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April 1, 2012

Democracy and Political Order in Mexico

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## Abstract

### Democracy and Political Order in Mexico By Pooja K. Yadav

This thesis examines how democratic transition affects the state's ability to provide political order. By analyzing the effect of electoral turnover between political parties on homicide rates in Mexican municipalities between 2001-2010, this study aims to explain the variation in political order at the local level in a society that continues to struggle with law and order. Using a regression model with random intercepts for municipalities and years, this study found that municipalities without any change in party control had higher levels of homicide than those that did experience turnover, supporting the theory on accountability. Furthermore, this study finds a strongly significant relationship between various socioeconomic factors and political order in Mexican municipalities. The positive relationship between unemployment and violence suggests that in order to provide security to its citizens, Mexico needs to not only focus its efforts on improving the state and legal institutions, but also invest in its social capital as well.

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## **Introduction**

### **Political Disorder and Mexico**

For centuries, scholars from various social science disciplines have attempted to explain why certain societies are able to achieve political order, while others struggle. According to North, Summerhill, and Weingast (2000), political order requires three aspects of personal security: for one's life, family, and source of livelihood. The authors argue that under political disorder, citizens behave differently than they would otherwise because there is a decreased incentive to conform to the social and political norms. When individuals fear for their personal and economic security (and for those close to them), they are more willing to resort to violence out of desperation to protect what they have (16). Consequently, when there is no incentive to obey (nor enforce) the formal rules in place, the laws and institutions in a particular society become obsolete and powerless, often times leading to statelessness.

The reason that so much research has been focused on political order is because, without order, societies cannot develop the appropriate institutions necessary to make economic and political progress. Recent studies in conflict-ridden nations, such as those in the Middle East or Colombia, show that when the government fails to provide political order organized crime groups are able to receive stronger support from citizens (Diaz-Cayeros et. al., 3). Despite the fact that citizens may overwhelmingly support the government, they cooperate with these organized criminal groups out of fear, further hindering government efforts to restore order (Diaz-Cayeros et. al., 3).



Particularly in new democracies, the ability to provide order in a legitimate manner can be difficult due to the fractured status quo and weak formal institutions. However, the relationship between democracy and political order can also be cyclical. In a case study of El Salvador, survey data found that the majority of citizens (55 percent) cited crime and public insecurity as “a justification for the toppling of democracy.” (Davis 57) This statistic reveals that citizens would rather live in a society with strong political order (democracy or not) to avoid living in a constant state of fear and violence.

This problem with living a state of political disorder is particularly relevant to the case of Mexico. The 2002 Mexican Constitution states, “public security is a duty of the Federal Government, the Federal Districts, the states, and the municipalities, in their respective jurisdictions as established by the Constitutions.” However, the volume and variety of institutional reforms that have been tried in the past decade demonstrate the government’s inability to do its most basic function: provide security and order to its citizens. As of March 2012, the Mexican drug war was responsible for at least 50,000 deaths since it began in full force in 2006 (Cave, March 2012). This number, which only includes explicitly drug related homicides, does not capture the number of kidnapped or missing persons, who have also been victims of the increasing violence in Mexico. *Reforma*, one of the most respected newspapers in Mexico, argues that violence doubled from 2006 to 2007 and doubled again from 2007 to 2008, with some states reported up to ten times more violent crimes in 2008 than 2007 (Sabet and Rios, 1). This increased violence and instability has resulted in political disorder and “statelessness” in particular Mexican cities. Many citizens, especially the middle class, are fleeing from violence plagued geographic areas, usually large or mid-sized cities (Keralis, 31). For example,

Ciudad Juarez has seen nearly 10 percent of its population, approximately 200,000 citizens, flee because of violence between the cartels, Mexican police, and military (Keralis, 31).

*The Brookings Institute* recently published a poll in which three out of four Mexicans perceived greater insecurity in May 2009 than they did just one year earlier, with over 70 percent of them fearing that someone close to them would be kidnapped. Worse, less than 20 percent of those polled felt that Mexican President Felipe Calderon, who has been in power since 2006, was winning the war against the drug cartels (Felbab-Brown 2010). As the 2012 elections near, Calderon is facing increasing pressure to install policies that will outlast his presidency and prove that his many attempts to fight the cartels have achieved results (T.W., Aug. 2011). According to the *New York Times*, “Mexican voters, polls show, have been losing faith in democracy as their nation teeters between modern success and violent failure.” (Cave, March 2012)

There are three central theories that previous researchers have used to explain and understand the political disorder in Mexico. First, Mexico’s transition to democracy in 2000 led to a breakdown of the status quo, challenging the existing order in society. Second, the increased pressure on Colombian cartels and trade with the United States led to greater incentives and competition amongst the Mexican drug cartels, causing a spike in violence. And third, the plethora of reforms and attempts to restructure the police in Mexico has continued to prevent the state institutions from providing efficient and transparent law enforcement to the citizens. Although these three theories can explain the overall rise in political disorder in Mexico, none explains the variation at the local level.

### **Transition to Democracy**

Until 2000, Mexico was ruled by a single hegemonic party- the *Partido Revolucionario Institucional* (PRI)- for more than 70 years after the end of the Mexican Revolution. Despite Mexico's federal structure, the PRI centralized their rule for much of the 20<sup>th</sup> century, maintaining strict control of state and municipal governments. According to Carlos Resa Nestares (2001), during their rule, the PRI government allowed for drug cartels to perform their illegal activities, only if a strict code of a conduct was respected. Although the PRI ruled at the federal level until 2000, the *Partido de la Revolución Democrática* (PRD) and the *Partido Acción Nacional* (PAN) began to challenge the PRI in the late 1980's and win seats at the municipal level (Benton 7). By 1997, the PRI lost its majority in Congress, and in 2000, lost the presidency to the PAN party (Benton 7).

This massive political shift represented a new era of democracy in Mexico, but also a new set of challenges for organized crime with this change in status quo. Mexico's decentralization meant the breakdown of the informal institutions and pacts that had been responsible for maintaining political order (Rios, 2010). Viridiana Rios (2010) constructed a labor market model to explain how democracy increased incentives to participate in drug cartel activity, causing an increase in violence. She identifies two periods, the PRI period and the PAN period, and finds that the barriers to entry that were in place during the PRI period prevented violence-prone individuals from engaging in illegal activities (18). Then, with the transition to the PAN period, the illegal drug market welcomed outsiders, decreasing the barriers to entry, and increasing the competition amongst violent individuals, and therefore leading to more violence (18).

The PAN party, who came to power with little experience and few connections to the old mafia, was also faced with restructuring the electoral, judicial, and legislative systems that had been designed to favor the PRI party (Rios 2010). Diane Davis (2006) argues that democracy contributed to the failure to provide security because of weak actors, institutions, and practices in Mexico:

“Democratization of the state through decentralization and power sharing, along with the strengthening of competitive party politics, seems to have contributed to the emergence of new and more vicious intrastate and bureaucratic conflicts. These problems paralyzed government and legislative efforts to enact police reform.” (58)

This massive political shift not only upset the informal institutions that had been in place to maintain order between the citizens and the cartels, but also brought a weak federal government faced with providing order through formal, democratic institutions.

### **Increased Trade and Competition Amongst the Cartels**

In addition to the transition to democracy, the increased economic incentives for drug traffickers, aided by increased trade with the United States and the decreased power of the Colombian cartels, has contributed to increased violence and disorder in Mexico.

According to a 2008 U.S. Congressional Report, there are seven drug cartels operating in Mexico, and the three major cartels – Gulf, Sinaloa, and Juarez- are present throughout the country. Although the cartels have existed for a long time, they have become increasingly powerful in the past few years due to the trafficking crackdown in Colombia. The closure of trafficking routes through Florida, as well as the demise of Colombia’s two largest cartels (Medellin and Cali), has increased the competition for Mexican cartels (Cook 4). According to the same 2008 Congressional Report, the major

Mexican drug cartels also began to form alliances with one another, resulting in a more fierce competition for turf within the industry (Cook 1). Unlike those in Colombia, Mexican cartels are distinct because they have always been competitive and in opposition to one another, resulting in increased instability and violence (Sabet, Rios, 1).

Many scholars also point to the North American Free Trade Agreement (NAFTA) and the increased trade between Mexico and the United States as another explanation for the increase in drug trafficking (Zeitsoff 5). In addition to increased economic incentives for the drug traffickers, the rising drug trade has provided huge opportunities for state actors, both politicians and police, to extract economic rents (i.e. bribes) (Asch, Burger, and Fu, 2011). The decreased power of the Colombian drug cartels, coupled with the increased trade with the United States, has given the Mexican cartels not only more power and influence, but also heightened the incentives to protect their thriving business. Consequently, as the power of the drug cartels and the cost of bribing the newly decentralized government simultaneously increased, it became less costly to openly oppose the government (Rios 5). The increased stakes and power of the drug cartels have led to an increase in violence and political disorder for many cities in Mexico, particularly those who are on the border with the United States.

### **Law Enforcement Reforms**

According to a 2011 RAND Corporation research report on Mexican police reform, Mexico's reforms to both its judicial process and its police force have been on the right track to providing a safer state for its citizens, but the results have yet to be seen. In Mexico, despite many different political and judicial reforms, the problem lies in the

corrupt police force and weak judicial system, remnants from the PRI rule (Davis 56). According to Davis, this creates “an environment where criminality flourishes, among the police themselves; citizens have little confidence in the rule of law or the officials entrusted with guaranteeing order and public insecurity seems to be worsening by the day.” (56)

Daniel Sabet (2010), argues that executive power and electoral dependence on the executive is one of the biggest obstacles to implementing reform. In Mexico, elected officials appoint the police chiefs at the local level, which makes law enforcement and elected officials deeply intertwined. In theory, this procedure should make the police more accountable to the citizens, but in practice, Sabet argues, it has led to “window dressing reform, patronage appointments, poor policies, and lack of continuity in reform efforts.” A 2009 study done by La Rose and Madden, confirms this problem, arguing that the majority of police reforms have had little effect on law enforcement because police are “outgunned, and often undermined by cartel money and political influence.” The police are deeply embedded in state institutions, and are appointed by (and therefore highly dependent on) the elected president, governor, or mayor (Sabet 2010). Although Sabet points out that no president, and only one governor, has been convicted of corruption charges, many allege that there is strong political collusion with the organized crime.

With separate police forces for each state and each municipality, it is also common practice for the 1,661 different police corporations to keep information to themselves, including the types of operations they are performing (RAND 2009, 19). This lack of transparency and organization amongst the various police forces, as well as

the penetrating influence of the drug cartels, has led to ineffective and incompetent law enforcement. In order to establish political order, there must be strong and independent police and law enforcement agents, and therefore studying the elected officials who appoint these police leaders, is essential.

### **Local Level Variation**

These three theories explain the causes of the violence and public insecurity in Mexico, but fail to explain why, until recently, the extreme violence has been concentrated in only a handful of Mexican municipalities. In 2010, the Mexican government reported that 80% of the 28,000 drug killings from 2006 through July were concentrated in just 6% of the country's 2,456 municipalities.<sup>1</sup> The transition to democracy, increased economic incentives for drug cartels, and weak law enforcement reform, all explain an increase in overall political disorder, but do not explain what explains the variation in crime at the municipal level.

Despite massive attention on Mexico's security crisis, there has been surprisingly little attention given to explaining the variation in levels of political disorder at the local level, in part, due to the limited data that are available. Those that have attempted to explain violence and order in Mexican municipalities have focused on electoral competition.

Matthew Cleary's 2004 study examining accountability in Mexican municipalities hypothesized that due to accountability mechanisms, municipalities with competitive elections will exhibit better government performance than municipalities with less-

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<sup>1</sup> Figure from the Justice in Mexico project website (August 28 2010)

competitive elections (8). Cleary acknowledges that the no re-election rule in Mexico has led to representatives having little time to gain policy expertise or familiarity with the institutions on which they depend, and makes it almost impossible to keep good representatives in power for more than one term (Cleary 7). His research finds that electoral competition has little effect on municipal government performance, measured by the public's access to utilities, perhaps reflecting the effects of the no re-election rule. Cleary explains that the "extreme centralization within the municipal government, constitutional prohibition against reelection, and a three year term in office... make it difficult for municipal presidents to gain experience of expertise."(116) From this discussion, one could argue that no re-election rule prevents the institutionalization of reform and thus increased political disorder.

Andres Villarreal's 2002 study of electoral competition and violence tested the social control theory in 1,800 Mexican municipalities pre-2000. In an attempt to study the local level political structure's effect on violence in a country transitioning to democracy, Villarreal measures the number of votes to non-PRI parties, and its relationship with homicide rates. The study found that greater electoral competition was positively correlated with levels of homicide in rural areas only, which Villarreal argued was due to the diminishing social control of the local leaders (488).

### **Research Question and Independent Variable**

Given that the literature has identified police corruption (and its ties to elected officials), political parties, and other specific policies' effect on political order, I would like to understand a yet to be studied variable, *electoral turnover*, and its effect on the



state's ability to provide political order in local communities. Therefore, my research question is, does electoral turnover affect the government's ability to provide political order?

This question addresses the gaps in the literature on the Mexican security crisis by examining how changes in newly democratic, local level, political institutions can enable the Mexican government to provide political order to areas that are currently in a state of disorder. According to North, Summerhill and Weingast, to maintain democratic rights in society, political institutions must induce politicians to protect relevant citizen rights (13). Given the dangers of living in communities that lack political order, it is important to study the local political institutions in order to understand what changes are necessary to protect and maintain democracy in Mexico.

Assuming that Mexico is implementing meaningful and effective reforms, I hypothesize that one reason that political order remains a struggle is due to the constant reform, aided by electoral turnover. Conversely, a second hypothesis stems from traditional political science literature which suggests that electoral turnover, representing a well-functioning democracy, will yield improved policy, and thus greater political order. In this paper I will first explain the two competing theories that could explain the variation in political order at the municipal level, and then use a cross-sectional time series design to empirically measure the relationship between electoral turnover and political order in Mexican municipalities between 2001 and 2010.

## Accountability Theory

There are two competing theories that attempt to explain the relationship between electoral turnover and the ability to provide order to the citizens. The first suggests that electoral turnover represents the ability of a system to allow people to lose, thus reflecting competition, and the ability of citizens to demand reform. Therefore, the theory would argue that an increase in electoral turnover should correspond with an increase in public order, due to accountability, efficiency, and honesty.

In Przeworski, Stokes, and Manin's book, Democracy, Accountability, and Representation, James Fearon develops a theory on representation and accountability that suggests that politicians chose policies that will get them re-elected. His theory on representation discusses the problem with assuming that elections emulate a direct assembly, and that the winning platform becomes the mandate that the government pursues (29). Fearon argues that elections are a mechanism to hold governments responsible for the results of their past actions, and therefore governments will choose policies that will be positively evaluated in the elections (29). The implication of this theory is that politicians will choose policies that will best serve their citizens, and therefore will do their best to provide order and security for the people. Fearon states that a government is accountable if voters can tell that the government is acting in their interest and, if not, sanction them as necessary (40). Accordingly, incumbents (or incumbent parties) who act in the best interest of the citizens will win elections.

Matthew Cleary (2010) explains this accountability mechanism in economic terms by suggesting that during elections, citizens use their "votes to 'purchase' goods,

services, and policies from a politician or political party.”(56) Given that politicians or political parties measure gains by winning elections, they are forced to perform well and provide public goods, or face a loss, which in turn improves the quality of government (Cleary, 56). This theory implies that citizens who do not feel that the state is providing adequate services, or feel that there is political disorder, are able to throw a particular political party out and demand better performance by electing the desired political party to power. Therefore, my first hypothesis states that an increase in electoral turnover will lead to greater political order.

### **Reform Theory**

The theory on reform seeks to explain the relationship between electoral turnover and political order through the lens of weak state institutions, which are particularly prevalent in new democracies. The theory implies that electoral turnover in newly democratic institutions will lead to a decrease in political order, due to the fact that constant change prevents the institutionalization of effective policies. Samuel Huntington’s book, Political Order in Changing Societies, presents his argument that rapid modernization in the mid 20<sup>th</sup> century led to rapid social change and mobilization of new groups into politics, without the equally paced development of political institutions, which led to political instability. Huntington boldly argued that the existence of political order in a state (and its strength) was more important than the type of government itself (Huntington 1968, 2). The implication of this theory is that democracy alone does not always yield strong political order, and that perhaps authoritarianism can be more effective in providing order to the people. Often in authoritarian states the presence of

order (an external good) is produced accidentally through corrupt means. Newly democratic leaders are often weak in maintaining order, in part, because they are used to operating under informal institutions. Specifically, democratization through decentralization and power sharing, along with an increase in electoral competitiveness, can contribute to an increase in intrastate conflict (Davis, 58). These intrastate conflicts can often paralyze governmental efforts to enact police reform, and provide political order (Davis 58). In new democracies, political parties are generally considered institutionalized as they create loyalty ties and increase their organizational complexity (multiple territorial subunits, independence from a single leader), and party longevity reflects this institutionalization (Goldfrank 157).

Similarly, sociologists use the social control theory to predict that citizens commit criminal acts when there is a weakness of forces constraining them (not because of strength of the forces driving them to do so). Therefore, when the government does not effectively provide order through strong law enforcement there will be an increase in criminal behavior. Bursik and Grasmik (1993) argue that a lack of control, due to a failed community structure (government), produces violence. Villarreal states that in stable democracies, variations in political factors may have a lesser impact on violence, but where patron-client ties are strong, such as rural areas, increases in electoral competition will lead to a temporary loss of political control and increase in violence (478). Electoral changes in areas dominated by patronage networks and informal institutions “undermine the source of unequal exchange between actors at different levels in the social hierarchy,” leading to an increase in crime (Villarreal 479).

Additionally, often times newly elected political parties want to distance themselves from previous administrations and aim to undo much of the policy in place. In countries where the elected officials appoint local administrative officials, an increase in electoral turnover has the potential to result in instability and ineffective reform. For example, if one political leader chooses to strengthen police recruiting policies and focuses his/her resources on high quality police officers, the next leader may come to power and focus his/her resources on increasing the quantity of police forces, thus reducing the quality. According to Sabet (2010), there is a tendency amongst Mexican political leaders coming into office to overturn the past administration's policies, restructure the police, and introduce new programs. Sabet notes that the structure of the federal police has changed dramatically under each new administration, even more so at the local levels, often times just for show. For example, in the early 2000's different police departments were re-shuffled and re-titled, with new names and new uniforms, demonstrating a symbolic break from the past, but not an institutionalized change (Sabet 2010). This theory implies that an increase in electoral turnover decreases the government's ability to institutionalize new reforms and are constantly "un-doing" the work of the predecessor. From this discussion, I hypothesize that an increase in electoral turnover will decrease the state's ability to provide political order to its citizens.

## Research Design

### Hypotheses

Due to these two competing causal mechanisms, I propose the following hypothesis: Electoral turnover between parties will cause a change in political order in Mexican municipalities between 2001 and 2010.

Hypothesis (H1): If there is an increase in electoral turnover between parties there will be an increase in political order in Mexican municipalities between 2001 and 2010.

Hypothesis (H2): If there is an increase in electoral turnover between parties there will be a decrease in political order in Mexican municipalities between 2001 and 2010.

Expectedly, I will be testing the null hypothesis: an increase in electoral turnover will have no effect on political order in Mexican municipalities between 2001 and 2010. In my research design, the goal will be to establish a causal relationship between electoral turnover and the provision of political order in Mexican states. To do so, I will need to prove that my variables are temporal, correlated, and not endogenous. First, I will define my units of analysis, then the variables that I will be using to measure my concepts in a reliable and valid way, and lastly, my experimental design.

### Unit of Analysis

In order to understand how electoral turnover affects the presence of political order in Mexico, my unit of analysis will be 1,947 Mexican municipalities between 2001 and 2010. More specifically, the unit of analysis will be the municipality-year pair.

Although there are actually 2,434 municipalities in Mexico, my sample consists of the

municipalities for which both election and crime data was available between 2001 and 2010.<sup>2,3</sup>

Municipalities are the smallest political and administrative unit in the Mexican government, and therefore are the ideal unit for understanding how electoral turnover impacts presence of order in a community. Despite that Mexico has a federal system of government, understanding turnover at the municipal level is important (regardless of state and federal turnover) because the primary duty of the municipal government is to provide and maintain order. And, as mentioned earlier, the limited number of municipal-level studies on Mexico makes this study a valuable resource for explaining why there is such variation in political order amongst municipalities in Mexico.

In addition to the responsibility of the municipal government to maintain order, the decision to study municipalities in Mexico is also due to the wide variation in political order amongst these municipalities, combined with the ability to control for the unique national factors that have contributed to political disorder in Mexico. Compared to the state and federal level, there are a greater number of municipalities in Mexico (therefore allowing greater variation in geography, demography, and other factors), which gives a larger sample over time. Similarly, municipalities hold elections every three years (as compared to every six years for national and state level positions), which allows for a greater number of observations of electoral turnover. Lastly, because Mexican municipalities had an uneven transition to democracy, with some transitioning

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<sup>2</sup> Municipality number taken from number of municipal mayors dataset from Mexican Government website (INEGI)

<sup>3</sup> Control variable data, however, is only between 2003-2010

in the late 1980's, and others that have arguably remained in a semi-authoritarian rule, there is rich variation in the nature of electoral turnover as well.

Given this rich and varied sample, another advantage of focusing this study on only Mexican municipalities is the ability to control for unobserved cross-national heterogeneity in the cause and type of political disorder. Mexico's unique transition to democracy coupled with the distinct nature of the drug trade, make it necessary to control for these distinct national characteristics that have caused political disorder. Consequently, the external validity of this study's findings may be limited, but can serve as a building block for future research on electoral turnover in new democracies.

### **Independent Variable: Electoral Turnover**

The independent variable I have chosen to measure electoral turnover is the number of changes in party control in the mayor seat. Electoral turnover is a reliable measure of changes in party control because it is an observable phenomenon, whose presence or absence is visible to anyone, and therefore, if this study were repeated, one would expect the same results each time. Unlike electoral competition where the concern is how many votes each party won, electoral turnover is simply which party won for a given election year, and thus highly reliable.

Most Mexican municipalities elect their governments with a secret ballot and universal suffrage (all women and men ages eighteen and older), a system that is referred to as the Political Parties (PP) system.<sup>4</sup> Mayoral candidates are presented by the political

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<sup>4</sup> Exceptions to the PP system include the state of Oaxaca, in which 418 out of the 570 municipalities use the Usos y Costumbres System (UyC), where suffrage and candidate eligibility are determined by the



parties, which have been formally recognized by the *Instituto Federal Electoral* (IFE), and thus meet restrictive national registration guidelines (Benton, 5). This institutional characteristic is important for my study, because given that a political party nominates one candidate to run for mayor, one can assume that the candidate's policy platform matches that of his/her party, at least to a certain extent.<sup>5</sup> As mentioned earlier, municipal elections are held every three years, although the election years vary by state (ie: municipalities within a state hold elections on the same year, but municipalities amongst different states hold their elections in different years). Despite that every municipality holds an election for the mayor seat every three years, in some states the election month varies by year (for example, municipalities in Mexico state held elections every three years beginning in 2000, but in different months ranging from March-September).

In order to measure electoral turnover, I gathered election results from 2,200 Mexican municipalities and coded which political party won during an election year. Given that politicians cannot stand for re-election in Mexico, electoral turnover measures whether or not a political party was re-elected for a consecutive three-year term. Although turnover between same political party also presents challenges in implementing effective reform, I am concerned with turnover between parties because I am assuming that a candidate's policy platform is determined by the political party, therefore policy will be similar amongst members of the same party. Aiding this assumption is the fact

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municipal General Communal Assembly body (Benton). These municipalities operate under sub-authoritarian regimes, remnants of the PRI rule, but nevertheless elect a municipal president through a separate process.

<sup>5</sup> See Manin, Przeworski and Stokes ("Important Institutional Factors", 48)

that nearly one-third of the Mexican electorate are undecided voters, suggesting that citizens do not cast a blind ballot, but vote based on the best party's policy (Cave 2012).

Therefore, I am measuring the number of times the mayor seat changes power between 2001 and 2010. The election data was gathered from the Instituto de Mercadotecnia y Opinion (Institute of Marketing and Opinion), part of the International Social Survey Programme (ISSP), which is a non-for-profit organization dedicated to unbiased social research projects in Mexico. In addition to using a strong, unbiased data source, I also took random municipal election results and verified those results with the results on the Mexican states' websites as well, in order to ensure that my data was reliable. After gathering the data from this website, I created a spreadsheet for each year 2000-2011 and municipality name, and filled in the party that won the municipal president (mayor) seat for each election year (PRI, PAN, PAS, PT, PRD, PVEM, CONV, Other).<sup>6 7</sup>

### **Dependent Variable: Political Order**

My dependent variable will measure the concept of political order, which, as mentioned earlier, measures three aspects of personal security: for one's life, family, and source of livelihood (North, Summerhill, Weingast). Using theory from economics and

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<sup>6</sup> PRI= Partido Revolucionario Institucional

PAN= Partido Accion Nacional

PAS= (former) Partido Alianza Social

PT= Partido del Trabajo

PRD= Partido de la Revolucion Democracatica

PVEM= Partido Verde Ecologista de Mexico

CONV= Convergencia

Other= any party or alliance party not included above

<sup>7</sup> In particular cases where there was a candidate from an alliance party (ie: PRI/Alianza), I only coded that party as a separate party if there was also a candidate from the non-alliance form of the party (ie: PRI).

sociology, North, Summerhill, and Weingast argue that political order exists when citizens find it in their best interest to obey (and in some cases, enforce) the formal rules in society (4).

To measure political order, I chose my dependent variable to be the number of *annual homicides per 100,000* people in each municipality between 2001 and 2010. Homicide is a measure of overall crime, and therefore an increase in homicide represents a decrease in political order. The municipality's crime rate is a valid indicator of political order, because given that the government's first and foremost obligation to its citizens is to provide security, crime represents the government's failure to meet its obligations and provide order. Although actual crime rates do not fit the definition of the political order given by North, Summerhill, and Weingast, I believe it is an appropriate measure of the political order in a given region for the above reasons. While there are data measuring the perception of crime in Mexico, the sample is not large enough to disaggregate at the municipal level. I obtained my homicide data from a spreadsheet that was made by a blogger, Diego Valle, whose self-proclaimed interests are data analysis and information systems. Although not ideal, Valle obtains his homicide data from the Mexican National Institute of Statistics, Geography, and Informatics (INEGI) between 1990 and 2010 and his population data from the Mexican census.<sup>8</sup> INEGI compiles these homicide statistics based on death certificates which, unlike estimates provided by law enforcement agencies, are not affected by state level discrepancies in the legal definition of homicide or prosecutors' biases, and decrease the issue of reliability (Villarreal 482). One

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<sup>8</sup> Although the data is obtained from INEGI, the website did not contain that data for any year other than 2011 at the time of collection, hence the need to use a third party source.

particular problem with reliability, however, is that the crime statistics come from the Mexican government, who have been accused by some of tampering with crime statistics in order to promote a particular political agenda (T.W., Sept. 2011). Although there are other organizations and non-for-profits that aim to offer an unbiased estimate of crime statistics in Mexico, none offers these data at the municipal level.

Due to the fact that there was not a unique identifying code for each state-municipality pair and to differences in formatting, spelling, and accents, most of the matching of the state-municipal pairs between my dataset and Valle's dataset was completed individually, by hand. Ultimately, between the years 2000-2010, the data between the three datasets had an almost 80% match, with 21,417 observations.<sup>9</sup>

### **Control Variables**

In order to eliminate any alternate causes of either homicide or electoral turnover, I will use a number of control variables that have been identified in the literature, given that the data are available. One of the constraints of a project of this depth is time, and given the limited time and data availability to create my own datasets, some of my control variables are measured at the municipal level while others are the state level. At the municipal level I will control for the political party in power, while at the state level I will control for the state economy, individual economic security, resource deprivation, and the presence of drug war activity.

### **Municipal Level Control: Political Party in Power**

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<sup>9</sup> See Appendix, Table 1 for codebook with variable names, values, and data sources

For each municipality between 2001 and 2010, I will control for the political party that was in power due the established relationship between party in power and levels of crime. Zeitzoff (2010) found that the level of support the PRI enjoyed in the 2006 elections was positively correlated with the number of drug related deaths subsequently experienced after the elections. Using the ‘Not in My Backyard’ principle, Zeitzoff hypothesized that Calderon, as a member of PAN, is able to provide greater law and order while imposing the negative externalities (increased violence) of the drug war on PRI supporters (2). In addition to its relationship with levels of homicide, the political party in power could also be associated with the level of electoral turnover. In some rural areas in Oaxaca, the PRI continues to dominate under quasi-authoritarian electoral rules, and therefore some in some municipalities that are led by the PRI, there is no change in electoral turnover (Benton). To control for this relationship, I created dummy variables that measured whether or not the PAN, PRI, PRD, PVEM, and PAS parties were in power (with the PT party as the base category). Initially, I wanted to control for population density for each municipality as well, due to the relationship between urbanization and violence, however, municipal level data measuring population density were not available, and population would stay fairly constant over time.

**State Level Controls: Economy, Individual Economic Security, Resource Deprivation and the Presence of the Drug War**

For each municipality between 2001 and 2010, I will control for the economy, individual economic security, individual resource deprivation, and the presence of the drug war for the state in which it is located. The reason for aggregating these control variables to the state level is simply due to the available data. Given the difficulty in finding election and homicide data for each municipality, it was necessary to aggregate

up in order to control for the economic and social factors that may have a spurious relationship with my variables. Therefore, in order to control for the unobserved heterogeneity between municipalities, I will fit a model with random intercepts to capture any municipal level effects.

### *State Economy*

To control for the state's economic strength, I will use the variable of *fixed capital formation* because measures a state's private and public investments, including those by the government (Bakare 12). These investments include infrastructural improvements (including road construction, land improvements) by companies, households and non-for-profit institutions. Fixed capital formation has been positively associated with economic growth over time, and therefore is an appropriate measure given that this study is looking at a 10 year time period (Bakare). Economic strength is an important control because previous studies have shown that states with stronger economies may have a greater ability to provide public goods and order because they have greater means to do so. Given these studies, one would then expect states that are stronger economically to have greater political order, and perhaps, less electoral turnover because the accountability theory would suggest citizens would reward their political parties in power with re-election. Although the state's Gross Domestic Product (GDP) would have been a preferred indicator for economic strength, the sub-national level data were not available over time, as they were for fixed capital formation, from a reliable source. The formation of fixed capital data is measured in millions of pesos, annually, between 2003 and 2010 and was taken from the INEGI website.

### *Individual Economic Security*

I will measure individual economic security through two indicators: state level unemployment over time, and the minimum wage zone in which the state is located. As mentioned in the section on political order, the presence of order is, in part, determined by the security of an individual's source of livelihood (North, Summerhill, Weingast, 4). According to this theory on political order, if an individual feels secure in their economic position, there will be an increase in the presence of political order. The first variable I will use to measure economic security is the state's *unemployment rate* because it represents the inability to find work, which suggests that individual is economically insecure. Mexico is also the only OECD country that does not have a system of unemployment benefits in place, thus leading to even more economic insecurity (OECD Employment Outlook 2011). Accordingly, greater levels of unemployment could indicate higher levels of political disorder. Studies have also found that there is positive correlation between unemployment rates and violence, where crime is considered a type of work that takes time and yields economic benefits (Becker 1968). Particularly in Mexico where drug traffickers actively recruit citizens with the promise of attractive rewards, unemployment can be especially dangerous. Therefore, an increase in unemployment induces individuals to seek work through crime, and would lead to higher levels of political disorder. However, it is also important to note that unemployment may have an endogenous relationship with electoral turnover, and that an increase in unemployment will lead to increase frustration with government, and an increase electoral turnover. The unemployment rate data comes from the Federal Reserve Bank of Dallas, who collected quarterly state-level unemployment data from INEGI for the years

2001-2007.<sup>10</sup> Annual unemployment rates from 2007-2010 were collected from the INEGI website. INEGI and the National Survey on Labour and Employment measure unemployment as the percentage of citizens who are currently seeking work.<sup>11</sup>

### *Resource Deprivation*

In social control theory, the lack of economic resources is associated with higher levels of crime because it weakens society's ability to act collectively and can lead to individual's resentment of social norms (Parker et al., 1999 and Shaw, McKay, 1942). Additionally, one could hypothesize that citizens who do not feel that they have adequate resources would hold their elected officials more accountable, thus leading to greater electoral turnover. Previous studies have also demonstrated that in rural areas (where there is often greater resource deprivation and lower standard of living), there is also less electoral competition because of strong patron-client ties. To measure resource deprivation I will use the state's *literacy rate* and *Human Development Index ranking (HDI)*. Previous studies have used measurements of non-income indicators because it takes into account the effect of non-monetary forms of wealth generation (Villarreal). I will use the literacy rate of those ages 8-14 and HDI rank to control for education level between states. Education level could be correlated with both levels of violence (states with higher education levels may have lower levels of violence because of decreased

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<sup>10</sup> The quarterly data was then converted into annual data for the years 2001-2007 by taking the average of each quarter for a given year and state

<sup>11</sup> In addition to unemployment rates, I used the state's minimum wage zone (A, B, or C) as an indicator of individual economic security, given that higher wages may lead to increased political order. One issue with the state minimum wage indicator is that there are three zones that have different minimum wages in Mexico, and while most states fall into one of these three zones, three states have some municipalities in one zone and others in another zone. However, I chose to discard this data because it was constant over time and showed no relationship with electoral turnover nor homicide in preliminary tests.



gang activity), and electoral turnover (states with higher education levels may have better-informed citizens who may hold their elected officials more accountable). These literacy levels were calculated by INEGI for the years 2005 and 2010, which is why I also wanted to include HDI, which is a constant value over time. In addition to literacy levels, I also chose an indirect measure of HDI ranking because it measures a state's overall development, and includes life expectancy, education, and income into one index calculated by the *United Nations Development Programme* (UNDP). Similar to education level, a state's level of development could be negatively correlated to the levels of violence and endogenous with electoral turnover. The HDI ranking data come from a UNDP research paper by Rodolfo de la Torre and Hector Moreno, which offers Mexican state level rankings of HDI, based on census data.

#### *Geography and Presence of Drug War Activity*

Finally, I will control for the geographic location of Mexican states and the presence of the drug war. One issue with this study is that homicide rates also begin to increase after 2006 due to the increased violence from the drug war. One way to measure the presence of the drug war is to examine the homicide rate in border cities, given that the majority of the violence occurs close to the United States border. Consequently, in order to control for the drug-related violence in border cities, I will create a dummy variable to measure whether a state is on the border with the United States. The *border* variable indicating whether or not a state is on the U.S. border controls for the presence of drug war activity because states that are on the border will arguably have higher homicide rates, due to increased competition and drug trade on the border. States that are

on the border will arguably have higher political disorder because of increased drug related violence.

### **Dataset and Descriptive Statistics**

Given the large number of observations and values in this dataset, I first identified the number of observations, central tendency (mean), and range for each of the key variables (see Appendix Table 2). For each municipal level variable there are 21,417 observations, however state level control variables are limited to 15,724-19,470 observations depending on the variable. As shown in the table, the average number of total shifts in power for a municipality between 2001 and 2010 is 1.38 (out of three possible turnovers during this period). The mean number of homicides per 100,000 individuals for a given municipality during the same time period was 11.89, but given the large standard deviation, 33.95, this value is probably skewed by a number of outliers, which may indicate where the political disorder is happening. In order to gauge a more reflective average of all municipalities over time, the median of the total homicide rate, 4.70, can be used. Another important observation to note, although not necessarily surprising, is the mean difference between male and female homicides per 100,000 is 19, revealing the characteristics of those who are perhaps more deeply embedded in the violent activities.

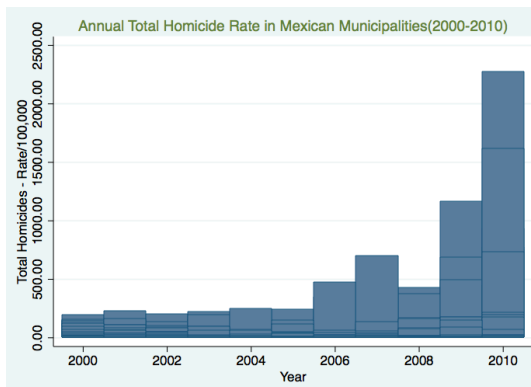
In addition to basic descriptive statistics for each of the key variables, I also did a univariate analysis for each key variable to understand the general trend over time (see Appendix Table 3). Looking at the mean homicide rate over time shows a slightly declining trend during the first part of the decade, until 2008, when the homicide rate

spikes dramatically and continues to rise through 2010. This pattern, demonstrated in Figure 1, is consistent with the previous evidence of the growing violence in Mexico since 2006 due to the increasing intensity of the drug war. Unlike the homicide trend however, mean unemployment rates in Mexican states between 2001 and 2010 show a steady rise, with the exception of 2005, where unemployment decreased by 0.17 %. As mentioned earlier, many studies have identified a relationship between unemployment rates and violence, so I decided to test the correlation between the two variables. I found that the unemployment rate and homicide rate are positively correlated with a correlation coefficient of 0.11 (19,470 observations), but that changes in the unemployment rate and homicide rate over time have a weak positive relationship with a coefficient of 0.03 (17,523 observations). This relationship is weaker than I had expected, given that there is a strong theory supporting the positive relationship between unemployment and violence.

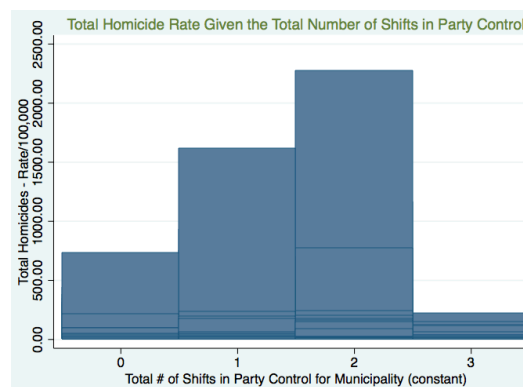
Understanding the electoral turnover trend over time was slightly more challenging, given that as time increases, the total number of turnovers can only increase as well. Since the total number of changes in power is a constant for each municipality, I created a variable to measure the running sum of total number of changes for each municipality and year. This running sum variable measures the sum of changes between political parties for a municipality at any given year (including years in which there was no election). For example, if a particular municipality has a total number of three changes in power between 2001 and 2010, rather than assuming three is constant for all years, the running change variable can determine that in 2005 there was just a total of one change in power. Table 1, below, shows that as the number of electoral turnovers increase, the total number of homicides/100,000 increases (until there are three changes in power, where the

homicide rate decreases), while the mean homicide rate decreases. It is plausible to have a curvilinear relationship between electoral turnover and crime, where very few or too many changes in power would be associated with a different level of homicide, than an “average” amount of turnover. However, Table 1 and Figure 2 demonstrate that in this case, the relationship between electoral turnover and homicide rate could in fact in be linear.

**Figure 1**



**Figure 2**



**Table 1: Total Number of Changes in Power and Mean Homicide Rate**

Total # of shifts in power for a municipality	Number of Observations	Mean Homicide Rate	Std. Deviation	Max. Value of Total Homicides/100,000(min value=0)
0	4,389	13.36	28.21	734.98
1	7,381	13.22	36.73	1613.83
2	6,820	11.15	39.18	2270.948
3	2,827	8.00	15.68	220.1664
Total	21,417			

In addition to studying the general patterns of electoral turnover and homicide in all municipalities, I also examined the municipality-year units with the largest homicide

rates between 2001 and 2010 (see Appendix Table 4). Interestingly, with the exception of two municipalities, the ten highest homicide rates all occurred in 2010, and were concentrated in four states. In these municipalities, the mean of total changes in power was 1, which is lower than the overall mean, revealing that low electoral turnover is possibly associated with high levels of homicide.

### **Hypothesis Testing**

One advantage of a cross-sectional time series design is that it can sometimes indicate the time order of which variable comes first, X or Y, and therefore eliminate the possibility of reverse causation: political disorder causes greater or lesser electoral turnover. Endogeneity is also very plausible in this study, given that electoral turnover could cause a change in homicide rate, and depending on the change, could in turn affect the amount of electoral turnover. Some authors have argued that endogeneity can also be reduced through a lagged independent variable to ensure that one is not testing the inverse causal relationship, and then running a fixed effects model (Villarreal). Other authors have used time series econometric models that allow for the study of fixed effects in order to control for time-invariant, unobservable differences across communities to reduce the concern of endogeneity (Orrenius et al., 12). These issues of endogeneity, unobserved differences between municipalities, elimination of alternate causes, and co-variation are further discussed in the later section detailing the selection of empirical models.

### **Selected Empirical Model and Why**

The literature on analyzing cross-sectional time series data generally concludes that ordinary regression models are not suitable given that the data are clustered (Rabe-Hesketh, Skrondal, 185). Given numerous issues with the regression assumptions for longitudinal data, I chose to run a two-way error-components model, or crossed random effects model, to test my hypotheses. The model allows for the effects of both municipalities and years on homicide level,  $Y_{ij}$ , to vary, which is necessary in my study given that my unit of analysis is municipality-year (Rabe-Hesketh, Skrondal, 475). The model is as follows:

$$Y_{ij} = \beta_1 + \beta_2\chi_{2ij} + \beta_3\chi_{3ij} + \int_1i + \int_2j + \epsilon_{ij}$$

where:  $Y_{ij}$  = homicide rate for a given municipality and year

$\beta_1$  = fixed intercept

$\chi_{2ij}$  and  $\chi_{3ij}$  = independent variables for municipality  $i$  in year  $j$

$\int_1i + \int_2j$  = random intercepts for municipalities  $i$  and years  $j$

$\epsilon_{ij}$  = residual error term

The random intercepts for municipalities and years are independent of one another, and not correlated with the error term, which has a mean of zero, and is also independent across municipalities and years. The model also assumes that the random intercepts and error term are normally distributed. This model is appropriate for my data because it allows for two random intercepts to account for the fact that municipalities and years are crossed (there is an observation at the level of year and at the municipality).

Additionally, I will fit a regression model with random intercepts for municipalities and random intercepts for years, and compare its results with the two-way error-components model. This model assumes that the regressors are uncorrelated with

the random intercepts (for example, the difference in unemployment rate is uncorrelated with municipalities and/or years), which may not entirely hold true in this case.

Regardless, the goal is to estimate random intercepts for municipalities,  $f_j$ , and for years,  $f_i$ , in order to capture the differences in municipalities and years (where some municipalities are more violent than others, and some years are more violent than others).

In order to control for the unobserved heterogeneity, it is necessary to create differenced variables that measure the annual change in homicide, unemployment rate, year, and other trending variables. Therefore, I created a differenced variable that measures the difference between the present observation ( $n$ ) and the year before ( $n-1$ ) for my homicide rate, unemployment rate, fixed capital formation, and year variables. I did not create differenced variables for my constants such as the total number of changes in power, HDI and literacy rates (where there were only two data points for each municipality). One consequence of this variable is that it eliminates the first year of data for each municipality, losing 1,947 values from 2000 (however, given that 2000 unemployment rate data was not available, this is not a great concern).<sup>12</sup> After creating these differenced variables for my key independent and dependent variables, I tested each variable for any missing values and found that there were none missing.

### **Results:** [Table 2]

**Two-Way Error-Components Model:**  $Y_{ij} = \beta_1 + \beta_2\chi_{2ij} + \beta_3\chi_{ij} + f_{1i} + f_{2j} + \epsilon_{ij}$

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<sup>12</sup> These differenced variables are included in the codebook along with any missing values. Missing values were then tested to ensure that they were randomly excluded, by comparing the HDI mean in values that were excluded and the HDI mean in those that were included.

The results of the two-way error components model using multiple level effects found a significant positive relationship between electoral turnover and homicide rate. However, the model used to estimate the random intercepts for years and municipalities did not work, which then required me to run a separate random effects model testing for municipalities only and then for years only.<sup>13</sup>

**Regression Model with Random Intercepts:**  $Y_{ij} = \beta_1 + \beta_2\chi_{ij} + f_j + \epsilon_{ij}$

Because I was unable to use a crossed random effects model, I then chose to fit a model with random intercepts for just municipalities and just years. When using the model for just municipalities, I found that municipalities that had a shift in party control for in a particular year had a 1.58 decrease in the total homicide rate at a 90% confidence interval, controlling for unemployment, border cities, HDI ranking, and fixed capital formation. Overall, municipalities that had a shift in power had a 1.65 decrease in homicide rate, compared with municipalities that did not have a shift in power. This finding is perhaps indicative of a positive relationship between electoral turnover and political order in Mexican municipalities.

When running a regression model with random intercepts for just years, I found weaker results, where the shift in power dummy variable was associated with a slightly significant decrease in homicide rate. Given the context of the violence in Mexico, having year effects are important because, as established earlier, some years are more violent than others due to fluctuations in the drug war.

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<sup>13</sup> My variables did not converge in the statistical program that I was using



Because controlling for years is important, and because I was unable to control for municipalities and years in the crossed random effects model, I chose to run a fixed effects model controlling for years.<sup>14</sup> Confirming the results of the random effects model for years, the fixed effects model found a significant, negative relationship between whether or not there was a shift in power in a particular municipality-year and homicide. Given that both my random effects model and fixed effects model found a difference in homicide rate between municipalities with electoral turnover and those without, I also ran a ttest with unequal variances, and found that municipalities without electoral turnover had a homicide rate 1.55 higher than municipalities with electoral turnover. The p-value of 0.0069 allows me to reject the null hypothesis that there is no relationship between electoral turnover and homicide.

In comparing the effect of a shift in party control in border and non-border cities, I ran a regression interacting the dummy variables measuring whether or not a municipality is on the border and whether or not there was a shift in power. The results of that regression model reveal that there are 0.02 less shifts in power in non-border cities than border cities at a 10% significance level.

In every regression model that I ran, the relationship between border cities and homicide had a positive relationship at a 99% confidence interval, indicating that border cities have a homicide rate that is approximately 9 points larger than non-border cities. There also appears to be a significant, positive relationship between the unemployment rate and homicide rate.

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<sup>14</sup> I also attempted to run a fixed effects model controlling for municipalities and years, but I was unable to do so given the available memory and ability of the statistical program I was using

To summarize, I differenced my trending variables and ran a regression model with random intercepts to control for the fact that certain municipalities are more violent than others and certain years are also more violent than others. In general, there was a positive relationship between electoral turnover and political order, indicating that when electoral turnover takes place in Mexican municipalities, the homicide rate decreases by about by 1.5 units as well.

Additionally, an increase in the HDI ranking (i.e., higher level of human development) of a municipality was generally associated with a 0.08 decrease in homicide rate, while an increase in the unemployment rate and being a border municipality was associated with an increase in homicide rate.<sup>15</sup> Contrary to earlier findings about the relationship between party in power and homicide rates, this study finds no relationship between the two variables (Appendix, Table 5).<sup>16</sup>

I am hesitant to use one particular Beta coefficient to further clarify the extent of each relationship because of the variation depending on which control variables are included.

## **Discussion**

After establishing a negative relationship between electoral turnover and political order, in addition to the relationships between other control variables and political order,

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<sup>15</sup> I did not control for the political party in power nor the literacy rate in the random effects and fixed effects models because I found no significant relationship between these variables and homicide in earlier regression models, which weakened the relationship between my key independent variables and dependent variable. While these variables were included in earlier analysis, they were excluded from the final models because of their weak relationship.

<sup>16</sup> In addition to running each political party variable in my regression models, I also ran a probit model comparing electoral turnover and political parties and found no relationship.

I will discuss how these results fit into the literature discussed earlier, offer my view on how these results could be interpreted, discuss the policy implications of these findings for Mexico, and lastly examine the external validity of this project and any future research ideas.

### **How do these results fit into the literature?**

Although there have been no previous studies that examine the relationship between electoral turnover and political order, the relationship between political competition and political parties on violence has been studied in Mexico. Villarreal found in his study of Mexican municipalities pre-2000 that electoral competition led to an increase in violence in rural municipalities, and this paper (although not comparing rural versus urban municipalities) similarly found that an increase in electoral turnover may be responsible for an increase in homicide. However, an interesting finding of this study is that cities in which there was no shift in party control between 2001 and 2010 had a homicide rate approximately 1.5 units larger than cities that did have a shift in power. One possible explanation for this relationship could be explained by Villarreal's results: that rural municipalities that are dominated by patron-client ties have more violence. Municipalities in Mexico that operate under sub-authoritarian practices (where there is little to no turnover) are dominated by informal institutions, and perhaps are associated with higher levels of violence in attempts to repress dissidents and maintain the status quo.

Additionally, although not the goal of this study, I expected to find a strong relationship between the political party in power and violence in Mexican municipalities,

as found in the Zeitzoff study. However, I did not find a significant relationship between the party in power and level of homicide, nor electoral turnover. I had suspected that areas led by the PRI would have higher levels of crime, not necessarily because of the negative externality theory proposed by Zeitzoff, but because of a relationship between the citizens that supported the PRI and those who engaged in violence. This surprising result could be attributed to the fact that this study studied municipalities over time, which Zeitzoff's study did not, and had a larger number of observations.

### **Interpretation of the Results**

Despite these mixed results, I fail to reject my null hypothesis that electoral turnover will have no effect on political order in Mexican municipalities between 2001 and 2010. The regression models suggest that there is a relationship between not only electoral turnover and political order, but also a relationship between the socioeconomic factors and political order in Mexico.

To interpret the relationship between electoral turnover and homicide, I would argue that there is a relationship (positive or negative), but that its relationship may be difficult to capture in regression analysis. There are three interesting findings pertaining to electoral turnover and political order: First, the lack of significant findings between the running sum of changes in power and homicide may signal a concept validity issue, and perhaps the running sum of changes between political parties is not the appropriate way to measure electoral turnover over time. Second, the significant, positive relationship between having at least one shift in party control and political order, indicates that perhaps it is not the number of changes that matters between political parties, as long as

there exists the possibility, and *ability* of a party to lose. Third, these results suggest that these two variables are in fact endogenous, and perhaps there is a cyclical effect between electoral turnover and political order.

One of the biggest struggles of this study was to find a way to measure “electoral change”, and have it capture the essence of my competing theories. Mexico, in particular, offers an interesting study of electoral turnover given that incumbents are not allowed to be re-elected. However, I believe that despite that no re-election rule, a politician’s policy (especially as it regards to providing reforms and political order), is similar to the party platform. Given that I wanted to capture whether electoral turnover improved or hindered democratic performance, measuring the number of changes that the mayor seat changed political parties seemed the most appropriate way. Empirically testing that variable’s effect over time presented challenges, particularly whether or not years without an election should be included. I chose to include election years, in part because each municipality can hold their elections at any point throughout the year, therefore making it difficult to decide when the effects of turnover had an effect on political order. The consequence of these decisions perhaps clouded the results of my study, and perhaps my method of measurement of electoral turnover was not the most effective.

Despite issues with measuring the sum of changes between political parties, this variable, along with measuring whether or there was any shift in power, allowed me to find a very interesting contradictory result: electoral change does matter, but perhaps the number of changes does not matter as much as whether or not citizens are able to demand a change in power. The second interpretation of the results would support the first theory on accountability, suggesting that electoral turnover represents the presence and proper

functioning of democratic institutions, thus showing that strong democratic institutions lead to an increased ability to provide order to the citizens. Although I am hesitant to conclude that turnover causes a positive or negative change in political order, I do believe that the results reveal that there is a positive relationship between the ability to demand a change in political parties and political order. The finding showing that cities without electoral turnover are associated with higher levels of political disorder (higher homicide) indicates that accountability matters. If citizens are able to demand better performance, and higher political order, through voting out the party in power, and voting in the party of choice, then one would assume that the government is being held accountable. Municipalities that do not experience party turnover have higher levels of political disorder, perhaps demonstrating that citizens are unable to hold their politicians accountable, leading to poor, ineffective policy. Therefore, I would argue that these results support the (amended) hypothesis, that no electoral turnover decreases the state's ability to provide political order.

Lastly, the results of this study reveal that the relationship between may not be linear (or even curvilinear), and that perhaps there is a cyclical relationship between electoral turnover and political order. If no electoral turnover causes an increase in violence, it is possible that the increased violence will eventually lead to electoral turnover, which may then be responsible for a decrease in violence. This pattern would make it difficult to establish a causal relationship between electoral turnover and political order, but is perhaps an opportunity for more detailed case study, where a handful of municipalities could be studied over time to determine whether or not a cyclical relationship does indeed exist.

It is also important to note that while there is a significant relationship between whether or not there was a shift in power and the homicide rate, cities without a shift in power were only associated with approximately a 1.5 decrease in homicide per 100,000. The large number of observations and sample size makes statistically significant results relatively easy to tease out in regression models and without municipal level control variables nor control variables for population density, municipal GDP, or other important factors, the results of this study may have limited significance.

### **Other Notable Findings**

In addition to the establishment of a relationship between electoral turnover and homicide, there were also other non-political findings that could have important implications for Mexico and its battle to support political order.

The random-effects model shows that one increase in the change in unemployment rate is associated with about a 1.15 increase in the change in homicide rate. This finding is not groundbreaking by any means, given that various sociological and economic theories that have suggested a positive relationship between these two variables, however, it does have important policy implications for Mexico. Reforms aimed at improving local economies have been extremely limited in comparison with reforms focused on improving the police, military, and justice system. While those law enforcement reforms are of the utmost importance, given that Mexico's unemployment rate has increased every year (with the exception of 2005) since 2001, there must be policies aimed at improving the non-drug related economy so that citizens not only feel more economically secure, but to also less inclined to participate in illicit activities.

Although Mexico has serious structural deficiencies in its economy, investing capital in bringing marginalized communities into prosperity is necessary to provide an attractive alternative to the drug cartels (Felbab-Brown, 2012). The number of resources (as measured by HDI) that citizens have access to has a negative relationship with homicide, and similar to unemployment, indicates that more reforms should be aimed at improving the quality of life of society. These results are consistent with Cleary's study that found that electoral competition had little effect on municipal government performance, but that non-electoral forms of participation were strongly correlated with performance. The implication of this finding is that the ability of the municipal government to provide order is dependent upon an engaged citizenry and cooperation between political leaders and their constituents (Cleary 2004).

Given that more and more citizens are living in a state of insecurity in Mexico, in order to provide order, weakening the drug cartels and strengthening civil society is necessary to make effective change. According to Felbab-Brown (2012):

“The state will need to build links to civil society and persuade the population that it can provide them public goods and services better than the narcos can...but, if the state asks the society to act and then itself fails to deliver on public safety and protection, community efforts will fizzle.”

That is, although strong civil society is crucial for the long-term provision of public order, that cannot be achieved without strong government performance and dedication to change. Sabet and Rios argue that the first step in creating a strong civil society and cooperation between leaders and citizens is increasing municipal government accountability. In order to reduce corruption amongst politicians, it is necessary to institutionalize better monitoring systems to promote transparency and accountability



(13). Transparency in Mexico is an issue because its absence prevents citizens and the government itself from holding the various leaders in power accountable, and limits future research on Mexico and its reforms. Additionally, because of the huge amounts of international attention that the Mexico drug war has attracted, there are many researchers interested in studying the various reforms and policies, but the lack of available and reliable data leads to more speculation and fewer facts.

Confirming what has been discussed in the media, border cities showed a significantly higher level of homicide than non-border cities, indicating the tremendous strength and presence of the drug cartels in Mexico. Given this difference, I chose to use a ttest with equal variance to examine the level of electoral turnover in border and non-border cities. In line with the earlier results, border cities had about a 0.24 increase in electoral turnover than non-border cities, reflecting that cities with higher electoral turnover are associated with higher homicide rates.

### **External Validity and Future Research**

After thorough collecting, analyzing, and interpreting of municipal election and homicide data in Mexico's first decade as a true democracy, the question is how applicable are these results to other nations facing political disorder? Before addressing this question of external validity, I would argue that while this study did have interesting results, I am hesitant to argue that electoral turnover plays a large role in the government's ability to provide public order. While I do believe that Mexico's transition to democracy did in fact make it difficult to provide political order, given the strength of the drug cartels, I'm not sure if electoral turnover captures that transition to democracy.

In an ideal study, I would be interested in measuring the levels of corruption in a new democracy, and how democracy, coupled with highly corrupt government institutions, affects the state's ability to provide order. On the one hand, corruption may lead to ineffective institutions, thus decreasing order, but on the other hand, corruption may also allow for informal institutions to operate and suppress the negative consequences of the drug trade on civil society. Nevertheless, the main challenge in studying the provision of public order in Mexico requires two components that I believe are currently lacking: increased transparency with improved monitoring mechanisms in order to increase the data available to study reforms, and increased attention to local level reforms. I would argue that in order to provide order to these stateless areas, the first step is to develop and nurture a strong civil society, which begins at the local level. Given that the political disorder is still concentrated to only a number of municipalities, there are still opportunities to target these areas by not only decreasing the strength of the drug cartels, but more importantly, increasing the strength and ability of civil society to engage in legal activities.

I still believe, as I did at the start of this investigation, that there is a relationship between the constant reforms at the municipal level and the inability to see any effective results, or political order. Although that relationship is not captured in this study's findings, I believe that electoral turnover may not accurately measure the number of reforms that have been attempted or installed in a municipality, and that is very possible that many reforms are being installed under one political party alone.

In addition to the ideas mentioned earlier, I believe that more research needs to be centered on the politics of Mexico, and how the political institutions have either hindered

or helped provide order to the citizens. Too few studies examine the national level reforms, without understanding what municipal level political characteristics or norms have an impact on providing safety and security to the citizens. Given the number of new democracies, especially those in Latin America, that have struggled with providing order post-authoritarian rule, I believe that there are political characteristics that make Mexico's war on drugs so difficult. Therefore, to the question of external validity, I think there is some value in understanding the relationship between electoral turnover and the provision of public goods in other new democracies. This study could serve as an appropriate starting point for understanding that relationship, but given the unique nature of the political disorder in Mexico (and generally the unique nature of political disorder anywhere), I do not think it is appropriate to assume the same relationship between electoral turnover and political order in other countries.

## **Conclusion**

This thesis looked at the relationship between democracy and the provision of political order, by analyzing the effect of electoral turnover on violence in Mexican municipalities during the decade following its transition to democracy in 2000. This investigation was important in understanding how democratic institutions and society impact a country's ability to provide political order, at the local level. Given Mexico's continuing struggle with political order, I sought to explain the variation in political order (and why various reforms have been ineffective) by looking at how democracy could help or hinder its presence. The study found that municipalities with electoral turnover experienced fewer homicides than municipalities without turnover, supporting the first

hypothesis that electoral turnover will cause an increase in political order. Despite significant results correlating whether or not there was a shift in party control (and thus, democracy) with political order, there is insufficient evidence to conclude that the relationship between electoral turnover and political order is causal. What is significant, however, is that there are other civil society variables that are associated with political order, and by focusing reforms on improving civil society, as well as disarming the drug cartels, there is an opportunity for positive change.

In a *New York Times* article published the week of submitting this thesis, there was a chilling description of Mexico's continued struggle with law and political order in society:

“Six years into a mostly military assault on drug cartels, impunity across much of Mexico has worsened, and justice is harder to find... Many areas now veer toward lawlessness: in 14 of Mexico's 31 states, the chance of a crime's leading to trial and sentencing was less than 1 percent in 2010... And since then, experts say, attempts at reform have stalled as crime and impunity have become cozy partners.” (Cave, March 2012)

Mexico is increasingly beginning to resemble a failed state, with the majority of their reforms being short-lived or poorly executed. With rising unemployment, decreasing literacy rates, and increasing frustration, Mexico will continue to struggle against fighting the drug cartels, and, if citizens continue to feel insecure, risks its democratic future. Although democracy offers an opportunity and institutional mechanisms to provide political order, for it to work, there must be cooperation and engagement between civil society and government in order to strengthen the ability of the state to provide order.

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**Table 2: Unstandardized Coefficients from Random and Fixed Effects Regression of Change in Total Homicide Rate On Electoral Change, 2001-2010**

INDEPENDENT VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
SHIFT IN POWER DUMMY	-1.58* (.87)	-1.55** (.05)	-1.65* (.77)	-1.47 (.80)	-1.42 (.91)	-1.37* (.80)
UNEMPLOYMENT RATE	1.21** (.46)	1.13** (.42)	1.21** (.42)	.81 (.49)	.65 (.55)	.80* (.50)
BORDER CITY	9.52*** (1.02)	9.58*** (.84)	8.62*** (.90)	8.65*** (.90)	9.58*** (1.0)	9.42*** (.89)
HDI RANK	-.09* (.04)	-	-.08* (.04)	-.08* (.04)	-.09 (.04)	-
FIXED CAPITAL FORMATION	2.42 e-07 (.99e-07)	-	-	-	6.54 e-08 (1.58 e-07)	-

Note: Numbers in parentheses are standard errors; \* indicates that the p-value < 0.05, \*\* p<0.01, \*\*\* p<0.001. Models 1-3 are Random Effects Models controlling for municipalities. Models 4-6 are Random Effects Models controlling for years. Model 7 is a Fixed Effects Model controlling for years. The number of observations for these models is 15576, with the exception of Model 1 and Model 5 where the number of observations is 13629.



## Appendix

**Table 1: Codebook for Electoral Turnover and Violence in Mexican Municipalities**

Variable Name	Variable	Explanation	Values	Source
Year	Year	Years between 2000-2010	2000-2010	
State	State Name	State name for which the municipality is located	32 states listed in alphabetical order	INEGI, <a href="http://www.inegi.org.mx">www.inegi.org.mx</a>
Municipio	Municipality Name	Unit of analysis		INEGI, <a href="http://www.inegi.org.mx">www.inegi.org.mx</a>
Party	Party In Power	Which party was in power for a given year and municipality	PRI= Partido Revolucionario Institucional PAN= Partido Accion Nacional PAS= (former) Partido Alianza Social PT= Partido del Trabajo PRD= Partido de la Revolucion Democracatic a PVEM= Partido Verde Ecologista de Mexico CONV= Convergencia	Instituto de Mercadotecnia y Opinion (Institute of Marketing and Opinion) <a href="http://www.imocorp.com.mx/">http://www.imocorp.com.mx/</a>
Elecyer	Election Year Y/N	Did an election take place in x municipality in this year	Dummy (1=yes, 0=no)	Instituto de Mercadotecnia y Opinion (Institute of Marketing and Opinion) <a href="http://www.imocorp.com.mx/">http://www.imocorp.com.mx/</a>
Yrsinpow	# of years in power	# of years a particular party stayed in power	#= years, with 1= year elected	Instituto de Mercadotecnia y Opinion (Institute of Marketing and Opinion), <a href="http://www.imocorp.com.mx/">http://www.imocorp.com.mx/</a>
Totchange	Total Change	Total # of Shifts in Party Control for Municipality (constant)	1-3 shifts	Instituto de Mercadotecnia y Opinion (Institute of Marketing and Opinion), <a href="http://www.imocorp.com.mx/">http://www.imocorp.com.mx/</a>
Shiftpow	Shift in Power	If there was a shift in	Dummy	Instituto de Mercadotecnia

		power between political parties at all between 2001 and 2010	(1=yes, party switch, 0=no party remains in power)	y Opinion (Institute of Marketing and Opinion), <a href="http://www.imocorp.com.mx/">http://www.imocorp.com.mx/</a>
Runchange	Running Change of Shift in Power	Running sum of # of changes in party control for a given municipality over time	1= 1 shift in power 2= 2 shifts in power 3= 3 shifts in power	Instituto de Mercadotecnia y Opinion (Institute of Marketing and Opinion),
Tothom	Total Homicides	# of total homicides for a given municipality		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
tothomR	Total Homicides per 100,000	# of total homicides for every 100,000		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
tothomDR	Change in total Homicides per 100,000	Change in # of total homicides per 100,000 from previous year		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
malehom	Total Male Homicides	# of male homicides for a given municipality		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
malehomR	Total Male Homicides per 100,000	# of male homicides per 100,000 for a given municipality		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
malehomDR	Change in total male homicides per 100,000	Change in # of male homicides per 100,000 from previous year		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
Femhom	Total Female Homicides	# of female homicides for a given municipality		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
femhomR	Total Female Homicides/100,000	# of female homicides per 100,000		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
femhomDR	Change in female homicides/100,000	Change in # of female homicides per 100,000 from previous year		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
Totpop	Total Population	Total population for a municipality in a given year		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
Malepop	Total Male Population	Total male population for a municipality in a given year		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
Fempop	Total Female Population	Total female population for a municipality in a given year		Diego Valle <a href="http://www.diegovalle.net">www.diegovalle.net</a>
Fxcapfor	Fixed Capital Formation	Amount of fixed capital formed in each municipality for a given year (2003-	Measured in miles de pesos	INEGI, <a href="http://www.inegi.org.mx">www.inegi.org.mx</a>

		2010)		
Literacy	Literacy Rate	% of 8-14 year olds that can read/write	Given data for years 2005 and 2010, the literacy rate was assumed to be constant for years previous	INEGI, www.inegi.org.mx
Unemploy	Unemployment Rate	% of people who are seeking work, collected by INEGI and the National Survey on Labour and Employment	For years 2007-2010	INEGI, www.inegi.org.mx
Border	Border/Non-Border State	Whether the state in which the municipality exists borders the United States	String variable	INEGI, www.inegi.org.mx
Minzone	State Minimum Wage Zone	Which minimum wage zone the state is in (A, B, or C)	Numeric variable	www.mexperience.com
Wagezone	State Minimum Wage Zone	Which minimum wage zone the state is in	String variable	www.mexperience.com
HDI	Human Development Index	Human Development Index ranking of each state (indirect)	Listed by ranking (1-32)	De la Torre, Rodolfo and Hector Moreno. July 2010. "Advances in sub national measurement of the Human Development Index: The case of Mexico." <i>United Nations Development Programme Human Development Research Paper</i> 2010/23.
Nummunic	# of Presidentes Municipales	# of mayors in each state		INEGI www.inegi.org.mx
Bordummy	Border/Non-Border Dummy	Whether the state in which the municipality exists borders the United States	Dummy variable, 1=Border, 0=Non-Border	
Partydum	Dummy Variable for Party in Power		1=PAN 2=PRI 3=PRD 4=PVEM 5=PAS 6=PT	
PAN	PAN Party in Power	Whether or not the PAN party is in power for a given municipality	Dummy variable, 1=PAN, 0=not PAN	

PRI	PRI party in power	Whether or not the PRI party is in power for a given municipality	Dummy variable, 1=PRI, 0=not PRI	
PRD	PRD party in power	Whether or not the PRD party is in power for a given municipality	Dummy variable, 1=PRD, 0=not	
PVEM	PVEM party in power	Whether or not the PVEM party is in power for a given municipality	Dummy variable, 1=PVEM, 0=not	
PAS	PAS party in power	Whether or not the PAS party is in power for a given municipality	Dummy variable, 1=PAS, 0=not	
Unemrate	Unemployment Rate (Datastream-annual average)	% of people who are seeking work, collected by INEGI and the National Survey on Labour and Employment	Listed for years 2001-2010	INEGI, <a href="http://www.inegi.org.mx">www.inegi.org.mx</a>  <a href="#">Obtained from the Federal Reserve of Dallas</a>
Zone_1	Minimum Wage Zone A	States located in minimum wage zone A	Dummy variable, 1=Zone A, 0=not Zone A	<a href="http://www.mexperience.com">www.mexperience.com</a>
Zone_2	Minimum Wage Zone B	States located in minimum wage zone B	Dummy variable, 1=Zone B, 0=not Zone B	<a href="http://www.mexperience.com">www.mexperience.com</a>
Zone_3	Minimum Wage Zone C	States located in minimum wage zone C	Dummy variable, 1=Zone C, 0=not Zone C	<a href="http://www.mexperience.com">www.mexperience.com</a>
Dum2000	Year 2000	For every year 2000	Dummy variable, 1=2000, 0=not year 2000	
Militarize	Militarization of Federal Government	When military operations began Mexico	Dummy variable, 1= years after or including 2007, 0=pre 2007	T.W. "Raising the Stakes." <i>The Economist</i> . 26 August, 2011
tothomR_diff	Change in total homicides/100,00	Difference between total homicide rate in current year (n) and total homicide rate from previous year(n-1)	1,947 missing values generated (from year 2000)	
Unemrate_diff	Change in unemployment rate	Difference between unemployment rate in current year (n) and unemployment rate	3894 missing values generated (from year	

		from previous year(n-1)	2001)	
Year_diff	Differenced year variable		1 missing value generated	

**Table 2: Descriptive Statistics for Key Independent and Dependent Variables**

Variable	Observations	Mean	S.D.	High	Low
# of years in power	21417	2.72	2.33	10	0
Total Changes between Political Parties	21417	1.38	.81	3	0
Total Homicides	21417	6.08	40.54	3684	0
Total Homicides per 100,000	21417	11.89	33.95	2270.9	0
Total Male Homicides per 100,000	21417	21.4	64.54	4632.58	0
Total Female Homicides/100,000	21417	2.42	10.15	540.54	0
Total Population	21417	50842.77	134841	1815786	273
Total Male Population	21417	25011.95	66316.99	895475	144
Total Female Population	21417	25831.86	68557.63	934788	129
Fixed Capital Formation (miles de pesos)	15576	4790256	4436192	2.8e +.07	-6408
Literacy Rate (% of 8-14 year olds who can read and write)	15724	95.7	2.27	98.8%	89.4%
Unemployment Rate (%)	19470	3.30	1.49	8.4%	.43%
Human Development Index	15576	20.39	8.67	32	1

*Note:* Shown are descriptive statistics state-level HDI, unemployment rates, literacy rates, and fixed capital formation. # of years in power, homicide values, and population are taken at the municipal level. The data codebook is described in Appendix Table 1. Annual data span 2001-2010 for municipal level data and 2003-2010 for state level data.

**Table 3: Univariate Analysis Over Time**

Variable	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total Homicide/100,000 (mean)	10.24	9.78	9.60	8.99	9.48	10.42	8.70	12.20	17.07	23.69
Change in Total Homicide/100,000 from previous year, (mean)	-.45	-.46	-.19	-.61	.49	.94	-1.72	3.50	4.87	6.63
Running Sum of Changes in Power (mean)	0	0	.14	.40	.47	.56	.92	.95	1.09	1.38
Unemployment Rate (mean)	2.38	2.53	2.89	3.22	3.05	3.10	3.16	3.46	4.64	4.64
Fixed Capital Formation (mean)	NA	NA	1528 572	2298 648	3021 459	3979 033	4839 408	6717 386	7316 300	8621 242

**Table 4: Municipality-Year Units With the Highest Homicide Rate**

State	Municipality	Rate
Chihuahua	Guadalupe	665.84
Chihuahua	Praxedis Guerrero	685.84
Sonora(2007)	Arizpe	701.98
Tamaulipas	Mier	734.99
Chihuahua (2009)	Praxedis Guerrero	750.16
Nuevo Leon	Paras	773.69
Nuevo Leon	Dr. Coss	932.40
Chihuahua	Praxedis Guerrero	1166.86
Sonora	Tubutama	1613.83
Nuevo Leon	Gral. Trevino	2270.95

Note: The highest homicide rates were all for the year 2010, with the exception of Arizpe (2007) and Praxedis Guerrero (2009)

**Table 5: Relationship between Party in Power and Homicide Rate**

Party in Power	Mean Homicide Rate	Median Homicide Rate	# of observations
PAN	11.6 (40.37)	3.66	4461
PRI	12.19 (36.1)	4.73	11485
PRD	12.58 (20.6)	6.78	2901
PAS	9.39 (13.55)	3.98	146
PVEM	15.15 (21.40)	9.67	33

