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# Bullets and Votes: Violence and Electoral Participation in Mexico

Alejandro Trelles and Miguel Carreras

**Abstract:** In this paper we analyze the effect of criminal violence on electoral participation in Mexico. Many scholars have studied the origins of criminal violence, as well as the success or failure of contemporary regimes in dealing with it. However, few have studied how it affects voter turnout. Following recent findings in the behavioral subfield, we hypothesize that as criminal violence increases, citizens abandon public channels of participation and take refuge in their private spheres. Using longitudinal and geostatistical tools to analyze Mexican municipalities in the last decade, we find that the level of electoral turnout is lower in the most violent regions of the country. In the final section, we use survey data to confirm that citizens exposed to high levels of criminal violence are less likely to vote.

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**Keywords:** Mexico, criminal violence, electoral participation

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People live with fear in this town and they will do whatever it takes to protect themselves from drug dealers and criminals, but also from corrupt politicians, police, and the army. If I cannot go out with my family to a restaurant because of fear, of course I will not vote tomorrow (Alejandro Escobar, resident of Ciudad Juárez, Chihuahua, July 2010).<sup>1</sup>

## Introduction

Does criminal violence affect electoral participation? Nearly all Latin American countries have experienced a significant – and in some cases dramatic – increase in the levels of crime since the third wave of democratic transitions. For authors like Bergman (2006), the rise of criminal violence represents a redoubtable threat to the stability of democratic institutions in the region. However, this critical issue has received very limited attention in the literature.<sup>2</sup>

Recently, scholars have started to study the link between crime and democratic quality in Latin America by analyzing the impact of criminal violence on individual attitudes. The main thrust of this research is that the sudden increase in crime has taken a toll on citizens' political trust. Citizens exposed to criminal violence appear to be less satisfied with the way democracy works in their country (Fernandez and Kuenzi 2010) and have lower levels of support for political institutions (Carreras forthcoming). In the same vein, victims of crime and citizens who perceive levels of violence to be high tend to express greater support for authoritarianism and “*mano dura*” (repressive) policies to combat crime (Bateson 2012). In another promising line of research, several scholars have studied the criminal justice system and the effectiveness of police corporations in Latin America, focusing on the necessity for legal reforms in the justice system, community policing, and police excesses (Brinks 2008; Hinton 2006; Tulchin and Ruthenburg 2006).

Absent from this emerging subfield is a careful analysis of the impact of criminal violence on political participation – specifically, on voter turnout.

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1 Interview performed by the authors during field research in Ciudad Juárez, Chihuahua, in the context of Mexico's 2010 local elections (translation by the authors).

2 We would like to thank Scott Morgenstern, Barry Ames, Aníbal Pérez-Liñán and Alfred Blumstein for their thoughtful observations regarding the theoretical aspects of this research, as well as Steven Finkel, Jude Hays, John Polga, Ian Cook, Reynaldo Rojo and Roberto Ponce for their helpful comments on the statistical and geospatial analysis performed in this paper. We would especially like to thank the Center of Latin American Studies at the University of Pittsburgh for its generous financial support.

Previous research has shown that citizens living in areas affected by high levels of political violence are less likely to vote.<sup>3</sup> In a recent analysis of the 2007 general elections in Nigeria, Bratton (2008) finds that violence has a negative effect on electoral participation, and that the most powerful effect on turnout is the “experience of the threat of violence.” Using a probabilistic model, he finds that “for an average Nigerian, with other variables held at their mean, a threat of violence reduces the odds of intending to vote by 52 percent” (Bratton 2008: 626). Collier and Vicente (2008) also study electoral politics in Nigeria and reach similar conclusions. Based on a nationwide field experiment, they argue that voter intimidation is effective in reducing voter turnout. In a similar vein, García (2009) studies the effect of political violence in Colombia, and finds that turnout tends to be lower in violent municipalities.

By showing that *criminal* violence also has a negative effect on electoral participation, this article aims to contribute to a growing body of literature that analyzes the link between violence and political behavior in Latin America. While tragic, the dramatic increase of violence in Mexico – since the “war on drugs” began in 2006 the number of homicides has risen from approximately 10,000 (in 2006) to more than 50,000 (in 2012) – presents an ideal opportunity to capture the effect of violence on voter turnout. The trends of criminal violence and electoral participation in the last decade provide the conditions for a natural experiment because criminal violence associated with drug cartels has dramatically increased in some areas of the country but not in others. Hence, we can evaluate the impact of violence on electoral participation by comparing turnout in violent and non-violent municipalities.

This paper is structured as follows: In the first section we introduce the reader to our research question and explain how this research contributes to a better understanding of the effect of violence on voter turnout in Latin America. In the second section we briefly describe the recent increase in the levels of criminal violence in Mexico. In the third section, we discuss recent findings in the behavioral literature and offer a theoretical framework to understand the relation between criminal violence and electoral participation. This discussion yields a series of hypotheses that are presented at the end of this section and tested in the fourth section using turnout data at the municipal level from the last four federal elections in Mexico – the period corresponding to the increase in criminal violence. In the fifth section, we

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3 Political violence is violence exercised by governments and non-governmental organizations to achieve political goals (e.g. economic redistribution, political autonomy, independence). Criminal violence is violence committed by individuals or organized groups to achieve profit rather than political goals.

use recent survey data to test whether exposure to violence is associated with electoral participation at the individual level. In the final section, we present the implications of our findings and discuss some avenues for further research.

## 1 The Context: The Increase of Violence in Mexico

Mexico has experienced a dramatic increase in the levels of violence in recent years. In the 1980s and 1990s, the country was used primarily by drug-trafficking organizations to smuggle drugs into the United States. The level of criminal violence resulting from this activity was relatively low in comparison to the most violent countries in the region. In fact, Bailey and Flores-Macías (2007) point out that Mexico was one of the rare countries in which the homicide rate declined between 1993 and 2001. By the middle of the first decade of the 2000s, the situation had considerably worsened. Mexico remained one of the main drug-trafficking routes to the United States, but the country had also developed an internal market for drugs, and turf disputes between competing drug-trafficking organizations began to erupt (Guerrero Gutiérrez 2010, 2011). President Calderón stated repeatedly during his administration that the

national security issues that Mexico was facing could not be conceived only as a problem derived from drug trafficking, but as a complex phenomenon of social decomposition where violence, corruption, kidnapping, extortion, and drug distribution were affecting the life of all citizens.<sup>4</sup>

According to Rios (2010), the poor economic conditions in the Mexican job market during the last two decades contributed to the recent rise of violence. She argues that as drug cartels became guardians of their own territories, a need to recruit new cartel members to form private armies began, generating the incentives for a violent illegal labor market to emerge.<sup>5</sup> Overall, since the drug war began in 2007, more than 50,000 people have died in crimes related to drug violence or associated with illegal activities such as kidnapping, extortion, and arms trafficking (Guerrero Gutiérrez 2011). More than 90 percent of these homicides can be attributed to violent disputes

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4 Presidential speech given during the first meeting of the Dialogue for National Security in Mexico City, July/August 2010 (translation by the authors).

5 For a detailed description of violence, youth gangs and drug cartels in Mexico see Guerrero Gutiérrez (2010).

between criminal organizations (drug cartels) for strategic trafficking routes and drug-distribution *plazas* (Guerrero Gutiérrez 2010).

The trends of violence in the last two decades have varied significantly between presidential administrations. Table 1 shows the homicide rates in Mexico grouped by presidential term.

Table 1: Homicide Rates in Mexico (1988–2010)

President	Year	Homicides	Homicide Rate*
Carlos Salinas	1988	n.a.	n.a.
	1989	n.a.	n.a.
	1990	14,661	16.133
	1991	15,242	16.773
	1992	16,725	18.405
	1993	16,062	17.675
Ernesto Zedillo	1994	15,829	17.419
	1995	15,596	17.162
	1996	14,453	15.905
	1997	13,444	13.865
	1998	13,640	14.068
	1999	12,247	12.631
	Vicente Fox	2000	10,768
2001		10,334	10.658
2002		10,076	10.392
2003		10,451	10.199
2004		9,449	9.222
2005		10,081	9.838
Felipe Calderón	2006	10,505	10.252
	2007	11,569	11.291
	2008	17,073	16.662
	2009	19,861	19.383
	2010	25,526	24.911

Note: \* Calculated per 100,000 people. Using data from INEGI and the Office of the President of Mexico

Source: Authors' own compilation.

This table shows that during the presidency of Carlos Salinas the levels of violence were relatively high compared to those in other countries of the

region.<sup>6</sup> During his administration there was a moderate increase in the homicide rate, going from approximately 16 up to 18.4 homicides per 100,000 people. This increase can be explained by the political and economic instability experienced in Mexico during the late 1980s and early 1990s. First, there was significant civil unrest in the South that culminated with the rise of the Zapatista army in 1994 and, second, the economic instability experienced during the second half of the Salinas administration culminated with the Mexican *peso* crisis – referred to by economists as the “Tequila Crisis” – that same year.

During the administration of former president Ernesto Zedillo there was a significant decrease in the homicide rate. It went from 17.42 homicides per 100,000 inhabitants in 1994 to 12.63 per 100,000 inhabitants in 1999. Compared to the previous administration, Zedillo’s presidency was characterized by political and economic stability (Domínguez and Lawson 2004). In 2000, Mexico cemented its democratic transition with a partisan change in the presidency. During the Vicente Fox administration the homicide rate stabilized and reached its lowest levels at any point in the last two decades (9.22 in 2004). The decreasing trend can also be explained by the relative political and economic stability during Fox’s presidency (Wilson and Petersilia 2011).

Clearly, there was a significant increase in the levels of violence during Calderón’s administration. The homicide rate went from 10.25 in 2006 to 24.91 in 2010 (the highest point in the last twenty years).<sup>7</sup> The total number of homicides went from approximately 10,500 in 2006 to more than 25,000 in 2010. For authors like Rios and Shirk (2011), this dramatic increase can be explained partly by the decision of the Mexican executive to fight organized crime in a more decisive (and militaristic) way. According to some crime specialists in Mexico, this policy was counterproductive in terms of lowering the homicide rate: every time the federal government captured or killed a head of a criminal organization it generated a significant increase in the levels of violence. First, it created incentives for rival criminal organizations to take advantage of a weakened neighbor and, second, the succession pro-

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6 As a reference, the regional homicide rate in Southern Africa (Botswana, Lesotho, Namibia, South Africa and Swaziland) in 1995 was 37.3 homicides per 100,000 inhabitants; in South America the corresponding number was 25.9, in Eastern Europe 15.7, in North America (U.S. and Canada) 6.5, in Western Europe 5.4, and in Asia 3.2. (See Geneva Declaration of Armed Violence and Development: <[www.genevadeclaration.org](http://www.genevadeclaration.org)>).

7 For more information on homicides from a comparative perspective see Lynch and Pridemore (2011), the United Nations Office on Drugs and Crime (<[www.unodc.org](http://www.unodc.org)>), and the Geneva Declaration of Armed Violence and Development (<[www.genevadeclaration.org](http://www.genevadeclaration.org)>).

cess of the head of any cartel involved violent confrontations (Guerrero Gutiérrez 2010). In a similar vein, Bailey and Taylor (2009: 20) argue that the militaristic policies implemented by Fox and Calderón were partially successful because they decapitated some of the larger drug-trafficking organizations, but this positive result “had the unintended consequence of fragmenting them into smaller groups, which in turn heightened uncertainty and promoted more widespread violence.” Another set of factors that has contributed to the spike in criminal violence is the easy access to lethal weaponry in the U.S. market, and the large pool of deserters from the Mexican army and police forces who were recruited by the criminal organizations (Bailey and Taylor 2009).

Although there is a generalized perception that Mexico suddenly became a violent country (*The Economist* 2009, 2011), the analysis of the number of homicides reveals that violence is a local problem and that most of these homicides have occurred in very specific municipalities in one-third of Mexico’s states. By 2011, almost 85 percent of the total number of homicides related to drug violence had occurred in only 11 states. By far the most violent state was Chihuahua. Almost 30 percent of the total number of homicides related to the war on drugs were registered in that state.<sup>8</sup> Overall, however, most Mexican states have not experienced the same levels of violence. The 11 states with the highest number of homicides are considered strategic trafficking and drug-distribution *plazas* by criminal organizations (Guerrero Gutiérrez 2010). The localized nature of the crime problem in Mexico can be observed in Figure 1, which shows a spatial distribution of the number of homicides.

Figure 2 shows the trends for the homicide rates per 1,000 inhabitants in some of the most violent states for the period between 1990 and 2010.<sup>9</sup> Homicide rates in these states are relatively stable over time, until the recent spike in crime occurred. In contrast to the decline in the average homicide rate experienced in the rest of the country, the most violent states experienced a significant increase in the levels of violence during the period from 2006 to 2010. Again, the state of Chihuahua experienced the most dramatic increase, from 0.2 homicides per 1,000 inhabitants in 2006 to 1.5 homicides

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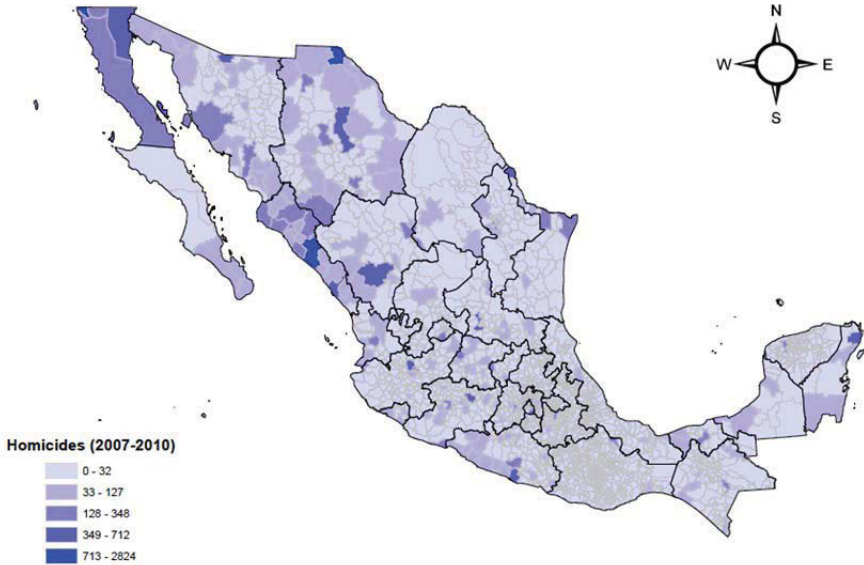
8 As of 2011, the most violent Mexican states were Chihuahua, Sinaloa, Guerrero, Baja California, Durango, Michoacán, the State of Mexico, Tamaulipas, Sonora, Jalisco and Nuevo León. Detailed information on homicide rates and the number of homicides in Mexican states is available in the online appendix.

9 The most frequently used ratio to record homicide rates in the comparative crime literature is per 100,000 people (Wilson and Petersilia 2011). However, we use a rate per 1,000 inhabitants because the demographic density at the state and municipal level is significantly lower than national aggregates.



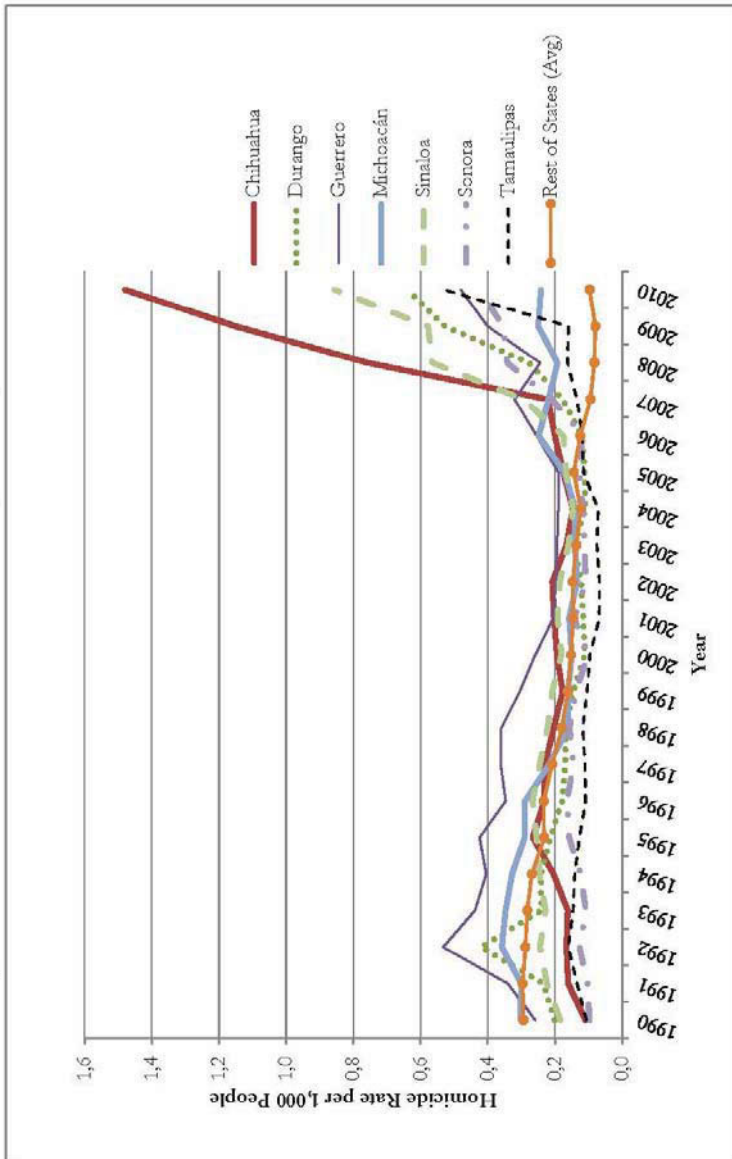
per 1,000 inhabitants in 2010. Chihuahua was followed by the states of Sinaloa, Durango, Tamaulipas and Guerrero, which also experienced significant increases in their homicide rates.

Figure 1: Distribution of Drug War Homicides (2007–2010)



Source: This map was traced using GeoDa and Arc GIS software.

Figure 2: Homicide Rates in the Most Violent States (1990–2010)



Source: INEGI (<[www.inegi.org.mx](http://www.inegi.org.mx)>) and the Office of the President of Mexico (<[www.presidencia.gob.mx](http://www.presidencia.gob.mx)>).

## 2 Crime and Voter Turnout: Theoretical Considerations

The analysis of the impact of criminal violence on political participation in Latin America has not been thoroughly explored. So far, only Bateson (2012) has analyzed the link between exposure to criminal violence and political participation in the region. Drawing on survey data from five continents, Bateson finds that citizens who are victims of crime are more likely to engage in a series of political activities, such as community meetings, town meetings and political protests.

Although Bateson's (2012) analysis reveals interesting general patterns about the links between crime and political behavior, her work leaves some questions unanswered. First, she does not study the effect of exposure to violence on electoral participation. All measures of political participation included in Bateson's analysis are non-electoral forms of political participation. It is possible that citizens affected by violence turn away from electoral politics to express their grievances in the more active forms of political participation she analyzes – town meetings, community improvement meetings, political protests. In fact, as several interviews in some of the most violent municipalities reveal, citizens disenchanted with the increase in violence may engage in political protests and participate in town meetings precisely because they do not trust politicians to address their problems and to ensure their safety.<sup>10</sup> So far, no study has assessed the impact of crime on electoral participation, so this hypothesis cannot be discarded.

Second, Bateson (2012) presents pooled models with data from many countries (grouped by region). Since some countries in Latin America have extremely high levels of crime, while other countries have moderate crime rates (Wilson and Petersilia 2011), pooling data from different countries may be problematic. It is possible that the effect of victimization on electoral participation is contingent on the overall level of violence in the country. Exposure to violence may increase voter turnout in countries that have relatively low levels of crime – such as Chile and Uruguay – while decreasing electoral participation in highly violent countries – such as Colombia, Venezuela, Brazil, El Salvador, Guatemala and, as of recently, Mexico. Third, Bateson (2012) does not explore the potential link between high crime rates and political participation at the aggregate level. In Bateson's words,

even if crime victims increase their participation in politics, high crime rates will not necessarily be associated with high rates of political par-

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10 Interviews performed by the authors in Chihuahua, Baja California, Sonora and Sinaloa during the summer of 2010 and 2011.

ticipation at the aggregate level. As victims become more likely to attend political meetings or rallies, concern over rising crime rates may make their non-victimized neighbors less likely to do so, resulting in a net decrease in participation (Bateson 2012: 582).

The main argument of this article is that electoral participation tends to decrease in areas affected by high levels of criminal violence. We test our main theoretical expectation using data from municipalities in Mexico, a country that has experienced extremely high levels of criminal violence in some regions during the period analyzed in this paper (2000–2010). We advance two causal mechanisms for this relation between criminal violence and low turnout. The first one is that criminal violence has a negative impact on turnout because it increases the number of disenchanted and apathetic citizens, and the second one is that higher levels of criminal violence have a negative impact on electoral participation by increasing the level of perceived insecurity during the electoral process.

## 2.1 Criminal Violence and Political Trust

The study of the impact of criminal violence on regime legitimacy in developing countries was somewhat of a gray area in public opinion research until recently. However, in the last decade many studies have explored the link between exposure to crime and support for political institutions in Latin America, making use of survey data that are now available.<sup>11</sup> In the literature, political support is defined as the way in which a person relates to the political system (political institutions and the values undergirding the regime) through attitudes or behaviors (Easton 1965; 1975). For many scholars, the rise of criminality in Latin America since the third wave of democratization significantly affected support for political institutions (Ayres 1998; Bergman 2006; Cruz 2003).

In a groundbreaking article, Cruz (2003) shows that support for political institutions in three Central American countries (El Salvador, Guatemala, Nicaragua) decreases considerably among citizens who were victims of crime and/or citizens who perceive violence to be high. In a recent contribution, Carreras (forthcoming) finds the same effect when relatively less violent Latin American countries are included in the model. For these authors, system support decreases in highly violent contexts because individuals exposed to crime become disenchanted with state institutions that are

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11 The Latin American survey data used by political behavior scholars come mostly from the *Latinobarómetro* and the Latin American Public Opinion Project (LAPOP).

unable to provide security to citizens. Moreover, victimization and high perception of violence are negatively correlated with system support because it makes citizens more aware of the inefficiency of the judicial system. In fact, very few homicides in the region are subjected to a judicial process (Estévez 2003; Manrique 2006). In a similar vein, Malone (2010) finds that victimization and fear of crime tend to erode the levels of support for the justice system in Latin America.

An even more recent line of research has focused on the negative effect of crime on satisfaction with democracy. Using survey data from the *Latinobarómetro* and LAPOP, two recent studies demonstrate that respondents who have been victims of crime or who perceive levels of violence to be high tend to be less satisfied with the way democracy works in their countries (Ceobanu, Wood, and Ribeiro 2011; Fernandez and Kuenzi 2010). According to these scholars, the level of satisfaction with democracy derives from the costs and benefits the democratic regime bestows upon its citizens. High crime rates signal the failure of the government to perform one of its most basic functions – to supply law and order. Under these circumstances, citizens tend to become dissatisfied with the way democracy works and with the government's handling of public affairs. Overall, it seems that a consensus has emerged among scholars who have studied the relationship between crime and regime legitimacy: the finding that exposure to crime has a negative impact on political trust appears to be robust.

Low trust in political institutions and low satisfaction with the functioning of democracy may in turn lead to lower levels of electoral participation. A series of scholars and commentators argue that participation within conventional institutional channels may decline when citizens become disenchanted with political institutions and with democratic performance (Norris 2002b: 30). In periods of political and economic crisis, individuals who trust political institutions tend to express their frustration in the ballot box rather than engaging in aggressive political demonstrations (Huntington 1991: 258). Studies from Bolivia (Smith 2009), Costa Rica (Seligson 2002) and Germany (Finkel 1987) have demonstrated that citizens with higher levels of system support are more likely to vote and to participate in campaign activities.

In the same vein, Grönlund and Setälä (2007) show that regime legitimacy is positively correlated with electoral participation in 22 European countries examined in the European Social Survey (2002–2003). They conclude that “there is a clear and linear relationship between trust in parliament and turnout as well as satisfaction with democracy and turnout” (Grönlund and Setälä 2007: 418). Cox (2003) reaches a similar conclusion in her study of the determinants of voter turnout in European Parliament elections. In line with these findings, we argue that crime and fear of crime have

a negative impact on turnout at the municipal level in Mexico because citizens exposed to violence lose confidence in the political system and negatively evaluate the functioning of democracy.

## 2.2 Crime and Fear During the Electoral Process

High levels of criminal violence also have a negative impact on electoral participation by increasing the level of perceived insecurity during the electoral process. High levels of violence intimidate citizens, who may then prefer to stay at home on the day of the election instead of going out to the polls. In fact, in communities where violence is widespread, individuals are likely to abandon public spaces where the risk of suffering a violent attack is higher. Participation in social and political activities decreases as individuals seek refuge in their private spheres (Cruz 2000). Since 2007, participation in public demonstrations has significantly decreased in Mexico, especially in those areas affected by the rise in crime. Gustavo de la Rosa, a member of the Human Rights Commission in the crime-ridden city of Chihuahua, summarizes it well: “Facing a situation of so much terror, citizens adopt a culture of self-defense and lock themselves in their houses” (cited in Tena 2011). In many states, criminal organizations often fight against one another, but also against local and federal authorities for the control of streets, roads and highways. This situation is popularly known as a *narcobloqueo* (drug-cartel barricade), which entails large transportation trucks being used by criminal organizations to block streets or highways while they engage in combat with other cartels or with public authorities. In the most violent states, and in highly populated cities such as Monterrey, people often do not know who controls highways and roads. These events, along with other violent demonstrations in public spaces, are likely to push fearful citizens to stay at home on the day of the election (El Universo 2010).<sup>12</sup>

Additionally, high levels of criminal violence may depress turnout because citizens affected by this phenomenon are less likely to actively engage in social networks. Previous research has shown that individuals with low levels of education and low cognitive resources tend to rely on members of their social networks to learn about the candidates and about the different issues at stake in the election. High levels of political discussion tend to influence vote choice and to increase political participation (Baker, Ames, and Renno 2006; Beck, Dalton, Greene, and Huckfeldt 2002). In that sense,

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12 In September 2008 seven people were killed, and more than 100 people injured, when two grenades exploded in the *zócalo* of Morelia, the capital of the southern state of Michoacán, during the celebration of Mexican independence (Venegas 2008).

high perceptions of violence lead to interpersonal distrust because in violent environments attitudes of confidence and reciprocity are substituted by attitudes of distrust and fear, leading people to rely on their own resources rather than engaging in social networks (Ayres 1998; Carreras forthcoming). In the Mexican case, the abrupt rise in the levels of crime in recent years might lead to a disruption of the flow of information during electoral campaigns, thereby spurring a decrease in turnout.

Furthermore, fear of violence may affect the behavior of different political actors during the campaign and lead to a decrease in voter turnout. In highly violent contexts – for example, areas dominated or disputed by criminal organizations and drug cartels – political parties may choose to be less active during the campaign in order to protect their candidates and party militants. In recent years, some political parties have decided not to participate in local elections or have preferred to present low-profile candidates in dangerous areas in order to protect their most appealing candidates.<sup>13</sup> In his study of political violence and electoral behavior in Colombia, García (2009) shows that the shifting of campaign strategies by political parties in violent areas has two main consequences. First, it decreases political competition, thereby favoring the strongest party in the region. Second, it causes a decline in political mobilization because politicians and party militants prefer to maintain a low profile in order to maintain their safety. Since an extensive body of literature (Caldeira and Patterson 1982; Cox and Munger 1989; Norris 2002a, 2002b) shows that competitiveness and mobilization are closely associated with electoral participation, we contend that criminal violence may lead to lower levels of turnout because it forces political parties to adopt campaign strategies that depress competition and mobilization.

In urban and semi-urban areas, citizens live, work, and lead a social life in different municipalities embedded within the same city. Moreover, print and digital media create an “ecology of communication that contributes to the construction and expansion of fear in public discourse,” affecting the perception of citizens living close to areas with high levels of criminal violence (Altheide 1997; Armoudian and Crigler 2010). Hence, voters might

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13 The risk is not only perceived, it is real. Many politicians (activists, federal and local congressmen, municipal presidents, and former governors) have been assassinated since the war on drugs began in 2006 (Viridiana Rios and Shirk 2011). The PRI's leading candidate for the governorship in the state of Tamaulipas, for example, was assassinated one week before the 2010 election. That same month, a series of explosions near campaign offices occurred in several states and a grenade exploded in front of the house of the PRI candidate for the governorship in the state of Sinaloa. In the same vein, in 2010 the right-wing party (PAN) reported that no candidate had registered to contend in 8 of the 67 municipalities in the northern state of Chihuahua because of the violent context.

react not only to crime in their neighborhood, but also to the level of violence in neighboring municipalities. The problem of high crime rates is covered in the national media, but it is omnipresent in local newspapers and on the local radio and television. Citizens living in violent regions are constantly reminded of the rise in crime through local media. In fact, several studies have shown that the framing and priming of crime in the local media leads to a considerable increase in the level of fear in the population (Gilliam and Iyengar 2000; Kerbel 2001; Romer, Jamieson, and Adai 2003). For this reason, we constructed a variable to capture the levels of violence in surrounding municipalities.

## 2.3 Research Hypotheses

For the reasons outlined in the previous discussion, we hypothesize that electoral participation is negatively related to the level of criminal violence. We contend that fear of crime and political dissatisfaction result from the level of criminality in one's municipality, but also from the level of criminal violence in neighboring municipalities. The two hypotheses of this paper are as follows:

*H1. Electoral participation tends to decrease as the level of criminal violence in the municipality increases.*

*H2. Electoral participation tends to decrease as the level of criminal violence in the neighboring municipalities increases.*

In addition to these key variables (violence in the municipality and violence in the vicinity), we also include several variables in the model to control for other factors that might affect electoral participation at the local level. Previous research on turnout in Mexico using aggregate data at the regional level has shown that electoral participation is highly correlated with socioeconomic development and with urbanization (Klesner and Lawson 2001; Moreno 2003). Hence, we include measures of GDP per capita, illiteracy rate and population density in our statistical analyses.

## 3 Data and Research Design

We analyze the relationship between criminal violence and electoral participation using two approaches. The first one uses turnout data at the municipal level from the *last four federal elections in Mexico* – the period corresponding to the increase in criminal violence – and tests whether the increasing levels of violence have affected voter turnout in federal elections at the municipal level. The second approach uses recent survey data to test whether exposure



to violence is associated with electoral participation in presidential and gubernatorial elections at the individual level.

Table 2: Variables in the Model and Descriptive Statistics

Variables	Description	Expected Relationship	Type of Variable	Value	Source
<b>Dependent Variables</b>					
<i>Political Participation</i>	Voting turnout	–	Continuous	0 to 100	IFE
<b>Independent Variables</b>					
<i>Violence</i>	Homicide rate	$\beta < 0$	Continuous	0 to 45.08	INEGI and MP
<i>Violence in neighboring municipalities</i>	Average homicide rate in neighboring municipalities	$\beta < 0$	Continuous	0 to 19.5	INEGI and MP
<b>Control Variables</b>					
<i>Economic</i>	Per capita economic index in USD	$\beta > 0$	Continuous	148.7 to 35,594	INEGI
<i>Social</i>	Infant mortality rate	$\beta < 0$	Continuous	17.2 to 66.9	INEGI
<i>Education</i>	Illiteracy within the population older than 15	$\beta < 0$	Continuous	1.1 to 75	INEGI
<i>Urban/Rural</i>	Population density per km <sup>2</sup>	$\beta > 0$	Continuous	.125 to 19,233.95	INEGI

Note: Number of observations: 2,454 for the period 2000–2009 (N = 9,816 municipalities). Number of states: 32. Turnout: number of votes divided by total number of registered voters. Violence: homicide rate per 1,000 people. IFE: Federal Electoral Institute (<www.ife.org.mx>). INEGI: National Institute of Statistics, Geography and Informatics (<www.inegi.org.mx>). MP: Office of the President of Mexico (<www.presidencia.gob.mx>).

Source: Authors' own compilation.

In order to analyze the effect of criminal violence on voter turnout, we use aggregate measures of electoral participation in federal elections at the municipal level (see Table 2). Compared to state-level analyses, using municipalities allows researchers to work with a considerably larger number of observations and, thus, obtain greater levels of variation for statistical analysis. Aside from that, municipalities are the closest and most familiar administrative structures to citizens in Mexico (Merino 2007).

We analyze 2,454 Mexican municipalities in four federal elections between 2000 and 2010 (N = 9,816). We use voter turnout in federal elections

at the municipal level to operationalize electoral participation, our dependent variable. This index was calculated by dividing the total number of votes by the number of registered voters for four federal legislative elections held in 2000, 2003, 2006 and 2009. This is a continuous variable, and it is measured on a scale where values are distributed from 0 to 100, where 0 represents the lowest level of voter turnout and 100 represents the highest level of voter turnout. The information was obtained from the Federal Electoral Institute (IFE).

We measured the level of violence using the homicide rate per 1,000 inhabitants in each municipality for the same four election years mentioned above. This variable is continuous and its values range from 0 to 45.1 homicides per 1,000 inhabitants. Similarly, we captured the level of violence in neighboring municipalities for the four election years between 2000 and 2009 by calculating the average homicide rate in contiguous municipalities using a geospatial analysis tool (see Anselin 2005).<sup>14</sup> This variable is also continuous and its values go from 0 to 19.5 homicides per 1,000 inhabitants. The information was obtained from the National Institute of Statistics and Geography and Information (INEGI) and the Office of the President of Mexico.

We also control for three socioeconomic indicators and an additional variable to capture the level of demographic density in each municipality. All the information related to these variables was obtained from INEGI. In the case of the three socioeconomic indicators, we use information from the 2010 population census. The first indicator represents, in a synthesized form, the economic development of each municipality. It is based on the GDP per capita at the municipal level (calculated in USD), and it is used as an approximation of the economic dynamism in the productivity system. In this measure, values are distributed between 148.70 and 35,594.00 USD. The second indicator represents the social conditions that prevail at the municipal level. It is based on infant mortality and it is used as a proxy to measure the access of people to the health system in each municipality. It was obtained by calculating the number of infant deaths (under one year old) per 1,000 live births in each municipality. Values in this measure are distributed between 17.2 and 66.9. The third indicator is the illiteracy rate at the municipal level. It was obtained by calculating the rate of people over 15 years of age unable to read or write in each municipality per 1,000 individuals. Values of this measure are distributed between 1.1 and 75, where 1.1 represents the lowest level of illiteracy and 75 represents the highest. In addition to these

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14 In order to calculate the weighted matrix of the neighboring homicide rate we used Geoda, a spatial data analysis software developed by Luc Anselin (2005).

three indicators, we control for demographic density to differentiate urban and rural municipalities. This measure was calculated by dividing the total number of inhabitants by the territorial extension, measured in square kilometers, in each municipality for 2005 (corresponding to the vote in the 2000 and 2003 elections) and 2010 (corresponding to the vote in the 2006 and 2009 elections).

## 4 The Effect of Violence on Voter Turnout

To analyze the effect of violence on voter turnout during the last decade we used two statistical models: a fixed effects vector decomposition (FEVD) model and a random effects (RE) model. Analyzing pooled cross-sectional time-series data is challenging because Ordinary Least Squares (OLS) assumptions of homoscedasticity and uncorrelated error terms are likely to be violated (Stimson 1985). OLS estimates are not efficient in the presence of autocorrelation, which may contaminate tests of statistical significance. In order to overcome these problems, we assessed the impact of municipal violence on electoral participation in federal elections through a series of panel analyses. Fixed effects models cannot estimate the effect of time-invariant variables, and produce very inefficient estimates of variables that rarely change. When such variables are introduced in the model as independent variables,

the fixed effect will soak up most of the explanatory power of these slowly changing variables. Thus, if a variable [...] changes over time, but slowly, the fixed effects will make it hard for such variables to appear either substantively or statistically significant (Beck 2001: 285).

In our model, the homicide rates and our measure of population density are time-variant, but the three socioeconomic factors (GDP per capita, illiteracy, infant mortality rate) are considered time-invariant since we only used data from the 2010 census. Hence, a fixed effects model is not the appropriate estimator.<sup>15</sup>

The fixed effects vector decomposition (FEVD) estimation technique developed by Plümper and Troeger (2007) is an efficient estimator of both time-variant independent variables and time-invariant variables – or variables that rarely change through time. As some of the control variables in the model are time-invariant, this estimation is the most appropriate technique

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15 Even if census data were available for every year included in our sample, a fixed effects model would not be appropriate because all of these indicators change very slowly.

to test our hypotheses. Additionally, the model allows us to focus on the “within” variation (the relationship over time within each municipality). This estimator was criticized in a recent issue of *Political Analysis* (Vol. 19, Issue 4, 2011). The main criticism leveled against this technique is that the standard errors of the time-invariant variables are too small, which leads to incorrect conclusions (Breusch, Ward, Nguyen, and Kompas 2011; Greene 2011). However, the latest FEVD command (xtfevd ado file) in Stata generates a correct estimation of the standard errors (see Beck 2011; Plümper and Troeger 2011). Nonetheless, given the doubts generated by the contributions to the symposium in *Political Analysis*, we also used a random effects model as a robustness check.<sup>16</sup>

Table 3 shows the results from the FEVD model in the 32 states. The results support our two main hypotheses. At the municipal level – accounting for the unobserved differences across municipalities – our results show that violence is negatively related to electoral participation in this period. This is a theoretically and substantively important result that shows that a one-unit increase in homicide rate is associated with a 0.66 percent decrease in turnout. More intuitively, our results indicate that electoral participation is likely to be 13 percentage points higher in municipalities with a comparatively low homicide rate (2 per 1,000 inhabitants) than in municipalities with high homicide rates (22 per 1,000 inhabitants). In the same direction, the coefficient capturing the average homicide rate in neighboring municipalities is also negative and significant, indicating that a one-unit increase in the mean homicide rate of neighboring municipalities is actually responsible for a 2.77 percent decrease in voting within that municipality. This latter finding is interesting since it tells us that, overall, the effect of violence on voter turnout is higher in those municipalities surrounded by other violent municipalities than in “isolated” violent municipalities. As mentioned before, this effect is probably related to the mediatic framing of violence and how citizens perceive crime in their surroundings. In other words, urban areas where most of the municipalities are affected by high crime rates are more likely to generate negative and fearful voters than large urban areas where violence is concentrated in a few specific neighborhoods.

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16 According to Wooldridge (2009), the random effects model is more appropriate when the unit effects are drawn randomly from a specific population, as in the case of large-scale survey research. By contrast, he claims that aggregate-level studies are not entirely suitable for random effects. In our case, the observed unit effects are fixed for the different municipalities and, hence, we emphasize the results obtained via the FEVD model.

Table 3: Effect of Criminal Violence on Electoral Participation (FEVD and RE)

Independent Variables	FEVD (32 States)		Random Effects	
	Coefficient	SE	Coefficient	SE
<i>Homicide rate</i>	-0.666***	0.120	-0.181*	0.102
<i>Neighboring homicide rate</i>	-2.762***	0.294	-1.326***	0.233
<b>Control Variables</b>				
<i>GDP per capita</i>	0.00031	0.00038	0.000***	0.00000
<i>Infant mortality</i>	-0.46788***	0.10229	-0.39596***	0.07644
<i>Illiteracy</i>	-0.336***	0.04849	-0.283***	0.03300
<i>Population Density</i>	0.004*	0.00200	0.00000	0.00000
<i>Constant</i>	9.5837***	0.91370	8.7098***	0.64910
N	9816		N	9816
R <sup>2</sup>	0.593		Overall R <sup>2</sup>	0.130
Adj R <sup>2</sup>	0.457		Between R <sup>2</sup>	0.162
F (8, 7356)	37.950		Within R <sup>2</sup>	0.112
Prob > F	0.000		Corr x <sub>b</sub> and u	Assumed to be 0
			Variance of U term	8.856
			Theta	0.503
			Rho	0.432

Note: All p values are two tail tests of significance. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Dependent variable: Political participation.

Source: Authors' own compilation.

Our four socioeconomic control variables showed a relationship in the expected direction. However, only infant mortality and illiteracy rate were negative and statistically significant at the 0.01 level. The economic variable was not statistically significant, while the demographic variable was significant at the 0.1 level. The goodness of fit of the model is moderately high since it accounts for the “within” variation (the relationship over time within a unit) in each municipality. The overall R<sup>2</sup> accounts for approximately 60 percent of the variation in voter turnout at the municipal level for this period of time.

As displayed in Table 3, the statistical results from the RE model are consistent with those found in the FEVD model. Homicide rate and neighboring homicide rate continue to have a statistically significant and negative effect on turnout, although the magnitude of their effects is smaller. The control variables, save for population density, are statistically significant and possess the expected signs.

In some cases, municipalities that are experiencing higher levels of violence still have higher levels of turnout compared to municipalities with less

violence. This makes sense in the Mexican context, where municipalities in the more prosperous, politically engaged North suffer more from the effects of drug-related violence, whereas the less politically engaged municipalities of southern Mexico are not so prone to high levels of violence (see Figures 1 and 2). However, the results from the FEVD and the RE models show that, if we control for the municipal level of socioeconomic development, an increase in violence leads to a decrease in voter turnout. An increase in the rate of violence seems to depress turnout. The use of panel statistical estimators is key to discover the real effect of the increase in criminal violence on electoral participation in Mexico. A similar phenomenon occurs with the second independent variable of substantive interest: homicide rate in neighboring municipalities. It has a significant negative impact on turnout, with a larger negative effect than the standalone local municipal homicide rate. This indicates that, if we control for the unit effects, the model reveals the “true” negative effect of violence on voter turnout.

## 5 Individual-level Results

In this section we present additional evidence of the negative effect of violence on electoral participation at the individual level using survey data from the last edition of LAPOP. The 2010 edition of LAPOP surveys was conducted in Mexico between January and February 2010. The survey used a national probability sample design of voting-age adults, taking into account stratification and clustering.<sup>17</sup> The survey allows us to assess the impact of exposure to crime on citizens’ intentions to participate in the forthcoming gubernatorial and presidential elections.<sup>18</sup>

Below, we present six models of intention to vote in presidential and gubernatorial elections. The dependent variable was created using one of the items in the questionnaire asking respondents about their vote intentions for the next election. It was coded as “1” if the respondent expressed the intention to turn out on election day – either to support one of the parties or to cast a null ballot, and “0” if they answered that they would not vote.

The independent variables of interest in the model are “fear of crime,” “violence as major problem” and “violent state.” The variable “fear of crime” is a scale that reflects whether the respondents feel secure in their

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17 More technical information about the 2010 survey in Mexico is available on the LAPOP website: <[www.vanderbilt.edu/lapop/mexico/Mexico\\_2010\\_Tech\\_Info.pdf](http://www.vanderbilt.edu/lapop/mexico/Mexico_2010_Tech_Info.pdf)>.

18 The survey includes questions about electoral participation in previous elections and intention to participate in the next election. We prefer to use “intention to vote” in future elections because the levels of violence were not as high when the last presidential and gubernatorial elections took place.

neighborhood. “Violence as major problem” is coded as “1” when respondents think that violence is the most major problem Mexico is facing (selected from a long list of problems proposed by the survey), and “0” when respondents are more concerned with other national problems. The variable “violent state” is a dummy variable coded as “1” if the respondent lives in one of the seven states in which the homicide rate was higher than one per 1,000 people in 2010.<sup>19</sup> In line with our previous hypotheses and the evidence gathered at the aggregate level, we expect that fearful citizens and respondents who live in the most violent states will vote less often than the rest of the population.

Following Verba, Schlozman, and Brady (1995), all the models in this section control for individuals’ resources (age, education, gender), motivations (interest in politics, political information, efficacy, party identification, life satisfaction, retrospective economic evaluations), and immersion in mobilization networks (employment status, church attendance, membership in voluntary associations, area of residence – urban vs. rural). For details on the construction of all these variables, see Appendix 1. We estimated the relationship between the dependent variable (electoral participation) and the independent variables (perception of violence, violence as major problem, residency in a violent state) using a series of logistic regressions because of the binary nature of the dependent variable.<sup>20</sup> A simple OLS would not be appropriate since it would yield heteroscedastic, non-normal errors. Table 4 presents the results.

The results support most of our theoretical expectations. Models 3 and 6 demonstrate that respondents who live in the most violent areas of the country are less likely to participate in presidential and gubernatorial elections. As expected, the coefficients for the variable “residency in violent state” are negative and statistically significant in both models. Similarly, Models 2 and 5 show that voters who consider the current wave of criminal violence the major problem Mexico is facing are less likely to turn out on election day. The coefficient for this variable is negative and statistically significant in both models. These findings are consistent with the results of the aggregate models presented above. Many voters residing in crime-ridden areas may prefer to stay at home on election day in order to protect themselves. In the same vein, voters who think that violence is the major prob-

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19 The data on homicide rates in 2010 come from INEGI and the Office of the President of Mexico. Using the proposed threshold, the seven most violent states are Chihuahua, Sinaloa, Guerrero, Baja California, Durango, Michoacán, and the State of Mexico.

20 We run different models for each “violence” predictor to avoid multicollinearity problems.

lem in Mexico may grow so disenchanted with politics that they prefer to “exit” the system by not participating in national and local elections (Hirschman 1970). The result for the third independent variable measuring exposure to violence (“perception of violence”) is more ambiguous. In both models, the coefficients are negative – as expected – but only in the gubernatorial model (Model 1) does it reach standard levels of statistical significance. This result suggests that a high perception of violence is not necessarily enough to push citizens to abstain. Through the media, voters from all regions in the country may perceive criminal violence to be high. But only voters from the most violent areas are likely to stay at home on election day (Models 3 and 6), which confirms our aggregate results.

The coefficients presented in Table 4 are not directly interpretable. In order to estimate the effect of violence on vote intention we used Clarify to calculate the predicted probabilities (King, Tomz, and Wittenberg 2000). Table 5 presents the predicted probabilities of electoral participation when the dummy variables “violence as major problem” and “residency in a violent state” are positive and negative, and the rest of the variables are set at their mean.



Table 4: Determinants of Voter Turnout in Mexico (LAPOP 2010)

VARIABLES	INTENTION TO VOTE IN NEXT GUBERNATORIAL ELECTIONS		
	(1)	(2)	(3)
Fear of crime	-.161* (.098)		
Violence as major problem		-.308* (.186)	
Residency in violent state			-.417* (.216)
Interest in politics	.650*** (.110)	.638*** (.110)	.660*** (.109)
Gender (male)	.090 (.195)	.128 (.196)	.097 (.193)
Age	.015** (.007)	.015** (.007)	.018*** (.007)
Education	.131* (.075)	.146* (.075)	.155** (.075)
Efficacy	.098* (.059)	.098 (.060)	.099* (.059)
Partisanship	1.564*** (.297)	1.544*** (.297)	1.565*** (.296)
Economic evaluation	-.080 (.102)	-.028 (.103)	-.048 (.102)
Life satisfaction	.054 (.114)	.098 (.113)	.093 (.112)
Place of residence	-.070 (.061)	-.104* (.060)	-.126** (.062)
Employment status	-.236 (.192)	-.213 (.193)	-.194 (.191)
Church attendance	-.042 (.075)	-.074 (.075)	-.059 (.074)
Political information	.150* (.089)	.143 (.090)	.170* (.088)
Civic engagement	-.138 (.099)	-.163 (.100)	-.144 (.099)
Constant	-.937 (.815)	-1.313* (.755)	-1.531** (.746)
Observations	1,167	1,161	1,172

VARIABLES	(4)	(5)	(6)
	INTENTION TO VOTE IN NEXT PRESIDENTIAL ELECTIONS		
Fear of crime	-0.076 (.098)		
Violence as major problem		-.323* (.187)	
Residency in violent state			-.474** (.221)
Interest in politics	.642*** (.110)	.639*** (.110)	.649*** (.109)
Gender (male)	.010 (.197)	.035 (.197)	.018 (.195)
Age	.019*** (.007)	.020*** (.007)	.021*** (.007)
Education	0.119 (.075)	.122 (.075)	.132* (.075)
Efficacy	.100* (.059)	.102* (.060)	.100* (.059)
Partisanship	1.187*** (.268)	1.184*** (.268)	1.200*** (.268)
Economic evaluation	-0.078 (.102)	-0.030 (.103)	-0.053 (.102)
Life satisfaction	.075 (.114)	.101 (.112)	.090 (.112)
Place of residence	-.128** (.061)	-.144** (.060)	-.174*** (.063)
Employment status	-0.056 (.192)	-0.015 (.193)	-0.031 (0.192)
Church attendance	-0.057 (.076)	-0.073 (.076)	-0.064 (.075)
Political information	.119 (.092)	.101 (.093)	.144 (.090)
Civic engagement	-0.083 (.102)	-0.091 (.104)	-0.080 (.102)
Constant	-0.985 (.817)	-1.163 (.757)	-1.272* (.749)
Observations	1,167	1,160	1,170

Note: Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Source: Authors' own calculation.

Table 5: Predicted Probabilities of Participating in Elections

Value on the independent variables	Gubernatorial election	Presidential election
All variables held at their median value	.81	.82
High perception of crime	.75	.79
Low perception of crime	.83	.83
Resident in a violent area	.74	.75
Resident in a non-violent area	.81	.83
Violence is major problem	.75	.77
Violence is not major problem	.81	.82

Source: Authors' own calculation using Clarify.

The predicted probabilities show that exposure to violence has a considerable negative impact on the likelihood of participation in presidential and gubernatorial elections. The effect is very similar for both types of election, so we will focus on the predicted probabilities of voting in gubernatorial elections. When all variables are held at their mean, there is an 81 percent probability that a voter will declare his intention to vote in the following election. This probability declines significantly when voters are exposed to criminal violence. When voters consider violence to be the major problem the country is facing, their probability of participating in the next gubernatorial elections is only 75 percent (a drop of six percentage points). Similarly, citizens who perceive levels of crime to be high have a much lower propensity to vote (75 percent) than citizens who perceive levels of crime to be low (83 percent).

Finally, respondents who live in one of the most violent provinces of the country see their probability of voting reduced to 74 percent (a drop of seven percentage points). Given that violence tends to be concentrated in certain specific areas or cities of these states, the impact of exposure to violence on turnout may be even higher than what these numbers suggest. In sum, the results of the logistic regressions presented in this section and the estimation of the predicted probabilities confirm the findings of the aggregate models presented above. Citizens exposed to violence and respondents living in areas affected directly by organized crime appear to be less likely to participate in federal elections.

## 6 Concluding Remarks

The findings presented in this research show that as violence increases, electoral participation tends to decrease in Mexican municipalities. Addition-

ally, we found evidence that voter turnout also decreases when criminal violence increases in neighboring municipalities. Clusters of violent municipalities appear to have a larger negative effect on electoral participation than do “isolated” violent municipalities. Overall, these results support our hypothesis that voters are less likely to participate in the most violent contexts, either because they are disenchanted with the political sphere or because they are not willing to risk their safety in public places. Although crime rates seem to be an effective measure to capture the levels of violence in each municipality, it would be useful to gather more information in order to measure the effects of other forms of violence – for example, the presence of organized crime – on electoral participation at the municipal level. Municipalities like Ciudad Juárez, in the state of Chihuahua, Tijuana, in the state of Baja California, or Nuevo Laredo, in the state of Tamaulipas, are emblematic examples since criminal activity and violence are related not only to drug trafficking and distribution, but also to other illegal activities – kidnapping, armed robbery and extortion – that have shaped the economic, social and political arena in some regions of the country.

These results are a relevant contribution to the behavioral subfield related to electoral participation because they capture the effect of a social phenomenon (criminal violence) that has affected most countries in Latin America since the last wave of democratization. Some authors have claimed that higher levels of violence experienced by individuals tend to increase their level of political engagement, as well as their support for authoritarian parties that might lead countries to a democratic breakdown. In this study, we find that criminal violence tends to decrease the level of a specific form of political participation – electoral participation – and this can be explained by the apathy and fear on the part of voters experiencing violent contexts. Our findings suggest that criminal violence has negative consequences for democracy, social activity, and the quality of life at the municipal level.

Given that our findings contradict previous research on the link between crime and political involvement, our paper suggests that the rise in criminal violence may have divergent effects on different forms of political participation. Although the spike in violent crime might encourage conventional and unconventional forms of political participation at the local level (town meetings, community improvement meetings, political protests), it may also lead to a decline in electoral participation. We also suggest that the impact of violence on political involvement may be different in areas affected by moderate levels of violence (the Southern Cone) and in areas struck by high levels of criminality (Central America, Mexico, Colombia and Venezuela). Since our analysis focuses on one form of political participation (electoral participation) in one country, we cannot look into this issue in more

depth. One potential avenue for further research to tease out the divergent effects suggested by our paper would be to investigate the impact of criminal violence on distinct forms of political participation in different contexts.

This paper demonstrates that there is a link between exposure to violence and electoral participation. It would be interesting to study whether people who vote in violent contexts tend to vote for a certain type of party. Previous findings have shown that if people perceive a significant increase in the level of violence, they tend to increase their support for conservative or right-wing parties that claim to take a *mano dura* approach to crime (Wilson and Petersilia 2011; Berrebi and Klor 2008). Similarly, our findings regarding the negative effect that violence in neighboring municipalities has on turnout opens the door for future research on how media and framing shape citizens' perception of security and on the effectiveness of public institutions in providing this essential public good. We encourage other scholars to extend this analysis to other countries in Latin America that have experienced a significant increase in the levels of criminal violence. As a region, Latin America has some of the highest criminal rates in the world. Most of these countries are developing economies and have been affected by some sort of violence since they transitioned to democracy (organized crime, drug trafficking, and guerilla and paramilitary activity).

The increase of criminal activity in Latin America has gone hand in hand with democratization. Countries like Brazil, Colombia, Venezuela, Guatemala and El Salvador, for example, have systematically suffered the consequences of high levels of violence and organized crime (Bergman 2006). Despite the fact that data related to violence and crime are hard to collect – and compare – institutions have started to make available more precise information that hopefully will help us better understand how violence is affecting the political arena and the quality of life in the region.

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**Balas y votos: Violencia y participación electoral en México**

**Resumen:** En este artículo analizamos el efecto de la violencia criminal sobre la participación electoral en México. Muchos investigadores estudiaron las causas de la violencia criminal y la respuesta de los diferentes gobiernos frente a este problema. Sin embargo, pocos estudios analizan el impacto de la violencia criminal sobre la participación en las elecciones. Siguiendo algunos hallazgos recientes en la literatura de comportamiento político, argumentamos que cuando la violencia criminal aumenta, los ciudadanos abandonan espacios públicos de participación y se refugian en la esfera privada. Usando métodos geoestadísticos para analizar las municipalidades en México en la última década, demostramos que la participación electoral es más baja en las regiones más violentas del país. En la última sección, usamos datos de una encuesta reciente para confirmar que ciudadanos expuestos a niveles altos de criminalidad tienen menos probabilidades de votar.

**Palabras clave:** México, violencia criminal, participación electoral

## Appendix 1: Operationalization of Independent Variables

Variables	Survey Items
<b>RESOURCES</b>	
Education	How many years of schooling have you completed? (recoded into 0=no education, 1=primary school, 2=secondary school, 3=higher education)
Age	Recoded into 1=18–24, 2=25–34, 3=35–49, 4=50–64, 5=64 and older
Gender	Recoded into 1=male, 0=female
<b>MOTIVATIONS</b>	
Life satisfaction	In general how satisfied are you with your life? Would you say that you are... (recoded into 1=very dissatisfied, 2=somewhat dissatisfied, 3=somewhat satisfied, 4=very satisfied)
Political efficacy	Those who govern this country are interested in what people like you think. How much do you agree or disagree with this statement? (1=strongly disagree...7=strongly agree)
Political interest	How much interest do you have in politics: a lot, some, little or none? (recoded into 1=none, 2=little, 3=some, 4=a lot)
Political information	About how often do you pay attention to the news, whether on TV, the radio, in newspapers or on the Internet? (recoded into 1=never...5=daily)
Economic evaluations	How would you describe the country's economic situation? (recoded into 1=very bad...5=very good)
<b>MOBILIZATION NETWORKS</b>	
Employment status	How do you mainly spend your time? Are you currently... (1) Working? (2) Not working, but have a job? (3) Actively looking for a job? (4) A student? (5) Taking care of the home? (6) Retired, a pensioner or permanently disabled to work (7) Not working and not looking for a job? (recoded into working=1&2, all the other options=0)

Variables	Survey Items
Church attendance	How often do you attend religious services? (recoded into never=1, once or twice a year=2, once a month=3, once per week=4, more than once per week=5)
Membership in voluntary associations	0–3 scale of membership in five voluntary associations (religious organizations, parents’ associations, community associations, professional associations, political parties). A score of 3 was given to respondents who regularly attend (once a month or more) the meetings of at least three of these associations. A score of 0 was given to respondents who do not attend meetings of any of these associations. Scores of 1 (one association) and 2 (two associations) were given to respondents who attend meetings of some (but not all) of these associations.
Urban/Rural	Recoded into 1=urban area, 0=rural area

Source: LAPOP Surveys 2010.