

## Necro-spaces and Violent Homicides in Mexico

Nelson Arteaga-Botello

Facultad Latinoamericana de Ciencias Sociales (FLACSO), Mexico City  
nelson.arteaga@flacso.edu.mx

Claudio A. Dávila-Cervantes

Facultad Latinoamericana de Ciencias Sociales (FLACSO), Mexico City  
claudio.davila@flacso.edu.mx

Ana M. Pardo-Montaño

Institute of Geography, Universidad Nacional Autónoma de México, Mexico City  
apardo@igg.unam.mx

### Vol. 13/2019

#### The IJCV

provides a forum for scientific exchange and public dissemination of up-to-date scientific knowledge on conflict and violence. The IJCV is independent, peer reviewed, open access, and included in the Social Sciences Citation Index (SSCI) as well as other relevant databases (e.g., SCOPUS, EBSCO, ProQuest, DNB).

The topics on which we concentrate—conflict and violence—have always been central to various disciplines. Consequently, the journal encompasses contributions from a wide range of disciplines, including criminology, economics, education, ethnology, history, political science, psychology, social anthropology, sociology, the study of religions, and urban studies.

All articles are gathered in yearly volumes, identified by a DOI with article-wise pagination.

For more information please visit [www.ijcv.org](http://www.ijcv.org)

#### Suggested Citation:

APA: Arteaga-Botello, N., Dávila-Cervantes, C. A., Pardo-Montaño, A. M. 2019. Necro-spaces and Violent Homicides in Mexico. *International Journal of Conflict and Violence*, 13, 1-14. doi: 10.4119/UNIBI/ijcv.660

Harvard: Arteaga-Botello, Nelson, Dávila-Cervantes, Claudio A., Pardo-Montaño, Ana M. 2019. Necro-spaces and Violent Homicides in Mexico. *International Journal of Conflict and Violence* 13: 1-14. doi: 10.4119/UNIBI/ijcv.660



# Necro-spaces and Violent Homicides in Mexico

Nelson Arteaga-Botello

Facultad Latinoamericana de Ciencias Sociales (FLACSO), Mexico City

Claudio A. Dávila-Cervantes

Facultad Latinoamericana de Ciencias Sociales (FLACSO), Mexico City

Ana M. Pardo-Montaño

Institute of Geography, Universidad Nacional Autónoma de México, Mexico City

## Abstract:

This article focuses on the spatial autocorrelation of homicidal violence and the presence of groups that have the capacity to exercise sovereignty. These actors possess necro-power and operate sometimes within, sometimes outside the framework of the law. They are sometimes in opposition to one another, while at other times they operate in a coordinated fashion. Their presence gives form to what we shall call necro-spaces: places where different actors (hitmen, dealers, the police or the military) spread death and destruction, in indefinite confrontations with no foreseeable victor. The methodology of our analysis of the spatial autocorrelation of homicidal violence at the municipal level in the years 2005, 2010 and 2015 enabled us to connect the spatial relationships among the homicides with descriptions of the groups that build regimes of violence in those spaces.

Keywords: Mexico, homicides, violence, necro-spaces, sovereignty.

For the last twenty years, Mexico has lived under the menace of violence. Kidnappings, robberies, extortions, executions, disappearances, femicides, beheadings, and the discovery of pits filled with hundreds of bodies are only some of the horror stories to appear in the media, academic discourse, and everyday conversation. While violence appears to be spreading, we must remember that the country a long decline in homicidal violence, a trend that only began to reverse in 2008. This reversal can be attributed to a series of joint operations between 2006 and 2012, in which the local and state police, the army, the navy, and the air force took action against drug production and trafficking. These raids were considered a pivotal moment in what the federal government called the *war against drug trafficking* (Rodríguez 2016), generating an escalation of violence characterized by a surge in confrontations between criminal groups and between these groups and military and police forces. As a result, Mexico rose to join the top ten countries with the

highest level of homicides in Latin America in 2010 (World Health Organization 2014).

The increase in homicide mortality was not evenly distributed across the country. In the majority of federal states homicide rates stayed below the national average. The violence has been concentrated mostly in the northern region of Mexico, particularly in Chihuahua, Sinaloa, Durango, Nayarit, and Baja California, and in the south, in Guerrero. We should note that the presence of federal operatives linked to the war on drug trafficking was not ultimately the only cause of the increase in the intensity of violence. In certain states impunity, alcohol consumption, drugs, and school dropout trends play a crucial role (González et al. 2012). These same factors are related to the presence of homicidal violence at a local scale. Additionally, in locations where there were no joint operations, the increase in violence could be better explained by economic factors (Flores and Rodríguez-Oreggia 2014). Thus, violence does not spread randomly at a local scale. It is linked to the presence of

violence regimes corresponding either to the direct intervention of state forces or to socioeconomic processes.

While military and police intervention and socioeconomic processes are both linked to the increase in homicidal violence at local and regional levels, it is important to consider that in some cases violence is the result of the persistent historical presence of organized crime groups. Therefore, these actors are ultimately less of an externality than permanent figures that build a certain social order, together with other local actors from the social and political sphere. Although the *war on drug trafficking* caused violence localized in particular municipalities to spill over into neighboring municipalities, it retreated to its traditional borders once the state's joint operations decreased. Thus, the presence of actors linked to the production of violence in all its forms—organized crime and state forces—did not vanish but receded to the spaces where these actors had had a historical presence.

From our perspective, this shows that there are localities where violence is traditionally ingrained due to the presence of institutional and criminal actors with the capacity for sovereignty (Mbembe 2011)—actors with the strength to decide who lives and who dies within a specific space and population. These actors possess a necro-power operating sometimes within, sometimes outside the framework of the law. They may be in opposition to one another, or operate in a coordinated fashion. Their presence gives form to what we shall call necro-spaces: places where different actors (professionals like assassins, dealers, the police or the military) confront each other and spread death and destruction, indefinitely, in confrontations without clear long-term victors.<sup>1</sup> The objective of this article is to analyze the regional dynamics of violence in Mexico and how violence condenses in these local spaces by studying the presence of high violence areas that remain so over time, independent of the “war on drugs” policy implemented between 2006 and 2015.

<sup>1</sup> The concept of necro-spaces distinguishes itself from the concept of *state capture* and *silenced zones* in its emphasis on the presence of different actors with the ability to exercise sovereignty, that is, the power of life and death within this territory.

One way to identify necro-spaces is through analyzing the distribution of homicides at a local scale. One effective approach is to study the spatial autocorrelation of homicidal violence—the degree to which the pattern of homicidal violence in one geographical unit is similar to the pattern in neighboring geographical units—and the presence of groups that have the capacity to exercise sovereignty: the ability to decide on life and death in a particular space or territory. Thus, our paper seeks to reveal the links between space, criminal actors, and state actors.

The paper opens with a section in which we discuss relevant concepts: in addition to the previously defined necro-spaces, we place particular emphasis on the concepts of sovereignty and necro-power developed by Mbembe (2011) and spaces of violence proposed by Gros (2006). In the second section we build a measure of spatial autocorrelation that allows the identification of spaces where violence depends not only on the traits that define the locality but also on the violence in neighboring localities over a period of ten years (2005–2015). We show that homicidal violence is not distributed at random: it follows specific spatial logics, which also involve the presence of certain sovereign actors. The presence of the latter is analyzed in a third section, in which we examine how these actors impose death management on the population. In the final section, we present conclusions and outline recommendations for future work.

### 1 Sovereignties and Necro-Power

For Mbembe, sovereignty is an exercise of power that does not necessarily rest upon the state or within a government apparatus.<sup>2</sup> Sovereignty lies within every social or institutional actor that can decide who lives and who dies. In other words, “sovereignty is the capacity to define who holds importance and who does not, who holds value and is easily replaceable, and who is not” (translated from Mbembe 2011, 46). Orga-

<sup>2</sup> It is outside the scope of this paper to discuss the context of the theoretical emergence of Mbembe's concept in his discussion of Foucault, Weber, and postcolonial theory (see Wright 2011 and Monárrez 2014, 2015). We are only interested in the concept of *necro-power* as a tool to account for the capacity of certain actors with sovereignty to exercise violence by establishing forces that grant them power of life and death in a specific territory, creating spaces and regimes of violence.

nized crime groups, guerrillas, hitmen, self-defense groups and warlords, as well as military and police forces, hold that power, regardless of whether they exercise it legally or illegally, legitimately or illegitimately. To Mbembe (2011), necro-power assumes greater visibility when its exercise gives shape and form to space: when violence is used to restrict and forbid access to certain areas by restraining people's movement.

Local government institutions function as incomplete mechanisms of public management when these actors hold sway, overlapping with "the geographically intertwined *de facto* legal instances, the different duties of fidelity, asymmetric sovereignties, and enclaves" (translated from Mbembe 2011, 57). When this happens, diverse forces—public and private, institutional and criminal—cohabit and are articulated in a complex manner, and claim their right to exert violence and to kill. The traditional ideas of violence, legality, and death are therefore disrupted in these spaces (Gros 2006). But necro-spaces cannot be understood as war zones in the traditional sense. In traditional war zones, it is impossible to achieve a regulated exchange of death—even by international agreement—between opposing armies, and values such as courage, obedience, and sacrifice are foremost (Gros 2006). In contrast, relationships of recognition are dissolved in necro-spaces: enemies and allies are never clearly defined.

When armed groups face each other in endless scattered confrontations, they spread death in their wake. In fact, the fights that take place in rural and urban areas never really determine the course of future battles: Sometimes a group moves into a plaza, making others retreat, the latter then hoping to deal a strong blow to regain control of the lost plaza or obtain a new one.<sup>3</sup> It is in these necro-spaces that the population experiences the worst suffering: people are kidnapped, disappeared, pillaged, exploited, and sometimes massacred. In these spaces, it is not possible to talk about violence someday giving way to peace. Peace was always the opposite of war, and in

necro-spaces, confrontations drag on indefinitely. Thus, times of peace are seen as interludes between ongoing episodes or cycles of death and barbarism.

In Mexico, the presence of these spaces of violence is not a new phenomenon. Since the sixties and seventies, certain regions have been marked by the presence of divergent sovereignties: white guards, chiefs, the army, the police, guerrilla groups, or armed groups linked to crime (Pansters 2012). Most of the confrontations between these opposing sovereignties were specifically bound to particular regions in certain states. However, some of these sovereignties disappeared in the following decades, in certain cases substituted by the presence of drug trafficking groups. The latter acquired a relevant power that gave them control over specific spaces, many times in collusion with or with the acquiescence of federal, state and local authorities.

One way to understand the confluence of different sovereignties is by the trails they leave behind. One of these is the homicide rate, whose spatial distribution reveals the presence of a necro-power. In Mexico, these spaces of violence can be identified by examining the spatial dependency that arises when the homicide rate in one locality is affected by the homicide rates in the neighboring localities. A space of violence is characterized by a homicide rate above the national average, where surrounding localities also have homicide rates above the national average. Therefore, violence in a determined space should not be understood as the result of a randomized process, but is based on wider territorial logics that involve neighboring localities. These logics suggest the presence of socially and institutionally geographically intertwined actors with the ability to regulate the movement of the population and determine who lives and who dies.

## 2 Methodology

To investigate the geographical intertwining of actors with the capacity to exert necro-power, we first analyzed the spatial autocorrelation of homicidal violence and then examined the presence of groups with the ability to exercise sovereignty. Through statistical analysis we establish whether there is a spatial relationship among homicides in neighboring localities.

<sup>3</sup> Plaza is defined here as "a territory where drug trafficking takes place thanks to an agreement between the authorities and those who pay for the plaza and have the ability and resources to control and exploit it" (translated from Valdés 2013, 129–30).

We also introduce elements of a qualitative nature with the description of sovereign groups that represent possible associated factors for that relationship (Andrejevic 2014; Boyd and Crawford 2012; Hilbert 2016). Using the two methodologies allows us to investigate links between the exercise of power by institutional and non-institutional forces and specific patterns of violence. The two methodologies are described below.

Violence is a complex phenomenon to measure. One way to approximate it is by studying homicides, particularly homicide rates. We used state-level and municipal-level information on homicides obtained from the Vital Statistics of Mortality provided by the National Institute of Statistics and Geography (INEGI) in Mexico, covering three-year periods (2004–2006, 2009–2011, and 2014–2016). The population figures necessary to estimate the mortality rates were also obtained from INEGI. Deaths by homicide were in accordance with the International Classification of Diseases (ICD-10), where they appear in the “Assault” section (Y85–Y09, Y87.1). We used homicide as our violence indicator because it is a particularly extreme crime, and because it is registered especially precisely and thoroughly (CEPAL 1999).

The analysis of mortality must take different population sizes into account (Echarri 2012). We estimated homicide mortality rates for states and municipalities. As Wong (2004) suggests, the geographic units of analysis can affect the picture of social phenomena and social processes; he calls this the modifiable areal unit problem (MAUP). Taking this into consideration, we centered our analysis at the municipal level. Mortality data at this scale allow us to establish more clearly the relationships between the actors of violence and the spaces where they operate. If the question is studied at the state level, the violence dynamics could be obscured, as homicides do not occur homogeneously at that scale. Thus, it is critical for us to study this phenomenon at the municipal scale. We present the homicide mortality rates at the state level simply to contextualize them in the Mexican context.

To obtain the mortality rates, we averaged the deaths that occurred in three consecutive years (for example, 2004, 2005 and 2006), with the central year of that period being the one we were interested in (in

this case 2005); by doing this, we aimed to reduce the mortality rate variation, especially in states or municipalities with small populations (Preston et al. 2001). These are good indicators for measuring the severity of violence in a population (Elgar and Aitken 2011), which allow comparison between states, regions and municipalities (Echarri 2012).

It is common for a municipality’s homicide rate to depend not only on its own traits but also on the rates in neighboring localities (Formisano 2002). This means that homicides have repercussions and somehow depend on the homicides in neighboring localities (Baller et al. 2001). To determine the possible spatial relation between homicides in neighboring localities, we analyzed the spatial correlation to describe the spatial distribution and identify regimes and spaces of violence. This method shows the degree of connection among homicide rates in geographically neighboring municipalities (Goodchild 1987). The analysis of these spatial correlations considers that all the phenomena are interrelated in space, but generally, the closest ones are more connected than the distant ones (Álvarez and González 2012). We conducted the exploratory spatial analysis of the municipal homicide rate in three stages. The first stage examines the homicide rate spatial distribution. In the second, the global spatial autocorrelation analysis is integrated by Moran’s I, a global indicator that enables the assessment of the existence of spatial autocorrelation in all units across space. In the third, we performed an analysis of local spatial correlation, using a local indicator of spatial autocorrelation (LISA) to detect clusters of municipalities according to the association with each and all neighbors (Anselin 1995; Sánchez Jabba et al. 2012).

The LISA indicators are particularly useful because they allow us to break the spatial association into four categories. The High-High (HH) category occurs when a location with an above-average homicide rate is surrounded by neighbors whose values are also above average; this group is also known as a *hot spot* or high violence cluster. The Low-Low (LL) scenario arises in the opposite case, when a location with a below-average value is surrounded by neighbors whose values are also below average; this is known as a *cold spot* or low violence cluster. There are two categories of a

negative correlation: In the High-Low (HL) category a municipality that has an above-average value is surrounded by neighbors whose values are below average while in the Low-High (LH) category a location with below-average values is surrounded by neighbors whose values are above average (Sánchez Jabba et al. 2012). To calculate Moran's I, we used the free software GeoDa 1.8.16.4. The estimation of the LISAs was performed using the default permutation method (999 permutations). GeoDa uses a randomization approach to generate a spatially random reference distribution for assessing statistical significance (a numeric permutation approach to describe the computation of pseudo-significance levels for global and local spatial autocorrelation statistics).<sup>4</sup> The level of statistical significance chosen for this research was 95 percent. For maps indicating statistically significant relations see the Appendix.

With this information, we chose four *clusters* that had consistently high homicide rates during the ten years under analysis, as it was likely opposing sovereignties would be present there. The selection of the clusters was not made using a statistical significance criterion. The selected municipalities must represent what happens when different sovereignties co-exist in any given municipality over time.

These four clusters match the historical spatial presence of organized crime identified by Fuerte, Pérez, and Córdova (2018). These authors identified the spatial presence of criminal groups and the violence they produce using a purpose-built database. The clusters we analyzed match those identified by Fuerte, Pérez, and Córdova (2018) as hosting the Los Zetas, the Juarez Cartel, the Sinaloa Cartel, the Gulf Cartel, and the Michoacan Family. Despite the limitations this database may have, it is one of the few available sources of information on the violence produced by criminal groups linked to narcotics.

We also searched national, regional, and local newspapers for the presence of sovereign groups over a period of ten years (2005 to 2015). This information allowed us to propose some initial analytical concepts for detecting the presence of organized crime groups within the violence clusters. In this way, we sought to

complement the spatial correlation analysis conducted by calculating the LISAs, suggesting a line of research. We studied a total of 311 news articles.<sup>5</sup> Journalistic resources are crucial for analyzing groups that practice violence in Mexico due to the scarcity and unreliability of official information (Davis 2007). Such secondary sources are useful because they allow us to obtain information on certain violent events (location and date, the participants' profiles, actions, and consequences) and provide a broad picture of these events (Río 2008). This allows us to establish, up to a certain point, the presence of actors over time in a determined space, more so if we consider both the national and local media (Río 2008). Thus, the press is a relevant form of media for identifying *clusters* of collective action, such as the violence practiced by certain social groups (Olzak 1989). Additionally, if these collective acts are repeated in the press over time, it suggests that these reports probably reflect the actual social dynamics of violence rather than the press's whims or interests (Barranco and Wisler 1989). The journalistic information was processed without any particular statistical analysis. The aim was to connect this type of information with the distribution of violence in particular municipalities. This combination of journalistic information and quantitative analysis aims to reveal the sovereign forces operating in the municipalities with a strong spatial correlation.

However, it is necessary to be aware of the limitations of working with such sources. Journalistic reports can be partial and biased in their interpretations of the motives of the participants, the attribution of causes and responsibilities, and the overall explanation of what happened. This is because journalists build their arguments on frameworks of interpretation bound to specific moral references and linked to the agenda of their newspaper (Río 2008). Moreover, the local and national press sometimes gather the data they use to produce their reports from low-credibility sources, and they are not always cross-checked with other sources.

Additionally, the profit motive sometimes fosters the addition of sensationalist elements—even if, as occurs

<sup>4</sup> [https://geodacenter.github.io/workbook/6a\\_local\\_auto/lab6a.html#ref-deCastroSinger:06](https://geodacenter.github.io/workbook/6a_local_auto/lab6a.html#ref-deCastroSinger:06)

<sup>5</sup> In this paper, we present only some of the news articles as examples or illustrations that allow us to show the processes of violence and the presence of sovereign groups in the selected municipalities.

in Mexico, fear of retaliation sometimes stops journalists from publishing the information they possess. Considering that journalistic reports should be handled carefully to prevent bias and optimize their advantages as sources of information, we carried out exercises to compare the news items and establish a sufficiently plausible framework of interpretation (Davis 2007). This allowed us to identify the presence of sovereign groups in spaces with a high rate of homicidal violence (in the *hot spots*), thus providing an initial exploratory conjecture regarding the results of the spatial correlation analysis.

### 3 Spaces of Violence

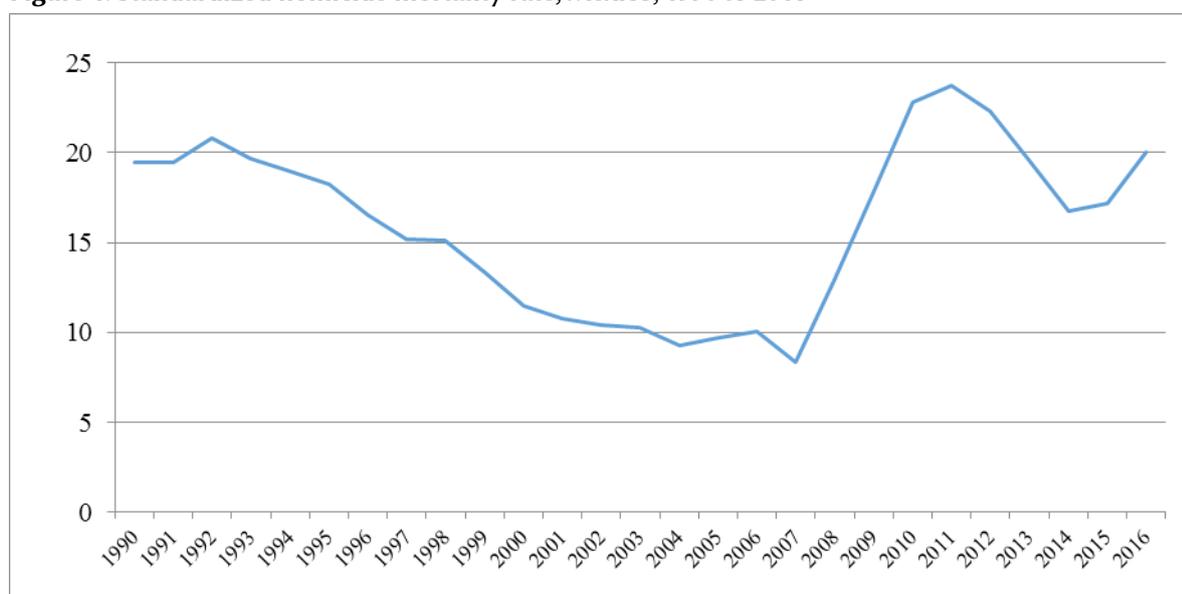
In Mexico, violence is concentrated in certain spaces. Homicides represented 3.43 percent of the total deaths registered in 1990, with a minimum of 1.72 percent in 2007 and a maximum of 4.61 percent in 2011; and the level in 2016 was 3.58 percent. Homicide rates decreased between 1990 and 2007, with a reduction of almost 60 percent (from 19.4 to 8.3 homicides per 100,000) (Figure 1). An increase in homicide rates occurred after 2007, peaking in 2011 (at almost triple the value in 2007) and subsequently decreasing until 2014 (but increasing again in 2015 and 2016).

In 2005, the states with the highest homicide rates were Guerrero, Chihuahua, Michoacán, Sinaloa, and

Oaxaca (more than 16 homicides per 100,000). That year, the states with the highest proportion of municipalities with very high homicide rates (over 50.7 homicides per 100,000) were Chihuahua, Oaxaca, Sonora, and Durango, with over 10 percent (Figure 2); mortality was above the national average in eleven states (Table 1). Yucatán and Aguascalientes presented the lowest mortality, with rates under 3 homicides per 100,000.

In 2010, homicide mortality increased, and the phenomenon spread at a municipal level within certain states. The states with the highest homicide rates that year were Chihuahua, Sinaloa, Durango, Guerrero, and Nayarit (more than 40 homicides per 100,000). There was also a noticeable increase in the number of very violent municipalities in Chihuahua, Sinaloa, Durango, Nuevo León, Sonora and Tamaulipas. In each of these states, more than 30 percent of municipalities were very violent, with more than 60.8 homicides per 100,000 (Figure 2). Chihuahua and Sinaloa stand out: in these states, more than 66 percent of municipalities had a very high level of homicide mortality. At the state level violence was more concentrated in 2010 than in 2005, with ten states featuring a homicide rate above the national average, and the state with the highest mortality (Chihuahua) showing a mortality rate 6.5 times higher than the average. Yucatán had

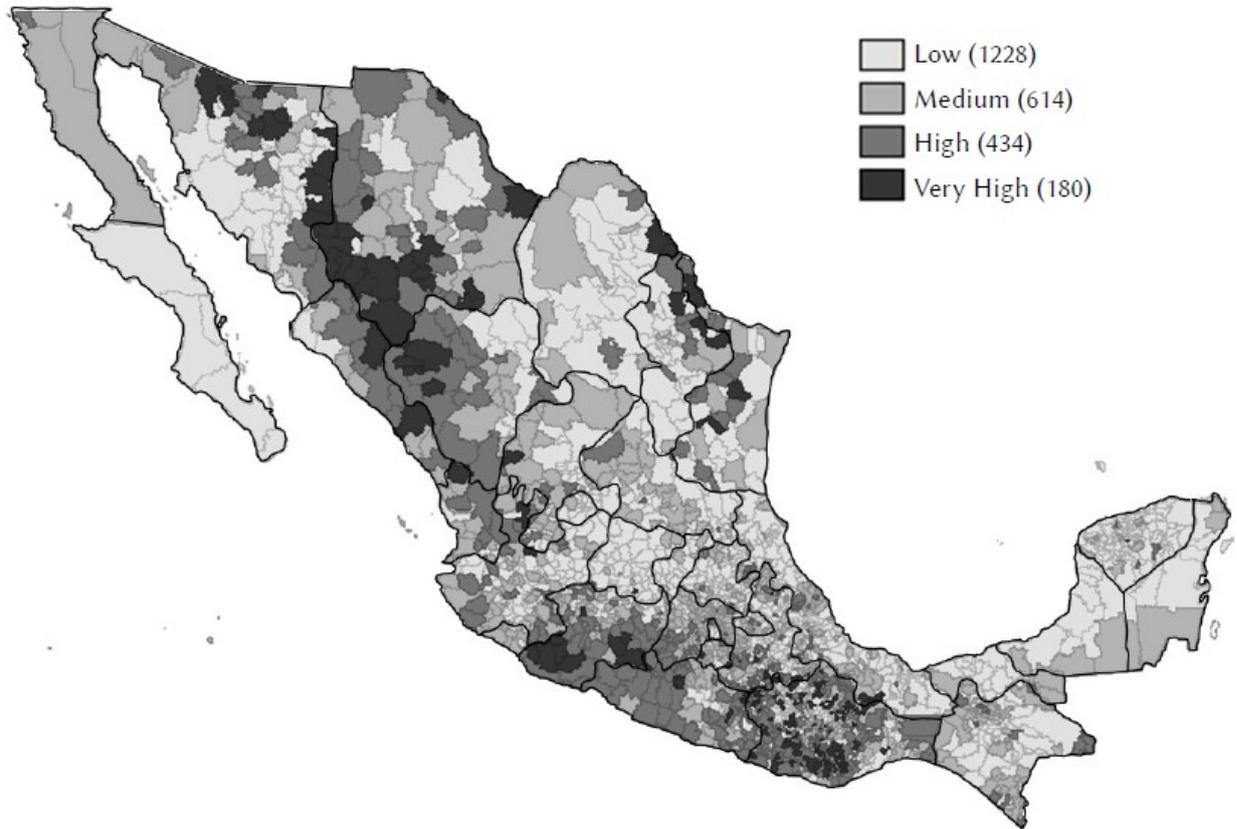
**Figure 1: Standardized homicide mortality rate, Mexico, 1990 to 2016**



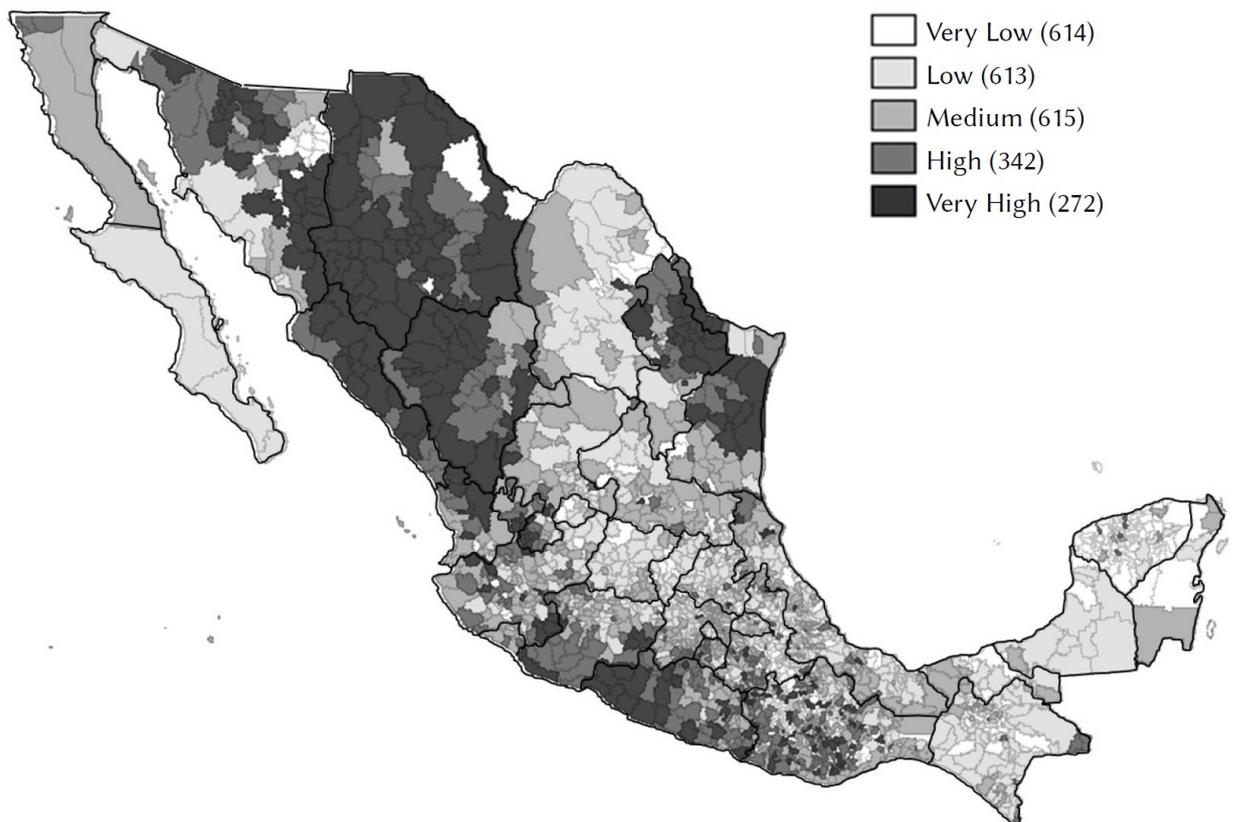
Source: data from INEGI, 1990–2016.

**Figure 2: Homicide mortality rate in Mexico at municipal level, 2005, 2010, and 2015**

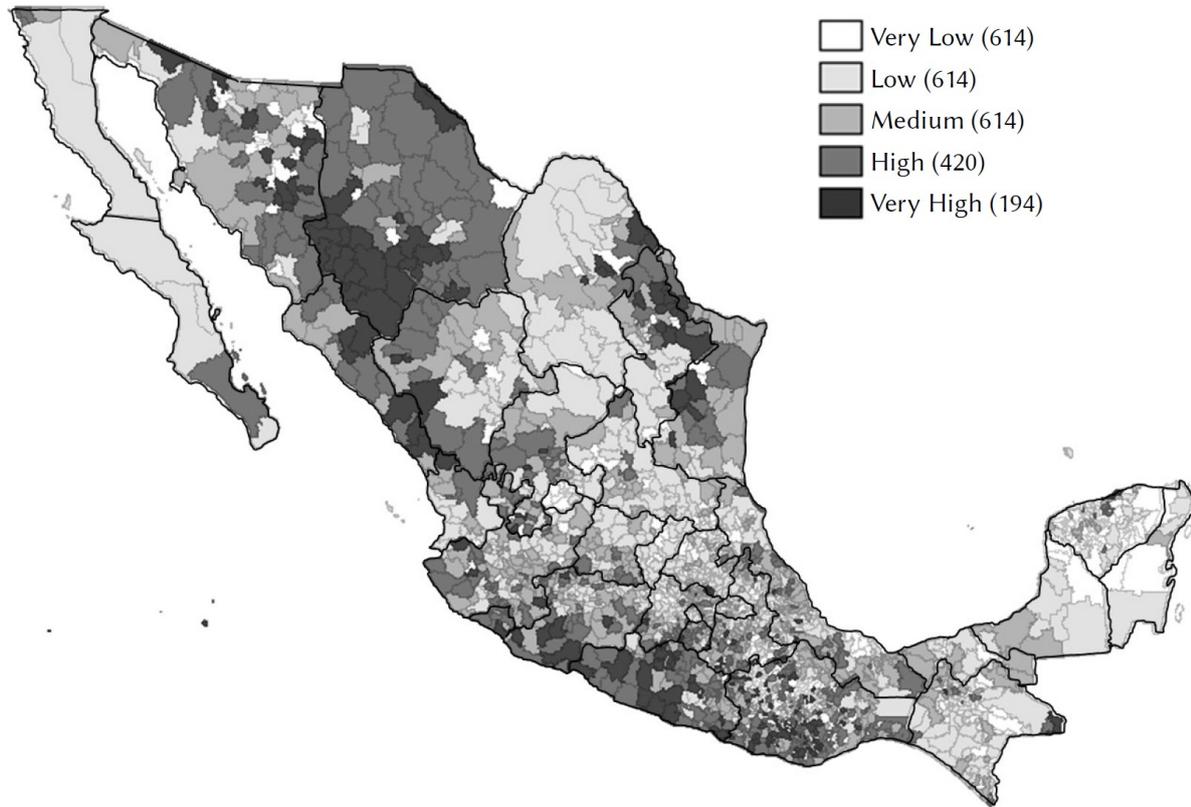
**a: 2005**



**b: 2010**



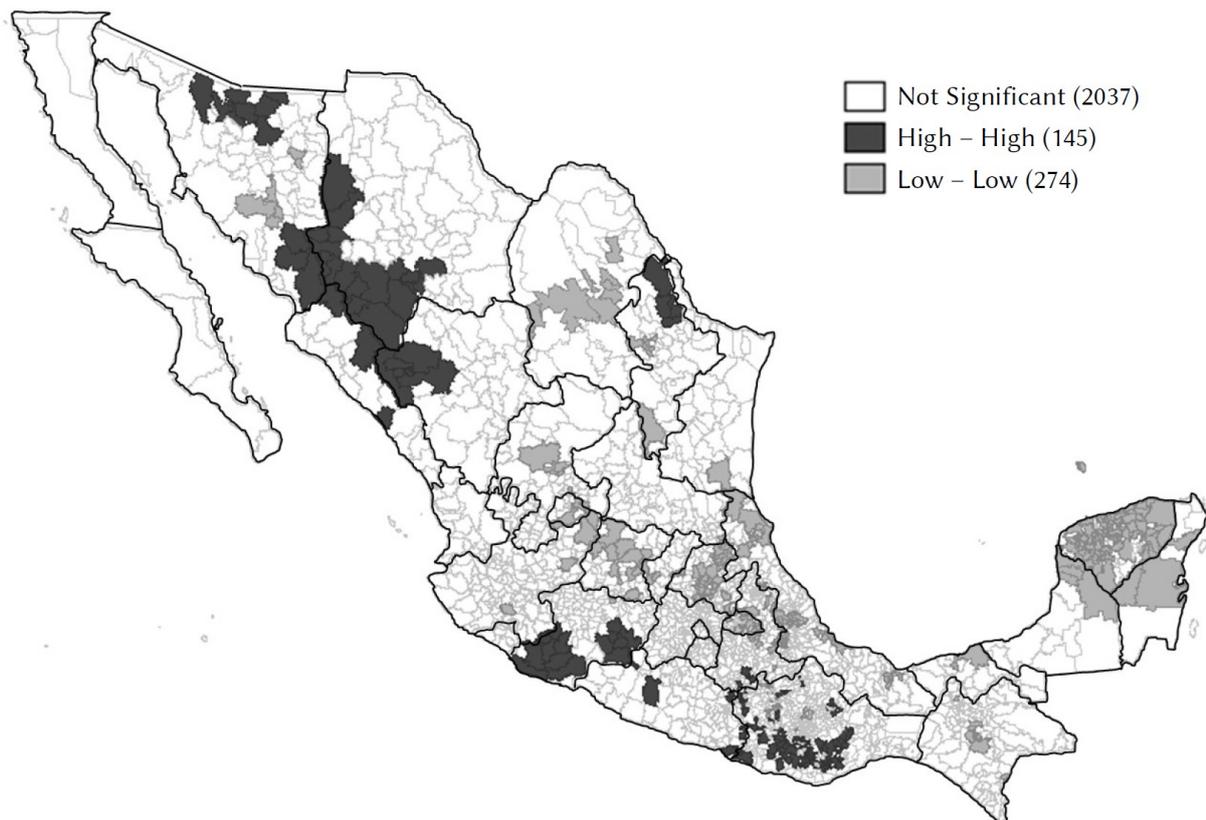
c: 2015



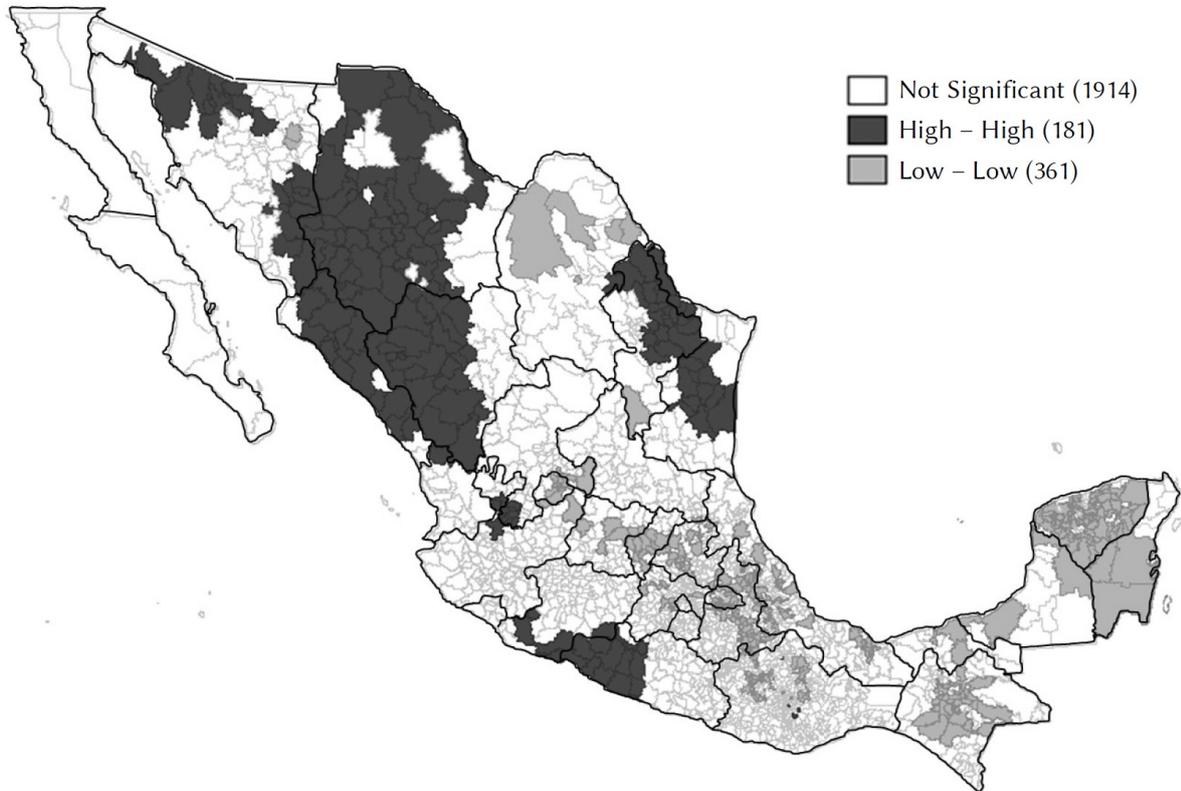
Source: data from INEGI. Maps created by the authors using GeoDa version 1.8.16.4.

Figure 3: Local indicators of spatial association (LISA) in Mexico, 2005, 2010, and 2015

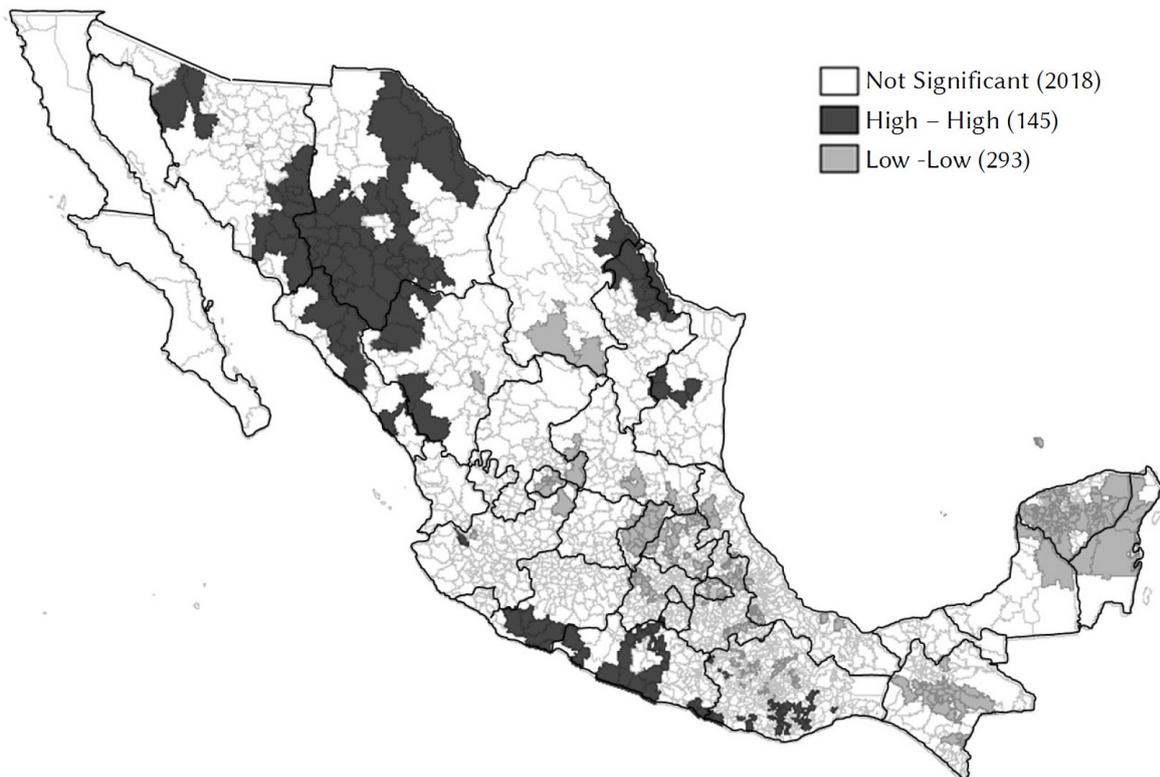
a: 2005



**b: 2010**



**c: 2015**



Source: data from INEGI. Maps created by the authors using GeoDa version 1.8.16.4.

**Table 1: Standardized homicide mortality rate per 100000 in Mexico at state level, 2005, 2010, and 2015**

	2005	2010	2015
National	9.70	21.51	18.00
Aguascalientes	2.47	7.01	3.72
Baja California	15.88	38.95	24.89
Baja California Sur	5.58	7.10	21.11
Campeche	5.48	6.46	8.66
Coahuila	4.96	17.27	11.76
Colima	8.56	18.20	43.96
Chiapas	9.06	7.06	10.71
Chihuahua	17.56	138.13	46.14
Distrito Federal	9.38	11.23	12.41
Durango	11.94	67.19	14.83
Guanajuato	4.09	9.67	17.53
Guerrero	23.13	62.53	67.03
Hidalgo	2.99	6.02	7.79
Jalisco	6.81	14.93	15.00
México	13.67	14.13	16.36
Michoacán	19.06	19.74	24.04
Morelos	9.03	22.22	27.03
Nayarit	13.20	40.56	12.86
Nuevo Leon	3.32	23.58	10.77
Oaxaca	16.85	18.82	20.61
Puebla	6.90	7.18	10.75
Queretaro	4.61	5.03	6.38
Quintana Roo	9.22	11.51	9.82
San Luis Potosi	6.32	12.51	10.77
Sinaloa	16.26	68.11	39.57
Sonora	10.27	22.74	20.76
Tabasco	6.11	9.02	14.36
Tamaulipas	10.01	23.52	22.39
Tlaxcala	4.80	6.79	7.13
Veracruz	4.91	9.49	13.24
Yucatan	2.20	2.12	2.64
Zacatecas	6.25	12.90	24.12

Source: data from INEGI.

the lowest homicide mortality rate (2.1 homicides per 100,000).

In 2015, the most violent states were Guerrero, Chihuahua, Colima, Sinaloa, and Morelos, all with more than 27 homicides per 100,000; a high number of very violent municipalities (with more than 60.7 homicides per 100,000) was found in Chihuahua, Sinaloa, Guerrero, and Sonora, accounting for more than 20 percent of the municipalities in each state (Figure 2). In twelve states the mortality rate was above the national average. Yucatán and Aguascalientes had the lowest homicide rates (less than 3.7 homicides per 100,000).

The Moran's I estimations for the three analyzed years (2005, 2010, and 2015) reveal the existence of a positive autocorrelation of homicide mortality rates among the 2,457 municipalities in Mexico. In 2005, the value was 0.21, increasing to 0.46 in 2010 and then falling to 0.25 in 2015. This means that homicides were not randomly distributed among the municipalities. Rather, there was a statistically significant relationship with homicide rates in neighboring municipalities.

The homicide rate clusters are shown on Figure 3 based on the LISAs. In 2005, the spaces of violence (category HH), or *hot spots*, were divided into two very clear areas in the northwest and south of the country. Clusters of high violence represented 5.9 percent of all municipalities (145). These spaces of violence included municipalities in the neighboring north-western states of Sonora, Sinaloa, Chihuahua, and Durango (the latter three forming the "Golden Triangle"), and in Michoacán, Guerrero, and Oaxaca. In both regions, we found areas that form continuous spaces of violence in which armed organized crime groups linked to the production and distribution of narcotics operate and where self-defense groups and federal, state and local police organizations, as well as Mexican military and navy detachments, are intertwined. Each of these groups can exert a variant of necro-power. We also observed an area of continuous violence including municipalities in the northern region, in Nuevo León and Tamaulipas. The municipalities constituting low violence clusters (category LL) were concentrated mainly in Yucatán, Veracruz, Puebla, Tlaxcala, Coahuila, and Hidalgo. It is important to highlight that nearly 11.1 percent of all munic-

ipalities in the country (274) can be considered peaceful.

As a result of the war against drug trafficking, the spaces of violence in northwestern Mexico grew in 2010, encompassing almost all of the municipalities in Sinaloa, 81 percent of the municipalities in Chihuahua, more than half of those in Durango, and more than one third of those in Nuevo León, Sonora and Tamaulipas (Figure 3). A total of 7.3 percent of all municipalities (181) were considered *hot spots*. This increase was accompanied by a decrease in spaces of violence in southern Mexico. The corridor of violence in Michoacán and Guerrero shrunk, focused mainly in Guerrero. Spaces of violence disappeared in the region between Oaxaca and Guerrero, but expanded along the border between Nuevo León and Tamaulipas. The number of peaceful municipalities expanded in comparison to 2005, with 361 municipalities (14.7 percent) classed as low-violence clusters. That expansion presented mainly in the Yucatán peninsula (municipalities in Campeche and Quintana Roo), in the center of Chiapas, and in central Mexico (Puebla, Tlaxcala, Hidalgo, and Querétaro).

In 2015, after the authorities reduced the intensity of joint operations against drug trafficking, the zones of violence returned to their 2005 range (Figure 3). Violence stayed at higher levels than in 2005, with 6 percent of all municipalities in high-violence clusters. A higher concentration of spaces of violence was observed in the region of the Golden Triangle (south Chihuahua, north Sinaloa, and north Durango). Nevertheless, was observed that the operational and management capabilities of different groups increased in the south, between Michoacán and Guerrero. The southern region of the state of Oaxaca presented an increase in violence, in contrast with the situation in northern Mexico, where the extent of spaces of violence was reduced. The concentration of peaceful spaces moved from the center to the east (north Puebla, Querétaro, Hidalgo, San Luis Potosí, south Coahuila, and south Nuevo León) and Aguascalientes, while low mortality rates prevailed in the Yucatán peninsula and northeast Oaxaca. Notably, 11.9 percent of all the municipalities formed low-homicide mortality clusters in 2015.

#### 4 Necro-Power Forces

These violence scenarios suggest that by 2005 there was already a necro-power presence in some areas of the country, a power exerted by different sovereignties. The war on drug trafficking launched by the federal government in 2008 resulted in those spaces of violence expanding, particularly in the northwest. Once the federal government left aside the use of the term “war on drug trafficking” to refer to its policy on drug production and distribution and ceased the joint operations, the spaces of violence shrank back to the spatial limits prevailing in 2005. This does not mean that violence disappeared, but it apparently adapted to the historical or traditional spatial limits where different actors exerted the power to decide the life and death of the population.

The violence clusters that persist over time identify spaces where there is conflict between different necro-powers. In some cases, non-state actors coexist with local power regimes and may cohabit with or confront the state’s mode of operation—acting within the institutional framework or outside of it. Fuerte, Pérez, and Córdova (2018) note that in territories with criminal violence, there are different relationships between groups linked to drug trafficking, the military, the police, and government authorities, these relationships generate tactical arrangements among themselves through bribery and state capture. These groups include social actors such as the police or the military—which move in a liminal space between legality and illegality—armed private security forces and organized crime groups, forms of social organizations (such as community guards that exercise justice via customary rights) and vigilante and organized crime groups. These groups establish different relationships with each other. As Desmond-Arias (2010) suggests, their presence creates a certain social and political order.

This political and social order can be appreciated especially if we consider some of the clusters with the highest homicidal violence rates during the analyzed period. The most meaningful cases are the clusters formed around the municipalities of Badiraguato in northeastern Sinaloa in the Western Sierra Madre region, San Miguel Totolapan in the uppermost Southern Sierra Madre region in the state of Guerrero, Val-

lecillo in Nuevo León, and Coalcomán de Vázquez Pallares in southwestern Michoacán. Except for Vallecillo, these are municipalities where narcotics are historically grown and processed. These activities have developed due to the coexistence of and agreements between the federal forces, local political structures, and the groups linked to the production of these narcotics (Astorga 2005; Fuerte, Pérez, and Córdova 2018). The Badiraguato municipality is one of the corners the “Golden Triangle,” where opium poppies have been grown since the 1920s (Astorga 1995). Marijuana crops have recently been integrated, and laboratories have been set up to manufacture synthetic drugs. This territory has had a heavy military presence since the middle of the twentieth century and is where the “Sinaloa Cartel” has operated since the 1980s (Fuerte, Pérez, and Córdova 2018; Rio Doce 2016).

The San Miguel Totolapan (Guerrero) municipality is the gateway to the highest part of the Southern Sierra Madre, where marijuana and opium poppies are grown. To the north, it borders Arcelia, where the criminal group La Familia Michoacán is operating. This criminal group was founded at the beginning of the century in Michoacán (Fuerte, Pérez, and Córdova 2018). In the late nineties, it was already a territory where criminal groups linked to drug trafficking were present and different federal armed forces were operating. Lately, it has become the center of operations of two criminal groups in confrontation, “Los tequileros” and “Guerreros Unidos” (La Prensa 2014). The press even notes that “Los tequileros” have a military unit with strategic capabilities matching those of the armed federal forces (El Debate 2016). In this context, a community self-defense group named “Movimiento Totolapanense para la paz” has recently appeared.

The Vallecillo cluster is characterized by the presence of a group of hitmen self-styled “Los Zetas”; this group is made up of deserters from the Special Forces Air Group of the Mexican military and was initially allied with the “Cartel del Golfo” (Brophy 2008). The area hosting this cluster is characterized by its complex desert geography, which allows the maintenance of safe houses and training camps for “Los Zetas.” (Amigos de Tamaulipas 2011) It is also a point of connection between Monterrey, the capital of Nuevo León, and the border city of Nuevo Laredo in

Tamaulipas, which is an entry point into the United States. It is, therefore, a strategic area not only for the drug trade but also for the illegal weapons market (Proceso 2005). The cluster around Vallecillo is strategic for criminal groups—for “Los Zetas” as well as for the “Cartel del Golfo”—and government forces due to its geographic location (Fuerte, Pérez, and Córdova 2018).

The cluster around the municipality of Coalcomán de Vázquez Pallares has become a space characterized by the growth and trafficking of drugs in the last twenty years and has also seen the arrival of illegal logging operations and timber trafficking in recent years. These municipalities hold a privileged position because they connect the harbors of Lázaro Cárdenas in Michoacán and Manzanillo in Colima. It is therefore a space that sees drug traffic from Tierra Caliente to the most important ports on the Mexican Pacific coast. At first, the municipality and its neighbors were characterized by their marijuana plantations. There are even signs that the production of this plant is currently carried out using sophisticated irrigation systems that require a specific infrastructure (Rosiles 2013). However, in recent years, the territory has been turning into a producer of methamphetamine. The area is contested by the “Caballeros Templarios,” a group that has its origins in the Michoacana Family and the “Cartel Jalisco Nueva Generación” (Fuerte, Pérez, and Córdova 2018). As with other municipalities in the same situation, the presence of the army has not ended illegal activities and violence. In May 2013, a significant part of the community’s citizenry took up arms and established a community self-defense organization in an effort to counter the activity of criminal groups in the territory (World News Network 2016). This cluster is therefore characterized by the presence of a social order branded by violence, where armed organizations—legal and illegal—dispute control over the territory and the merchandise passing through it (Álvarez 2017).

These four snapshots highlight how the spatial structural logic of violent homicides—or the spatial autocorrelation of homicidal violence—is related to the presence of certain actors—organized crime groups, community self-defense groups, and state forces—that create necro-spaces through their necro-

political capabilities. We consider that the analysis of these actors allowed us to understand, to a degree, the establishment of certain violence regimes that work as an integrated and organic system: integrated because while they rest upon the actions of individuals and groups, their explicit and implicit relationships of confrontation and agreement with each other create a system; organic because different actors use violence as a mechanism to support these relationships, facilitating not only confrontation but also the establishment of pacts.

## 5 Conclusion

This article analyzed the convergence of different sovereignties in the spatial distribution of violence in Mexico. To this end, we used a methodology that allowed us to understand the structural conditions of necro-spaces. The results indicate that violence in a specific place does not occur by chance; it is linked to broader territorial and social dynamics, where social and institutional actors show a significant ability to regulate movement of people and decide on the life and death of the population. We applied a methodology that connected two ways of collecting and analyzing information: one that allowed us to establish the spatial autocorrelation of homicidal violence and another that showed the presence of groups with the capacity to exercise sovereignty. In this way, we aimed to establish a bridge between the spatial relationships among the homicides occurring at a local scale and descriptions of the groups that build regimes of violence in those spaces, highlighting the importance of introducing elements of a qualitative nature as exploratory factors into the study of spatial and demographic relations.

We believe that this type of research allows us to complement other studies relying solely on statistical analysis that, though they relate violence to factors of a socio-demographic and economic nature, treat variables of a qualitative order as secondary. This paper did not intend to carry out an in-depth exploration of violence regimes, which would involve developing field explorations of an anthropologic and ethnographic nature and more detailed attention to the history of the social contexts. Instead, it aimed to show the relevance of social dynamics in strengthening cer-

tain actors and allows exploratory approaches of the structural, spatial logics of violence to be conducted. Thus, these logics could be the result of several armed groups' activities—legal and illegal—that complement each other.

## References

- Álvarez, Benjamín. 2017. A Cuatro Años, las Autodefensas se Niegan a Extinguirse. *Contramuro*, February 24. <https://www.contramuro.com/a-cuatro-anos-las-autodefensas-se-niegan-a-extinguirse/>
- Álvarez, Carolina, and Carlos González. 2012. Análisis espacial de la violencia homicida en el pacífico colombiano. *Revista de Economía y Administración* 9 (1): 69–85.
- Amigos de Tamaulipas. 2011. Vallecillo, el Municipio Abandonado. *Amigos de Tamaulipas*, November 28. <https://amigosdetamaulipas2.mforos.com/1817565/10391280-vallecillo-el-municipio-abandonado/>
- Andrejevic, Mark. 2014. The Big Data Divide. *International Journal of Communication* 8:1673–89.
- Anselin, Luc. 1995. Local Indicators of Spatial Association – LISA. *Geographical Analysis* 27 (2): 93–115.
- Astorga, Luis. 1995. Arqueología del narcotráfico. *Nexos* 211:37–43.
- Astorga, Luis. 2005. *El siglo de las drogas: El Narcotráfico, del Porfiriato al nuevo milenio*. Mexico City: Plaza y Janés.
- Baller, Robert D., Luc Anselin, Steven F. Messner, Glenn Deane, and Darnell F. Hawkins. 2001. Structural Covariates of U.S. County Homicide Rates: Incorporating Spatial Effects. *Criminology* 39 (3): 561–90.
- Barranco, José, and Dominique Wisler. 1989. Validity and Systematicity of Newspaper Data in Event Analysis. *European Sociological Review* 15 (3): 301–22.
- Boyd, Danah, and Kate Crawford. 2012. Critical Questions for Big Data. *Information, Communication and Society* 15 (5): 662–79.
- Brophy, Stephanie. 2008. Mexico: Cartels, Corruption and Cocaine: A Profile of the Gulf Cartel. *Global Crime* 9 (3): 248–61.
- Comisión Económica para América Latina y el Caribe (CEPAL). 1999. *Agenda social: Seguridad ciudadana y violencia: Panorama Social de América Latina*. Santiago de Chile: CEPAL.
- Davis, Diane E. 2007. El factor Giuliani: delincuencia, la 'cero tolerancia' en el trabajo policiaco y la transformación de la esfera pública en el centro de la Ciudad de México. *Estudios Sociológicos* 25 (75): 639–81.
- Desmond-Arias, Enrique. 2010. Conclusion: Understanding the New Democracies of Latin America. In *Violent Democracies in Latin America*, ed. Daniel M. Goldstein and Enrique Desmond Arias, 242–64. Durham, NC: Duke University Press.
- Echarri Cánovas, Carlos J. 2012. Homicidio. In *Panorama estadístico de la violencia en México*, ed. Carlos J. Echarri Cánovas, 51–104. Mexico City: Centro de Investigación y Estudios en Seguridad, El Colegio de México, and Secretaría de Seguridad Pública de la Ciudad de México.

- El Debate. 2016. Nuevo Golpe de “Los Tequileros”: Secuestran a 14 Personas. *El Debate*, November 18. <https://www.debate.com.mx/mexico/Nuevo-golpe-de-Los-Tequileros-secuestran-a-14-personas-20161118-0246.html>
- Elgar, Frank J., and Nicole Aitken. 2010. Income, Inequality, Trust and Homicide in 33 Countries. *European Journal of Public Health* 21 (2): 241–6.
- Flores, Miguel, and Eduardo Rodriguez-Oreggia. 2014. Spillover Effects on Homicides across Mexican Municipalities: A Spatial Regime Model Approach. *Review of Regional Studies* 44 (3): 241–62.
- Formisano, Michel. 2002. *Econometría Espacial: características de la violencia homicida en Bogotá*. Bogotá: Universidad de los Andes.
- Fuerte, María del Pilar, Enrique Pérez, and Rodrigo Córdova. 2018. Organized Crime, Violence, and Territorial Dispute in Mexico (2007–2011). *Trends in Organized Crime* 22 (2): 188–209.
- González, Guillermo J., María G. Vega, Carlos E. Cabrera, Agustín Vega, and Armando Muñoz de la Torre. 2012. Mortalidad por homicidios en México: tendencias, variaciones socio-geográficas y factores asociados. *Ciència & Saúde Coletiva* 17 (12): 3195–3208.
- Goodchild, Michael F. 1987. A Spatial Analytical Perspective on Geographical Information Systems. *International Journal of Geographical Information Systems* 1:327–34.
- Gros, Frédéric. 2006. *États de violence: Essai sur la fin de la guerre*. Paris: Gallimard.
- Hilbert, Martin. 2016. Big Data for Development: A Review of Promises and Challenges. *Development Policy Review* 34 (1): 135–74.
- La Prensa. 2014. México: Comando Armado Asesina a Cinco Personas en el Estado de Guerrero. *La Prensa*, August 7. <https://www.laprensa.com.ni/2014/08/07/internacionales/206668-mexico-comando-armado-asesina-a-cinco-personas-en-estado-de-guerrero>
- Mbembe, Achille. 2011. *Necropolítica: seguido de Sobre el gobierno privado indirecto*. Madrid: Melusina.
- Monárrez, Julia. 2014. Ciudad Juárez: Sobrevivir: vidas superfluas y banalidad de la muerte. *Alternativas* (3): 1–23.
- Monárrez, Julia. 2015. Sed de mal: Femicidio, jóvenes y exclusión social. *Frontera Norte* 27 (53): 217–20.
- Olzak, Susan. 1989. Analysis of Events in the Study of Collective Action. *Annual Review of Sociology* 15 (1): 119–41.
- Pansters, Wil G. 2012. *Violence, Coercion, and State-Making in Twentieth-Century Mexico: The Other Half of the Century*. Stanford: Stanford University Press.
- Preston, Samuel, Patrick Heuveline, and Michel Guillot. 2001. *Demography: Measuring and Modeling Population Processes*. Malden, MA: Blackwell.
- Proceso. 2005. Nuevo León Territorio en Disputa. *Proceso*, October 9. <https://www.proceso.com.mx/195489/nuevo-leon-territorio-en-disputa>
- Río Doce. 2016. De Nuevo se Enfrentan Grupos Armados en Badiraguato. *Río Doce*, September 17. <https://riodoce.mx/2016/09/17/de-nuevo-se-enfrentan-grupos-armados-en-badiraguato/>
- Río, Manuel. 2008. Usos y abusos de la prensa como fuente de datos sobre las acciones colectivas. *Revista de Metodología de Ciencias Sociales* 16 (2): 59–84.
- Rodríguez, Ferreira Octavio. 2016. Violent Mexico: Participatory and Multipolar Violence Associated with Organised Crime. *International Journal of Conflict and Violence* 10 (1): 40–60.
- Rosiles, Luis Felipe. 2013. Lamenta Hija de Vázquez Pallares Abandono de Coalcomán. *Quadratin*, July 17. <https://www.quadratin.com.mx/justicia/Lamenta-hija-de-Vazquez-Pallares-abandono-de-Coalcoman/>
- Sánchez, Jabba Andrés, Ana M. Díaz, Alejandro Peláez, Omar Castelblanco, Johanna Tautiva, Cristina González, and Laura Ángel. 2012. *Evolución geográfica del homicidio en Colombia*. Cartagena: Banco de la República.
- Valdés, Guillermo. 2013. *Historia del narcotráfico en México*. Mexico City: Aguilar
- Wong, David. 2004. The Modifiable Areal Unit Problem (MAUP). In *WorldMinds: Geographical Perspectives on 100 Problems*, ed. Donald G. Janelle, Barney Warf, and Kathy Hansen, 571–75. Dordrecht: Kluwer Academic.
- World Health Organization (WHO). 2014. *Global Status Report on Violence Prevention 2014*. Geneva: WHO. [http://apps.who.int/iris/bitstream/10665/145086/1/9789241564793\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/145086/1/9789241564793_eng.pdf?ua=1)
- World News Network. 2016. Coalcomán de Vázquez Pallares. *World News Network*, June 15. [https://wn.com/coalcom%C3%A1n\\_de\\_v%C3%A1zquez\\_pallares](https://wn.com/coalcom%C3%A1n_de_v%C3%A1zquez_pallares)
- Wright, Melissa W. 2011. Necropolitics, Narcopolitics, and Femicide: Gendered Violence on the Mexico-US Border. *Signs: Journal of Women in Culture and Society* 36 (3): 707–31.