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Profits by Any Other Name: A Study of Domestic Profit Motivation in Relation to Mayoral Assassinations in Mexico

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Abstract:

Assassinations of mayors, ex-mayors, and candidates for the office of mayor have been dramatically increasing in the Country of Mexico since the start of the Cartel Wars in 2006. The increased fragmentation and stress certain security initiatives have put on organized crime has caused cartels to reconsider the way in which they interact with domestic actors and communities. The objective of this paper is to determine if there is evidence of a relationship between mayoral assassination rates and Federal entities (states) with high numbers of select lootable resources. This theft could take the form of one or all activities related to resource exploitation such as direct theft for use, direct theft for black market sale, and extortion. The paper accomplishes this goal through a series of zero-inflated binomial regressions as well as other modeling methods in order to ensure the robustness of results. This paper finds evidence connecting mayoral assassinations to states with high profits from avocado growth and high numbers of illegal gas pipeline taps. This study fails to find a relationship between lootable mining resources and mayoral assassinations. This study also shows that previously thought to be salient factors connected to political assassinations in Mexico, such as political pluralization and the number of cartels active in an area, may not be as salient when it comes to determining mayoral assassinations. Overall, this study finds that some natural resource factors play a role in determining where cartels will choose to enact political violence at the local level.

Table of Contents

Introduction

Cartel Violence in Mexico has been a harsh reality since the declaration of war against the cartels by President Felipe Calderon in 2006. At first, the war was limited to one state in Mexico, Michoacán, and 4,000 soldiers.[1] Since then, the conflict and its ramifications have exploded to affect almost every region of the country. The financial toll has been high. The Mexican government spent over 330 billion pesos on its military and domestic security forces in the year 2019 alone.[2] The United States government has also committed large amounts of both money and manpower in an attempt to help the government of Mexico weaken the cartels and stem the tide of illegal drugs making their way into the United States. The U.S. government even launched a joint program with Mexico in 2008 called the Merida Initiative with the goals of stopping organized crime and maintain stability on the U.S.' southern border.[3]

Besides manpower and economic costs, the Cartel Wars have also had a high human cost. Figures on the exact loss of life due to cartel violence are nearly impossible to estimate due to data reporting issues and large numbers of disappearances, where the individual cannot be confirmed dead due to lack of a body, but the estimated loss of life is astounding. Reporting by the Congressional Research Service maintains that since 2006 roughly 73,000 disappearances and 150,000 drug related murders have taken place in Mexico.[4] The casualties of this conflict have

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[1] "Americas | Mexico Troops Sent to Fight Drugs," BBC, December 12, 2006,
   http://news.bbc.co.uk/2/hi/americas/6170981.stm.

[2] Pasquali, Marina. "Domestic Security Spending in Mexico 2019." Statista. Statista, November 20, 2020,
       https://www.statista.com/statistics/754691/mexico-domestic-security-spending/.
    Pasquali, Marina. "Military Spending in Mexico 2019." Statista. Statista, November 20, 2020,
       https://www.statista.com/statistics/754686/mexico-military-spending/.

[3] U.S. State Department. "The Merida Initiative." U.S. Embassy & Consulates in Mexico. The United States State Department,
       September 21, 2018. https://mx.usembassy.gov/our-relationship/policy-history/the-merida-initiative/.

[4] Rep. *Mexico: Organized Crime and Drug Trafficking Organizations Version 45*. Congressional Research Service, July 28, 2020.
       https://fas.org/sgp/crs/row/R41576.pdf

covered the wide spectrum of humanity: from combatants to civilian and from guilty parties to innocent victims. The ranks of the dead or disappeared include criminals, state security forces, Central American migrants, farmers, financiers, students, teachers, journalists, and politicians.

This paper seeks to make a contribution towards explaining only a small subsection of these casualties by answering the question: what is driving the assassination of mayoral politicians by cartels in Mexico? Existing answers to this question focus on factors such as cartel fragmentation, leadership decapitation, and political pluralization as drivers of violence against municipal politicians.[5] However, it is my contention that the natural resource wealth—defined as profits created from looting or extortion of individuals, companies, and state firms— of certain regions plays a significant role in determining whether a mayoral politician is assassinated. In other words, I hypothesize that the targeted killings of local politicians is a strategy employed by Mexican organized crime groups in order to increase their ability to plunder and extort natural resources for profit (This profit will be referred to as resource wealth throughout). This domestication and diversification of profit has come about because of increased pressure on criminal actors in Mexico, which has shifted the criminal landscape and placed an increased emphasis on local territorial control in resource rich areas.

This study is important because of the implications it has for both policy and theory. A verifiable theoretical connection between political violence by criminal actors and resource wealth, something that is associated often with civil war scholarship, serves to further map the similarities and differences between criminal actors and other non-state actors in international

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[5] Blume, Laura Ross. "The Old Rules No Longer Apply: Explaining Narco-Assassinations of Mexican Politicians." *Journal of Politics in Latin America* 9, no. 1 (2017): 59–90. https://doi.org/10.1177/1866802X1700900103.

relations theory. The findings within also add to our general understanding of political violence by criminal actors by showing that it is profit incentives which motivate acts of political violence by cartels, rather than simply characteristics of the criminal or political landscape in and of itself. From a policy standpoint this study is important because it points to real, clear, and quantifiable factors that increase the risk to local politicians in Mexico. The results therefore highlight domains where Mexican security forces and policy makers can and should intervene to stem the tide of local assassinations. Revealed within is also the beginning evidence of a country-wide trend that shows a shifting criminal landscape in Mexico moving from more transnational activities (drug trafficking) to domestic criminal activities. This should give pause to policy makers in both Mexico and the United states and force them to reassess whether their current strategies should be tailored to meet an evolving threat.

In order to support my theory, I will use a method of quantitative analysis, which places previously hypothesized explanations of mayoral assassinations against variables related to natural resource wealth in order to determine which variables, if any, have a significant effect on mayoral assassination rates in Mexico. In doing this I hope to show that it is profit motivations surrounding natural resource wealth on the part of criminal actors, in addition to political disunity and fragmentation, which are contributing factors to mayoral assassinations.

The rest of this paper will provide an overview of the phenomenon of mayoral assassinations in Mexico, an in depth description of my argument and hypotheses, an overview of my quantitative methodology, a discussion of the results, and finally a conclusion about what these results may mean for Mexico and other countries suffering political violence at the hands of organized crime groups.

The Phenomenon Assassination of Mexican Mayors

The municipality in Mexico is an often overlooked, but extremely important facet of political life. The idea of municipal control is so important to the founding vision of modern-day Mexico that the philosophy of decentralization of power to municipal governments was even enshrined into the constitution. Mexico's Constitution lays out the scope of municipal powers in multiple sections, including in article 115 where the power of the municipality is broadly defined to include control of drinking water, sewage, street lighting, garbage, markets, wholesale markets, cemeteries, slaughterhouses, streets, parks, gardens, public security, and "…other affairs determined by the State Legislature…".[6] This idea has been referred to as "Municipio Libre" or free city, but despite its enshrinement in the constitution this idea did not reach its full potential. Victoria Rodriquez writes, "Historically, Mexico's municipalities had evolved as subordinate entities of the federal and state governments, despite the fact that Article 115 of the Constitution of 1917 grants them autonomy and freedom of jurisdiction...".[7] Even after the push for decentralization in the 1980s and early 1990s Mexico remained highly centralized, because, according to Rodriguez, "the purpose of decentralization has been to appear to redistribute political power while sustaining political control…".[8] Due to this divide between the power of the municipality in theory and the power of the municipality in practice, mayors in Mexico hold an interesting position and the purview of their job is often up to them to fully define. This grey area effect leaves municipal leaders in a position of immense local power, having both knowledge
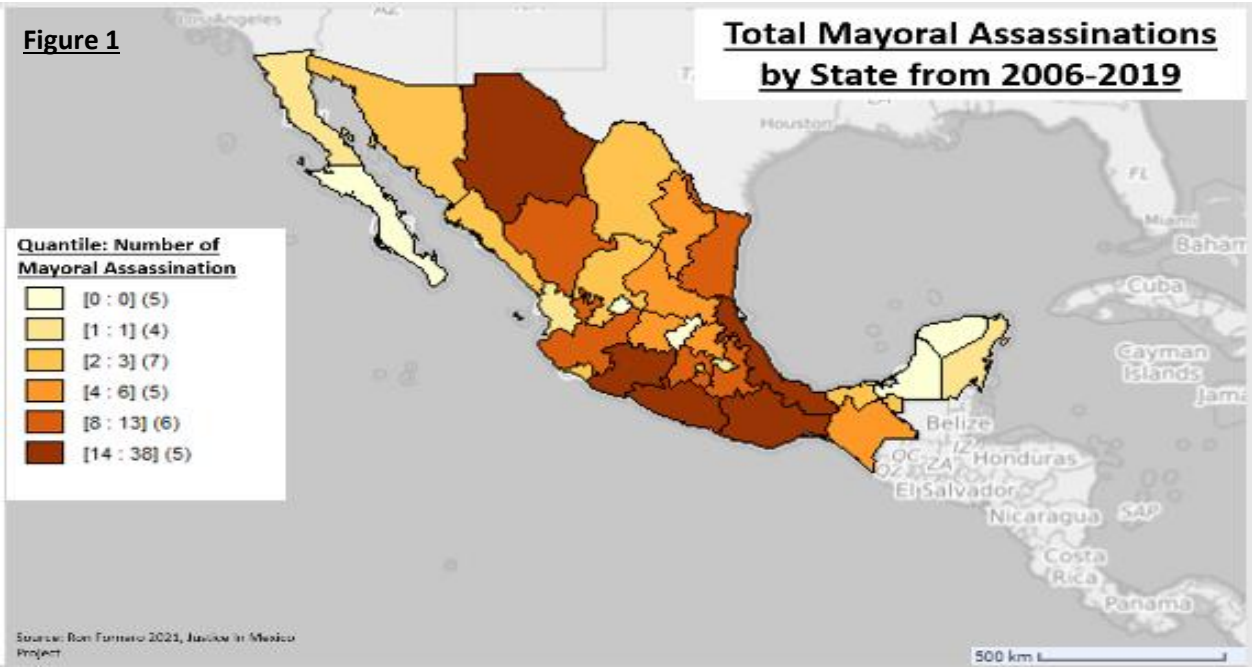
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[6] Aban, M. Fernanda Gomez, trans. "Mexico's Constitution of 1917 with Amendments through 2015." constitutionproject.org. Constitution Project, May 12, 2020. https://www.constituteproject.org/constitution/Mexico_2015.pdf?lang=en, 114

[7] Rodríguez, Victoria E. "The Politics of Decentralisation in Mexico: From Municipio Libre to Solidaridad." *Bulletin of Latin American Research* 12, no. 2 (1993): 133–45. https://doi.org/10.2307/3338144, 135

[8] Rodriguez (1993), 142

of and access to various funds and forms of resource wealth, but at the same time vulnerable since the state and federal government hold the majority of the power when it comes to security and policing. This grey area creates a vulnerabilities and inroads to influence local politics that cartels can take advantage of to extract profit.
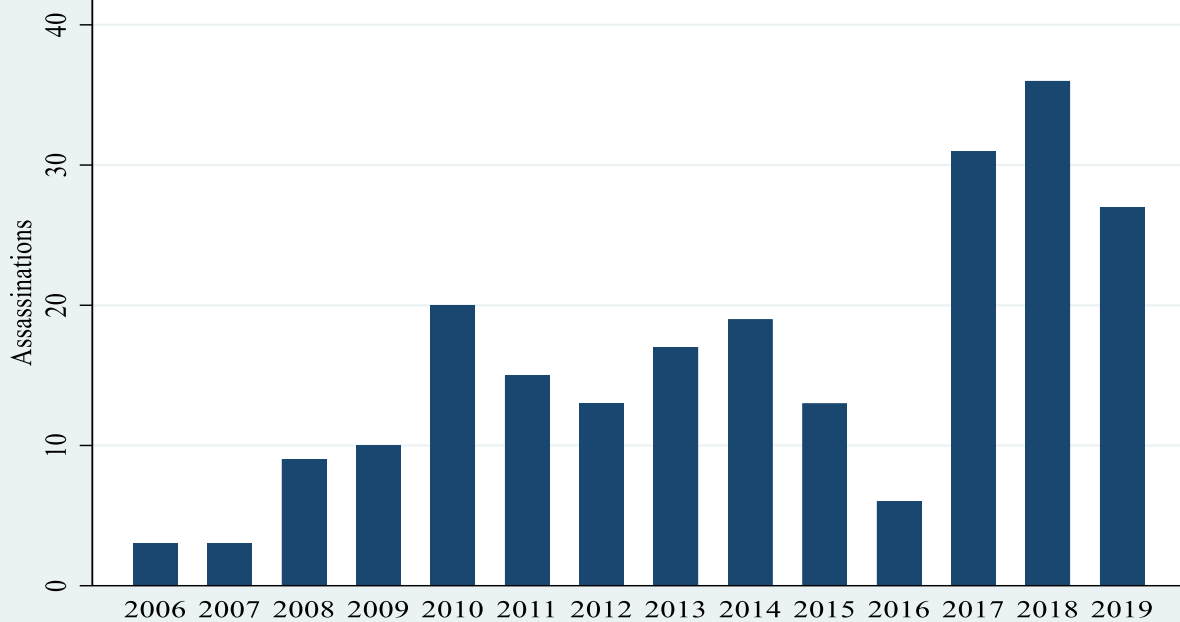
As a result of their power and position, or lack of power in some cases, mayoral politicians in Mexico have seen a large amount of violence occur, that specifically targets their political office. Data collected by the Justice in Mexico project shows that mayoral politicians (candidates, current mayors, and former mayors) killed from 2002- 2005 was roughly 11 and then between 2006, the start of the Cartel Wars, and 2019 the number of mayoral politicians killed increased to 239.[9] Though not evenly distributed this is an increase from approximately 3.5 assassinations a year to 18 a year. The figure 1 map and figure 2 graph below were created using this data and help to highlight some of the trends at both the geographical and temporal level of analysis.

Figure 1

Total Mayoral Assassinations by State from 2006-2019

Quantile: Number of Mayoral Assassination
- [0 : 0] (5)
- [1 : 1] (4)
- [2 : 3] (7)
- [4 : 6] (5)
- [8 : 13] (6)
- [14 : 38] (5)

Source: Ron Furnero 2021, Justice in Mexico Project

500 km

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[9] Calderón, Laura. "Justice in Mexico Project Dataset Containing Information on Mayoral Assassinations in Mexico from 2004-2019" San Diego: University of San Diego, n.d. *Not publicly available but made available to the author through reaching out to the organization.*

Figure 2

Number of Mayoral Assassinations per Year

A quick look at a specific case of mayoral assassination will help to make this connection a bit clearer and provide a more human face to the issue at hand. In the run up to Mexico's 2018 elections Jose Remedio Aguirre Sanchez, a then candidate for mayor of the town of Apaseo El Alto in the Guanajuato state, was killed. Sanchez was running under the newly formed Juntos Haremos Historia (Together We'll make History) coalition led by then candidate and now current President Andres Manuel Lopez Obrador. A cornerstone of AMLO's movement has been a focus on building up Mexico's social institutions rather than simply going after cartels. This strategy has been referred to by the President himself as "abrazos no balazos" (hugs not bullets).[10] However, while touting this strategy AMLO has also used the nation's security forces in an attempt to stop fuel theft and other natural resource theft. An example of this was the recent

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[10] Sang, Lucia I. Suarez. "Mexico Cartel Massacre: Lopez Obrador's 'Hugs, Not Bullets' Strategy Questioned amid Deadly Violence." Fox News. FOX News Network, November 5, 2019. https://www.foxnews.com/world/mexican-president-hugs-not-bullets-security-deadly-violence.

capture of Jose "El Marro" Yepez, prominent fuel thief and leader of the Santa Rosa de Lima cartel.[11]   During the leadup to the 2018 election Sanchez echoed AMLO's belief in a more comprehensive countering of cartels and made anti-corruption and fuel-theft pillars of his campaign. He was shot on the 5th of November, and his wife took his place in the race and won.[12] His stance against the cartels and against oil theft made him a priority target for cartels vying for control of the area. Sanchez's municipality is located in an area of Guanajuato commonly referred to as the "second Red Triangle," in homage to another area in the State of Puebla where fuel theft is rampant, Sanchez's city borders an area that houses, "…a major PEMEX refinery and multiple storage and distribution terminals.".[13]

Assassinations and violence in this area did not start or stop with the killing of Sanchez. In fact, it was reported that in one 5 day span in May of 2018 (6 months before Sanchez was killed) 59 people were killed, and it was estimated by the State Attorney General of Guanajuato that 85% of the killings were related to petroleum theft.[14] In Sanchez's city of Apseo el Alto the murder rate jumped from 10/100,000 in 2015 to 87/100,000 in 2019, and in between 2018 and 2020 three more municipal officials in the city were assassinated.[15] A broader view shows that

[11] Boyd, Sebastain. "Mexico Captures Leader of Fuel-Theft Cartel Targeted by AMLO." Bloomberg.com. Bloomberg, August 2, 2020. https://www.bloomberg.com/news/articles/2020-08-02/mexico-captures-leader-of-fuel-theft-cartel-targeted-by-amlo.

[12] Solomon, Daina Beth. "As Gangs Ravage Mexico Town, Mayor Seeks Answers to Husband's Killing." Reuters. Thomson Reuters, April 1, 2020. https://www.reuters.com/article/us-mexico-violence-idUSKBN21J6E4.

[13] Henkin, Sam. "Tracking Cartels Infographic Series: Huachicoleros: Violence in Guanajuato Over Control of Illicit Petroleum." Tracking Cartels Infographic Series | START.umd.edu. START, July 2020. https://www.start.umd.edu/tracking-cartels-infographic-series.

[14] "59 Assassinated in 5 Days in Guanajuato; 85% Linked to Pipeline Theft." mexiconewsdaily.com. Mexico News Daily, May 25, 2018. https://mexiconewsdaily.com/news/46-assassinated-in-4-days-in-guanajuato/#:~:text=Another%20crime%20scene%20in%20Guanajuato.%2059%20assassinated%20in,military%20police%20Published%20on%20Friday,%20May%2025,%202018.
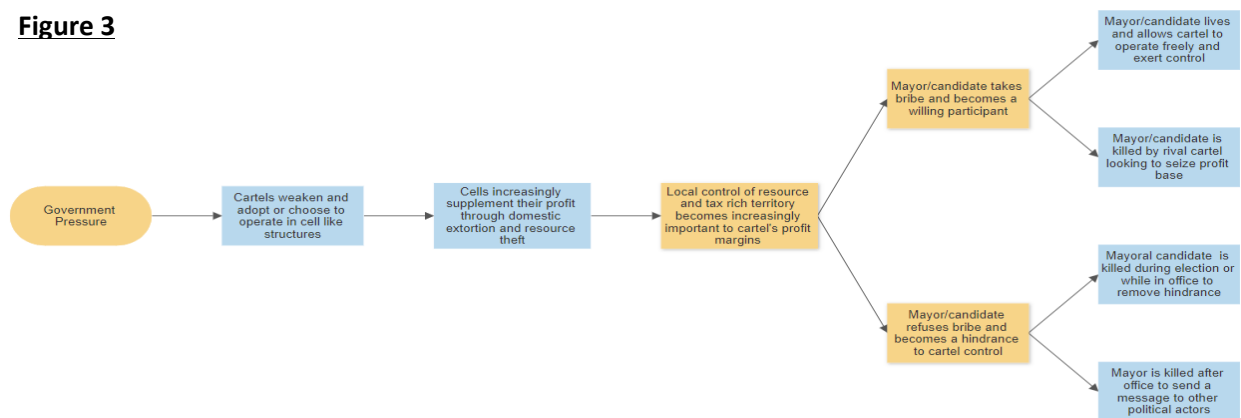
[15] Solomon (2020)

this violent trend continues throughout the state, in 2019 and 2020 the State of Guanajuato had the highest number of total homicides in all of Mexico.[16]

This research has been done in the hopes of explaining the above phenomenon to prevent it from continuing. To understand why cartels target some mayors and not others, a theory must be formed which focuses on the profit motivations of cartel actors and the relationship between criminal political violence, natural resource wealth, and local governance. The following section will be an outline of my theory about this relationship as well as an exploration of some relevant literature surrounding these topics.

Argument

In this paper I argue that the killing of mayors by Mexican Cartels is being driven in part by the desire to capture resource-based wealth. Since mayors often work closely with resource extraction companies, the Federal government, the State government, and local land/resource owners, cartels feel the need to either capture (bribe) or kill them to gain control of a municipal government. Controlling this center of power gives cartels free range to exploit resources and increases their profitability even as the U.S. and Mexican governments aggressively police drug

Figure 3

[16] "For Second Year, Guanajuato Leads the Country in Homicides." Mexico News Daily, December 22, 2020. https://mexiconewsdaily.com/news/guanajuato-leads-in-homicides/.

trafficking activities and decapitate leadership limiting the effectiveness of transnational cartels focused solely on trafficking drugs across the border. Figure 3 provides a flowchart of my theory. For simplicity the assassination is assumed to be successful because that is the goal of the cartels in all instances, but assassination attempts do fail and increased protection can shield targeted politicians, with varying levels of success. However, the end results in the diagram below line up with the preferred outcomes for the cartels, rather than the multiple possible realities that could exist. The rest of this section will go on to layout my theory in more detail and provide some context in terms of supplemental, existing, and alternative explanations.

Since the beginning of the Cartel Wars in 2006 an aggressive leadership decapitation policy has taken a few large drug trafficking cartels and turned them into a host of smaller cartels, local networks, and cells. Decapitation refers to an organized campaign of killing or capturing high profile leaders within an organization. Literature on decapitation methods often focuses on the use of this tactic to fight against terrorist organizations, but since this has been used to target criminal groups as well some of the logic found within should carry over. One interesting finding made by Robert Pape, in his book *Dying to Win,* is that decapitation methods rarely work to stop suicide terror campaigns. In fact, "Of the thirteen major suicide terrorist campaigns that had ended as of 2004, only one—PKK versus Turkey—did so as a result of leadership decapitation.".[17] Some scholars believe that this resiliency is determined by organizational typology, ideological vs. religious philosophies, and organizational structure- (centralized vs. decentralized). It has been posited that religious groups are more immune than ideological groups and decentralized

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[17] Pape, Robert Anthony. *Dying to Win:The Strategic Logic of Suicide Terrorism /*. Random House Trade Paperback ed. New York:, 2006. http://hdl.handle.net/2027/pst.000058308431, 239

organizations are more immune than centralized groups to the negative effects of leadership decapitation.[18] Decapitation has also been shown to lead to increased violence from both the targeted group and their affiliates or cells.[19] Taking this into consideration, it then makes sense that cartels as a conscious choice or simply because of decapitation tactics would evolve into criminal cells.

The United States' and Mexico's focus on stopping drug trafficking and the changing drug dynamics within both countries has also affected the profits of Mexican cartels. Taken together the increase in competition, increase in enforcement, and the increasing prospect of drug legalization in the United States and Mexico has forced cartels to domesticate and diversify their sources of revenue transforming from drug trafficking organizations to local power brokers. Notable cartel journalist, Ioan Grillo, writes about the novelty of this diversification, quoting a narcotics officer saying, "El Narco's [a general name used for the Mexican Cartels] diversification has been rapid and painful for Mexico. 'Until 2008, the only time we had heard of paying protection was in old American Movies of Al Capone.'" [20] Domestic sources of revenue for cartels can range from protection rackets, domestic drug sales, and, most importantly for the scope of this paper, natural resource wealth.

In the years since 2006 cartels have looked to natural resource wealth as one of the main domestic sources of revenue. This is due, in part, to the fact that Mexico as a country is extremely rich in valuable natural resources like mined goods, oil, gas, and valuable cash crops. In 2010

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[18] Jordan, Jenna. "When Heads Roll: Assessing the Effectiveness of Leadership Decapitation." *Security Studies* 18, no. 4 (2009): 719–55. https://doi.org/10.1080/09636410903369068, 744-745

[19] Jordan, Jenna. "Attacking the Leader, Missing the Mark Why Terrorist Groups Survive Decapitation Strikes." *International Security* 38, no. 4 (SPR 2014): 7–38. https://doi.org/10.1162/ISEC_a_00157, 38

[20] Grillo, Ioan. *El Narco: The Bloody Rise of Mexican Drug Cartels*. London: Bloomsbury, 2017, 261

Mexico accounted for 17.5% of the world's annual silver production and this trend continues to today.[21] The country also produces large amounts of gold and iron, and "…is the 11th largest producer of oil [in the world]."[22] Due to the presence and availability of these resources, cartels looking to find domestic sources of profit have developed diverse portfolios of natural resources that they are able to exploit, through theft or extortion of farmers and resource extraction companies. Instances of this have been widely publicized in the media and have included various resources including iron, gold, coal, crude oil, gas, and even avocados.[23] The practice of resource theft can be so valuable that in just a three-year span PEMEX reported that over, 2016-2019, $7.4 billion dollars of fuel was stolen.[24] The avocado farms outside of Uruapan, a city referred to as the avocado capital of the world, have recorded instances of cartels coming in and commandeering or even building their own avocado farms as well as forcing farmers to pay

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[21] Bada, Ferdinand. "What Are The Major Natural Resources Of Mexico?" WorldAtlas. WorldAtlas, October 23, 2018. https://www.worldatlas.com/articles/what-are-the-major-natural-resources-of-mexico.html.

[22] Bada (2018)

[23] Por, W., & Corcoran, P. (2018, September 13). "Illegal Mining a Golden Opportunity for Mexico Crime Groups." Retrieved November 30, 2020, from https://www.insightcrime.org/news/analysis/mexico-crime-groups-increasing-involvement-illegal-mining/

AP news. (2020, September 29). "Mexico says drug cartels prey on mining companies." Retrieved November 30, 2020, from https://apnews.com/article/mexico-organized-crime-crime-archive-drug-cartels-123e7d3f3ac1ab2efe137c56997bfcfe

NY Post Associate Press. (2014, March 17). "Mexican drug cartel moves from meth to iron ore mining." Retrieved November 30, 2020, from https://nypost.com/2014/03/17/mexican-drug-cartel-moves-from-meth-to-iron-ore-mining/

Fox News Associate Press. (2015, January 09). "Mexican drug cartels now exporting ore, involved in mining industry." Retrieved November 30, 2020, from https://www.foxnews.com/world/mexican-drug-cartels-now-exporting-ore-involved-in-mining-industry

Stargardter, G. (2018, January 24). "Mexico's drug cartels, now hooked on fuel, cripple nation's refineries." Retrieved November 30, 2020, from https://www.reuters.com/investigates/special-report/mexico-violence-oil/

Vice News. (2014, August 2). "Cocaine & Crude (Full Length)." Retrieved November 30, 2020, from https://www.vice.com/en/article/qv57qm/cocaine-crude-full-length

Por, E., & Cawley, M. (2017, October 06). "Mexico Fuel Theft: Big Earner for the Zetas?" Retrieved November 30, 2020, from https://www.insightcrime.org/news/brief/mexico-fuel-theft-big-earner-zetas/

Fox News. (n.d.). "The Avocadoes Of Michoacán." Retrieved November 30, 2020, from https://www.foxnews.com/world/the-avocadoes-of-michoacan

[24] Sieff, Kevin. "Gas Stations in Mexico Run out of Gas as Government Cracks down on Fuel Theft." The Washington Post. WP Company, January 10, 2019. https://www.washingtonpost.com/world/the_americas/gas-stations-in-mexico-run-out-of-gas-as-government-cracks-down-on-fuel-theft/2019/01/09/a9e71da8-1431-11e9-ab79-30cd4f7926f2_story.html

protection money under threat of force.[25] This issue of natural resource theft has become so rampant that Mexico's federal government has even started training forces specifically meant to guard these natural resources. Federal police task forces have been trained to protect mining operations and PEMEX refineries and pipeline infrastructure.[26]

Previous studies of political violence and natural resources have come mostly from scholars seeking to explain the occurrence of civil war.[27] Through drawing a positive correlation between the availability of lootable resources and the onset of civil war. Paul Collier and Anke Hoeffler first attempted to make this connection in their article, "On the Economic Causes of Civil War", in which they posited that there was an increased risk of civil war onset "…being due to the taxable base of the economy constituting an attraction for rebels wishing to capture the state.", but they also clarified that too many resources tends to deter civil war and strengthen states.[28] Collier and Hoeffler then go on to further this connection finding evidence that political and social "grievances" have little effect on the onset of civil war, but "…economic variables, which could proxy some grievances but are perhaps more obviously related to the viability of rebellion, provide considerably more explanatory power."[29] These economic variables are

[25] Linthicum, Kate. "Inside the Bloody Cartel War for Mexico's Multibillion-Dollar Avocado Industry." Los Angeles Times. Los Angeles Times, November 20, 2019. https://www.latimes.com/world-nation/story/2019-11-20/mexico-cartel-violence-avocados.

[26] "New Security Force Will Safeguard Mines against Cartels." *Mexico News Daily*, September 29, 2020. https://mexiconewsdaily.com/news/new-security-force-will-safeguard-mines-against-cartels/#:~:text=Mexico%20has%20a%20new%20security%20force%20to%20protect,will%20be%20equipped%20with%20assault%20rifles,%20graduated.

[27] Collier, Paul, and Anke Hoeffler. "On Economic Causes of Civil War." *Oxford Economic Papers* 50, no. 4 (October 1, 1998): 563–73. https://doi.org/10.1093/oep/50.4.563.

Collier, Paul, and Anke Hoeffler. "Greed and Grievance in Civil War." *Oxford Economic Papers* 56, no. (October 1, 2004): 563–95. https://doi.org/10.1093/oep/gpf064.

Fearon, James D., and David D. Laitin. "Ethnicity, Insurgency, and Civil War." *The American Political Science Review* 97, no. 1 (2003): 75–90.

Fearon, James D. "Primary Commodity Exports and Civil War." *Journal of Conflict Resolution* 49, no. 4 (August 1, 2005): 483–507. https://doi.org/10.1177/0022002705277544.

[28] Collier and Hoeffler (1998), 571

[29] Collier and Hoeffler (2004), 563

present in Mexico and, as cartels turn towards domestic sources of revenue, the use of political violence to capture these resources falls within the realm of Collier and Hoeffler's theory.

Some scholars have pushed back on this theory due to the difficulty of controlling the infrastructure around natural resource wealth such as ports, mining facilities, and distribution centers.[30] However, cartels have shown an ability to exploit the methods of resource retrieval and distribution systems in a way that perhaps insurgent groups in ways that avoid earlier misgivings.[31] Cartels can use a variety of coercive and corruptive tactics to exploit the natural resource economy and its supply chain. This was the case when Knights Templar, a cartel based in Michoacán, began illegally shipping mined ore to China through one of Mexico's major ports. They controlled this enterprise through both extortion and corruption along every step of the supply chain from the mines to the port allowing for over 10% of trade profits between China and Mexico to be unaccounted for.[32] The use of subterfuge and the ability to harness total control of the manufacturing chain makes the utilization of national distribution systems much more plausible, at least for a period. This is not even to mention the fact that stolen natural resources can be sold domestically on the black market or across the U.S. Mexico border, both of which require less control of national distribution systems.

The use of micro foundational theories of civil war has been touted to understand potential overlaps between civil war scholarship and scholarship revolving around international criminal organizations/drug trafficking organizations.[33] Therefore, throughout this thesis I will

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[30] Fearon and Laitin (2003), 87

[31] H. Vella, "Cartel culture – Mexico's war against illegal mining," *Mining Technology*, 11-Jan-2021. [Online]. Available: https://www.mining-technology.com/features/featurecartel-culture-mexicos-war-against-illegal-mining-4276223/.

[32] Graham, Dave. "Chinese Iron Trade Fuels Port Clash with Mexican Drug Cartel." Reuters. Thomson Reuters, January 1, 2014. https://www.reuters.com/article/us-mexico-drugs-port-idUSBREA000EG20140101.

[33] Kalyvas, Stathis N. "How Civil Wars Help Explain Organized Crime - And How They Do Not Special Issue: Drug Violence in Mexico." *Journal of Conflict Resolution* 59, no. 8 (2015): 1517–40.

coopt Collier and Hoeffler's logic to test if the presence of lootable resources is driving political assassinations by organized crime in Mexico.

However, while I have established that cartels have seemingly diversified and domesticated their profit streams since the beginning of the cartel wars and drawn a connection between natural resource wealth and political violence, I must now turn to connecting this phenomenon to mayoral assassinations specifically. As mentioned above mayors often have an informal and important connection to natural resources which makes them prime targets for cartels looking to establish control of natural resource wealth in a region.

Regarding natural resource wealth, mayors in Mexico often have informal powers rather than formal ones. The best example of the informal role mayors can play comes from the mining industry in Mexico. The Ministry of Economy, or more specifically the Mexican Geological Service's Mines Bureau, serves as the chief regulator of mining operations in Mexico. In fact, an analysis of mining law in Mexico by ICLG, a global legal reference and research group, finds, "Exploration, exploitation and beneficiation of ore activities ruled by the Mining Law, which is Federal, are, like all mining activities, listed in the catalogue of activities ruled by the Federal Environmental Law.".[34] In other words, Federal law has complete control over mining in Mexico and local and municipal laws do not have the power to supersede these laws. As a result, one might expect that the contact and therefore power that a Mexican mayor has regarding resource wealth gained through mining would be little to none, but that has not historically been the case. Carlos Ramòn Martinez Pablo, an indigenous community leader and mayor of Capulálpam de

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[34] ICLG. "Mining Law 2021: Laws and Regulations: MEXICO: ICLG," October 9, 2020. https://iclg.com/practice-areas/mining-laws-and-regulations/mexico.

Méndez, won a lawsuit in February of 2020 closing a Canadian company- run mine on the grounds that they had failed to consult with the indigenous community.[35] Beyond having the ability to sometimes shut down resource extraction projects, local governments also serve as important centers of information and coordination with companies looking to extract natural resources from the ground or build pipelines. The same review that had discounted the role of municipal law when it came to mining activities also mentions that any "…ancillary activities of mining companies which are not under the aforementioned catalogue [exploration, exploitation, and beneficiation] are ruled by local legislation".[36] This includes things like the construction of roads, offices, and other infrastructure vital to resource exploitation.

Beyond that AZO Mining, a research publication for the mining community, noted that "Before visiting mining locations, foreign companies and investors should notify local, state and municipal authorities as well as local industry representatives of their intention and nature of work." so as to protect against potential criminal violence.[37] This connection would go beyond mining and extend to interactions between municipal level government officials with cash crop farmers of products like avocados or even gas pipeline monitoring and general upkeep. In terms of cash crop sales, municipal governments have vital records and information regarding the owners and tax revenue from certain plots of land. This information would allow cartels to easily target specific high value farms and individuals for both theft and extortion. While pipeline infrastructure is run through PEMEX, the state-owned oil and gas company, they rely on local

[35] Rodriguez, Oscar. "Pueblo Indígena De Oaxaca Gana Juicio Para Revocar Concesión a Minera." MILENIO. Grupo Milenio, November 14, 2020. https://www.milenio.com/estados/pueblo-indigena-oaxaca-gana-juicio-revocar-concesion-minera.
[36] ICLG (2021)
[37] Davey, Reginald. "Mexico: Mining, Minerals and Fuel Resources." AZoMining.com. AZO Mining, August 14, 2012. https://www.azomining.com/Article.aspx?ArticleID=80.

actors to monitor and inform security officials of pipeline theft.   Assassinating an uncooperative mayor and replacing them with one who is either too afraid to stand up to or willingly works with the cartels then creates an environment in which cartels can capitalize on this information and derive profit from domestic sources.

The power of municipal governance, and therefore a mayor, is often informal in its relation to the natural resource economy. However, that does not mean it is not an inherently valuable position, especially for cartels looking to extract wealth from domestic sources and not just through international drug trafficking. Controlling the office of the mayor unlocks access to vital information and goes towards creating a more permissive environment within which cartel actors can more effectively extort and loot sources of domestic profit with a reduced fear of repercussions.

Control of local government is especially important if we subscribe to the overall logic of criminal violence against the state laid out by Benjamin Lessing.[38] His theory rests on the claim that Cartel-State violence is "…a war of constraint: belligerents aim ''merely' to coerce opponents into changing their behavior (i.e., their policies, when fighting states)." [39] He goes on to explain the two types of violent action Drug Trafficking Organizations (DTOs) take against the State: violent corruption aimed at enforcers (to change defacto law) and violent lobbying (to change dejure law).[40] Targeted killings are considered a type of violent corruption by Lessing, though he does say that targeted killings could play a role in violent lobbying campaigns as well. DTOs can

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[38] Lessing, Benjamin. "Logics of Violence in Criminal War." *Journal of Conflict Resolution* 59, no. 8 (December 1, 2015): 1486–1516. https://doi.org/10.1177/0022002715587100.

[39] Lessing (2015), 1492

[40] Lessing (2015), 1497

use assassination campaigns to pressure State policy makers to change dejure law.[41] It follows

then that if the goal of a cartel is to exploit natural resource wealth in a region then they will

utilize mayoral assassinations to constrain local governments.

Evidence has shown that cartel violence can directly shape the local political landscape in

Mexico. Cartel violence has been shown to have a negative effect on voter turnout.[42] It has also

been shown that cartel killing, and threats can both decrease the number of candidates at times

and inflate the number of candidates as each cartel in competition for a municipality vies for their

man to win.[43] These effects are not simply the random side effects of criminal violence but are

part of a concerted effort by cartels to influence local politics through signaling. Signaling refers

to the use of violent action to send a specific message to a group, often with whom the aggressor

cannot directly meet with. This is the underpinning of much of Lessing's work on criminal

violence against the state. The use of violence whether against enforcers or against those who

are making the rules is done to keep the government from doing something or make them do

something they would not otherwise do.[44] The criminal group is perpetrating violence to voice

displeasure with certain government actions in the hope that the government ceases those

actions and creates a more permissible environment for the crime group to operate. It has been

theorized that the killing of specific actors—honest officials, corrupt officials, innocent civilians—

by cartels signals different messages to different audiences.[45] It then follows that the purposeful

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[41] Lessing (2015), 1502

[42] Trelles, Alejandro, and Miguel Carreras. "Bullets and Votes: Violence and Electoral Participation in Mexico." *Journal of Politics in Latin America* 4, no. 2 (August 1, 2012): 89–123. https://doi.org/10.1177/1866802X1200400204.

[43] Ponce, Aldo F. "Violence and Electoral Competition: Criminal Organizations and Municipal Candidates in Mexico." *Trends in Organized Crime* 22, no. 2 (June 1, 2019): 231–54. https://doi.org/10.1007/s12117-018-9344-9.

[44] Lessing (2015), 1492

[45] Reuter, Peter. "Systemic Violence in Drug Markets." *Crime, Law and Social Change* 52, no. 3 (September 1, 2009): 275–84. https://doi.org/10.1007/s10611-009-9197-x, 279-280

targeting of mayors for assassination by cartels, at a reported rate 13 times greater than the average citizen of Mexico according to cartel scholar Laura Calderón, is meant to signal to local political actors that the cartels are in charge of their territory and to discourage acts on the part of local government that would hinder their ability to plunder resource wealth.[46]

Previous studies have already provided some evidence that cartels are motivated to commit political violence to secure sources of domestic profit. In their study of local political assassinations, Guillermo Trejo and Sandra Ley find reason to believe that profitability of control leads to increased assassination. They find Mexican drug lords often chose to assassinate local politicians "…not to become national rulers but to subdue local governments and populations and establish de facto subnational criminal governance regimes." [47] This creation of a "defacto governance" then "…would provide them with invaluable resources to control the criminal underworld, to regulate violence and taxation, and to take control over multiple licit and illicit economic activities." [48] This theory was built off earlier empirical work that found it was in fact those municipalities with "…the highest-grossing and highest tax resources" were the ones that were most likely to suffer attacks against local politicians.[49] It follows then that to have "defacto" control it is in the best interest of the cartels to target municipal leaders.

Overall, I agree with Trejo and Ley's assertion that there is a profit motivation that lies behind assassinations. However, my theory differs in that it goes beyond the idea of simply

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[46] Calderón, Laura. "Violencia Criminal Contra Ediles En México." Animal Político, November 15, 2020.
https://www.animalpolitico.com/seguridad-180/violencia-criminal-contra-ediles-en-mexico/.

[47] Trejo, Guillermo, and Sandra Ley. "High-Profile Criminal Violence: Why Drug Cartels Murder Government Officials and Party Candidates in Mexico." *British Journal of Political Science* 51, no. 1 (September 5, 2019): 203–29.
https://doi.org/10.1017/S0007123418000637, 204

[48] Trejo and Ley (2019), 204

[49] Trejo, Gullermo and Sandra Ley. "Municipios bajo fuego (1995-2014)." Nexos, February 1, 2015.
https://www.nexos.com.mx/?p=24024

"highest grossing and highest tax resources" and instead looks at individual products as determinants of cartel violence. My theory also considers poor municipalities that may not be the highest grossing, but still contain miles of gas pipelines or other resources which are not reflected in terms of gross profit or tax resources. Since they do not have the necessary strength to attack the federal government directly, to control resources wealth; the municipal level provides the most "optimal playground" for cartels of all sizes attempting to diversify their profit streams. Once a resource rich municipality is captured, either through fear or cooptation of the local government, a cartel can act freely and do as they please. Using information gained from the municipal government, cartels can easily steal avocados for illegal sale, extort avocado farmers for protection payments, tap oil pipelines, steal oil tankers, operate illegal mining outfits, steal from mines, exploit mining companies for bribes, etc.… without fear of the municipal government appealing to higher authorities or attempting to stop them using local police forces.

Alternative Theory

I would be remiss if I did not take some time to explore the alternative theories that exist to explain cartel violence and municipal assassinations in Mexico. There are two dominant micro foundational theories that exist to explain the increase in drug violence in Mexico. One theory posits that the increase in cartel violence is due to destabilization of Cartels through the arrest and killings of cartel leadership.[50] The increase in decapitation methods destroys cartel hierarchies that normally would enforce rules and regulations around the use of force against the state. This act of decapitation then creates a power vacuum causing leadership struggles to

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[50] Calderón, Gabriela, Gustavo Robles, Alberto Díaz-Cayeros, and Beatriz Magaloni. "The Beheading of Criminal Organizations and the Dynamics of Violence in Mexico:" *Journal of Conflict Resolution*, June 1, 2015. https://doi.org/10.1177/0022002715587053.

occur within cartels as formerly lower status members vie for control. Other cartels noticing weakness may also launch violent struggles against recently decapitated cartels to press their advantage and capitalize on the chaos.

The other thread of logic is that the fall of the Partido Revolucionario Institucional (PRI) one-party rule, which lasted from 1946-1988, caused disunity between political parties at different levels of government and security forces which led to an increased amount of violence by cartels, a decreased effectiveness of government to negotiate with cartels, and chaos in the relationship between cartels and the state.[51] These arguments hypothesize that during the PRI era cartels could more easily negotiate with one political party leading to at least tacit cooperation, and therefore a more peaceful environment. However, once the political environment began to pluralize these tacit agreements disintegrated and the increase in political actors meant that new agreements were extremely difficult to forge and tacit cooperation was replaced by violence.

These political pluralization and leadership decapitation theories are set directly against the problem of political assassinations in Mexico. In her article Blume argues that the driving force of local political assassination in Mexico is the interaction of two processes, political pluralization and criminal fragmentation, and that the killing of these local politicians is likely to keep candidates who would stand up to cartels from holding office. She suggests this creates an" … iron triangle of corruption and criminal impunity that has devastating consequences for

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[51] Rios, Viridiana. "How Government Coordination Controlled Organized Crime: The Case of Mexico's Cocaine Markets." *Journal of Conflict Resolution* 59, no. 8 (December 2015): 1433–54. https://doi.org/10.1177/0022002715587052.

Duran-Martinez, Angelica. "To Kill and Tell? State Power, Criminal Competition, and Drug Violence." *Journal of Conflict Resolution* 59, no. 8 (December 2015): 1377–1402. https://doi.org/10.1177/0022002715587047.

democratic governance and citizen security." [52] It is with Blume's theory that I am in the most direct contention.

I do not fully reject Blume's argument. I do agree that the breakdown of the PRI dictatorship did cause damage to the status-quo of Cartel-State interaction, but there are a few points of Blume's article however, that I do question. Criminal fragmentation is one of the main driving factors the Blume posits as pushing organized violence. If that were true one would expect to see many mayoral assassinations occurring to be tied to gang rivalry. However, in an open source analysis titled, "Mayoral Homicide in Mexico: A Situational Analysis on the Victims, Perpetrators, and Locations of Attacks" finds only four cases (2%) where the assassination was due to "allied rival group targeting" and four cases (2%) that could be directly contributed to "a traitor target".[53] While this is not a complete refutation of Blume's argument, as there are 23 cases where criminal organization motive is unknown and 54 cases where neither the perpetrator or the motive is concretely known, one would assume if criminal fragmentation were a driving motive, cartels would benefit from making that known, in order to discourage traitors and warn potential allies of rival cartels.[54]

Another issue is that while Blume finds evidence between the state and municipal level that pluralism is a driving force of assassinations, the same interaction may not be occurring when there is a disconnect between federal and state political parties. In fact, at times there have been claims of the opposite.[55] Blume heads off this counter writing that the choice of the municipal to

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[52] Blume (2017), 68

[53] Esparza, David Pérez. "Mayoral Homicide in Mexico." *Mexico Center Rice University's Baker Institute for Public Policy*, June 2018, 50.

[54] Esparaza (2018), 18

[55] Campos, Juan C. "State Incoordination and Political Assassinations in Mexico:" *Justice in Mexico Project* 15, no. 2 (October 2018) n.d., 37.

state level was necessary, "Given that the majority of the violence is concentrated at the lower levels of government", but I still question whether or not this makes sense seeing as enforcement policy usually exists at the state and national level.[56]

My third issue with Blume is her willingness to disregard the value of municipalities to cartels in terms of profit. In her article, she uses the size of the drug market as a control to test against assassinations. She operationalizes this by tying it to "…arrests for possession of narcotics…" and finds that there is no significant correlation.[57] My issue with this is twofold. The first is that just measuring arrests for possession does not necessarily reflect the size, and therefore profit, being gained domestically by cartels through drug sales. This is because environments which are under strict cartel control likely would not see as many arrests for domestic drug use. The second is that a better control would have been to attempt to estimate the value certain municipalities bring to cartels. Value to cartels is not necessarily just in the domestic drug market, but also in the ability to run protection rackets, siphon out money from public funds, and, most importantly for my thesis take advantage of natural resource wealth. Estimating one or more of these, rather than just potential for drug sales, would have given a much better view on whether the profitability of a certain municipality effected the likelihood of assassination.

By analyzing profit motives in direct competition with the alternative explanations above, I hope to be able to show that the connection exists between domestic profitability based and assassinations, rather than just being correlated with disunity and fragmentation. While I do not

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[56] Blume (2017), 68
[57] Blume (2017, 69

deny that the rupture of one-party rule in Mexico and cartel fragmentation started by the Cartel Wars in 2006 has shifted the criminal landscape, I believe that the main driver of political violence against mayors is more directly tied to the existence of lootable natural resource wealth, which has increased cartels' desire to completely control large swaths of territory and the potential profits contained within.

The exploration and verification of the following three hypotheses would go a long way in building support for my theory that there is a connection between natural resource wealth and mayoral assassinations in Mexico, as opposed to the limited factors put forward by Blume. The three hypotheses are as follows:

- *Hypothesis 1: Value derived from avocado sales will have a significant positive non-zero effect on the number of mayoral assassinations.*

- *Hypothesis 2: The number of pipeline taps detected will have a significant positive non-zero effect on the number of mayoral assassinations.*

- *Hypothesis 3: Value of lootable resources will have a significant positive non-zero effect on the number of mayoral assassinations.*

These three commodities were chosen due to their prevalence in reports of cartel operations surrounding resource theft in the media. I have already linked to multiple reports and articles referencing acts of cartel theft and exploitation around these resources. These resources are also spread throughout the country, or at the very least large regions of the country and therefore offer a better picture than more niche natural resources. For all three of these hypotheses evidence for my theory would require that an increase in these variables be associated with an increase in the number of mayoral assassinations. Evidence supporting any

of these hypotheses, especially when placed in direct competition with alternative explanations, will go a long way in verifying the link between natural resource wealth profit motivations and mayoral assassination in Mexico.

Empirics

Research Design

To model mayoral assassinations, I will be following the methodological lead set by the previously mentioned study of assassinations in Mexico.[58] In doing, so I will be using a zero-inflated negative binomial regression model, which will help account for the large amount of observations where an assassination did not occur. The variable "total cartels" is inflated in this analysis due to the assumption that if zero cartels are present in a state, then the likelihood of a mayoral assassination by a cartel group is zero. I also followed Blume's lead and simultaneously ran a zero-inflated Poisson regression, a regular Poisson regression, and a regular negative binomial regression. The full results from all four methods can be found in the appendix of this document. I include these various regressions as a test of robustness, and in the hopes that consistent levels of significance across multiple models will provide a level of veracity to my findings that would not be assumed otherwise. After running the multiple different types of regressions, the level of significance was consistent across all the models, signifying robust findings.

The dataset that was compiled pulls from a variety of sources and uses a variety of processes to operationalize variables of interest. Specific methods and logics behind variable

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[58] Blume (2017)

choice and operationalization will be discussed in detail further down in this section.   However, there are three general characteristics of my dataset that need to be highlighted for the reader.

First, the timeframe chosen for this study is from 2006-2019. This timeframe lines up with the unofficial start of the Cartel Wars and the rise in mayoral assassinations. This timeframe was also chosen due to the availability of data, and the fact that the effects of the Covid 19 pandemic may skew the data and misrepresent the general trends and patterns that occur outside of a global pandemic.

Second, this dataset also uses a state-year pairing as opposed to a municipality-year pairing. This was done for several reasons. The first reason is that this follows Blume's data organization and, given that I hope to challenge her results, I thought it would be pertinent to follow her organization scheme. The second reason is a lack of resources. Since this study is constrained by both time and monetary effects, filling out a data sheet of over 25,000 unique municipality-year pairings across 11 unique variables would be an impossible undertaking. Though, this would be a fruitful undertaking for a longer study. The third and final reason is that there is limited availability of data at the municipal level, while the state level offers more avenues through which our variables of interest, surrounding resource wealth, could be operationalized.

Finally, I decided to exclude Mexico City from my analysis. Mexico City operates in a constitutional grey area. Constitutionally, it was declared a federal entity and, as recently as 2016 its status has been updated to give it a level of autonomy comparable to that of a state, but it is

forbidden from being considered an official state by the constitution.[59] The fact that Mexico City

operates in this grey area means that it does not have the same systems of local governance that

are being studied in this paper. On top of this, cartel presence in Mexico City is a highly debated

subject with some believing that certain cartels operate and have a level of control within the

city limits, while others contend that Mexico City is free of serious cartel presence.[60] Due to both

factors it makes more sense to exclude the city of Mexico from this analysis.

<div align="center">*Operationalizing the Variables*</div>

The dependent variable of mayoral assassinations was operationalized through looking at

data provided by the Justice in Mexico Project. I then organized the data by state-year pairing

and introduced it into my own dataset. I chose to focus only on successful assassinations rather

than including attempts and death threats. The thought process here is that if political control

of a municipality is crucial to a cartel's success then they will have to continue to attempt

assassination until they are successful, as was the case with Dr. Maria Santo Gorrostieta, an anti-

cartel activist and former mayor of a rural municipality in Michoacán, who faced 3 separate

assassination attempts until before her eventual murder in 2019.[61] I also believe that the

inclusion of death threats is unnecessary because it does not fully reflect cartel power. Anyone

from a small gang to powerful cartel can make a death threat, but only certain powerful actors

have the organizational capacity to follow through.   Finally, by focusing on successful

[59] De La Rosa, Leticia Robles. "Ponen Fin Al Df Tras 191 Años; Senado Aprueba Reforma Política," December 17, 2015. https://www.excelsior.com.mx/comunidad/2015/12/16/1063594#imagen-1.

[60] Nieto, Sandra Rodríguez. "Los Cárteles Operan En La CdMx y Aún Si Mancera Los Niega, No Van a Desaparecer, Dicen Académicos." SinEmbargo MX. Sinembargo, May 29, 2017. https://www.sinembargo.mx/28-05-2017/3226757.
Ford, Alessandro. "Mexico City Braces for Impact from Jalisco Cartel Advance." InSight Crime, February 25, 2021. https://insightcrime.org/news/analysis/mexico-city-jalisco-cartel-impact/.

[61] Wilkinson, Tracy. "Former Mexico Mayor Survives 2 Assassination Attempts but Not Third." Los Angeles Times. Los Angeles Times, November 20, 2012. https://www.latimes.com/world/la-xpm-2012-nov-20-la-fg-former-mexico-mayor-assassinated-20121120-story.html.

assassinations there is a level of certainty in the dependent variable that might not be assumed if it were expanded. By this I mean that death threats and even assassination attempts are more likely not to be accurately reported on or to be ignored by the media and subsequently be unintentionally left out of my dataset. Successful assassinations on the other hand, are much more likely to be reported and to be reported accurately.

The independent variables of interest include both my own unique variables of interest, other rival explanations, and controls. In terms of my own unique variables value of avocado production (100,000s of pesos), value of lootable resources (100,000s of pesos), and the number of illegal taps detected in gas pipelines. Information on avocado profits was pulled from the Secretary of Agriculture and Rural Development reports.[62] Information on mining output value was pulled from reports released through the Secretary of the Economy's website in conjunction with the Mexican geology service.[63] I chose to focus only on those metals and minerals which had been explicitly referenced in news articles as being targeted by cartels. This included profits gained from iron, coal, silver, and gold. This distinction was made because other mined resources such as sulfur are not only less profitable, but also less lootable. Finally, data on gas pipeline taps was pulled from reports published by the Institute for Municipal Management, Administration and Linkage, a civil society organization.[64] This information could only be found for the 2012-

[62] "Sitio De Servicio De Información Agroalimentaria y Pesquera." Gobierno De Mexico. Accessed April 11, 2021. https://www.gob.mx/siap. Yearly open data agriculture reports from 2006-2019.

[63] La Secretaria De Economia. Rep. *Anuario Estadistico De La Mineria Mexicana: Ampliada 2010*. 40th ed. Mexico City, Mexico: Servicio Geologico Mexicano, 2011. https://www.gob.mx/cms/uploads/attachment/file/31741/anuario_2010.pdf.

La Secretaria De Economia. Rep. *Anuario Estadistico De La Mineria Mexicana, 2015*. 45th ed. Mexico City, Mexico: Servicio Geologico Mexicano, 2016. http://sgm.gob.mx/productos/pdf/Anuario_2015_Edicion_2016.pdf.

La Secretaria De Economia. Rep. *Anuario Estadistico De La Mineria Mexicana, 2019*. 49th ed. Mexico City, Mexico: Servicio Geologico Mexicano, 2020. http://www.sgm.gob.mx/productos/pdf/Anuario_2019_Edicion_2020.pdf.

[64] Rep. *El Robo De Hidrocarburo En Ductos: Un Delito Enemigo Del Medio Ambiente*. IGAVIM: Observatorio Ciudadano, November 2020. http://igavim.org/Documentos%20Generados/Reportes/2020%20RoboHidrocarburo.pdf.

2019 period and will be reflected in model 3 of the results section. These three variables were all referenced in previously cited literature as being sought after and frequently plundered by cartels through direct theft and extortion efforts. They are also common to multiple states throughout Mexico, unlike more niche resources, which may exist only in one or two states.

Outside of my three variables of interest, I include three significant variables found in Blume 2017. Political pluralization is defined as, "…share of votes for opposition parties in the most recent municipal elections…" [65] I define it in the same way using Blume's data to cover 2006-2015 and then extend the results to cover the 2016-2019 period. The results are then lagged by a year to stay consistent with Blume's operationalization and rationale. I also include Blume's other two variables, the number of cartels active in an area and the arrest, extradition, or killing of a prominent cartel leader (kingpin). Again for the years 2006-2015 I was able to use Blume's data and for the period of 2016- 2019 I performed a series advanced searches combing both InSight Crime Reporting, Animal Politico, the Mexican Daily News, and finally Google's advanced search option to search for references to cartels in certain states and the arrest, extradition, or killing of a prominent cartel leaders and the state or regions they were associated with. These searches were conducted in both English and Spanish. To assuage fears I run the analysis using only Blume's original data in model 1, from 2006 to 2015, before running it using my additions to cover the whole period from 2006 to 2019 in model 2.

Controls include the number of municipalities, the violent homicide rate, estimated population, and the Human Development Index (HDI). The more municipalities there are in a state the more mayors there are, which increases the chance of assassination. Likewise, the

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[65] Blume (2017), 68

higher the rate of violent homicide the higher the likelihood of assassination as well. Data for both these indicators was obtained from the National Institute of Statistics and Geography (INEGI).[66] HDI is included as a control to account for the relative quality of life of the citizens of a state each year. HDI creates a score using estimators of per capita income, education, and life expectancy. Information on HDI at the state level was obtained from the Global Data Lab.[67] I also introduce a dummy variable which indicates whether the state contained municipalities which were identified as being part of one of the two red triangles. These are areas in Puebla state and Guanajuato state with high levels of gas theft and high levels of cartel violence. I wanted to ensure that mayoral assassinations were not just being driven by these two intense conflict regions but were being driven by natural resource wealth in general throughout Mexico. I also added a dummy variable which helps determine whether the increase in assassination was caused by the gas price shock when the Mexican government stopped subsidizing the price of gas, causing widespread protests and an increase in fuel theft as well as profit in the fuel black market.[68] I include this variable to test whether earlier instances of gas theft from 2012-2017 were still significant or whether it is simply the effects of the gas shock that contribute to any possible significance. Finally, I controlled for year fixed effects. Since acts of political violence tend to increase around times of increased political salience, like the wave of violence before the

[66] Instituto Nacional de Estadistica y Geografia (INEGI). (1983). *Banco de indicators* [database]. Retrieved from https://www.inegi.org.mx/app/indicadores/?ind=6200108948&tm=8#divFV6200108948620018948#D6200108948ndicadores (inegi.org.mx)

[67] *Subnational Human Development Index (4.0)*. Global Data Lab. Accessed April 11, 2021. https://globaldatalab.org/shdi/shdi/MEX/?levels=4&interpolation=0&extrapolation=0&nearest_real=0&years=2018%2B2017%2B2016%2B2015%2B2014%2B2013%2B2012%2B2011%2B2010%2B2009%2B2008%2B2007%2B2006%2B2005.

[68] Cattan, Nacha, and Eric Martin. Bloomberg.com. Bloomberg, January 12, 2017. https://www.bloomberg.com/news/articles/2017-01-12/drug-cartels-are-looting-mexico-s-gas-stations.
"In Mexico, Gas Prices Spark Revolts." U.S. News & World Report. U.S. News & World Report, January 18, 2017. https://www.usnews.com/news/best-countries/articles/2017-01-18/in-mexico-gas-prices-spark-revolts.

2018 Presidential and general elections in Mexico, it was important to control for year fixed effects in order to ensure that certain high violence years were not impacting my results.[69]

There will be three separate models represented in the results section. Model 1 will be 2006-2015 and is included to run my analysis along with alternative explanation variables, without extending Blume's original data. Model 2 will be the entire span from 2006-2019 and will include my extension of alternative explanation variables. Finally, model 3 will focus solely on the 2012 to 2019 period due to the availability of oil pipeline tampering data. Hypothesis 1 and 3 will be tested though model 1, 2, and 3. While Hypothesis 2 will only be tested through model 3 due to limitations of data availability.

Now that the methodological approach has been explained the next section will focus on the results of the analysis followed by a discussion of what factors are driving those results.
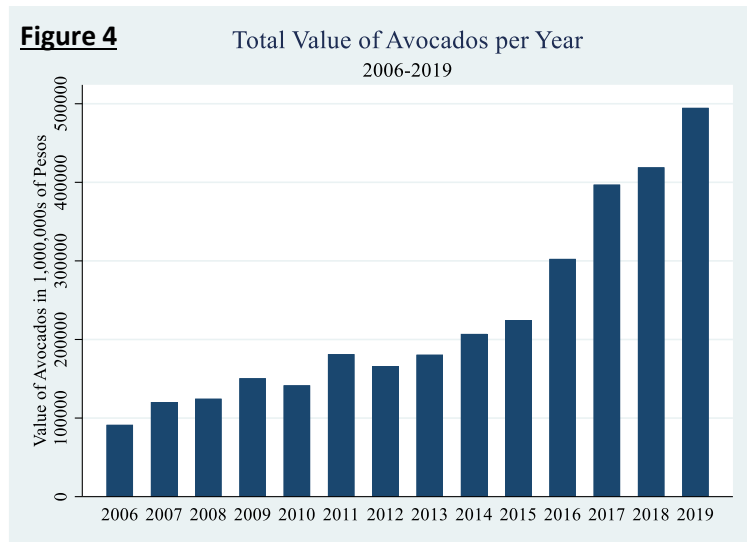
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[69] Kahn, Carrie. "Mexico Faces Unprecedented Wave of Political Violence Ahead of Elections." NPR. NPR, June 26, 2018. https://www.npr.org/2018/06/26/623646494/mexico-faces-unprecedented-wave-of-political-violence-ahead-of-elections.

Results

Table 1	Model 1 (2006-2015)		Model 2 (2006-2019)		Model 3 (2012-2019)	
Dependent: Mayoral Assassinations	ZINB	ZIP	ZINB	ZIP	ZINB	ZIP
Avocado Production Value (100,000s of pesos)	5.97e-06** (2.28e-06)	5.97e-06** (2.28e-06)	3.25e-06*** (8.24e-07)	3.10e-06*** (7.65e-07)	3.09e-06*** (9.66e-07)	3.09e-06*** (9.66e-07)
Designated Red Triangle Area	-.2455662 (.4891325)	-.2456343 (.4891163)	.3440403 (.293146)	.3776276 (.3067098)	.1315405 (.2806082)	.131554 (.2806048)
Number of Illegal Pipeline Taps Detected					.0004163** (.00014)	.0004163** (.00014)
Total Value of Mined Lootable Resources (100,000s of pesos)	-6.30e-08 (1.52e-06)	-6.27e-08 (1.51e-06)	-3.34e-07 (8.46e-07)	-3.18e-07 (8.39e-07)	6.49e-07 (8.54e-07)	6.49e-07 (8.55e-07)
Gas Shock			1.644253* (.6910199)	1.711019* (.6824836)	.5952097 (.3603463)	.595184 (.360356)
Total Cartels	.1448734 (.1154925)	.1448625 (.1154827)	.1492155 (.0783382)	.1459798 (.0777265)	.0086074 (.0920103)	.0085645 (.0920157)
Kingpin	.6966045** (.2701093)	.696574** (.2700891)	.1536357 (.2005211)	.122137 (.199723)	-.0923125 (.1881991)	-.0923967 (.1882025)
Lagged Political Pluralization	1.832714 (1.068889)	1.832597 (1.068829)	1.172203 (.9245133)	1.1806 (.9493756)	.6671332 (.9917837)	.6671474 (.9918213)
Human Development Index	-.0922438 (3.486824)	-.0925564 (3.486603)	-8.823877** (3.138733)	-9.3168*** (3.331301)	-16.481*** (3.742241)	-16.4833*** (3.742202)
Homicides/100,000 people	.0164507*** (.0026366)	.0164502*** (.0026366)	.0173533*** (.002475)	.0170105*** (.0022406)	.0158983** (.0048266)	.0158989*** (.0048268)
Population Estimates	6.69e-08** (2.36e-08)	6.69e-08** (2.36e-08)	1.03e-07*** (1.78e-08)	1.01e-07*** (1.66e-08)	9.74e-08*** (2.08e-08)	9.75e-08*** (2.08e-08)
Number of Municipalities	.0050997*** (.0007188)	.0050995*** (.0007187)	.0032946*** (.0005619)	.0031435*** (.000582)	.0025737*** (.0005316)	.0025733*** (.0005316)
Inflated Total Cartels	-.4656461 (.4398065)	-.4098053 (.4427519)	-1.014295* (.4326191)	-.3714208 (.873021)	-1.631413** (.5462995)	-.8482871* (.4216407)
# of observations (N)	310	310	434	434	248	248
Wald chi^2	260.92 ***	273.76***	302.97 ***	304.31 ***	277.79 ***	277.79 ***

Standard errors in parenthesis, p-value *=.05 **=.01 ***=.001

This section will focus on analyzing the results of my three hypotheses and whether they were confirmed by the analysis. Looking at the results across all three models the estimated value brought in through avocado farming is positively and significantly

Figure 4 — Total Value of Avocados per Year 2006-2019

correlated with the number of mayoral assassinations, thus affirming hypothesis 1. With an Incidence Rate Ratio (IRR) of 1.000003 it can be determined that for every one unit, 100,000-peso (~$5,000), increase in estimated value from avocado farming there is an expected increase in the mayoral assassinations rate of .000003 all else being equal.
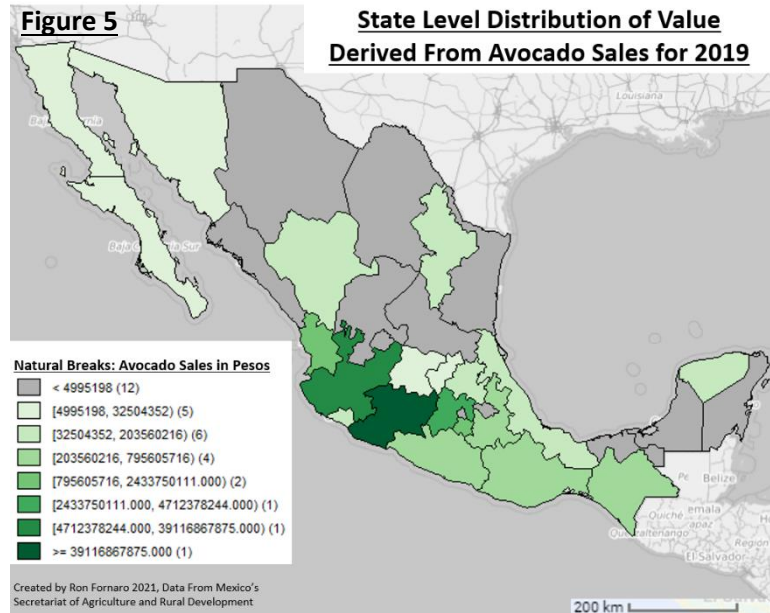
This result fits well with work done by Trejo and Ley which linked municipal political assassinations to municipalities high in taxable industries of which export agriculture was one example.[70] Control of municipalities and areas where profits can be made off this cash crop also helps shed some light on why it has been reported that cartels have engaged and intimidated U.S inspectors and that farmers have made pushes to arm themselves in the face of extortion and theft.[71] Though an increase of .000003 per $5,000 increase in value may seem small, it should be noted that in 2019 avocados brought in an estimated 2.79 billion dollars U.S., and a look at

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[70] Trejo and Ley (2015)

[71] Stevenson, Mark. "They're Not Avocados, They're 'Green Gold,' and Hyperviolent Drug Cartels Have Sights Set on Them." USA Today. Gannett Satellite Information Network, October 24, 2019. https://www.usatoday.com/story/money/2019/10/23/avocado-industry-viagras-cartel-taking-notice-money-stream/4071161002/.

figure 4 will show that the amount of money being brought in as a direct result of avocado sales has been steadily rising due to skyrocketing U.S. demand.[72] The figure 5 map also shows that
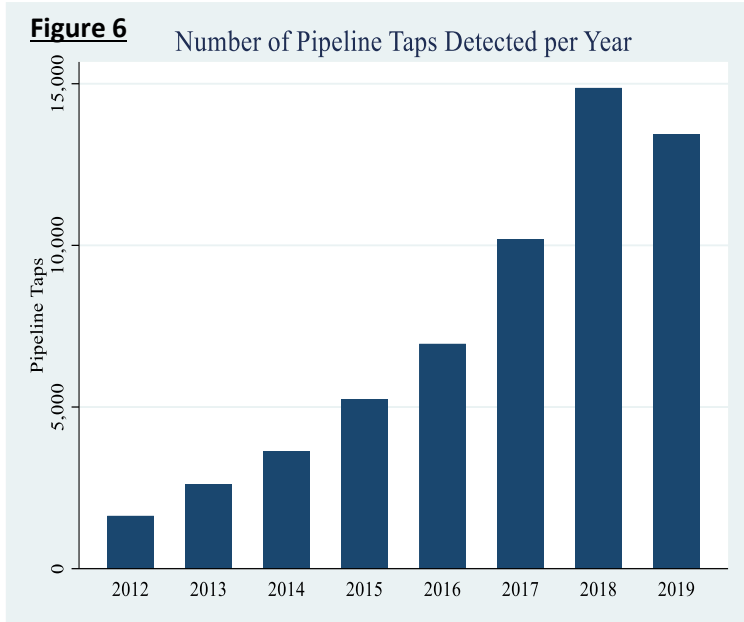
avocados are growth is concentrated in the South of the country and even more so in states on the pacific coast. Comparing figure 5 then to figure 1 we can see that regions high in avocado growth also appears to be high in mayoral assassinations, and this visual similarity is then confirmed by the regression.

Figure 5 — State Level Distribution of Value Derived From Avocado Sales for 2019

Natural Breaks: Avocado Sales in Pesos
- < 4995198 (12)
- [4995198, 32504352) (5)
- [32504352, 203560216) (6)
- [203560216, 795605716) (4)
- [795605716, 2433750111.000) (2)
- [2433750111.000, 4712378244.000) (1)
- [4712378244.000, 39116867875.000) (1)
- >= 39116867875.000 (1)

Created by Ron Fornaro 2021, Data From Mexico's Secretariat of Agriculture and Rural Development

200 km

These results are not meant to claim that mayors are being killed directly due to avocado profits, but rather that areas which grow avocados are prime sources of profit for cartels and in order to seek greater autonomy and a level of control violent criminal actors will be more likely to engage in political violence to achieve their ends than they would be if that source of illicit revenue were not present. Due to the fact that we lack a direct quantitative measure for the amount of money gained by cartels through the illicit avocado market, looking at the overall value, knowing full well cartels can still only access a small percentage of it, was the best way to test this hypothesis in a meaningful way.

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[72] Chase, Spencer. "New Report Shows Tripling of Avocado Consumption." AgriPulse. AgriPulse Communications Inc RSS, March 25, 2020. https://www.agri-pulse.com/articles/13358-new-report-shows-tripling-of-avocado-consumption.

Since data was only available from 2012-2019, testing whether the number of illegal taps found on gas pipelines was accomplished using model 3. Analysis found that the number of illegal taps detected have a significant effect on the rate of mayoral assassinations and hypothesis 2 could be confirmed. Similar results by chance were likely only 1% of the time, which indicates quite a high level of significance. With an IRR of 1.000416, we would expect to see that for everyone additional illegal tap detected the number of mayoral assassinations in a region would be a .000416 increase in the rate of mayoral assassinations. While on the surface this seems like it has very little effect on rates of mayoral assassinations due to a small IRR, one need only look at figure 6 to see the increasing rate at which these illegal taps have been appearing in Mexico.
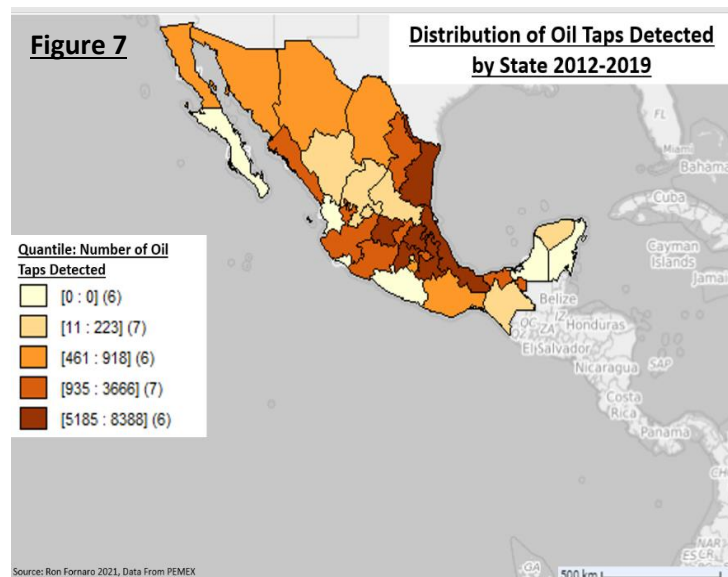
Figure 6

Number of Pipeline Taps Detected per Year

Fuel theft is on the rise in Mexico and, though both the government and PEMEX have taken steps to combat it, reporting from 2020 indicates that fuel theft is very much alive and well in Mexico. It is at the center of both inter-cartel and cartel-state violence, as is evidenced by the spiking violence and clashes between state security forces, The Jalisco Cartel, and The Santa Rosa Cartel in Guanajuato State as all three parties vie for control of the pipeline rich state.[73]

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[73] Dittmar, Victoria. "Mexico Facing Predictable Bloody Fallout After El Marro's Arrest." InSight Crime, November 12, 2020. https://insightcrime.org/news/analysis/mexico-facing-predictable-bloody-fallout-after-el-marros-arrest/.

Notably, the dummy variable that signified whether a state contained municipalities which were classified as being in one of the two red triangles did not turn up as a significant contributor to mayoral assassinations.

Figure 7

Distribution of Oil Taps Detected by State 2012-2019

Quantile: Number of Oil Taps Detected
[0 : 0] (6)
[11 : 223] (7)
[461 : 918] (6)
[935 : 3666] (7)
[5185 : 8388] (6)

Source: Ron Fornaro 2021, Data From PEMEX

These two areas, located in Puebla state and Guanajuato state, are the sight of fierce cartel competition and fighting over both territorial control and control of the gas theft. The lack of any predictive significance of these two areas could imply that the assassination of mayoral politicians is not simply connected with ongoing conflict between cartels in these two specific areas, but rather is endemic of the criminal activity surrounding gas theft itself, no matter what the regional or state context is. It is also worth noting that figure 7 shows the spread of illegal pipelines taps throughout Mexico is not isolated to one or two states, but large swathes of the country central region and gulf coast. Again, hot spots of gas theft on the map seem to visually correlate with regions high in mayoral assassinations in figure 1 and this is confirmed by the regression.

The fact that the gas shock dummy is significant in model 2 and then loses significance once more refined data on gas theft is included in model 3 implies that mayoral assassinations are affected by the actual magnitude of the act of resource theft and not just attitudes and market changes surrounding natural resources.

Regardless, further study that considers alternative methods of gas theft, like convoy hijacking and corruption at gas refineries, would help to produce an even clearer result on the

connection between mayoral assassinations and gas theft. Another method would be some form

of spatial regression which could search for a connection between mayoral assassinations based

off the proximity to pipelines throughout Mexico. For now though, this research has taken the

first step in showing that there exists some form of connection between fuel theft and mayoral

assassinations.

The third hypothesis which posited a connection between the estimated value of lootable

mined goods in a state and the rate of mayoral assassinations could not be confirmed. This lack

of significance could be due to any number of reasons that range from my own methodological

to actual cartel practices. In terms of operationalization, the inclusion of all four types of lootable

resources as one variable could have hidden significant results pertaining to individual resources,

such as gold. Other possible explanations include the possibility that since a large amount of

mining is done by foreign companies, such as Canada, The United States, and Germany, there is

less push back by mayoral officials when it comes to cartels preying on these companies and

therefore less necessary interaction between cartels looking to exploit mining operations and

mayoral officials.[74]   A third explanation is the fact that mining operations are completely

controlled by the federal government and therefore interactions between the mining companies

and municipal governance structures are somewhat limited. None of these explanations can be

proven withing the confines of this paper, but rather they are possible reasons why increased

value from the mining of lootable goods did not have a significant effect on mayoral

assassinations. Seeing as the other two variables of interest were significant contributors to

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[74] "Mexico - Mining and Minerals." International Trade Administration, August 19, 2020. https://www.trade.gov/knowledge-product/mexico-m-mining-and-minerals.

mayoral assassinations, the lack of significance of this indicator does not sink my theory, but does offer a moment to pause and reassess the causal links and operationalization of this variable for future studies.

Other notable observations about the results of this analysis are that mayoral assassinations had a significant and positive correlation with the number of municipalities in a state, the state homicide rate per 100,000 people, and the estimated state population. The significance of these variable makes sense when one considers the fact that in a state with more municipalities, there are more potential targets, and if the state is more prone to violent homicide, it would also make sense that there was a larger chance that a mayoral official would fall victim to violent homicide.

Another interesting finding is the fact that the HDI variable is not significant in model 1 but achieves significance in the following two models. While more research would need to be done to prove this, one possible explanation is that as cartels have fragmented in the later years of the Cartel Wars, their ability to commit violence in regions with high HDI scores has decreased and they have had to prey on areas with lower socio-economic characteristics in order to exert power. A quantitative break down that calculates the HDI at the municipality level and not the state level would provide even further insight, but for now, according to model 2 and 3, it seems as though states with higher HDIs find themselves at a lower risk for mayoral assassination.

Overall, the results of this analysis are a good first step in understanding and exploring a possible connection between mayoral assassinations and natural resource wealth exploitation by cartels in Mexico. Like all analysis, it can and should be improved and rigorously tested. Doing an extended study looking at municipality year pairings for the entire period from 2006-2019

would be a large undertaking that is outside the scope and constraints of this exercise, but that exercise would go a long way in confirming the links found in this paper.

Alternatives' Results

As mentioned previously the main alternative explanations that I am in contention with are political pluralization, number of cartels, and cartel decapitation. To challenge these variables, they were included in the analysis and special care was taken to ensure that my own methodological choices were not affecting their potential significance, or lack thereof. This section will look at evidence from the statistical models which show that these three alternate explanations are in fact not significant contributors when it comes to the occurrence of mayoral assassinations in Mexico.

First, we must look at model 1, which covers the period 2006-2015 and includes the original data used to operationalize political pluralization and cartel fragmentation proved by Blume 2017. Looking at these variables in comparison to mayoral assassinations, we see that the total number of cartels present in a region and the lagged political pluralization are not significant, and their lack of significance continues throughout the following 2 models. This lack of significance, even in the model which limits itself to Blume's original timeframe and data, is a strong piece of supporting evidence for my theory.

Next, we see that the kingpin variable, which signifies whether a cartel boss has been taken out of commission each year, ceases to be significant outside of model 1. I do not see this variable's significance in model 1 as a major issue and would point to trends noted by the United States Congressional Research Service regarding the difficulties in determining cartel organizational structures throughout the country. This difficulty is due to the increased

fragmentation and growth in the number of criminal actor groups and cells operating in Mexico.[75]

This, along with the fact that reporting by InSight Crime has revealed that high level Mexican security officials have made statements to the effect that only two "real" cartels (Sinaloa cartel and Jalisco cartel) currently operate in Mexico, while the rest had been diminished to "…hundreds of independent criminal cells throughout the country.", seems to show evidence of a shifting criminal landscape that is more resilient against leadership decapitation due to its cell like structure and the increasing rarity of large-scale national organization.[76] Therefore, the take down of prominent kingpins would cause less overall disruption of criminal activity in this new environment, as opposed to earlier years when cartels were more hierarchical in nature and a beheading severely shifted the criminal landscape.

Overall findings in model 1 and the subsequent models do not serve as a complete refutation of the theory that criminal fragmentation and political pluralization are driving factors of political assassinations, particularly because of the significance of the kingpin variable in model 1 and the fact that in model 2 the p-value to determine significance of total cartels active is trending towards significance (.057). Rather, the results could reflect the fact that I have chosen to focus solely on mayoral assassinations, instead of political assassinations in a more general sense. Despite their seeming insignificance in terms of mayoral assassination, variables regarding criminal fragmentation, total cartels active in an area, and lagged pluralization serve as good alternatives and controls through which I could provide some evidence for my theory. It is also worthwhile to point out that criminal fragmentation, mainly due to decapitation, is largely

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[75] Rep. *Mexico: Organized Crime and Drug Trafficking Organizations Version 34*. Congressional Research Service, July 3, 2018. https://crsreports.congress.gov/product/pdf/R/R41576/34, 24-27

[76] Lohmuller, Michael. "Only Two Drug Cartels Left in Mexico: Official." InSight Crime, June 10, 2015. https://insightcrime.org/news/brief/jalisco-sinaloa-last-cartels-mexico/.

responsible for shaping a criminal environment which has put increased emphasis on domestic sources of revenue. Therefore, to completely deny any importance or relationship between these alternatives and criminal political violence would be an overstatement. Rather, the results of model 1 and the results of my other models, discussed above, merely point to the fact that other variables concerning the potential for cartel profit might be at play when it comes to mayoral assassinations.

Discussion

The first point of discussion is to address the tension that one could argue exists between theories which focus on domestic political reasons for mayoral assassinations and theories which focus on economic motivations. The results above begin to paint an interesting picture and provide some evidence for the theory that aggressive policing has led to cartels having a vested interest in local sources of revenue. As cartels are increasingly targeted by the federal government, systems of stability and hierarchy within organizations become weaker which leads to a focus on municipal level control for the purposes of profit and security.[77]

However, I do not contend that politics or inter-cartel rivalries have nothing to do with vulnerability of mayoral politicians. The work of many scholars points to clear trends relating cartel-rivalries/fragmentation, political pluralization, and disunity between the levels of government as important factors which increase the vulnerability of municipal officials.[78] Rather, I contend that a mayoral politician of a town who belongs to an opposition party and is experiencing inter- or intra-cartel conflict, but whose municipality is not rich in lootable natural

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[77] Trejo, Guillermo, and Sandra Ley. *Inside Countries Subnational Research in Comparative Politics*. Edited by Richard Snyder, Eduardo Moncada, and Agustina Giraudy. Cambridge, United Kingdom: Cambridge University Press, 2019. Chapter 6 pg. 181-213

[78] Blume (2017), Trejo and Ley (2015), Trejo and Ley (2021)

resources, or sources of extortion, is in a relatively safer position than a mayoral politician suffering from the same political and criminal predicament, but also finding themselves in charge of an area with high amounts of lootable natural resource wealth and points of extortion. The political situation may lead to initial vulnerabilities, but the economic situation provides the drivers.

The second point of discussion that I want to bring to the table is the tendency to conclude that those politicians who are killed by cartels are all corrupt actors. This tendency is summed up best when Trejo and Ley write, "Given the discredit of the municipal authority, it would be easy to conclude that criminal groups murder authorities that protect rival groups. But to think that every dead mayor is a criminal, leads to the fallacy committed by the government of President Felipe Calderón, who criminalized young people killed by organized crime. The reality is more complex." [79] This tendency is not present in the vast majority of academic literature, which often takes a more nuanced approach to exploring the risk factors associated with municipal assassinations, but rather in the biases of people casually thinking about cartel violence and Mexico. The desire to write-off every victim of assassination as a criminal serves as a calming and reassuring heuristic to people not wanting to face the fact that there are non-corrupt people serving in local political offices in Mexico who are caught in the crosshairs of organized crime. The assassinations of Dr. Maria Santo Gorrostieta and Jose Remedio Aguirre Sanchez are two such cases of, by all accounts and reports, honest anti-cartel politicians being killed. The previous research mentioned above and my own point to political and economic factors that lead to assassination regardless of an individual's integrity. This is not to say that corrupt mayoral

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[79] Trejo and Ley (2015)

politicians are not also killed due to conflicts between rival cartels, but rather to say that painting all cases as such ignores risk factors that are inherent to the evolving landscape of the Cartel Wars in Mexico.

The final point that warrants discussion is a prediction of what the future may hold regarding political violence at the municipal level in Mexico. This discussion, however, cannot even begin without first looking to the recent past. The Los Zetas cartel was formed first as an enforcement branch of the Gulf Cartel before splitting off to form their own powerhouse; the organization was at first made up of former special operations units of the Mexican military gone rogue, but then grew to recruit local actors as well. They were different than the cartels that came before hand for a few reasons. The first is the way they structured their organization. InSight Crime reporting about the Zetas in Monterrey (a major city in North East Mexico) reveals that, "The Zetas are broken down by units. Each unit is responsible for a specific geographic area. In Monterrey, these geographic areas are related to municipalities".[80] The same reporting also noted another novel introduction to the criminal landscape reporting that the Zetas, "are less interested in controlling the distribution chains and more interested in controlling the territory in which the business is done. In these areas, they have established a monopoly on power and collect 'piso,' or rent, on local drug trafficking activity, piracy, contraband, prostitution and other criminal activity." [81]   However, even after being nearly completely dismantled and broken up by the Mexican government individual Zeta cells remain influential in different parts of Mexico, and while they might be limited in the number of criminal enterprises they can engage in, they still

[80] Dudley, Steven. "Part II - The Zetas and Monterrey Math." InSight Crime, December 16, 2012.
    https://insightcrime.org/investigations/zetas-monterrey-math/.
[81] Dudley (2012)

exist with cells focusing on niche criminal activities based around specific areas of territorial control.[82]

The methods and characteristics outlined above have been characterized as "New Rules" as they relate to the conduct of cartel operations. Organizations operating within this new framework has been correlated with a higher number of political assassinations.[83] While the Zetas might be losing ground, the practices of domination and resource extraction that they started are certainly not. Other newer cartels such as the la Familia Michoacán, the Knights Templar, Santa Rosa de Lima, and most importantly the Jalisco Cartel have all engaged in political assassinations and resource theft of one form or another. The Jalisco Cartel is often classified as one of the two remaining national cartels in Mexico. The Jalisco Cartel has claimed that it is against extorting local citizens.[84] However, reporting has shown that they are willing to engage in natural resource theft.[85] They have also proven willing to engage in political assassinations at both the municipal and upper levels of government.[86] Taken together then, the danger here is whether the Jalisco Cartel, practicing natural resource theft and extortion, would increase their use of political violence taking aim not only at the municipal level, but at higher levels of government as well given their power. However, that is outside of my current theory. What my theory does predict, however, is the fact that the Jalisco cartel will likely engage in mayoral assassinations in resource-rich environments. Aggressive government pressure might be able to

[82] Asmann, Parker. "Mexico's Zetas: From Criminal Powerhouse to Fragmented Remnants." InSight Crime, April 8, 2018. https://insightcrime.org/news/analysis/mexico-zetas-criminal-powerhouse-fragmented-remnants/.

[83] Blume (2017), 75-77

[84] "Presumed Cartel Leader Accuses Jalisco Governor of Organized Crime Links." Mexico News Daily, August 15, 2019. https://mexiconewsdaily.com/news/cartel-leader-accuse-governor-of-links-to-organized-crime/.

[85] Bhave, Sukanti. "Gas Theft - Mexico's Latest Criminal Conundrum." InSight Crime, October 30, 2019. https://insightcrime.org/news/brief/gas-theft-mexico-criminal-conundrum/.

[86] Staff. "U.S. Sanctions Mexican Cartel Suspects Linked to High-Profile Attacks." Reuters. Thomson Reuters, April 7, 2021. https://www.reuters.com/article/us-usa-mexico-sanctions-cartel-idUSKBN2BU39U.

fragment the cartel, but that would simply increase the importance of natural resource wealth and extortion, exacerbating the problem of mayoral assassinations in high value vulnerable regions.

Conclusion

In terms of policy, this research aims to inspire new creative policy that assesses and meets the threat where it is at today, and not where it was in 2006. While simply allowing cartels to exist is not a viable policy, it is also true that current drug decriminalization policy, on either side of the border, and aggressive kingpin policing have not ended cartels, but rather forced them to evolve and victimize vulnerable domestic populations who, before 2006, were often left alone. Creating police forces that focus on specific natural resources or on specific forms of domestic crime might be a good start, but I do not believe it will be enough. If the aim of Organized Crime groups throughout Mexico is moving towards territorial exploitation and control, then tactics used in counterinsurgency, or perhaps more aptly, tactics used by the Italian government to combat the Sicilian mafia throughout the 80's and early 90's might be more par for the course.

Regardless of the policy solution, there is still more work to be done in order to understand the evolving phenomenon of Mexico's criminal landscape. Additional research could take a closer look quantitatively at the municipal level or take a qualitative approach which seeks to understand the level of criminal governance that exists in high-value areas under cartel control. Going beyond quantitative analysis and doing in depth qualitative and field research, in order to understand how cartels operate within the natural resource economy and with the local governments that contain these resources in a concrete way, is the next step towards

understanding how to combat this phenomenon. It is also the best way for scholars and theorists

to begin to define organized crime groups in Mexico within the broader caste of non-state actors.

Insights gained from this research have created avenues for further study not only of

Mexican organized crime, but organized crime groups in other regions of the world which are

evolving from international traffickers to local power centers. At this point policy makers and

politicians alike must come to realize that a victory in the war on drugs, if that is even possible,

will not mean the disappearance of criminal actors, but rather an evolution in the ways in which

they make profit and the tactics that they use to ensure that their profits remain stable.

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Appendix

Alternative Statistical Models Robustness Tests

Model 1 (2006-2015)				
Dependent: Mayoral Assassinations	**ZINB**	**ZIP**	**Negative Binomial**	**Poisson**
Avocado Production Value (100,000s of pesos)	5.97e-06** (2.28e-06)	5.97e-06** (2.28e-06)	5.97e-06** (1.21e-06)	5.97e-06*** (1.20e-06)
Designated Red Triangle Area	-.2455662 (.4891325)	-.2456343 (.4891163)	-.2456393 (.3750592)	-.2456321 (.375052)
Number of Illegal Pipeline Taps Detected				
Gas Shock				
Total Value of Mined Lootable Resources (100,000s of pesos)	-6.30e-08 (1.52e-06)	-6.27e-08 (1.51e-06)	-6.29e-08 (1.44e-06)	-6.29e-08 (1.44e-06)
Total Cartels	.1448734 (.1154925)	.1448625 (.1154827)	.1448358 (.1275666)	.1448452 (.1275677)
Kingpin	.6966045** (.2701093)	.696574** (.2700891)	.6965889** (.2493037)	.6965722** (.2493086)
Lagged Political Pluralization	1.832714 (1.068889)	1.832597 (1.068829)	1.832645 (1.092228)	1.832603 (1.092269)
Human Development Index	-.0922438 (3.486824)	-.0925564 (3.486603)	-.0926231 (4.63435)	-.0928283 (4.63438)
Homicides/100,000 people	.0164507*** (.0026366)	.0164502*** (.0026366)	.0164513*** (.0026927)	.0164506*** (.0026922)
Population Estimates	6.69e-08** (2.36e-08)	6.69e-08** (2.36e-08)	6.69e-08** (2.63e-08)	6.69e-08** (2.63e-08)
Number of Municipalities	.0050997*** (.0007188)	.0050995*** (.0007187)	.0050997*** (.0010031)	.0050995*** (.001003)
# of observations (N)	310	310	310	310

Standard errors in parenthesis, p-value *=.05 **=.01 ***=.001

Model 2 (2006-2019)				
Dependent: Mayoral Assassinations	ZINB	ZIP	Negative Binomial	Poisson
Avocado Production Value (100,000s of pesos)	3.25e-06*** (8.24e-07)	3.10e-06*** (7.65e-07)	3.25e-06*** (5.09e-07)	3.10e-06*** (4.64e-07)
Designated Red Triangle Area	.3440403 (.293146)	.3776276 (.3067098)	.3440134 (.2095205)	.3776387 (.2302746)
Gas Shock	1.644253* (.6910199)	1.711019* (.6824836)	1.644278* (.71697)	1.711044* (.7266459)
Total Value of Mined Lootable Resources (100,000s of pesos)	-3.34e-07 (8.46e-07)	-3.18e-07 (8.39e-07)	-3.34e-07 (9.35e-07)	-3.18e-07 (9.51e-07)
Total Cartels	.1492155 (.0783382)	.1459798 (.0777265)	.1491891 (.0855942)	.1459796 (.0847848)
Kingpin	.1536357 (.2005211)	.122137 (.199723)	.1535545 (.1916542)	.1221618 (.2007117)
Lagged Political Pluralization	1.172203 (.9245133)	1.1806 (.9493756)	1.172154 (1.135312)	1.180524 (1.135361)
Human Development Index	-8.823877** (3.138733)	-9.3168*** (3.331301)	-8.823958** (3.126773)	-9.316578** (3.329763)
Homicides/100,000 people	.0173533*** (.002475)	.0170105*** (.0022406)	.0173513*** (.0018301)	.0170106*** (.0016208)
Population Estimates	1.03e-07*** (1.78e-08)	1.01e-07*** (1.66e-08)	1.03e-07*** (1.88e-08)	1.01e-07*** (1.75e-08)
Number of Municipalities	.0032946*** (.0005619)	.0031435*** (.000582)	.0032941*** (.000539)	.0031437*** (.0005161)
# of observations (N)	434	434	434	434

Standard errors in parenthesis, p-value *=.05 **=.01 ***=.001

Model 3 (2012-2019)				
Dependent: Mayoral Assassinations	ZINB	ZIP	Negative Binomial	Poisson
Avocado Production Value (100,000s of pesos)	3.09e-06*** (9.66e-07)	3.09e-06*** (9.66e-07)	3.09e-06*** (4.70e-07)	3.09e-06*** (4.70e-07)
Designated Red Triangle Area	.1315405 (.2806082)	.131554 (.2806048)	.1315572 (.1850853)	.1315515 (.1850661)
Number of Illegal Pipeline Taps Detected	.0004163** (.00014)	.0004163** (.00014)	.0004163*** (.0001083)	.0004163*** (.0001083)
Gas Shock	.5952097 (.3603463)	.595184 (.360356)	.5951765 (.3546008)	.5951937 (.3545926)
Total Value of Mined Lootable Resources (100,000s of pesos)	6.49e-07 (8.54e-07)	6.49e-07 (8.55e-07)	6.49e-07 (9.89e-07)	6.49e-07 (9.89e-07)
Total Cartels	.0086074 (.0920103)	.0085645 (.0920157)	.0085778 (.093245)	.0085773 (.0932408)
Kingpin	-.0923125 (.1881991)	-.0923967 (.1882025)	-.0923722 (.1694551)	-.0923619 (.169446)
Lagged Political Pluralization	.6671332 (.9917837)	.6671474 (.9918213)	.6670878 (1.078315)	.6670766 (1.078279)
Human Development Index	-16.481*** (3.742241)	-16.4833*** (3.742202)	-16.4824*** (3.968035)	-16.48249*** (3.967988)
Homicides/100,000 people	.0158983** (.0048266)	.0158989*** (.0048268)	.0158981*** (.003895)	.0158983*** (.0038949)
Population Estimates	9.74e-08*** (2.08e-08)	9.75e-08*** (2.08e-08)	9.75e-08*** (2.00e-08)	9.75e-08*** (2.00e-08)
Number of Municipalities	.0025737*** (.0005316)	.0025733*** (.0005316)	.0025732*** (.0004905)	.0025735*** (.0004906)
# of observations (N)	248	248	248	248

Standard errors in parenthesis, p-value *=.05 **=.01 ***=.001

Collinearity of Variables Robustness Test

Collinearity Diagnostics				
Variable	VIF	Sqrt VIF	Tolerance	R-Squared
# of assassinations	1.57	1.25	0.6350	0.3650
Avocado production in 100,000s pesos	1.15	1.07	0.8677	0.1323
Total value of lootable resource	1.15	1.07	0.8729	0.1271
Cartels total	1.47	1.21	0.6812	0.3188
kingpin	1.27	1.13	0.7873	0.2127
Lagged political pluralization	1.38	1.17	0.7246	0.2754
Human development index	1.77	1.33	0.5634	0.4366
homiciderate100000	1.42	1.19	0.7039	0.2961
Population estimates	1.29	1.14	0.7759	0.2241
Number of municipalities	1.86	1.36	0.5387	0.4613
Red triangle designation	1.16	1.08	0.8653	0.1347
Gas Shock	1.58	1.26	.6343	.3657
Mean VIF	1.42			