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Why did Mexico become so violent? A self-reinforcing violent equilibrium caused by competition and enforcement

Viridiana Rios

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Abstract This article explains why homicides related to drug-trafficking operations in Mexico have recently increased by exploring the mechanisms through which this type of violence tends to escalate. It is shown that drug-related violence can be understood as the result of two factors: (a) homicides caused by traffickers battling to take control of a competitive market, and (b) casualties and arrests generated by law enforcement operations against traffickers. Both sources of violence interact causing Mexico to be locked into a “self-reinforcing violent equilibrium” in which incremental increases in traffickers’ confrontations raise the incentives of the government to prosecute traffickers which promote further confrontations with traffickers when, as a result of the detention of drug lords, the remnants of the criminal organization fight each other in successive battles. This article presents quantitative evidence and case studies to assess the importance of the two mechanisms. It uses a unique dataset of recorded communications between drug traffickers and statistics on drug-related homicides.

Keywords Competition · Crime · Drugs · Drug-related violence · Drug trafficking · Enforcement · Equilibrium · Mexico · Organized crime · Self-reinforcing · Violence

Policemen, you do not understand. You pigs are helping them arrive first, to keep their houses so these nasty bandits can kidnap and shoot families. Now I will kill you all. You will see how it feels. An eye for an eye, a tooth for a tooth.¹

¹Message left next to the body of the municipal police officer José Ángel Martínez. He was killed when waiting for the bus to go to work. Beside the message, a picture of a pig was left at the crime scene (Rios 2012a).

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A wave of drug-related violence has hit Mexico. From December 2006 to June 2010, 41,648 killings have been officially linked to drug trafficking organizations, a dramatic increase from previous years (2001–2006) when only 8,901 killings were linked to organized crime (Rios and Shirk 2011). In 2010, drug-related homicides reached the record figure of 15,273 victims, making organized crime officially responsible for 45 % of all intended homicides in the country (Rios and Shirk 2011). As a result, Mexican cities like Ciudad Juárez – a crucial trans-shipment point for the introduction of cocaine into the US – exhibited homicide rates of 216 victims per 100,000 inhabitants in 2010, a casualty rate that is comparable to that of war zones.

The escalation of drug-related violence within Mexico is a puzzle. The country had long been a supplier of illegal drugs without this business causing any significant violence. Since at least 1994, Mexico took the place of Colombia as the most important point of entry of illegal drugs into the US, supplying about 70 % of the cocaine, 80 % of the marijuana, and 30 % of the heroine consumed in the country (Andreas 1998). Mexico was home to an illegal business generating billions of dollars – and employing at least 5,000 armed actors – which until recently operated under a functional, non-violent equilibrium.² The way in which drug-related homicides spun out of control after 2006 cries for an explanation. The goal of this paper is to provide it.

The argument has two parts. First, it will be shown that drug-related violence is caused by two mechanisms: (1) traffickers battling for turf to control competitive markets (“competition”), and (2) government efforts to reduce drug trafficking operations (“enforcement”). Second, it will be illustrated that these two mechanisms have interacted to lock Mexico into a “self-reinforcing violent equilibrium.” In particular, proof will be presented on how battles for turf increase the incentives of the government to enforce the law, which further increase battles for turf. Violence is self-reinforced because after the prosecution of criminal leaders, incentives are generated for the remnants of the criminal organization to keep battling, this time to select a new leader. The argument is supported by a unique dataset of communications between drug trafficking organizations as well as by quantitative data on drug-related homicides.

This article flows in four sections. First, trends in Mexico’s drug-related homicides are described, emphasizing the temporal, geographic, and qualitative characteristics of these trends. This section also provides an overview of the ways that the current literature has explained these trends, and on how the approach adopted here departs from the conventional accounts. Second, the ingredients of drug-related violence are explained in terms of competition and enforcement and the ways in which these mechanisms interact to generate a self-reinforcing violent equilibrium. In section three, a simple quantitative test to assess the contribution of each ingredient of drug-related violence is presented, along with case studies to show the mechanics of the self-reinforcing violent equilibrium. Turf wars emerge when monopolistic control of territories by drug-trafficking organizations is broken, when territories become competitive and traffickers fight for them. Through an analysis of the areas of operation of

² Author interview with anonymous official of Mexico’s main intelligence agency, the Center for Research and National Security (Centro de Investigación y Seguridad Nacional, CISEN).

one cartel, La Familia – the states of Michoacán, Guanajuato, and Guerrero – a fourth section demonstrates how the origins of regional spikes in violence can be traced to battles for specific pieces of turf. This section also shows how law enforcement operations contribute to violence, following the logic mentioned above. The conclusion summarizes the argument and discusses several structural reasons that have changed the propensity of the government to enforce the law. It also outlines the incentives of trafficking organizations to invade rival territories and break monopolistic operations.³

Mexico's drug-related violence: trends and puzzles

Mexico's homicide rates have increased every year since at least 2006 (Fig. 1). The major increase in violence came after a dramatic spike in 2008, when organized crime related homicides jumped from 2,826 to 6,837 killings, a 142 % surge in comparison to the prior year. After another increase of more than 40 %, reaching 9,614 killings in 2009, the number of killings linked to organized crime jumped another 59 % in 2010.

Violence does not spread homogeneously over Mexico but is highly concentrated in only a few regions. Since December 2006, 4 of 32 Mexican states accounted for 84 % of all murders. Variations in the levels of violence concentration are even more pronounced at the municipal level: approximately 40 % of all organized crime killings had occurred in just 10 of the country's roughly 2,450 municipalities. The next 90 most violent municipalities accounted for another 32 % of the violence, while the rest of the country accounted for only 28 %. The top five most violent municipalities — Ciudad Juárez, Culiacán, Tijuana, Chihuahua, and Acapulco — accounted for 12,070 homicides. Since 2006, over half of all homicides occurred in Ciudad Juárez, a municipality of about 1.38 million inhabitants.

Furthermore, an analysis of these trends within individual states shows that drug-related homicide rates are not homogenously increasing (Fig. 2). It is true that some states like Chihuahua, Sinaloa, and Guerrero — and to a lesser extent Durango and Colima — have increased levels of violence every year. However, many others have experienced abrupt explosions of violence to soon return to a relative calm. For example, in November 2008 Tijuana experienced a dramatic increase in drug related violence and from then on, it went from having 15 to 215 cases of drug-related homicides per month. In retrospect, the violence was of very short duration: just 3 months later, in February 2009, Tijuana returned to an average of only 11 drug-related casualties per month.

³ An important question remains as to why, if enforcement operations were conducted before 2006 (Chabat 2010), these did not generated fragmentation in the same way in which enforcement operations did during the 2006–2010 period. The answer, explored by Rios (2012b), is to be found in the way in which Mexico's informal political institutions have changed over the course of the years, particularly on how corruption changed from being a centralized to a decentralized game. Explaining historical patterns of drug-related violence is not the goal of this article. It suffices to say that previous to 2006, cohesiveness within the criminal world was indirectly enforced because corruption was largely centralized in the hands of a single, cohesive hegemonic party. Decentralization changed the rules of corruption, allowing criminal groups to engage in criminal operations with different parties and thus, indirectly changed the incentives that criminal organizations had to remain cohesive.

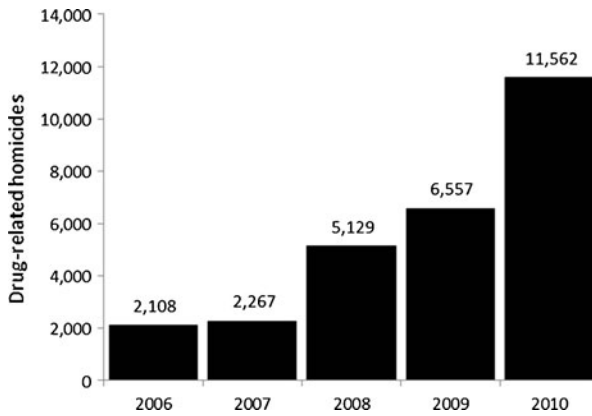


Fig. 1 Drug-related homicides in Mexico. Source Rios and Shirk 2011

The current academic literature relies on structural variables as their main explanatory tools to explain incremental increases in drug-related violence. The generic story found in the main scholarly interpretations argues that during the 1980s, Mexico's authoritarian, single-party political system enabled corrupt Mexican government officials to play a mediating and regulatory role with drug-trafficking organizations and to explicitly discourage violence. Mexican authorities implicitly agreed on allowing traffickers to continue their businesses as long as a quota of bribes was paid and no major episodes of violence occurred (Paternostro 1995; Valle 1995; Gómez 2005; Guerrero 2009). When state and local electoral victories brought politicians from opposing parties into power starting in the 1990s, previously established bargains with the drug-trafficking organizations were rejected or renegotiated by new, independent political actors who lacked the connections or ability to enforce previously established corruption agreements (Bailey and Godson 2000; Astorga 2005; Davis 2006; Flores Pérez 2009; O'Neil 2009; Snyder and Duran-Martinez 2009; Astorga and Shirk 2010; Chabat 2010). In this context of political diversity and uncertainty, the state no longer served as an effective mediator, and criminal organizations began to splinter and battle each other for turf.

This article contributes to the explanation of drug-related violence given in this literature by explaining the drug war at the micro level. It analyzes why, despite the fact that democratization affected Mexico as a whole, drug-related violence is concentrated in only a handful of states, shifts significantly over time, and happens in apparently chaotic patterns. Furthermore, it provides an analytical narrative to

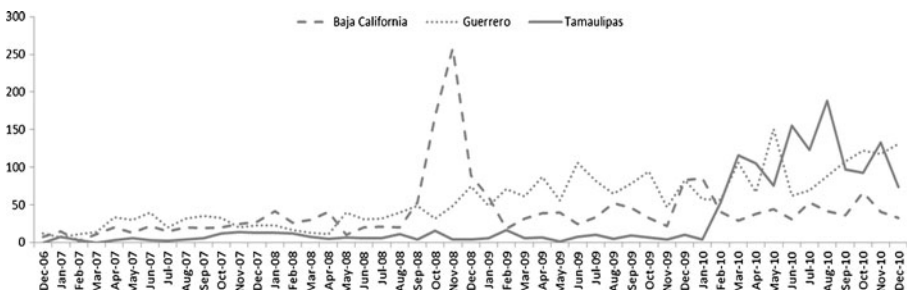


Fig. 2 Drug-related homicides, geographic and time variability. Source CSN 2010

explain why, on the aggregate, drug-related homicides have increased and escalated more than ever before in Mexico.⁴

Why did Mexico become violent? A self-reinforcing violent equilibrium caused by competition and enforcement

Two variables explain the geographic location and timing of drug-related violence: (1) the emergence of battles for turf between trafficking organizations competing for territories, here referred as “competition,” and (2) law enforcement operations, here referred as “enforcement.”

First, battles for turf happen when the illegal drug industry changes from being oligopolistic — for example when a single drug trafficking organization controls a geographical area — to being competitive. Here competition refers to the presence of two or more trafficking organizations distributing or trafficking drugs through a single territory. Competition is inherently unstable for illegal industries because these industries lack formal mechanisms and systematic rules to deal with disputes and disagreements between organizations. Traffickers dislike sharing territories because it increases the costs of corruption, reduces the share of the local market that it can supply, and makes production inputs scarce. For example, competition diminishes the ability of the original criminal organization to sell protection and rights within the territory. In short, with regard to incremental increases in competition as a driver of drug-related violence, the argument explored here is that violence increases when a new organization tries to conquer the territory of another, or when an organization splits causing internal confrontation.

Second, government prosecution actions increase violence when traffickers and authorities confront and attack each other. The deployment of the army or special police forces to prosecute drug traffickers and to enforce the law in areas with strong presence of trafficking organizations increases drug-related violence by generating casualties either within the police or within criminal organizations. When these two factors occur simultaneously, when the two factors generate the fragmentation of drug-trafficking organizations, drug-related violence escalates. Mexico is currently submerged in a seemingly endless increase of drug-related violence because these two variables have interacted, placing Mexico into a “self-reinforcing violent equilibrium.”

The self-reinforcing violent equilibrium begins (Fig. 3) when battles for turf result in outbreaks of drug-related homicides. The spread of this type of violence affects the electorate, and generates pressures within the political system to prosecute those who are elevating homicide rates. Enforcement operations in charge of reestablishing the rule of law are then conducted with the hope that in the long-run, enforcement will weaken drug-trafficking organizations enough to inhibit their operations and ability to initiate future violent acts. Yet, in the short-run, enforcement actually triggers violence by further increasing battles for turf. In each cycle of interaction, violence grows.⁵

⁴ It is important to mention that the explanation provided within this article applies only to the period here explored (i.e. 2006–2010) and not to previous, historical periods. For a more comprehensive understanding of the reasons behind violence escalation or containment refer to Rios (2012a, b).

⁵ Note that the equilibrium here described is not a closed and steady interaction of variables but a growing tendency that is self-catalytic. “Equilibrium” as described in this piece, should be understood as a progressive state, not as a steady state.

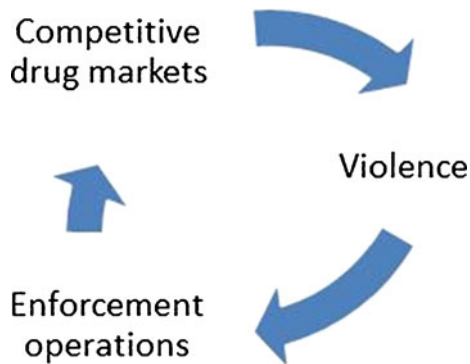


Fig. 3 Self-reinforcing violent equilibrium

The mechanism which leads enforcement operations to close the self-enforced violence loop is simple. When enforcement leads to the capture or assassination of an important trafficker, drug trafficking organizations face two important problems. First, leadership succession rules within criminal organizations are far from established, which means an internal battle between drug-trafficking organizations' potential successors will almost surely ensue. Second, even if succession is not an issue, recovering the contacts and expertise of the captured or dead trafficker in order to keep the business running can immediately become a crucial issue if this information had not been previously shared with a leader's potential successors. In illegal businesses where contract enforcement is achieved through informal mechanisms, personal relationships play a central role in establishing and maintaining trust between trade partners. Internal agreements such as corruption pacts and alliances are normally based on prior personal ties. Personal links, long-term relationships, and other forms of social capital play a crucial role. A new leader may find it difficult to keep pre-existing agreements in place, which results in reduced profits and schisms within the organization.

In the following section, an empirical analysis is presented, supported by case studies, to test the impact that competition and law enforcement have in the generation of drug-related violence.

Empirical test

To empirically test the contribution that competition and prosecution have in the generation of drug related violence, a simple test is conducted to assess the relationship that confrontations between trafficking organizations, or between trafficking organizations and Mexican authorities, have with the number of drug-related targeted executions. This test is complemented by narratives from three case studies in the following section: Michoacán, Guanajuato, and Guerrero.

The most reliable official source of information on drug-related homicides is Mexico's National Security Council (Consejo de Seguridad Nacional, CSN), a federal institution in charge of designing security policy within Mexico, in operation since

2005 (CSN 2010). In 2011, the CSN made public the total number of drug-related homicides that happened in Mexico from December of 2006 until 2010 on a monthly basis and disaggregated down to the municipal level (CSN 2010). A homicide was classified as drug-related when attorney generals, intelligence offices, and other security-related federal institutions determined that it could have been related to the activities of drug-trafficking organizations.⁶ The detailed criteria used to assume a homicide was drug-related is described by the CSN and is based on the characteristics of the victim, the event, and the form in which the victim was assassinated (i.e. large caliber weapons, evidence of cruelty, mafia-style execution, etc.) (CSN 2010). The classification is far from perfect. Many of the cases were classified before investigations had been officially concluded which means that a homicide that was classified as drug-related at the beginning of the investigation may be ultimately excluded in a newer version of the dataset.

The CSN dataset provides a unique feature that allows researchers to indirectly test the effects of competition and law enforcement because it classified drug-related homicides in three categories: (1) the most traditional way to understand drug-related homicides, that is to say targeted executions linked to drug-trafficking operations, (2) casualties generated by battles for turf between traffickers, or between authorities and traffickers as a result of law enforcement operations (“confrontations”), and (3) casualties generated by traffickers assassinating authorities in planned attacks (“aggressions”). Overall, targeted executions are the most common form of drug-related violence captured by the CSN data set. These executions account for 89.3 % of the total number of casualties recorded, while confrontations account for 9.1 %, and aggressions for only 1.6 % (Fig. 4).

The empirical model, derived by the Ordinary Least Squares (OLS) method, which estimates the unknown parameters of a linear regression model, holds state and time as fixed effects, uses “targeted executions” as the dependent variable, and casualties coming from “confrontations” and “aggressions” as proxies for competition and law enforcement. Unfortunately, the dataset does not allow for a perfect disentanglement of the effect of battles for turf from the effect of law enforcement operations. Yet, both variables can be thought of as proxies conveying underlying information about the dynamics of violence, and about the impact that confrontations between traffickers, and between traffickers and authorities, may have in the generation of further drug-related homicides. In particular, the confrontations variable can be thought of as approximating the extensiveness of battles for turf (traffickers vs. traffickers) and enforcement (government vs. traffickers), while the aggressions variable can be assumed to be a more distilled measure accounting for episodes of government vs. traffickers confrontations.

⁶ The institutions in charge of determining the nature of the homicides are: the Ministry of National Defense (Secretaría de Defensa Nacional, SEDENA), the Ministry of the Interior (Secretaría de Gobernación, SEGOB), the Ministry of Public Security (Secretaría de Seguridad Pública, SSP), the Mexican Navy (Armada de México of Secretaría de Marina, SEMAR), CISEN, the Attorney General (Procuraduría General de la República, PGR), the Attorney General of Justice (Procuraduría General de Justicia, PGJ), and the National Center for the Combat of Delinquency (Centro Nacional de Planeación, Análisis e Información para el Combate a la Delincuencia, CENAPI) (CSN 2010).

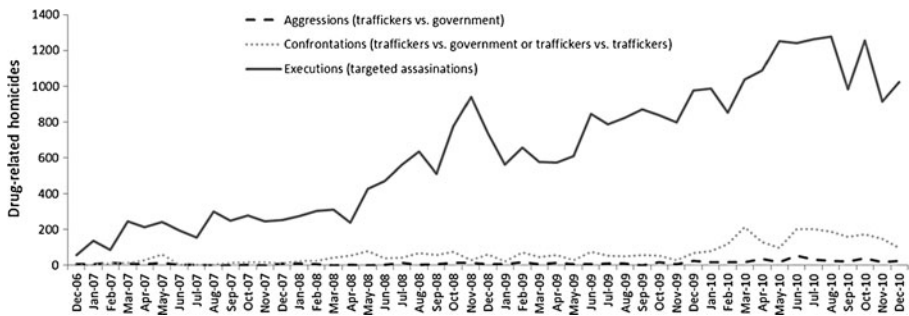


Fig. 4 Drug-related homicides by type. Source CSN 2010

Because not all Mexican states have the same probability of experiencing drug-related targeted executions, two controls are meant to measure the extensiveness of drug-trafficking operations within a state. To proxy for the presence of traffickers, cases of drug consumption captured by cases of overdoses (INEGI 1990–2008) or hospitalizations due to illegal drug consumption (Secretaría de Salud 2000–2008) are measured. The assumption underlying this proxy is simple: although not all of the places where drug traffickers operate are known, the places where traffickers operate for their domestic markets can be approximated by the location of local drug consumption, which is known. Places where traffickers operate without consumption will remain uncontrolled, but ethnographic analyses seem to agree that this is quite rare in the case of domestic markets. Traffickers serve these markets as a way of dealing with the uncertainty of foreign-export drug markets. At the same time, traffickers themselves tend to be large consumers of illegal drugs.

The results of the empirical model are displayed in Table 1 and confirm that competition between traffickers and law enforcement is a significant contributor to drug-related violence. Three specifications were used: a time series without fixed effects (model 1), a model with state-level fixed effects (model 2), and a final model with state and time fixed effects (model 3). All specifications yield the same results. The preferred model, where both time and state are kept constant, shows that competition and enforcement, proxied by the variable “confrontations,” are correlated with an increase of 0.979 in the number of drug-related targeted executions. Furthermore, every aggression, defined as instances in which traffickers proactively attacked Mexican authorities, related to increases of 1.75 in the number of targeted executions. The controls behaved as expected although its significance is diminished when fixed effects were included.

Case studies: Michoacán, Guanajuato, and Guerrero

Case studies can also shed light on the way in which battles for turf and prosecution lead to violence escalation. In particular, the case of La Familia, a drug-trafficking organization operating in the states of Michoacán, Guanajuato, Guerrero, and Mexico State, is known for having played an important role in

Table 1 Testing for the correlation between enforcement operations and battles for turf in drug-related homicides

Variable	Model 1	Model 2	Model 3
Confrontations	1.969*** (0.265)	0.928*** (0.244)	0.979*** (0.251)
Aggressions	3.389*** (0.885)	2.018** (0.776)	1.759* (0.793)
Overdoses	4.354*** (0.13)	5.206*** (0.272)	5.292*** (0.276)
Hospitalizations	-0.095** (0.036)	-0.049 (0.087)	-0.028 (0.091)
Intercept	-63.92*** (7.134)	-72.60*** (7.565)	-11.447* (5.443)
Adjusted R2	0.574	0.685	0.683
State Fixed Effects?	No	Yes	Yes
Time Fixed Effects?	No	No	Yes

marijuana and poppy cultivation throughout Mexico as a whole.⁷ Michoacán also happens to be the area where Mexico's drug war first erupted. While homicide rates were falling all over the country from 17.4 cases per 100,000 inhabitants in 1994 to just 9.1 in 2004, Michoacán started experiencing surprising increases in violence starting in 2002. By 2006, in relative terms, there were five homicides happening in Michoacán for every two cases happening in the country as a whole. However, if homicide statistics from this state are calculated from national figures, homicide trends in Mexico were either diminishing or were flat until at least 2008.

The areas of operation of La Familia have experienced significant amounts of drug-related violence and mirror the national trends.⁸ For example, there are

⁷ La Familia became publicly known as a criminal organization in late 2006 in Michoacán, and soon expanded its activities to other neighboring states. By 2010, less than four years after its first public appearance, La Familia had presence in at least 136 Mexican municipalities, about 29 % of all the 461 municipalities with identified trafficking activities, and in 18 states (Coscia and Rios 2012). La Familia went from being completely unknown to engaging in drug trafficking, kidnapping, extortion, and assassination in 56 % of all Mexican states. The origins of La Familia can be traced to a 2001 split in the Valencia Cartel, which originally controlled Michoacán. Excellent journalistic and academic pieces on La Familia's history and modus operandi include Ravelo 2006; Suverza 2006; Velázquez 2008; Carrasco 2009; Carrasco and Castellanos 2009; Suverza 2009; Grayson 2010; Gómez 2011.

⁸ About 18.9 % of all the 34,611 drug-related homicides occurring in Mexico from December of 2006 until 2010 were concentrated in La Familia's main areas of influence: the states of Michoacán, Guanajuato, Guerrero, and Mexico State. That is 6,536 murders. The average number of drug-related executions in La Familia states (1,635) was about 63.1 % higher than the same figure in non-La Familia states (1,003). Guerrero was the third most violent state in Mexico with 1,137 drug-related homicides in the same period. Michoacán and Mexico State (also in the top 10 most violent Mexican states) had 520 and 623 casualties respectively. Guanajuato ranked 15 among 32 Mexican states and also had the very high number of 152 drug-related homicides. Yet, the share of Mexico's violence explained by La Familia activities reduced significantly over time. While 58 % of all the 62 drug-related homicides happening in Mexico during 2006 can be traced to La Familia (with 24 just in Michoacán), by 2007 the share had almost halved to 28 % (789 out of a total of 2,285 drug-related homicides). In 2010, La Familia accounted for only 16 % of all drug-related violence (2,432 out of 15,273). These time differences are explained more by increases in the levels of violence of other states than by diminishing tendencies in La Familia's states.

significant variations in the timing and geographic location of violence in the areas where La Familia has operated. Among La Familia states, Michoacán's violence remained relatively controlled compared to other states with a strong cartel presence, with drug-related homicides only increasing 60 % from 2007 to 2010. Michoacán had a clear trend with three distinct patterns: a period of steadily low violence until early 2009, a spike during the spring and summer of 2009, and a high plateau of violence ever since then. Drug-related homicides in Guerrero experienced an upward trend which started in April 2008 and the state witnessed a quite dramatic spike of violence in May 2010. Finally, Guanajuato only had a period of high violence during the summer of 2009. Mexico State has not experienced important changes in drug-related violence. Within La Familia states, about 40 % of all drug-related homicides happening from 2006 to 2010 concentrated in just 13 municipalities. Each of these had an average of 196 homicides, the top 3 being Acapulco, Guerrero (661 cases), Morelia, Michoacán (260), and Ecatepec, Mexico State (212). The other 17 municipalities, which had between 50 and 100 homicides over the same time period, accounted for 17 % of all violence happening in La Familia's states. Fifty-two municipalities had between 20 and 50 homicides (23 % of all violence), and 65 had a complete absence of violence.

To analyze battles for turf emerging as a result of increased competition, the presence of other trafficking organizations within La Familia's areas of operation are tracked to approximate the date when a new drug trafficking organization started operating, that is to say, the date when such territory became competitive. To track the presence of rival cartels, a very particular feature of Mexican drug trafficking organizations is taken into account: their tendency towards communicating using so-called "narco-messages." A narco-message is a billboard that traffickers leave on the streets to clarify why they assassinated someone, to intimidate other potential victims, identify themselves or their victims, communicate with citizens around the area, or give instructions to the investigators who, traffickers know, will eventually record the messages, among other reasons. Narco-messages go all the way from maxims like "you cannot be on good terms with both God and the Devil," to messages directed to "the brave, noble, and loyal people" wishing them "Merry Christmas, ho, ho, ho" or letting them know that "this is for the good of all" (Rios 2012a).

A list of about 1,880 narco-messages was collected for this study and all possible information contained in them was analyzed to ascertain the presence of a drug trafficking organization in an area. Overall, the presence of more than 350 gangs and individual traffickers in Mexico could be tracked using narco-messages and newspaper records (Coscia and Rios 2012). This meant that the activities of at least 1 drug trafficking organization operating in 504 out of 1070 municipalities with recorded drug activities could be identified. This information was used to create a monthly indicator of territorial competition at the municipal level which is simply given by the number of drug trafficking organizations simultaneously operating in a municipality on a given month and/or year. The data provides evidence to support the argument that, when competition is more intense, drug-related violence spikes. There are two clear instances in which violence significantly increased in La Familia territories and both of them are related to the entrance of Los Zetas, another drug-trafficking organization in La Familia territories.

Michoacán

In the case of Michoacán, the period when the highest level of violence the state has experienced was in March–June 2009 when there were a monthly average of 67 drug-related homicides, or an annual drug-related homicide rate of about 21.07 per 100,000 inhabitants. This violent period contrasts dramatically with the 24 drug-related homicides happening on average per month in the state from December 2006 to February 2009. The change was equivalent to going from Colorado's levels of violence to Haiti's in three months. This sharp increase in violence is directly related to the break of the Los Zetas-La Familia alliance.

In the early 2000s, La Familia operated in Michoacán under the name of La Empresa in an alliance with Los Zetas, which at the time was an organization of gunman controlled by the Gulf Cartel. La Familia controlled Lázaro Cárdenas, the main naval port of Michoacán and one of the main entries for illegal substances coming from South America. La Familia had also taken over most of the neighboring territories controlled by an older trafficking organization known as the Valencia Family. The cooperative agreement between La Familia and Los Zetas did not last long. When the leader of the Gulf Cartel was imprisoned, Los Zetas began to operate with increasing independence, a tried to take over the territories controlled by La Familia. The split started in June of 2008 when Los Zetas tried to take control of Lázaro Cárdenas, a crucial point for La Familia trafficking activities (Carrasco and Castellanos 2009). The split can be closely tracked in the dataset of narco-messages collected for this study. In May 2008, a billboard saying "(...) this is a message for those working with Los Zetas of Laredo" appeared next to the body of an individual assassinated in the port of Lázaro Cárdenas. The same message also appeared in Pátzcuaro, Michoacán, another important area for La Familia.

The schism between Los Zetas and La Familia became evident in October 2008 when Los Zetas executed an ex-policemen, allegedly a member of La Familia, and left a signed narco-message which read "this will happen to all those who work for La Familia." In just a few months, competition between La Familia and Los Zetas to control Michoacán intensified, and violence followed. Signed billboards appeared in many of the most important cities of Michoacán, for example: "this goes to those working for Z, and for all Los Zetas. Here we are and we won't leave." Sometimes these were directly addressed to policemen, providing information on the names, locations, and operations of leaders and traffickers belonging to the opposing organization.

As Fig. 5 shows, there is a strong association between the number of areas where La Familia and Los Zetas were competing and drug-related homicides. During the peak of violence, La Familia and Los Zetas were intensively competing and communicating with each other. In months where confrontation could be identified, the average number of drug-related homicides per month was 53.2, almost 90 % higher than the 27.6 drug-related homicides in months without confrontation. Moreover, since Los Zetas first emerged as a La Familia competitor in October 2008, violence escalated from an average of 24.6 drug-related homicides per month, to 43.1, an increase of 80 %.

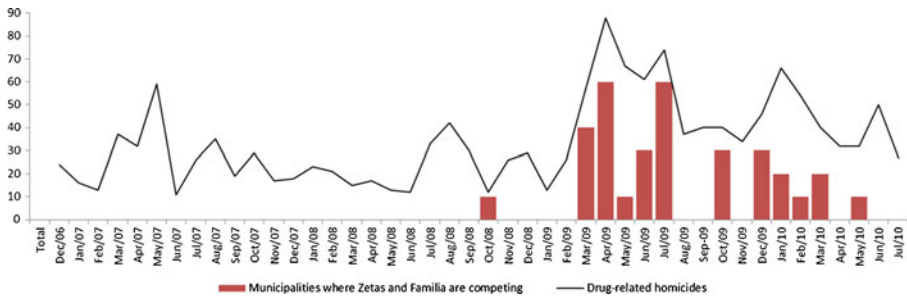


Fig. 5 Competition and Michoacán violence. Source CSN 2010; Rios 2012a

Guanajuato

The effects of drug-related violence due to the competition between Los Zetas and La Familia were also felt in other states, particularly Guanajuato. Until late 2008 trafficking within the state was controlled by a stable alliance between the Sinaloa Cartel and La Familia. Back then, the average number of drug-related executions in the state was about 4.5 per month. In 2007 the state only suffered 51 cases of drug-violence and in 2008 only 79. Without any source of confrontation between La Familia and the Sinaloa Cartel or between other drug trafficking organizations, Guanajuato was literally as peaceful as Honolulu. Guanajuato's general homicide rate was about 2.39 per 100,000 inhabitants, quite impressive for one of the most urban states in the country.

The peace was shattered when the hostilities between La Familia and Los Zetas spread into the state. The first record of Los Zetas operating in the state happened in November 2008 when a narco-message blaming an ex-federal policeman for supporting them was left in Irapuato, Guanajuato. Narco-messages soon inundated the state, some of them explicitly linking drug-related violence to the conflict between La Familia and Los Zetas. In Celaya, for example, a message signed by Los Zetas was left next to a body declaring “these are people of La Familia, kidnappers, extorters, and terrorist apprentices.” Others just warned the population about what Los Zetas claimed to be the ultimate reasons for the confrontation: “[We] condemn the crystal and ice poisoners [i.e. drug dealers] belonging to La Familia, we are just taking out the trash.” By January 2009, the open confrontation between La Familia and Los Zetas had turned Guanajuato upside down. In 2009, there were 234 drug-related homicides, an increase of 196 % in comparison to 2008. Violence spiked during the first semester of 2009, when an average of 19.75 drug-related homicides per month became the rule.

As Fig. 6 shows, drug-related violence in Guanajuato tends to be higher when many trafficking organizations operate and compete in a single municipality. A competitive month has an average on 17.4 drug-related homicides, while a month without competition has only 7.3. As a matter of fact, when Los Zetas confronted La Familia, Guanajuato was unrecognizable in terms of drug violence. In 2009 it joined the list of the top-ten most violent states for the first time ever. As Mrs. Berta, a food vendor of Cuerámara, a border town between Michoacán and Guanajuato, confessed to Verónica Espinoza, a journalist of *Proceso* magazine, “We have no peace. Now, with all the homicides... God! You realize people suddenly start having money and

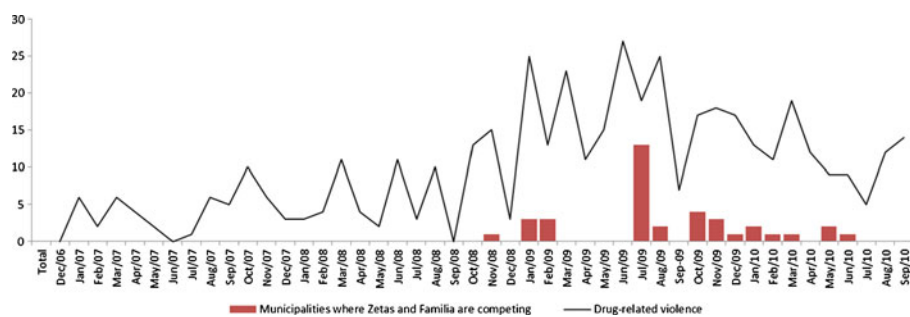


Fig. 6 Competition and Guanajuato violence. Source CSN 2010; Rios 2012a

cars, and a little after that they are killed; you never imagined they were doing the narco thing.”

Guerrero

La Familia areas of operation also present evidence of the impact that enforcement operations have in triggering violence. In 2006, President Calderón started an offensive against drug trafficking. La Familia’s main territory, Michoacán, was the very first state to experience the intervention of federal enforcement agencies, including the army, to fight drug trafficking. Just 10 days after taking office, President Calderón deployed 6,784 soldiers, 1,054 marines, 1,420 federal policemen, and 50 detectives in Michoacán (Grayson 2010). This was at the beginning of what has since been considered the most serious enforcement operation against trafficking. Calderón declared “a war on drugs” which continued through his administration and extended from Michoacán to at least seven more states and regions: Chihuahua, the Isthmus region (Mexico’s southern border), Guerrero, Baja California, Sinaloa, Nuevo León-Tamaulipas, and the Golden Triangle (parts of Chihuahua, Sinaloa, and Durango). As a result of prosecution operations within La Familia areas of operation, a total of 295 individuals have been assassinated from 2006 to 2010. The state with the highest number of drug-related homicides is Guerrero with 159 cases, followed by Michoacán with 98, and Guanajuato with 38.

The way in which prosecution affects the tendency of trafficking organizations towards having more battles for turf is well exemplified by the state of Guerrero, a state that was more or less stable in terms of violence during the time that an alliance between La Familia and Sinaloa Cartel controlled the region. The Sinaloa Cartel’s main operator in the field was a well-known local trafficker named Rogaciano. Enforcement altered this peaceful equilibrium when federal forces, as a result of military operations in the state of Sinaloa, captured Alfredo Beltrán Leyva (BL), a lieutenant of the Sinaloa Cartel. BL’s capture caused a split within the Sinaloa Cartel which spread violence to Guerrero. BL’s brothers, Héctor and Arturo, also lieutenants of the Sinaloa Cartel, blamed the top leader of this criminal organization, Joaquín Guzmán (alias “El Chapo”) for BL’s arrest. They suspected El Chapo had given the Mexican army information to capture BL in exchange for releasing El Chapo’s son, Iván Guzmán, from prison. When Iván was released, BL’s brothers started an open war against El Chapo.

This enforcement-driven schism within Sinaloa soon affected the state of Guerrero when BL's brothers forced Rogaciano to decide between joining them and continuing to work with the Sinaloa Cartel and El Chapo. When Rogaciano took sides with the Sinaloa Cartel the massacre started. In May 2008, a group of armed men working for BL's brothers' local lieutenant "El Nene" arrived at Rogaciano's place with orders to kill him but they could not find him. Instead, they kidnapped Rogaciano 19-year old daughter. Rogaciano took revenge by killing two of El Nene's daughters, his wife, and his sister-in-law. El Nene was furious and a war erupted. A massive number of Rogaciano's collaborators were executed in the resulting onslaught.

The relationship between drug-related homicides and conflicts between traffickers caused by enforcement operations in Guerrero is captured quite explicitly by the data set of narco-messages. Just after the assassination of Nene's family, the following narco-message was left: "This is a message for Rogaciano (...) Kids and women should not be killed. We will only kill men (...) This will happen to all of you who help him [Rogaciano]."

As Fig. 7 shows, once competition between BL's brothers and the Sinaloa Cartel started, violence increased gradually in Guerrero. Violence in Guerrero had remained mostly contained with an average of 22.1 drug-related homicides per month and a general homicide rate of about 18.71 per 100,000 inhabitants. From April 2008 to May 2008, the month in which Rogaciano's daughter was kidnapped, violence went from 11 drug-related homicides to 41, an increase of 264 %. Just a year before the first confrontational message between BL and the Sinaloa Cartel appeared in August 2008, the state of Guerrero had about 24.8 drug-related homicides per month, with an average change rate of -1.92. A year later, there were on average 51.3 homicides, at an increasing rate of 6.33 per month.

At these rates, Guerrero became one of the three most violent states in Mexico, calling the attention of enforcement operations and locking the state into a self-reinforcing violent equilibrium. Federal troops were deployed in Guerrero. Confrontations between authorities and traffickers caused casualties and detentions that further destabilized criminal organizations. Drug-related homicides almost doubled, from 299 in 2007, to 419 in 2008, and to 879 in 2009. As Fig. 8 shows, the number of enforcement operations (confrontations between drug trafficking organizations and government) and drug-related violence are well correlated. For instance, March 2009, one of the two most violent months in the sample with 106 drug-related homicides, is also the month with the highest number of enforcement operations.

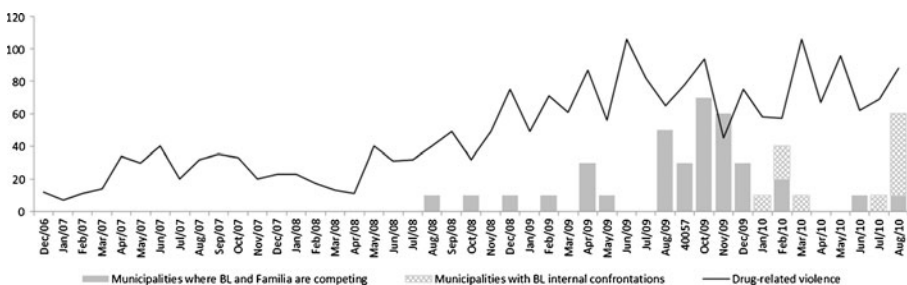


Fig. 7 Enforcement triggered market competition and further violence in Guerrero. Source CSN 2010; Rios 2012a

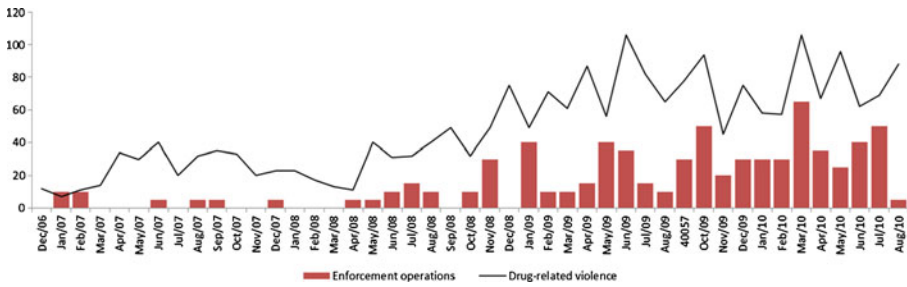


Fig. 8 Enforcement traces violence in Guerrero. Source CSN 2010; Rios 2012a

Perhaps one of the most influential effects of law enforcement on violence happened in December 2009 when one of BL's brothers, Arturo, was killed by the Mexican Navy. His assassination left Héctor as the only remaining brother confronting the Sinaloa Cartel. The earlier story repeated itself. Héctor could not keep the loyalty of all of his followers which caused the emergence of a competing trafficking organization led by a trafficker named Edgar Valdés Villarreal (alias "La Barbie"). La Barbie's followers became independent in January 2010 and started a direct confrontation against Héctor that could also be felt in Guerrero. This conflict overlapped with the preexisting conflict between Héctor and the Sinaloa Cartel and further increased the violence. Again, the narco-messages can track this confrontation with close precision. Just 34 days after Arturo was killed, the bodies of 4 men were found next to a long explanation that read "This goes for all who are with Héctor Beltrán Leyva (...) You gave Mr. Arturo Beltrán Leyva to the authorities (...) Keep sending people and we will keep giving them back to you like these (...)." After this message was displayed, Acapulco, Petatlán, and other municipalities in Guerrero transformed into battlefields.⁹

As Fig. 7 showed, once La Barbie came into the picture, Héctor battled both the Sinaloa Cartel and La Barbie. Violence kept increasing and never returned to the levels before to the Sinaloa Cartel-BL dispute. The average number of drug-related executions in months where some competition could be found is about 83.9 % higher than those when drug markets seem to be monopolistic. While a month with competition has an average of 68.12 drug-related homicides, a month without it has only 37.03.

An analysis of La Familia's states of operation has shown that drug-related violence in Mexico seems to be the result of a self-reinforcing violent equilibrium reached by the combination of (1) battles for turf that emerge when drug-trafficking organizations compete, and (2) law enforcement. The states of Michoacán and Guanajuato showed that it was only when Los Zetas started operating in areas previously controlled by La Familia that violence erupted. This violence attracted law enforcement. Michoacán was the place where President Calderón first sent

⁹ By 2010, Acapulco was the second most violent city in Mexico and a one of the top-50 most violent cities in the world (Dávila 2011; CSN 2010). The confrontation between La Barbie and BL's brothers caused at least 5,596 casualties from December 2006 to August 2010. It was the third most violent confrontation between trafficking organizations in Mexico during the same period, after the conflict between the Sinaloa Cartel and BL's brothers (7,813 casualties) and between the Sinaloa Cartel and the Juárez Cartel (12,174). (Valdés 2011).

federal troops to control violence in December 2006. Enforcement operations led to a self-reinforcing violent equilibrium by indirectly triggering more competition between traffickers because it led to the capture or assassination of high-ranking traffickers, and to splits and conflicts within the remaining traffickers. A very clear case of the self-reinforcing violent equilibrium in action was demonstrated for the state of Guerrero. When lieutenants of the Sinaloa Cartel were captured as a result of law enforcement operations, the remaining members of the criminal organization could not keep working together. The replacement of leaders within the Sinaloa Cartel resulted in an internal confrontation, spiraling violence out of control.

Conclusion

With almost 41,648 drug-related homicides in the country in the last 4 and 1/2 years, Mexico has changed nearly beyond recognition. Some cities, particularly those located close to the U.S. border, have experienced spikes in violence that transformed them into war zones, in a very literal sense. Mexico's recent changes are particularly puzzling given that the country has long been a large supplier of drugs into the US and had always filled this role in a non-violent manner. The purpose of this article has been to explain the reasons behind these changes in drug-related homicides. Using the case of La Familia, a drug-trafficking organization operating mainly in the states of Michoacán, Guanajuato, and Guerrero, this study shows that Mexico's trafficking industry went from a stable, peaceful equilibrium into a self-reinforcing violent equilibrium because of increases in illegal-drug market competitions and in law enforcement operations.

Drug-related violence can be explained as the outcome of two variables: (1) homicides caused by traffickers confronting each other to compete for territories ("competition"), and (2) enforcement operations conducted by authorities to capture drug traffickers ("enforcement"). Violence resulted when illegal markets became more competitive as a result of changes in Mexico's drug-trafficking industry. Lacking a central enforcement agency to deal with these changes, violence erupted. Violence also increased when enforcement operations against traffickers were conducted by the authorities. As the quantitative model showed, for each instance of competition or enforcement measured, the number of drug-related targeted executions increased by 0.979.

Enforcement operations have had a further damaging effect which has locked Mexico into a self-reinforcing violent equilibrium. When traffickers are killed or captured by the government, the internal structure of criminal organizations destabilize, which provides further incentives for other organizations to try to take control over the territory of the weakened one. Furthermore, the process of replacing leadership within a trafficking organization is inherently complex, which means that in most cases, the capture of the leader leads to internal battles within the drug trafficking organizations.

This study shows that the reasons why Mexico has become violent can be understood by looking at La Familia areas of operation. The interaction of competition and enforcement is what has brought the country into the vicious cycle of violence that we call the drug war. Mexican authorities have followed a strategy of

increased enforcement assuming that the only way to get out of this self-reinforcing violent equilibrium is by remaining within it for a longer time. Following this logic, in the long-term, law enforcement operations will weaken drug trafficking organizations enough to drive them out of business, at which point violence will stop. Some recent evidence, particularly from Michoacán and Chihuahua, seems to show that by late 2011 increases in drug-related violence have stopped. Is this the beginning of the end of the cycle of violence? Only time will tell.¹⁰

References

- Andreas P (1998) The political economy of narco-corruption in Mexico. *Current History* 97:160–165
- Astorga L (2005) El siglo de las drogas: el narcotráfico, del porfirato al nuevo milenio. Plaza y Janés, Mexico City
- Astorga L, Shirk D (2010) Drug trafficking organizations and counter-drug strategies in the U.S.-Mexican Context. In: Olson E, Shirk D, Selee A (eds) Shared responsibility: U.S.-Mexico policy options for confronting organized crime. Mexico Institute, of Woodrow Wilson International Center for Scholars, and Trans-Border Institute (TBI), University of San Diego (USD), Washington, DC, San Diego, <http://www.wilsoncenter.org/topics/pubs/Shared%20Responsibility-Olson,%20Shirk,%20Selee.pdf>.
- Bailey J, Godson R (eds) (2000) Organized crime and democratic governability: Mexico and the US-Mexican borderlands. University of Pittsburgh Press, Pittsburgh
- Carrasco J (2009) La Familia, el cartel del sexenio. *Revista Proceso* 1707
- Carrasco J, Castellanos F (2009) Michoacán, la pesadilla de Calderón. *Revista Proceso*, Special edition 25: El México narco 2
- Chabat J (2010) Combatting drugs in Mexico under Calderón: the inevitable war. Working Paper 205. Centro de Investigación y Docencia Económica (CIDE). Mexico City
- Coscia M, Rios V (2012) “When criminals cannot hide: Generating intelligence data through search engines” Manuscript. Available under request.
- CSN (Consejo de Seguridad Nacional) (2010) Base de datos de homicidios presuntamente relacionados con la delincuencia organizada. Presidencia de la República, Mexico City
- Dávila P (2011) Tiene México 19 de las 50 ciudades más violentas del mundo. *Revista Proceso Online*, <http://www.proceso.com.mx/?p=286124>
- Davis D (2006) Undermining the rule of law: democratization and the dark side of police reform in Mexico. *Latin American Politics and Society* 48:55–86
- Secretaría de Salud, Mexico (2000–2008) Base de datos de egresos hospitalarios de instituciones públicas. In: Secretaría de Salud (2000–2008) Estadísticas por tema. Sistema Nacional de Información de Salud (SINAIS), Mexico City
- Flores Pérez C (2009) El estado en crisis: crimen organizado y política, desafíos para la consolidación democrática. Publicaciones de la Casa Chata, Mexico City
- Gómez M (2005) Con la muerte en el bolsillo. Editorial Planeta, Mexico City
- Gómez F (2011) The Michoacán family: fanaticism and violence. In: Salamanca G, Jorge L, Salcedo-Albarán E (eds) Drug trafficking, corruption, and states: how illicit networks reconfigure institutions in Colombia, Guatemala, and Mexico. Fundación Método, Mexico City
- Grayson G (2010) La Familia Michoacana drug cartel: implications for U.S.-Mexican security. Strategic Studies Institute (SSI), United States Army War College, Carlisle

¹⁰ Further research needs to be conducted in at least two directions. First, it needs to be shown why the self-reinforcing violent equilibrium caused by competition and enforcement did not happen before. During the nineties, the Mexican state conducted enforcement operations against drug trafficking organizations but the result was not violent criminal confrontations but the maintenance of a highly disciplined group of oligopolistic criminal organizations that operated without confronting each other. Preliminary explorations (Rios 2012b) point out the importance of Mexico’s centralized institutions as the mechanism that allowed criminal groups to remain cohesive, even if facing enforcement operations. Second, the quantitative model designed in this chapter could be improved to account for time-series variations.

- Guerrero E (2009) Narcotráfico, S.A. Nexos INEGI (Instituto Nacional de Estadística, Geografía e Informática). (1990-2008) Defunciones generales por causas detalladas CIE. In INEGI (1990-2008) Estadísticas de Mortalidad General. INEGI, Aguascalientes, Mexico
- Paternostro S (1995) Mexico as a narco-democracy. *World Policy J* 12:41–47
- Ravelo R (2006) La Familia, un fenómeno insólito. *Revista Proceso* 1569
- Rios V (2012a) Narcomensajes dataset. Cambridge, MA
- Rios V (2012b) "Lessons from Mexico's Drug War: Policy Outcomes Depend on Organizational Structure" in World Peace Foundation, Tufts University. May 29, 2012. Boston, MA.
- Rios V, Shirk D (2011) Drug violence in Mexico data and analysis through 2010. Special Report for TBI, USD, San Diego
- Snyder R, Duran-Martinez A (2009) Does illegality breed violence? drug trafficking and state-sponsored protection rackets. *Crime, Law, and Social Change* 52:253–273
- Suverza A (2006) El poder de la Familia Michocana. *El Universal*
- Suverza A (2009) El evangelio según La Familia. Nexos Online, <http://www.nexos.com.mx/?P=leerarticulo&Article=44>
- Valdés G (2011) Untitled presentation. In: Considering new strategies for confronting organized crime in Mexico. Conference at the Woodrow Wilson for International Scholars, Washington, DC
- Valle E (1995) El segundo disparo: la narcodemocracia mexicana. Océano, Mexico City
- Velázquez M (2008) Uncivil society and social legitimacy: La Familia: the twisted evolution of drug cartels in Mexico. Social Policy and Development MSc., London School of Economics