultivation of opium poppies.¹⁷³ The CNP's report caught many by surprise. Prior to finding evidence to the contrary, both the Colombian and U.S. government assumed Colombia was not suited for heroin production. No other opiate producing region in the world existed along the equator or at elevations above 8,000 feet above sea level. In 1994 the Colombian government estimated that the country was producing 6.7 metric tons of heroin per year.¹⁷⁴ That same year 32% of all heroin seized by the DEA while entering the United States were of Colombian origin.¹⁷⁵ The rapid formation of the Colombian heroin industry can be attributed to the Colombian government's focus on breaking-up large 2nd and 3rd Generation DTOs, and the targeting of cocaine cultivation sites and cocaine distribution networks.

In February 1990 the presidents of the United States, Colombia, Bolivia, and Peru signed the Cartagena Agreement. The agreement encapsulated a comprehensive strategy that combined elements of demand reduction in the United States paired with increased law enforcement efforts aimed at decreasing production in Colombia, Bolivia, and Peru.¹⁷⁶ The Andean strategy, as the strategy outlined in the Cartagena conference came to be known, called for the United States to reduce its demand for cocaine, while Colombia, Bolivia, and Peru targeted DTOs in an effort to reduce cocaine production. The United States also provided \$2.2 billion in economic development assistance to encourage all three producer countries to encourage crop substitution and extend government services to areas known for coca leaf cultivation.¹⁷⁷ For their part, the Colombian government adopted a strategy of targeting the large DTOs. This strategy assumed that DTOs were centralized organizations that controlled the Colombian cocaine industry. Under

this logic any disruption to the cocaine industry would limit the authority of DTOs and the arrest or elimination of DTO leaders would disrupt the entire cocaine industry.¹⁷⁸ As a result, the Colombian government adopted a counter-narcotics policy aimed at coca leaf eradication, interdiction of cocaine shipments, and targeting DTO leadership. Through these measures the Colombian government created an environment favorable to poppy cultivation, and heroin production and trafficking.

Within Colombia, opium poppies and coca leaves grow in different geographical locations. Coca leaves generally grow between 3,300 and 6,600 feet above sea level in areas with little rainfall and cool temperatures (around 50 degrees Fahrenheit).¹⁷⁹ As previously discussed, opium poppies in Colombia typically grow at higher elevations in areas with humid climates. Throughout the 1990s and early 2000s, Colombia's eradication efforts were primarily focused on eliminating coca leaves. The geographical dispersion between areas that cultivated coca versus opium poppy ensured that poppies would not be destroyed in coca eradication efforts. Declining cocaine prices in the United States (this will be discussed in detail later), paired with coca leaf eradication campaigns proved a strong incentive for farmers to move from coca growing regions to areas with opium poppy farming. In many cases coca leaf farmers were members of indigenous communities who departed their ancestral homes in the highlands of Colombia to seek economic opportunities in areas with coca cultivation. Poppy cultivation provided them with an opportunity to return to their villages of origin and resume the cultivation of an economically viable crop closer to home. These factors provided the Colombian heroin industry with a surplus of labor and allowed the heroin industry to expand generally unmolested by state intervention throughout the early 1990s.¹⁸⁰

Efforts by the Colombian State to arrest DTO leaders and dismantle their trafficking networks also created opportunities for the expansion of the heroin industry. Second and Third generation DTOs were large, well organized, and domineering. Entrepreneurs hoping to enter the cocaine industry had to contend with the prospect of competing against DTOs that maintained near monopolies of the production of cocaine and the illicit trafficking routes connecting Colombia to the United States. Heroin provided smaller, less capable DTOs (predecessors to 4th generation DTOs) the opportunity to generate revenue outside the purview of the Medellin or Cali cartel both of which focused almost exclusively in cocaine. The decision by the Colombian state to attack 2nd and 3rd generation DTOs only enhanced the appeal of the heroin industry. Once high-level leaders like Pablo Escobar, Carlos Lehder, Rodriguez Gacha, and Gilberto Rodriguez Orejuela were killed or eliminated and their cartels were broken up, a new de-centralized business model began to take shape. The removal of the leaders of 2nd and 3rd generation DTOs precipitated the formation of 4th generation DTOs.¹⁸¹ As previously described, 4th generation DTOs did not enjoy the organization or revenue generating capability of their predecessors. Former middlemen in the large cartels could now form their own organizations free of competition against a monopoly. Heroin provided the ideal commodity for this new generation of illicit entrepreneurs. Growing poppies requires very little startup capital, the cost of the chemical agents required for heroin production are cheap and readily available, and the return on investment on a single gram of heroin is more than a gram of cocaine (discussed previously). The high return on the sale of heroin also provided opportunities to organizations with limited organization capacity. DTOs who specialized in the transportation of cocaine required fleets of aircraft or boats, and connections to Mexican DTOs to ensure access to the U.S. markets.¹⁸² In comparison, DTOs focused on heroin could establish a successful business model relying

exclusively on trafficking heroin into the U.S. using human mules.¹⁸³ The heroin industry has a very low bar for entry. The nature of the commodity allows small, decentralized organizations the opportunity to retain streams of revenue without large transportation networks.

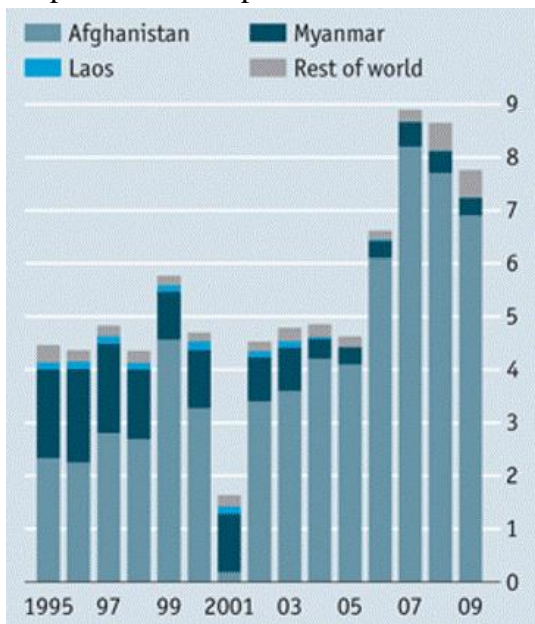
Heroin provided 4th generation DTOs flexibility in adapting to the political landscape of Colombia in the late 1990s and 2000s. Organizations such as the FARC, and AUCs created a business model based on protection services (racketeering).¹⁸⁴ As FARC and AUC militias expanded their control across Colombia, DTOs were forced to pay fees or taxes in order to continue their illicit activity within militia-controlled territory. This system did not exclude DTOs in the heroin industry from having to pay “taxes” on their product but it did allow them to maintain lower operating costs than cocaine-based business models.¹⁸⁵ The minimal amount of equipment and precursor chemicals required to produce heroin, reduced the amount of resources the militias could tax. In essence, heroin producers had to pay less taxes or service fees for the production of heroin versus other organizations that produced cocaine or other drugs.

4.3 Dominating the Market.

The contemporary world heroin market is dominated by heroin produced in Afghanistan and Myanmar. Between 1988 and 2001 both countries consistently produced annual yields over 1,000 tons of cooked opium. Utilizing the 10:1 ratio of cooked opium to morphine or heroin it can be assumed that Afghanistan and Myanmar each produced at least 100 metric tons of heroin every year from 1988 to 2001. While Burma’s annual output of heroin hovered between 112 and 179 metric tons a year from 1988 and 2001, Afghanistan achieved unprecedented levels of production from 1993 to 2000. Annual output of heroin for those years were 233, 341, 233, 224, 280, 269, 456, and 327 metric tons of heroin. During the same period (1988 to 2001) Mexico and Colombia combined never produced more than 26.5 metric tons of heroin in a year.¹⁸⁶ Despite

their clear advantage in producing opium and heroin, Afghan and Myanmar heroin have been losing control of the U.S. market. In 1986 Asian (i.e. Afghan/Myanmar) heroin accounted for 86 percent of the U.S. heroin market. By 2000 that number had diminished to 12 percent, and by 2007 Asian heroin only accounted for 2 percent of the U.S. market. From 1986 to 2007 heroin produced in Colombia increased from 0 to 58 percent of the U.S. heroin market.¹⁸⁷ The loss of U.S. market shares by Afghan and Myanmar sourced heroin during a period of increased production can be explained through geography, extracontinental competition, and political circumstances hostile to overall production.

Graph 4: Global Opium Production



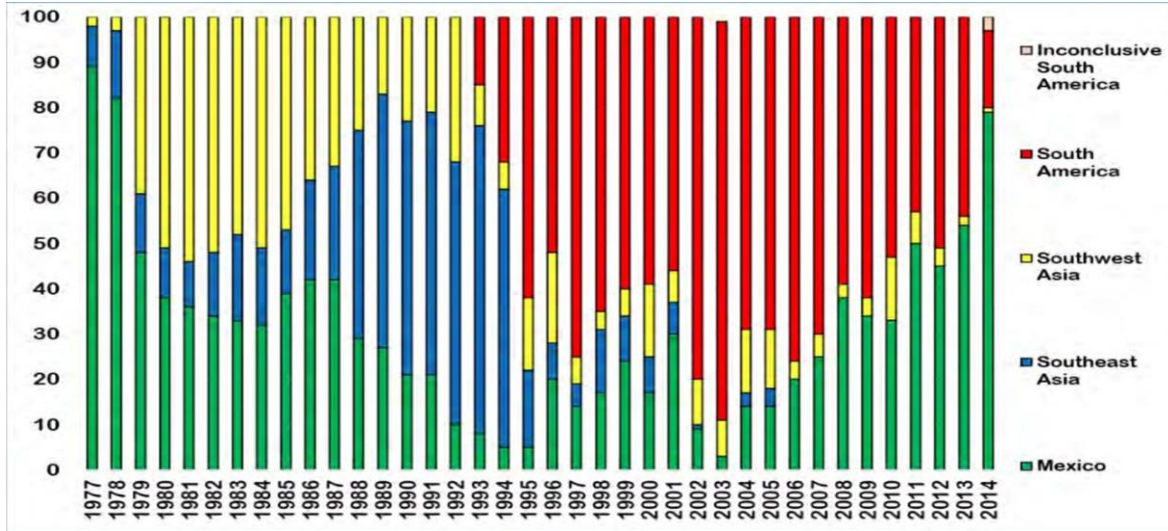
Asian sourced heroin must travel more than 6,000 miles to reach the Northeast coast of the United States. Afghan sourced heroin is first smuggled into Iran, then Turkey via ground-based transportation. Once in Turkey the heroin is boarded on an international flight to be smuggled directly into the U.S. or into Europe to be routed into the U.S. at a later date. Myanmar sourced heroin crosses into China or Thailand before being smuggled into the U.S. via an international flight.¹⁸⁸ In both circumstances Asian sourced heroin must cross a number of

different nodes in the heroin commodity chain before reaching users in the U.S. At each node criminal organizations have to consider the cost of bribing the appropriate official to ensure safe passage of their product to the next node. These costs can be considered forward linkages connecting the product from its point of origin to its destined market in the U.S. The additional transportation costs incurred as heroin crosses international borders decreases the profitability of heroin. If Asian sourced heroin enjoyed a monopoly of the U.S. market producers could raise the street price and pass the additional transportation costs onto the consumer. The price elasticity estimates for heroin are roughly in line with the U.S. average for food commodities such as beef, vegetables, butter and other dairy products. This indicates that the price per unit of heroin could be increased more than 10 percent before buying habits by users were altered.¹⁸⁹ Thus, a lack of competition in the U.S. market would allow Asian sourced heroin to increase prices to a degree before pricing some clients out of the market. The lower transportation costs available to Colombian DTOs when they transport heroin to the U.S. market allows them to compete with Asian sourced heroin. Despite the clear advantage Afghanistan and Myanmar enjoy in production capability, they are unable to match the price and quality of Colombian sourced heroin on the U.S. market.

In addition to increased transportation costs, Asian sourced heroin struggles to maintain quality assurance. As previously discussed, personnel at each node of the commodity chain can be expected to step on or cut the heroin to increase its weight and therefore its worth. By the time Afghan or Burmese heroin reaches the U.S. market it can be assumed that it has been diluted 3 to 4 times by different organizations. As a result, heroin consumers may find issue with the inferior product being offered by organizations selling heroin produced in Asia. The poor quality of Asian sourced heroin in the U.S. opens the market for competition. In comparison, Colombian

heroin has to cross at least one but no more than two international borders to reach the U.S. Colombian DTOs can also better enforce the quality of their product since they have the capability to handle their product from farmer to consumer or with a single Mexican or Dominican intermediary, depending on their business model.¹⁹⁰ Quality assurance is more easily enforced when one or two organizations are responsible for the heroin's path along the entire commodity chain. For example, evidence of Colombian heroin's superiority with regards to purity can be obtained by utilizing data gathered from the DEA Domestic Monitor Program (DMP). The DEA's DMP collects heroin samples from street deals made by undercover agents throughout the U.S. in order to monitor trends in the heroin market. Between 1993 and 2004 the median in heroin purity for heroin seized in Detroit Michigan was 64.5% pure for Colombian sourced heroin, 6.47% pure for Myanmar sourced heroin, and 9.29% for Afghan sourced heroin.¹⁹¹ I choose Detroit for this example because it was one of the few cities in the U.S. that still had Colombian, Myanmar, and Afghan heroin in circulation. Additional examples can be observed in the attached chart. The geographic proximity of Colombia to the U.S. in conjunction with Colombian DTOs ability to better guarantee the quality of their product allowed Colombian heroin to gain a dominant position of the U.S. market.

Graph 5: Source of Origin for the U.S. Wholesale-Level Heroin Seizures, 1977-2014



Lack of political stability and a weak central government can be a blessing and a curse for heroin producers. The presence of a central government unwilling or unable to curb the production of heroin is necessary for the formation of a heroin industry. If, however, a central authority exists but it is too weak to sustain its existence in the face of armed opposition, the heroin industry may fall victim to a radical element opposed to the production of illegal narcotics. This was the case in 2000 and 2001 when the Taliban gained control of Afghanistan’s largest poppy growing region. Within a matter of months Afghanistan’s annual production of heroin dropped from 327 metric tons of heroin to 1.85 metric tons between 2000 and 2001. Though Afghanistan’s production increased to 340 metric tons of heroin in 2002 following the U.S. invasion, the yearlong decrease in production allowed non-traditional heroin producers, such as Colombia to gain shares of the U.S. market. Burma faced a similar problem from 2001 to 2005 when production decreased from 109 to 31.2 metric tons.¹⁹² This decrease occurred when the United Wa State Army, Wa National Army, and Eastern Shan State Army (all three are distinct ethnic groups who gained some autonomy from Myanmar in 1989) reversed their former position on heroin and decided to jointly oppose its production within their respective regions of

Myanmar. These political forces in Afghanistan and Burma crippled Asian heroin output. Despite the gains in Afghan heroin production following the U.S. invasion, Asian heroin has struggled to regain its market share in the U.S. from Colombian DTOs. In contrast to Afghanistan and Myanmar, Colombian DTOs enjoyed positive relations with politically motivated groups such as the FARC. Whereas the Taliban shutdown heroin production entirely, the FARC provided basic security services for opium farmers, and heroin traffickers as long as payment was forthcoming. Despite the additional costs incurred by Colombian DTOs, the FARC and other Colombian militias provided some DTOs an atmosphere of predictability for their enterprise to thrive.

4.4 Conclusion.

The sophistication of Colombia's cocaine industry cannot be underestimated when assessing the rapid expansion of heroin production in Colombia. While the Colombian state was aggressively targeting 2nd and 3rd generation DTOs such as the Medellin, and Cali cartels, smaller organizations were looking for ways to increase their revenue without coming into competition with larger cocaine oriented DTOs or gaining the state's attention. 4th Generation DTOs had the perfect combination of experience (gained from watching and participating in the cocaine trade) and operational capability to pounce on a potential opportunity. Assessing that Afghan and Myanmar sourced heroin maintained a weak hold of the U.S. market, Colombian DTOs were able to leverage the pre-existing cocaine trafficking networks to ensure a steady stream of cheap, pure heroin to U.S. consumers. The continued presence of pure Colombian heroin in the U.S. markets is a testament to the operational capability of Colombian DTOs and the longevity of armed militias, such as the FARC and AUC, in Colombia's countryside.

Chapter 5 Mexico – Rise of the Middlemen.

Poppy cultivation in Mexico has a long history that extends back to the arrival of Chinese immigrant labor in the state of Sinaloa in the 19th century. The opium and then later heroin industry in Mexico was and is to this day motivated by the demand of the U.S. market. The ebb and flow of heroin production in Mexico has historically followed a persistent, short duration, cyclical economic model dependent on U.S. consumption patterns and the level of state action to curtail poppy production.¹⁹³ To explain how heroin production in Mexico has evolved into its present form I will look at several specific cases. First, I will provide a modern history of Mexican DTOs to explain how a number of factors led to the return of large-scale heroin production to Mexico. The king-pin strategy also provided a boon for the heroin industry and revolutionized the heroin commodity chain. Using their comparative advantages, Mexican DTOs are primed to overtake Colombian heroin as the dominant product on the U.S. heroin market.

5.1 Modern Mexican DTOs and their Ascent to Dominance.

The sharp increase in domestic U.S. drug use in the 1970s created unprecedented economic opportunities for Mexican criminal organizations. Prior to the 1970s opium poppy cultivation was limited to the Mexican State of Sinaloa. As demand for raw opium and heroin grew on the U.S. market entrepreneurial farmers and drug traffickers expanded poppy cultivation to the states of Durango, Chihuahua, and Guerrero. In the United States President Richard Nixon viewed the increase in drug consumption and increase in crimes in American cities as problems that required a government response. In June 1971 he initiated the War on Drugs with the declaration, “Public enemy number one in the U.S. is drug abuse” and “in order to fight and defeat this enemy, it is necessary to wage a new, all-out offensive.” The U.S. war on drugs was declared as Nixon struggled to enlist Mexico’s help in stemming the flow of marijuana and heroin into the United States. In 1969 he launched “Operation Intercept”, which was heralded as

an attempt to screen drugs from entering the United States but was perceived by the Mexican government as a punitive action to punish them for not doing more to reduce drug production.¹⁹⁴

As the U.S. and Mexican government argued over culpability, Mexican heroin quickly took control of the U.S. market. In the early 1970s the U.S. government pressured Turkey, one of the prolific heroin producers of the era, to convert the country's illicit heroin industry into a legal production site for medical use morphine. At the same time U.S. law enforcement was dismantling the 'French Connection'. As a result, the flow of heroin into the U.S. was interrupted and Mexican poppy farmers and traffickers were provided an opportunity quick to fill the void. In 1972 only 40% of heroin confiscated in the U.S. was of Mexican origin, by 1973 the number had risen to 63%. The upward trend would continue until 1977 when 89% of all heroin confiscated by the DEA was of Mexican origin.¹⁹⁵

After the fallout of Operation Intercept the Nixon Administration offered an olive branch and proposed the concept of "Operation Cooperation" to the Mexican government. The government of Mexican President Luis Echeverría initially resisted taking concrete measures to curb the production of drugs in Mexico but by 1974 he was willing to dedicate forces to poppy and marijuana eradication. Between 1974 and 1975 the Mexican Army (SEDENA) built forward operation bases in opium poppy growing states. This action was done to put Mexican soldiers within operational reach of the areas most responsible for heroin production. For their efforts the Mexican military received 22 helicopters from the U.S. military to assist them in their poppy eradication missions.¹⁹⁶ SEDENA's attempts to destroy poppy fields proved unsuccessful. Land capable of supporting poppy cultivation was too plentiful, and whenever a SEDENA mission would destroy a poppy farm another would pop up in another area.

In an effort to substantially decrease marijuana and poppy cultivation in Mexico, the U.S. pressured President Echeverria, then José López Portillo to initiate an aerial eradication program built around the use of defoliation agents. Despite their initial opposition, the Mexican government agreed to the use of defoliates in 1976 and adopted the name ‘Operation Condor’ for their crusade against opium poppies and marijuana plants in Mexico. Operation Condor was touted as a huge success by the United States. By the end of 1976 the Mexican government destroyed enough marijuana to reduce the Mexican share of the U.S. market from 75% to 4% and by 1980 the Mexican share of the heroin market was reduced from 67% to 25%. The eradication campaign proved so successful that the National Narcotics Intelligence Consumers committee (a predecessor to the DEA) stated that “as far as eradication is concerned, Mexico remains a bright spot in disheartening scenario.”¹⁹⁷ Unfortunately, reduction in Mexican supply was not matched with a reduction of U.S. demand. Decreases in Mexican production were quickly replaced by heroin produced in Myanmar.

Washington’s positive reaction to Operation Condor was short lived. In November 1984 10,000 tons of marijuana (more than 8 times the amount of marijuana Mexican and American authorities believed was produced in Mexico in a year) was seized in Chihuahua, Mexico.¹⁹⁸ The seizure was a revelation that the U.S. had been grossly underestimating the amount of marijuana and potentially heroin being produced in Mexico and that Mexico’s eradication measures were no longer effective. U.S. President Ronald Reagan’s administration was quick to blame corrupt officials in Mexico for the failure of the eradication efforts.

Despite accusations of corruption and inaction from the U.S., the Mexican presidency of Miguel de la Madrid (1982-1988) did witness a dramatic increase in counter drug spending. By constitutional decree the state’s administrative structure for fighting drugs is centralized under

the office of the Attorney General. During De la Madrid's sexennial, funding for the war on drugs increased from 32.5% to 60% of the Attorney General's budget. Both the Attorney General and the Secretariat for Defense (SEDENA/Mex Army) collectively committed \$230 million U.S. dollars (1988 USD) to the Mexican efforts against drug trafficking organizations.¹⁹⁹ From this era a pattern would emerge in U.S. – Mexican relations. Following the presidency of De la Madrid, PRI presidents would placate the United States by increasing counter drug spending in order to gain the international support necessary to pass the North American Free Trade Agreement, secure a loan to stabilize the Mexican peso crisis of 1995, or keep Mexico from being labeled an “unreliable partner” in the war on drugs. Despite the occasional humiliating revelation concerning Mexican corruption, such as the scandal surrounding the arrest of the military officer in charge of Mexico's counter drug efforts, General Jesús Hector Gutiérrez Rebollo, the United States and Mexico maintained a cooperative relationship against DTOs.

As the U.S. and Mexican governments struggled to maintain a cooperative front against the drug industry, Mexican DTOs rose from their humble origins to the dominant force in serving the U.S. drug market. In an effort to provide a brief summary of the history of the development of Mexican DTOs and how heroin fit into each phase I will use a categorization tactic used by Nathan Jones in his book *Mexico's Illicit Drug Networks and the State Reaction*. In the book Jones divides the history of Mexican DTOs in three phases; Pax Padrino, Territorializing, and Dismantlement. I will discuss each phase and how it affects the current operating environment in Mexico and how heroin fit into each phase of DTO history.

The first phase of Mexican DTO history is defined by the formation of a single coalition of Mexican DTOs that lasted roughly from 1980 to 1989. This period of time was dominated by Ángel Félix Gallardo, or “El Padrino” of the Guadalajara Cartel. For a drug trafficker, Gallardo

had a knack for organization and diplomacy.²⁰⁰ According to popular lore Gallardo was the first Mexican trafficker to establish business connections with Colombian cartels in the early 1980s and was able to orchestrate a cooperative and peaceful atmosphere between rivals. Gallardo was so adept at managing volatile personalities that this period is referred to as the Pax Padrino or peace of the godfather in reference to the general calm that dominated the drug industry in the early 1980s under his leadership. The peace that defined this phase was the result of three factors: one, a corrupt authoritarian PRI party that was willing to negotiate and establish long term planning considerations with Mexican DTOs; two, a corrupt federal police force willing to accept bribes in exchange for the ability to select the individuals to fill leadership roles within the organization; and three, the organizational skills of Gallardo that allowed him to maintain the perception of equity among partners and thus an era of peace.²⁰¹ During this time Mexican DTOs trafficked small amounts of Colombian cocaine, marijuana, and limited amounts of black tar heroin. The DTOs consisted of a limited number of individuals who rarely relied on firepower for their safety. The PRI and federal police provided protection as long as bribes continued to roll in and mediation between competing DTOs was managed by Gallardo. Despite his best efforts Gallardo's peace came crashing down following the murder of DEA agent Enrique (Kiki) Camarena. In the initial days following the kidnapping of Agent Camarena the U.S. government tore a page out of Richard Nixon's playbook and stopped cross border traffic to search every car for their missing agent. This tactic was a deliberate measure to economically punish the Mexican government for not cracking down on Mexican DTOs. Backed into a corner by the U.S. the Mexican government was forced to investigate those responsible for the murder of the DEA agent. The peace that Mexican DTOs purchased with bribes was temporarily called off in order for the Mexican state to remain in the good graces of the U.S. government.

The second phase in the development of modern Mexican DTOs can be summarized by the fracturing of the confederation created by Gallardo and the establishment of independent DTOs focused on protecting their area of operations or territory and their access to the U.S. border. In 1989 Gallardo was arrested for his role in the death of DEA agent Camarena. In his absence the leaders of smaller segments of the Guadalajara cartel divided the cartel's territory between themselves and devised an intricate tax system where competing cartels would pay each other a fee for using neighboring territory to funnel drugs to U.S. markets.²⁰² Under this agreed upon system the control of territory became paramount. Prior to this era DTOs were solely focused on the trafficking of drugs through Mexico and into the United States. Profits were shared, and unfair practices were mediated by the strongest cartel leader such as Gallardo. With this new development DTOs became focused on controlling territory and ensuring that competitors weren't moving drugs through their territory without paying the required tax. To protect their sphere of influence and identify any taxable activity, Mexican DTOs developed intelligence gathering capabilities and armed security forces. To ensure their security was prepared for the challenges of protecting their turf, DTO leaders hired former Mexican special forces Soldiers or mercenaries to train their men. This phase witnessed a dramatic increase in violence as the Arellano Felix Organization based in Tijuana engaged the Sinaloa Cartel in open conflict. This phase ended in 1993 when the Arellano Felix Organization accidentally killed Catholic Cardinal Juan Jesus Posada Ocampo while trying to assassinate a lieutenant in the Sinaloa cartel, Chapo Guzman, at the Guadalajara airport. Similar to the murder of Agent Camarena, the murder of Cardinal Posada instigated a new round of state intervention which caused the continued fracturing of Mexican DTOs. If the government crackdown following the murder of Agent Camarena fractured the monolithic Guadalajara cartel into DTOs with regional

authority such as the Arellano Felix Organization or Sinaloa Cartel, then the death of Cardinal Posada introduced inter-regional competition. If Phase two in DTO development instigated rivalries among large regionally aligned DTOs, then Phase three can be characterized by inter-regional competition and the fracturing of once strong regionally aligned DTOs.

The third phase or dismantlement phase of DTO development covered a tumultuous period of Mexican history. In the year following the death of Cardinal Posada, Mexico entered NAFTA, the PRI struggled to maintain legitimacy in light of the Zapatista Uprising and then the murder of presidential candidate Luis Donaldo Colosio Murrieta, and an era of gradual economic growth came to a crashing halt during the peso crisis of December 1994. During this period the leadership of Mexican DTOs were dismantled by a new wave of joint U.S. – Mexican operations that aimed to arrest the leaders of each regionally aligned cartel. The joint operations were the result of efforts by the Mexican government to parry U.S. accusations that the PRI was complicit with DTOs. The U.S. – Mexican agreements culminated with Operation United Eagle in 2000 which provided U.S. intelligence, training, and technology to DEA vetted Mexican police forces.²⁰³ Operation United Eagles was the largest combined U.S. – Mexican effort to eliminate Mexican DTOs up to that point. It was the culmination of joint U.S. – Mexican counter drug efforts that began following the death of Agent Camarena. In its first year, U.S. trained Mexican forces captured 19 members of DTOs and 5 primary DTO leaders. The removal of DTO leaders and the sentiment that DTOs no longer had a cooperative agreement with the government resulted in a change of tactics by many DTOs. Cash strapped from their efforts to avoid confrontation with government forces, and inter-industry competition, Mexican DTOs began to look for new sources of revenue. Kidnappings, extortion, and large-scale theft of commodities such as oil became common place as DTOs tried to capitalize on all potential sources of revenue

within their territory. In order to better protect their territory, DTOs increased their emphasis to security. New organizations began to form to meet a growing demand from DTOs for security specialists who could focus on extorting cash from the local populace and provide protection for drug trafficking operations. Contemporary DTOs such as Los Zetas were initially formed as security experts for larger DTOs, but then later added drug trafficking to their list of illegal activity. Other groups such as the Knights Templar followed a similar path to Los Zetas. They were formed as a security wing to the Milenio Cartel in Michoacán, but declared themselves an independent DTO after receiving training from, then betraying Los Zetas.²⁰⁴

The third phase in the development of DTOs in Mexico is important because it encapsulates the convergence of a number of historical trends that partially explain the surge in Mexican heroin production in the 21st century. The democratization of Mexico which culminated in the election of a non-PRI candidate in 2000 decreased the cooperative relationship Mexican DTOs periodically shared with the PRI. As the PRI tried to separate itself from its reputation of collusion with DTOs it increased the government's cooperation with U.S. law enforcement agencies. This cooperation led to the arrest of a number of cartel leaders but as DTOs splintered under a loss of leadership and lack of resources, they turned their attention to extortion and security. As a result, additional DTOs began forming which only furthered competition among DTOs for sources of revenue. The convergence of these factors created an environment where DTOs placed a strong emphasis on their ability to control territory. In the U.S. cocaine consumption decreased as a new demand for heroin was emerging. As a result of this dynamic, DTOs began utilizing their territory to produce heroin. Heroin proved an ideal commodity for cash strapped DTOs who lacked territorial access to the U.S. border, were losing revenue from decreases in cocaine demand in the U.S. and were struggling to pay for the continual emergence

of new sources of competition. The environment described above created conditions conducive to the return of Mexican heroin production on scales not seen since the 1970s, however Mexico's most dramatic increase in heroin production would come as a result of the aftermath of the Merida Initiative.

5.2 Mexico's Comparative Advantage on the U.S. Market.

Starting from a low point in 1986 Mexican heroin producers have steadily increased their share of the U.S. market. Unlike past takeovers or acquisitions of new narcotics markets, Mexican organizations established their market dominance through good marketing, quality assurance, and opportunism. Rather than try and take over Colombian heroin markets along the eastern seaboard of the U.S., Mexican groups simply found new markets. Their strategy was simple and avoided confrontation; establish heroin distribution networks in regions of the U.S. normally untouched by narcotic organizations. The success of this strategy is evident in the numbers. From 1986 to 2011 the share of Mexican produced heroin jumped 14 percent. Colombian heroin trafficked by Mexican criminal organizations over the same period jumped 50 percent. Both types of heroin are smuggled into the U.S. though the Southern border by Mexican criminal organizations, but trade routes differ in the U.S. depending on if the heroin is black tar or white powder.²⁰⁵

Insight into the new methodology for Mexican criminal organizations smuggling heroin into the U.S. can be gathered from the testimony of arrested heroin dealers. For example, in 1999 Raúl Villa-Guerra, then 18 years old, was arrested in Chimayón, New Mexico. Through his testimony it was discovered that he was in the U.S. without documentation. He was a runner for a Santa Fe based heroin distribution cell comprised of Mexican nationals from Nayarit, Mexico who delivered heroin to U.S. retailers. Raul was arrested with nine balloons of black tar heroin in

his mouth, weighing a total of 4.5 grams. According to Raul the balloons were sold individually or in small loads (not more than 10 balloons at a time) to heroin addicts who called a number.²⁰⁶ The operator on the other end of the number would organize the order then dispatch Raul to deliver the requested amount of heroin and pick up the cash. Raul never touched a firearm and never sold more than 10 balloons, both measures to ensure he wouldn't receive a major criminal charge if apprehended.²⁰⁷ Raul's testimony also highlights the advantage Mexican DTOs have over their Colombian competition. While Colombian DTOs utilize the presence of Colombian-American communities to provide cover for the presence of Colombian heroin wholesalers in the United States, Mexican DTOs take it a step further and utilize the large Mexican-American communities in the U.S. to provide indirect support to entire networks of heroin wholesalers, distributors, runners, and street drug dealers. This allows them to dominate every aspect of the heroin commodity chain and thus provide lower prices and a more potent product than their competition.

Through Raul's testimony in 1999 a clear picture of heroin distribution networks throughout the U.S. comes into focus. When asked, Mexican authorities allege that at least part of the Nayarit-based network are under the control of one of Mexico's major criminal organizations, such as the Sinaloa Cartel. This is unsubstantiated because no heroin distributor from Nayarit has yet claimed affiliation to any Mexican crime family or organization but according to Sam Quinones' book, some heroin producers in Nayarit pay protection to Los Zetas. Regardless of the affiliation of the heroin distributor, authorities were able to make a number of assumptions about the new organization distributing heroin throughout the U.S. Those assumptions would be consolidated and defined as the "McDonald's Drive Thru Business model". They are listed below:

1. Trafficking cells are formed by one head (dispatcher) and some sellers (runners).
2. Customers place heroin orders via phone to a dispatcher.
3. Runners are sent to deliver orders; usually in or around suburban parking lots.
4. Runners and buyers would make eye contact in the store parking lot to ensure recognition.
5. Buyers then board the runner's car where the transaction occurs. The buyer then leaves and the runner drives away.²⁰⁸

The "McDonald's Drive Thru Business Model" was immediately recognized for its effectiveness. Rather than force suburban kids to drive to disenfranchised communities to buy heroin, it brought it to them. Buyers were also guaranteed quality heroin and would complain to the dispatcher if the product didn't meet their purity standard. It was even reported that unhappy clients would sometimes be offered a free hit of heroin to ensure their continued business.²⁰⁹

Additional arrests of runners and some heroin cell leaders revealed further details about the Nayarit based heroin cells. The cells were self-started by entrepreneurial young men from Nayarit. If a runner proved competent in hiring a cayote, sneaking across the U.S. border then worked hard and honestly he would gain a good reputation. Upon returning to Nayarit he would be granted the ability to recruit his own drivers/runners, and dispatchers (very often women in Nayarit working with a U.S. number) before returning to the U.S. to find a market and start his own cell. Once in the U.S. the new cell leader would find a habitual customer then offer him/her free heroin or cash to sign for a number of non-descript apartments and cars in the new market. Cell leaders would outfit their cell with these goods and ensure every one of his runners was well equipped with an apartment in a middle-class neighborhood and a functioning vehicle.²¹⁰ The costs incurred and potential profit from this system is included below as table 7. The information

was compiled by José Díaz-Briseño's study "Crossing the Mississippi: How Black Tar Heroin Moved into the Eastern United States." The table provides an estimate on how much money can be generated by a heroin cell leader working at a moderate level. In order to remain under the radar of law enforcement, runners are also encouraged to send their income (\$80/per day) home through a money wiring service. This ensures that they don't buy flashy items to gain the attention of police officers or present themselves as a rich target for other criminal elements in their market.²¹¹

In addition to streamlining the distribution of black tar heroin to new markets in the U.S., Mexican heroin producers have also begun producing white, powdered heroin. As previously discussed, Mexican white heroin was produced in order to fill a demand previously filled by Colombian heroin producers. The effective suppression of opium poppy farms in Colombia is providing new opportunities for Mexican heroin producers who produce white heroin. Currently white heroin is being smuggled into large urban centers, such as New York and Chicago, by the Sinaloa cartel but as the knowledge of how to make white heroin spreads throughout Mexico there is a good probability that it will start to show up in areas where historically, only black tar heroin was available for purchase.

5.3 Conclusion.

Mexican heroin has a long history with U.S. consumers. Historically it has been able to retain a portion of the U.S. market by serving as the only heroin producing region of the world to offer consumers black tar heroin. In the wake of Turkey's decision to transfer their opium industry into the service of producing legal morphine, Mexico gained the dominant position in the U.S. market. At the time Mexican heroin producers supplied U.S. consumers with black tar and brown heroin. East coast markets, which favored white heroin, went underserved until the

introduction of Asian sourced heroin began emerging in the U.S. The introduction of large quantities of Asian produced white tar heroin to the U.S. coupled with the aggressive joint U.S. – Mexican counter drug campaigns undermined the efforts of Mexican DTOs to remain the dominant product in the U.S. Despite their loss they were able to retain a steady stream of revenue from U.S. consumers who were accustomed to and preferred black tar heroin.

Throughout the 1990s, as Colombian white heroin came to dominate the U.S. market, Mexican black tar heroin was available almost exclusively on the West Coast of the United States. Competition in these markets was low as most Colombian heroin remained in urban areas in the Eastern United States. Díaz-Briseño's research indicates that at some point in the 1990s Mexican heroin producers began expanding their product to non-traditional markets for black tar heroin. By the early 2000s black tar heroin distribution networks began appearing in markets such as Columbus, Ohio and Charlotte, North Carolina. The idea to expand black tar heroin distribution networks into new markets that shared sizable Mexican-American communities was a novel one that caught law enforcement officials off-guard. They were not accustomed to fighting the use of heroin outside of the major metropolitan areas of the Mid-Atlantic corridor. By finding new markets Mexican DTOs demonstrated their ability to adapt to their surroundings and find new markets for a product they had been pushing for decades. As Colombian heroin levels began to decline in the mid-2000s Mexican DTOs again showcased their entrepreneurial skills. In 2014 they developed the capacity to produce white heroin in a similar fashion as their Colombian competition. Mexican heroin producers and traffickers are demonstrating a unique resiliency to overcome state interaction and competition from other sources. Their model of employing small heroin selling cells throughout the U.S. provides DTOs the ability to gain greater profits from selling their product at street level, rather than settling for wholesale, and is

set up in a manner to reduce dealer interaction with law enforcement. While time will ultimately tell if these new methods are a bellwether for the industry, in the short term they have provided Mexican DTOs with an advantage in shares of the U.S. heroin market.

Conclusion.

Prior to 1986 the U.S. heroin market was serviced by a rotation of heroin producers in Turkey, South East Asia, and Afghanistan. During the 1960s and early 1970s opium paste produced in Turkey would be smuggled into southern France, converted into heroin, and then smuggled into the United States through Canada by an Italian trafficking organization. The name of this trafficking network was immortalized by the 1971 movie “The French Connection”, starring Gene Hackman and Fernando Rey. In the same year as the movie’s release, the U.S. government convinced Turkey to halt the production of illegal opium paste. With their source effectively cut off the heroin traffickers who comprised the ‘French Connection’ became easy prey for U.S. law enforcement agencies. The trafficking ring was effectively dismantled yet heroin persistently remained on the U.S. market. In the waning days of the French connection Mexican heroin took center stage on the U.S. market. In 1971 Mexican produced heroin comprised just under 90% of the U.S. market. This epoch was reached in the vacuum created by the reorientation of the Turkish opium industry away from illegal heroin production towards the legal production of morphine and the dismantling of the French connection. From 1971 to 1994 Mexican produced heroin’s share of the U.S. market decreased from its height in 1971 to about 5% in 1994. This decrease can be explained by a number of factors. Mexican production rates dropped during this time as the result of U.S. counter drug policy starting with Nixon’s punitive war on drugs then reaching a crescendo in the U.S. response to the murder of DEA Agent Camarena in 1985. Despite the drop in Mexican heroin production, heroin consumption rates in

the U.S. increased. Southeast Asian produced heroin from the Golden Triangle and heroin smuggled into the U.S. from Afghanistan entered the market in 1970-71 and increased its share of the U.S. market commensurately with Mexico's loss. On the eve of Colombia's debut on the U.S. market, heroin produced in the Golden Triangle made up roughly 60% of the U.S. market and Afghan heroin held more than 30%. The rise of Colombia's dominance of the U.S. market and then the return of Mexican produced heroin is encapsulated in this thesis.

The study of the U.S. heroin market reveals a number of historical trends. The U.S. repeatedly concentrates its efforts to remove heroin from its streets by targeting the production site with the dominant position in the U.S. heroin market. In the 1960s the U.S. pressured Turkey into converting its heroin production capability to a legal cause. In the 1970s and 80s the U.S. focused on diminishing Mexico's marijuana and heroin production capability. As Mexican produced heroin lost its share of the U.S. market Southeast and Southwest Asian produced heroin became the most common product available to U.S. heroin consumers. In 1978 the U.S. congressman and Chairman of the Asian and Pacific Affairs Committee, Lester Wolff, exchanged a number of personal letters with the leader of the Shan state in Myanmar, Khun Sa, in an attempt to negotiate a decrease in heroin production in the Golden Triangle. Khun Sa's request that the U.S. and Thai government provide material support for their efforts at achieving an independent state proved unpalatable and in 1993 the U.S. tried another tactic to decrease heroin production in the Golden Triangle. At a time when the heroin produced in the Golden Triangle comprised about 70% of the U.S. market, the DEA and Thai Army launched a campaign into the regions of the Golden Triangle within operational reach of the Thai Army in an effort to destroy opium farms. The campaign was largely considered a failure and demonstrated the limits of U.S. influence in their attempts to eliminate heroin production zones.

If historical trends in the global heroin market repeat themselves as the proverb dictates, then the current trend of Colombian and Mexican dominance of the U.S. heroin market should be coming to conclusion in the next 5-10 years. There is some evidence to support this potential eventuality. In 2016 less than 600 hectares of land in Colombia was dedicated to heroin production (this is an increase from the low of 298 hectares in 2013 but still far below the 6,500 hectares of 2000), and in that same year the Mexican government committed resources to destroying 99% of the 25,000 hectares dedicated to heroin production in Mexico. While the validity of Mexico's claim to have eradicated upwards of 25,000 hectares of opium poppy farms is questionable, the fact that the Mexican government is even publishing estimates of poppy cultivation (something they did not do prior to 2016) is a sign that U.S. influence is beginning to prod Mexico into action. In the past the decrease in Colombian and Mexican heroin production capabilities would predicate their slow demise. So far though this has not been the case. As Colombian and Mexican heroin production decreases, Asian produced heroin has failed to reenter the U.S. market. In its place emerged a potential new source of heroin. According to the DEA HDMP upwards of 20% of the U.S. market is controlled by a heroin the DEA categorizes as "South American – Inconclusive". The DEA's term for this source of heroin indicates that the heroin is from Central or South America, but its exact origin is unknown. This source of heroin could be the product of heroin production sites in Guatemala, Honduras, Ecuador, and Peru. Unfortunately, there is no scientific evidence to provide validation to this theory but recent reports of opium poppy farms and heroin production labs being discovered in Guatemala, Honduras, and Ecuador is an uncanny coincidence and provides some validation to the results of the HDMP test results.

The future of the U.S. heroin market may deviate from historical patterns. In the past efforts to control the production of heroin in Mexico has led to the appearance of Southeast Asian, Southwest Asian, and Colombian heroin in the United States. Since the U.S. maintains the ability to influence eradication efforts in Mexico and Colombia, Southwest and Southeast Asian heroin entered the U.S. markets as a result of strong U.S. counter drug efforts, think Operation Condor or Plan Colombia. Their access to the U.S. market in the future will be limited by the expanded capabilities of Colombian and Mexican DTOs. The decentralization of the drug trafficking industry in Colombia and Mexico created a level of stability for the heroin commodity chain. In the past the dismantling of a single DTO would temporarily create a decrease in heroin production. The vacuum created by the removal of a powerful DTO would force wholesale heroin buyers in the U.S. to find new products to distribute. In the current geopolitical environment, the removal of a single Mexican or Colombian DTO is not likely to have any effect on the U.S. heroin market. Attempts to undermine heroin production are just as likely to fail since opium poppy farms are beginning to appear in numerous locations throughout Latin America. The future of the U.S. heroin market will not witness the return of heroin produced in Afghanistan or Myanmar. Counter drug strategies and the proliferation of opium poppy farms throughout the Western Hemisphere ensure that Colombian and Mexican DTOs will remain the dominant element in trafficking heroin into the U.S. The concentrated hub of production in the heroin commodity chain serving the U.S. will invariably shift throughout the hemisphere depending on where the U.S. government has decided to geographically concentrate its efforts.

In a cruel twist of fate, U.S. efforts to eliminate heroin from consumers in the United States has provided the ideal heroin commodity chain in the Western Hemisphere. The heroin commodity chain that services the U.S. is decentralized. Almost every segment of the industry is

operated by a different business. Farmers, producers, traffickers and wholesalers do not belong to a monolithic organization but are enterprising small business owners in the illicit drug industry. Their motivation is not dominated by a quest for market dominance like their Cali or Guadalajara based predecessors. After generations of dealing with U.S. counter drug strategies they are adaptable, resilient and creative. They operate in a world that guarantees their illicit product access to U.S. markets thanks to years of efforts to create a free trade zone in the hemisphere. In the absence of radical reprioritization of U.S. foreign policy, the current world, created by U.S. efforts to promote free trade and subsidize foreign government efforts to arrest DTO leaders and eradicate poppy fields, will only result in the steady flow of heroin produced in the highlands of Latin America to U.S. consumers.

¹ Hopkins and Wallerstein, 159.

² Gereffi, 2.

³ Ibid, 50.

⁴ Adelman (2013), 346.

⁵ Ibid, 347.

⁶ Hirschman (1978), 113.

⁷ Hirschman (1986), 57.

⁸ Adelman (2013), 346.

⁹ Hirschman (1978), 102.

¹⁰ Hirschman (1986), 57.

¹¹ Adelman (2013), 352.

¹² Ibid, 477-478.

¹³ Ibid, 543-544.

¹⁴ Hirschman (1986), 64-65.

¹⁵ Ibid.

¹⁶ Ibid, 67-68.

¹⁷ Hirschman (1978), 108-109.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ Hirschman (1992), 57.

²¹ Booth, 1.

²² Ibid, 1-3.

²³ Ibid.

²⁴ Paoli, 165.

²⁵ Hogshire, Chap. 4.

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- 26 Ibid.
- 27 Ibid.
- 28 Booth, 1-3.
- 29 Ibid.
- 30 Ibid.
- 31 Ibid.
- 32 Ibid, 3.
- 33 Ibid.
- 34 Ibid, 4.
- 35 Ospina (2018), 6.
- 36 Ahmed.
- 37 Booth, 6.
- 38 Ibid, 5.
- 39 Ibid.
- 40 Ibid, 5-6.
- 41 Dir. Matthew Heineman, The Trade.
- 42 Booth,6 and The Guardian, “Mexican Farmers Turn to Opium Poppies to Meet Surge in U.S. Heroin Demand”.
- 43 Booth, 3.
- 44 Ospina (2018), 13-14.
- 45 Paoli, 165.
- 46 Ibid, 166-167.
- 47 Ibid, 167.
- 48 Ibid.
- 49 Frederick, Morning Addition.
- 50 The Guardian, 2-3.
- 51 Thoumi (2003), 91.
- 52 Ospina (2018), 13.
- 53 Ibid, 14.
- 54 Ibid.
- 55 Ibid, 14-15.
- 56 Frederick (2018).
- 57 Ospina (2018), 14.
- 58 Thoumi (2003), 198-199.
- 59 Ibid.
- 60 Kyle (2015), 13.
- 61 Ospina (2018), 17.
- 62 Ibid.
- 63 Ibid, 17-18.
- 64 Ibid, 16.
- 65 Ibid.
- 66 Prices cited from Zageno, a research supply website. Accessed at <https://zageno.com/>.
- 67 UNODC, 2018.
- 68 Paoli (2009), 172.
- 69 Chepesiuk(1999), 149.
- 70 El Universal (2009)(2016).

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- ⁷¹ Kyle (2015), 128.
- ⁷² Hirschman (1978), 102.
- ⁷³ Hirschman (1986), 57.
- ⁷⁴ Paoli (2009), 172-174.
- ⁷⁵ Paoli (2009), 172-174 and Thoumi (2003), 91-92.
- ⁷⁶ Paoli (2009), 172-174.
- ⁷⁷ Ibid.
- ⁷⁸ Ibid.
- ⁷⁹ Ibid.
- ⁸⁰ Thoumi (2003) 91-92.
- ⁸¹ Steinitz (2001), 11.
- ⁸² Diaz-Briseno(2010), and Quinones (2015).
- ⁸³ Quinones (2015), 316.
- ⁸⁴ Kyle, 2015.
- ⁸⁵ Kyle (2015), 128.
- ⁸⁶ Booth, 6.
- ⁸⁷ Ibid, 6-7.
- ⁸⁸ Ibid.
- ⁸⁹ Ibid, 77.
- ⁹⁰ PBS, Wide Angle.
- ⁹¹ Booth, 77-78.
- ⁹² Ibid, 77.
- ⁹³ Ibid, 77-78.
- ⁹⁴ PBS, Wide Angel.
- ⁹⁵ IPRC.
- ⁹⁶ Ibid.
- ⁹⁷ Quinones, 120-121.
- ⁹⁸ IPRC.
- ⁹⁹ Ibid.
- ¹⁰⁰ Office of National Drug Control Policy (2000), 44-45, Tables 19-21.
- ¹⁰¹ Paoli (2009), 177-178.
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- ¹⁰³ Frankel (2015).
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- ¹⁰⁸ Ibid, 35-36.
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- ¹⁴¹ Ibid.
- ¹⁴² Thoumi (2003), 82.
- ¹⁴³ Ibid, 71-72.
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