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VIOLENCE AGAINST FEMALES IN MEXICO: UNDERSTANDING ITS TRENDS AND PATTERNS

August 13, 2018

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Submitted to the Public Policy Program
in Partial Fulfillment of the Requirements for the Degree of Master of Arts
at Stanford University

ABSTRACT

This study analyzes the patterns of violence against women in the period of the Mexican War on Drugs. This studies how such violence has changed in this period, how it compares to violence against males, how it distributes geographically, and the overall characteristics of the murders of women in the context of this conflict. A number of relevant patterns were identified from analyzing this trends. First, that violence against women has been increasing at a high rate since the war on drugs started. Second, that the main driver of the increase in violence against women seems to be the same than that of men: fire-arm homicides. Third, there are some discrepancies that indicate that the dynamics of violence for both genders works in somewhat different ways. For example, violence against women seems to be more “diverse” in the sense that strangling and sharp object homicides play a much larger role than in violence against men, which is mainly composed of firearm homicides. In addition to this, the geographical analysis shows how violence against women is being displaced to the north for all types of violence.

Keywords: (Violence Against Women, Femicide, War on Drugs, Mexico, Latin America, Gender)
Introduction

In the last decade, violence in Mexico has almost tripled (Jarillo, Magaloni, Franco, & Robles, 2016). This increase in violence has mainly been attributed to the war on drugs (Dell, 2015; Guerrero Gutiérrez, 2011; Robles, Calderón, & Magaloni, 2013). Given that the active participants in the war on drugs are mostly male (members of the cartels and armed forces), the violence patterns and trends have been predominantly studied for young men. However, the violence patterns for the female population in this rough decade remain unstudied. There is some existing journalistic evidence that indicates that murders of women have also risen dramatically in the past decade (The Guardian, 2017). Furthermore, there is evidence in the press that indicates that such violence concentrates more in some states than in others. Most media articles point at three states that concentrate this problem: Puebla, State of Mexico, and Chihuahua (El País, 2017; Al Jazeera, 2017). Moreover, some of this press releases indicate that this spike in violence is related to the overall increase in drug-related violence, while others indicate that this is gender-targeted violence that is unrelated to the war on drugs.

To this day, there is no academic literature that studies the patterns and trends of the violence phenomenon for women in Mexico in the period of the war on drugs. It is still unclear if violence against women has spiked in the last decade. Furthermore, there is not much information as to how violence for males and females is related. Moreover, little is known about the regions in which such violence is concentrated, nor if there has been a geographical shift in violence. Finally, it is unclear whether this violence is gender-targeted or if it is related to the war on drugs.

As a result of this literature gap, I want to explore how violence against women has changed in the past decade, how it compares to violence against males, how it distributes geographically, and the characteristics of the murders of women in the context of the war on drugs. In other words, the main purpose of this descriptive study is to map violence against
women, how it has varied over time, and to identify the key factors that associate to this type of violence in the context of the war on drugs. The identification of such factors will help pinpoint the roots of such violence and will provide the relevant information for the formulation of policies that can help to contain and prevent it.

This analysis will be divided into six different sections. First, the background section in which I introduce the different approaches to studying violence against women. In this section I also describe some relevant information on the war on drugs. Second, I include a literature review in which I analyze studies on the main triggers of violence against women; review information on how violence against women tends to behave in conflict settings; and describe the most relevant evidence on policies and interventions to prevent this type of violence. Thirdly, I include a conceptualization section in which I present the way in which violence against women will be understood in this study and where I present my research hypothesis. Fourthly, I include a data and methods section to describe the data sources, variables, and empirical strategy for this study. Fifthly, I present my findings and the corresponding visuals to understand the violence patterns. Finally, I close with some concluding remarks and policy recommendations.

1. Background

In this section, I present information on violence against women in Mexico. I first describe how critical the issue of general violence against women is and present some surveys that the government has used to understand the patterns of such violence. Then, I present the drawbacks of using survey data to obtain robust information on the prevalence and characteristics on such a sensitive topic like gender violence. Subsequently, I argue that studying violence against women through homicide data is one of the most robust strategies to analyze this issue. Then, I report some statistics of institutional reports that have studied
the data on female homicides in the country. Finally, I include a brief overview on the overall violence problem in Mexico in the context of the war on drugs.

1.1 Survey data on gender violence

Violence against women has been one of the most pressing issues for Mexico in the last decades. According to the United Nations (2010) Mexico is one of the most violent countries for women in the World. Violence against women is normally typified into four different categories: emotional, physical, sexual, and economical violence. In order to understand the magnitude and prevalence of the different types of violence in the last decades, the Mexican government created several national surveys that ask women about this issue. In the 1990s the government created the National Reproductive Health Survey (ENSAR by its Spanish acronym). This health survey contained question on intimate partner violence. Later, in 2003, the National Survey on Violence Against Women (ENVIM by its Spanish acronym) and National Survey on the Dynamics of Domestic Relations (ENDIREH for its Spanish acronym). Both surveys have the specific purpose of obtaining information on intimate partner violence in the country. All three surveys found a homogenous and alarming prevalence of physical violence against women of close to 10% of the female population (CEPAL, 2009). However, for the other types of violence, the findings produced by this surveys proved to be inconsistent.

These surveys, however, suffer from several limitations which do not allow to obtain generalizable information for the whole country nor allow to formulate policies to tackle this issue. The lack of robustness of survey data is caused by several characteristics of this type of data collection. For instance, some of these surveys were only collected with women that attended health clinics. This excludes all women who do not have access or need to attend a health clinic. Moreover, each survey was targeted at specific age subgroup of the population. This sub group selection might leave some vulnerable groups out of the analysis.
Additionally, many of the surveys were only collected once, which does not allow to compare violence against women over time nor to situate it in the war on drugs context. Finally, these surveys only contain violence against women in which the intimate partner was the perpetrator. Reducing the analysis only to specific perpetrators might obscure larger patterns of the violence that women suffer outside the household.

More generally, the use of surveys to study gender violence has been criticized for having several pitfalls. Schwartz (2010) argues that some of the major problems to study gender violence from surveys is that there are several definitional problems when asking victims about their experiences. For example, women questioned about rape or sexual assault might understand the concepts differently from the reader or researcher analyzing the data. Moreover, surveys face problems caused by underreporting and recall bias from the victims. Some victims refuse to disclose information until they feel certain trust with the interviewer and other victims tend to “telescope” their experiences, which means that they run together several events and lose track of when they actually happened (Schwartz, 2010). Finally, Schwartz argues that the order of questions and sex of the interviewer can further affect the validity of survey findings.

As such, the information gathered in the above-mentioned surveys can be used as a starting point to understand some characteristics of gender violence in Mexico. However, they cannot be used to produce the robust information that is need to create targeted policies that tackle this pressing issue. It is clear that more thorough and accurate information is needed to pinpoint the most vulnerable groups and to identify the contexts and characteristics that propagate or help contain gender violence in Mexico. Furthermore, given that the country is undergoing a violent conflict, it is crucial to understand how violence against women relates to violence against men, how it relates to the broader violent context of the war on drugs, and how has varied over time and space as this conflict has evolved.
1.2 The killings of women

Given the limitations to survey data reliability presented above, in this paper I will only focus on the most extreme case of physical violence: the killings of women. I chose to focus on this type of violence because it allows for a more robust analysis of violence for several reasons. First, the information on all murders of women is available through the death certificates and stored in a central database administered by the National Health System. Having such a database overcomes most of the limitations that arise in survey data, such as definitional issues, underreporting, and telescoping. Second, the death certificates allow to see the type of violence that was used in the killing and, in some cases, who the perpetrator was. Having this information allows to shed light on the most common types of physical violence used against women. Thirdly, this data is available for the whole country for the last decades. This information grants the opportunity to see the trends in violence over time and space during the last ten years --the most violent years in Mexico. Finally, this information is also available for males, which allows to see if the dynamics of violence for both genders vary differ in their patterns. Thus, using this information will also allow to situate the problem of gender violence and understand its characteristics in the broader context of the war on drugs.

There is some existing evidence on the trends of female homicides in Mexico. For instance, the United Nations Entity for Gender Equality and Empowerment of Women (UN Women) produced a report that analyzes the trends in homicides of women between 1985 and 2009 (UN Women, 2011). This report shows that the female homicide rate was substantially reduced between 1985 and 2007. It reduced from 1,485 female murders per 100,000 females in 1985 to 1,085 in 2007. However, the trend was reverted after 2007, year when it started increasing at rapid rate. In 2009 there were 1,858 female homicides per 100,000 females. The fact that this trend changed at the time when the war on drugs was initiated, indicates that this
drug-related conflict is not only affecting the male population, but it is also altering the dynamics of violence against women. This report provides relevant evidence on the trend of female homicides prior to the war on drugs. Nevertheless, the patterns of this type of violence during this war decade remains unstudied.

Hence, in this paper I analyze violence against in the first decade of the war on drugs: 2006-2016. Moreover, I will rely on information gathered from death certificates of women that were murdered. Analyzing this information, will allow to pinpoint the characteristics of women who are most vulnerable to violence, the geographical context in which such violence occurs, and, most importantly for this research, how this violence is changing along the national dynamic of drug-related violence.

1.3 The war on drugs

The present study will be situated in the time frame of the war on drugs, which basically encompasses the last decade. This war on drugs has left a huge mark in the country by increasing violence to previously unimaginable levels. The war on drugs started in 2006 when the Mexican government implemented a new strategy aimed to weaken drug cartels. This strategy consisted predominantly of arresting the highest ranked leaders of the Drug Trafficking Organizations (DTOs).

An ample amount of empirical evidence suggests that this government strategy is what caused the country’s violence spike. Calderon et al. (2015) found evidence that this policy led to a fragmentation of criminal organization and, thus, caused an increase in cartel fighting. This fighting, in turn, increased the DTO-related violence and the homicides that affected the general population. Additionally, Dell (2011) suggested that this policy led to large increases in violence, mainly by stimulating conflicts between rival traffickers. Moreover, Rios (2013) showed an increase in violence when traffickers and authorities confronted each other due to government prosecution, and found that enforcement operations
that aimed to reestablish the rule of law in fact triggered more violence by further increasing turf battles. Finally, Guerrero-Gutiérrez (2011) found that Mexican government policies targeting the leaders of DTOs caused violence to escalate.

During the first five years of this war violence in the country almost tripled compared to the levels prior this conflict (Robles et al., 2016). Between 2007 and 2012, around 60,000 murders took place in Mexico. Figure 1 shows the total number of homicides that occurred between 2002 and 2011. From 2007 onwards, this graph distinguishes homicides related to organized crime (red and blue) from intentional homicides (green), and clearly shows how violence related to organized crime increased steeply after 2007. Given this change in overall violence in the past decade, it is crucial to understand how violence against women has been altered amidst this conflict.

*Figure 1: Total homicides and homicides related to drug gang violence (2002-2011)*

Source: Robles et al. 2013
2. Literature review

In this section, I review different papers in which violence against women is studied. First, I will present overall evidence on the main triggers, causes, and predictors of violence against females. Second, I will present literature that studies the patterns of violence against women in conflict and war settings. Thirdly, I present policy evidence on what strategies are known to contain violence against women.

2.1 Violence against women

In this section I present several studies that have analyzed the main predictors and triggers of violence against women. Heise & Kotsadam (2015) did a cross-national study to test the degree to which macro-level factors related to women’s gender inequalities, status, and norms of male authority and control are associated with population-levels of partner violence. Furthermore, they explore whether these factors interact with individual-level variables to predict women’s risk of domestic violence. These authors find that factors related to women’s educational achievement, women’s access to cash or employment and their economic rights are predictors of the prevalence of partner violence. Moreover, they find that the biggest geographical predictors of female violence are: laws and behaviors that disadvantage woman compared with men; norms that justify wife beating; and gendered-related discrimination in family law.

Related to some of the findings in Heise and Kotsadam (2015), Aizer (2010) studied the impact of the gender wage gap on levels of domestic violence in the United States. To do this, she exploited exogenous changes for labor in female dominated industries relative to male dominated ones. To measure violence she uses administrative data on female hospitalization for assault. She finds that a reduction in the wage gap reduces the violence against women. These findings are consistent with the idea that household bargaining matters
for violence. Moreover, she finds that the reductions in violence occur in non-working hours. This rules out the idea of exposure reduction, which predicts that as female labor participation increases, violence against women decreases due to less time spent with partner. Her finding suggest that increases in pay parity can reduce violence and, thus, increase the health of women.

Stevenson & Wolfers (2006) analyzed how unilateral divorce laws affect family violence and whether introducing unilateral divorce reduced suicide and spousal homicide. To do this, the authors exploit the variation occurring from the different timing of divorce law reforms across the United States. They find that in states that passed such laws, there was a substantial decline in female suicide, in domestic violence for both genders, and in the number of females murdered by their partners. They conclude that unilateral divorce works to transfer bargaining power toward the abused. Both this paper and Aizer’s work show the importance that bargaining power play in violence against females.

Card & Dahl (2011) analyze the effect of emotional cues on family violence. To do this, the authors analyze police reports on domestic violence on Sundays during the football season. They find that “upset loses”, defeats when the team was expected to win, lead to an increase in the rate of domestic violence by men against wives and girlfriends. This paper indicates that emotional cues that originate from outcomes that deviate from rational preferences can heavily affect the wellbeing of women.

2.2 Conflict settings and gender violence

In this section of the literature review, I describe the studies that have looked into the issue of violence against females in war and conflict settings. Swiss et al., (1998) conducted a survey to document the violence experiences in Liberia during the war. They find that 49% of the participants reported experiencing at least 1 act of violence (sexual or physical). Women who were accused of belonging to a specific ethnic group or fighting faction were at
increased risk of both types of violence. Moreover, they found that women younger than 25 years old were more likely to experience sexual coercion and rape than those above of that age threshold. This study, however, presents several limitations. For instance, many types of violence may be underreported given that the information is gathered through self-reported surveys. Furthermore, this survey only included violence caused by soldiers and fighters, but excluded civilians.

Stark et al., (2010) measure violence against women in war in displacement settings. These authors study incidence rates of gender-based violence in internally-displaced-persons camps in northern Uganda. Using a “neighborhood methodology” they asked female heads of household about their own violence experiences and those of sisters and neighbors. The authors found an overall incidence of intimate partner violence of 51 percent. This study, similarly to the previous one, suffers from the drawbacks of self-reported violence data.

2.3 Policy Evidence

A somewhat large body of literature analyzes what policies and strategies help to prevent and contain violence against women. Some policy strategies that have been used to counter this problem are: legislative and justice sector responses; and violence prevention programs (Ellsberg et al., 2015). The most popular justice sector policy response in Latin America has been the women’s police centers that focus on crimes such as rape and domestic violence. Perova & Reynolds (2015) analyzed the impact of women’s police centers in Brazil on female homicides. Even though they did not find an association on average, they found that such police stations are very effective both for young women (ages 15-24) and women living in metropolitan areas.

The violence prevention programs have been implemented through diverse approaches that include: empowering women and girls through group-based training interventions; group trainings for men and boys; and community mobilization (Ellsberg et al.,
2015). Sarnquist et al. (2014) analyzed the impact of an intervention of a program in Nairobi in which adolescent girls were taught empowerment, de-escalation, and self-defense skills in six sessions. This program was implemented in Nairobi’s informal settlements. These researchers found that annual sexual assault rates decreased significantly after the intervention. Moreover, they find that sexual assault disclosure increased in 20%, compared to no increase in disclosure in the control group. Rasul et al. (2013) evaluated the impact of another empowerment intervention targeted at young women. They studied the impact of a program that empowered girls both through life skills to build knowledge and reduce risky behaviors, and through vocational training enabling girls to establish small-scale enterprises. They found that the percent of girls that reported having sex unwillingly was nearly eliminated, from a baseline of 21%.

Group training for men and boys have also been used as a policy strategy to prevent violence. Verma et al. (2008) analyzed an intervention in Mumbai and Gorakhpur, India that focuses on changing support for inequitable gender norms. This intervention aimed at improving young men’s attitudes toward gender roles and sexual relationships, and to reduce partner violence. These researchers found that young men were about five times less likely to report perpetration of physical or sexual partner violence than men in the comparison group.

3. Conceptualization and hypotheses

This research has three different objectives: to understand by how much murders of women have increased in the past decade and how it compares to male homicides, second, to describe the geographical occurrence of such events, and third, to analyze if such violence is mainly manifested in the form of intentional killing of women or in the form of cross-fires from the war on drugs.
Understanding if murders are intentional or if they happen in crossfires is crucial to uncover the causes behind violence against women. This classification allows to shed light on possible causes of what is driving violence against women. The new violent atmosphere in the country could be causing men to be more violent against women or it could be that women are not being specifically targeted but rather that they happen to be in the “wrong place” during a drug-cartel confrontation. Given this context, I posit two hypotheses as to why violence against women has increased: 1) that the war on drugs has been having more female victims in crossfires that generally thought or perceived 2) there has been an increase in violence that specifically targets women (femicides).

In order to understand the phenomenon of violence against women, I decided to classify violence just by type of violence used to commit the homicide. To categorize homicides, I will use the International Classification of Diseases (ICD). The ICD is maintained by World Health Organization and is designed to map diseases, causes of injury and disease worldwide. Among its different classifications, the ICD has a specific classification to identify the causes of homicides. Some examples of classification of homicide causes of the ICD are: firearm, rape, spiked instruments, strangling, among others.

The type of violence used to commit the crime is a good proxy to understand the reasons motivating the crime. For example, according to the United Nations (2013), femicides are typically committed by using hands and other forms of brutal force as a weapon rather than guns. If hypothesis 2 were true, I would expect such increase in homicides to fall in the classification of rape, strangling, and spiked instruments, which are types of violence more related to femicide. On the other hand, if hypothesis 1 was the main driving force then I would expect such increase to appear in firearm homicides. Moreover, if violence against women was having similar patterns as violence against men, that would further support the
hypothesis that women are being victims of the same war as men (the war on drugs) rather than being directly targeted.

4. Data and methods

The data I will use to address the question will be retrieved from the health system created by the National Institute of Statistics Geography and History (INEGI). I chose this database because it collects homicide information from health clinics nationwide, gathering the results from the autopsies and categorizing them.

The INEGI database has information on homicides from 1990 to 2015. As such, it will allow me to analyze homicides in my period of interest (the last decade). I will begin my analysis in 2002 to incorporate the trend of a few years previous to the war on drugs. Moreover, this dataset contains information on the municipality of the incident and the ICD classification of each homicide. The variables that I analyze in this study are:

- **Time:** I will analyze homicides between 2002-2015. This data set is gathered on a yearly basis. Therefore, my unit of analysis in terms of time will be the years.

- **Geography:** the INEGI data set contains information at the State and Municipality level. My aim is to perform this analysis at the municipality level. Mexico has a total of 2446 municipalities.

- **ICD classification:** The ICD has 24 different categories to classify homicides. Some examples of this categories are: fire arms, strangling, fight without violence, and sexual assault (rape).

- **Population:** In some cases I will convert variables to per 100,000 inhabitants because that will help compare across different sized places. The INEGI Data contains population projections for all my years of interest.
• **Gender:** The data set provides information on the gender of the victim, this will allow me to perform the analysis separately for men and women.

This data set was constructed by INEGI, a federal organism that is in charge of generating statistical information on different social and economic indicators. According to INEGI’s methodological note\(^1\), the data base was constructed in the following way. First, INEGI collected the death certificates from the local Medical Forensic Services. Based on those certificates INEGI used the ICD classification to codify the cause of each death. According to INEGI, an incident is considered as a homicide when the doctor determines that the causes that led to the individual’s death were not natural, but rather external factors with direct aggressions. This data set was constructed to provide homogenized information on homicides.

Even though this database is known for being fairly accurate, there are some potential issues with it that go beyond the scope of this project. There might be a certain bias in the data if they were only able to collect more information in less problematic municipalities, for example. Moreover, a different potential source of bias would be that forensic doctors write death certificates differently depending on where they live. A doctor might describe deaths differently in more violent places than in less violent places. An example of this could be that if a locality suffers frequently from one type of crime, the doctor might be biased to codify the death in a certain way. For the purpose of this research, I will not look deeper into the matter of bias in the data. However, it is important to acknowledge that this study may be strengthened in the future by analyzing the data accuracy.

In order to operationalize a measure for violence against woman, I will first separate male and female homicides. Then, I will analyze homicides by municipality and gender. Given that municipalities vary widely in terms of population, I will divide the total number of

homicides of each gender by the number of inhabitants in that municipality. Moreover, I will multiply this by 100,000 because that is the standard in the literature that analyzes violence. Having a 100,000 inhabitants measure of crime will make it easier to compare between different-sized places. The following formula will be used throughout most of the analysis:

\[ Y_{c,m,t,g} = \frac{\text{Homicide}_{c,m,t,g}}{\text{Population}_{m,t}} \]

In the previous formula \( Y_{c,m,t} \) indicates the outcome of interest. The subscript \( c \) indicates type of crime according to the ICD classification, the subscript \( m \) indicates the municipality, the subscript \( t \) indicates the year, and the subscript \( g \) indicates the gender.

I think that the main challenge in the way I chose to operationalize the outcome will occur in very small localities. If only one homicide happens in a very small locality, it might be misleading when looking at its \( Y \). The \( Y \) in a very small locality with just one homicide might be very similar to one in a larger locality were homicides happen systematically. The sole incident in the small locality might be an anomaly, while the recurrent violence in a large locality might be indicating a systematic violence problem. This might be misleading in the sense that one could conclude that a very small locality with just one incident has a similar violence problem to that of the larger municipality. As such, I will have to be very careful when comparing very small municipalities to larger ones. An approach to address this problem is to do a running average using three years to see if the behavior was anomalous in a particular year or if there is a persistent problem. The years I will focus most of my analysis on is 2005 (the year before the war on drugs started) and 2012 (the most violent year for women). To check for the robustness of my 2005 findings, I will do a running average using information of the years 2003, 2004 and 2004. For my analysis of 2012, I will perform a running average with the years 2012, 2013, and 2014.
5. Findings
5.1 Trends in violence against women

First, I will analyze the trends in violence against women by type. Figure 2 shows that trends in violence for women from 2002 to 2015. The dark blue line represents the total homicides, while the other four lines represent the three most common types of homicides for women: strangling, sharp object, and firearm. I also included another category that represents undetermined homicides (homicides that were not categorized to any of the ICD classifications). I chose to include strangling, sharp objects and firearms because they were by far the most common types of violence used against women. Moreover, I included the homicides that were not determined as any category because they also represent a significant proportion of the total homicides. I left out all the other categories of homicides because they all remained at the same low levels and did not help explain any of the variation.

This figure reveals many characteristics on the violence against women. First, the total homicide rate remained relatively flat until 2007. It is exactly in this year when violence starts spiking. Then, the trend in total homicides becomes relatively steep and reaches its maximum in 2012 (indicated by the red vertical line). One of the key findings of this graph is that violence against women has been increasing at a high rate since the war on drugs started. This information has been widely discussed in the past for males but it hadn’t been analyzed for the female subpopulation. The main driver of this increase in violence for women seems to be fire-arm homicides. Additionally, the patterns indicate that the fire-arm homicides for women reach their peak two years before the total homicides reaches it maximum. This might be indicating that violence against women has both components: one related to the war on drugs and a gender targeted violence
5.2 Comparing female trends with the male population

To see how total violence against women compared to that against men, I will plot a line graph with the trends of homicides for the male by type of homicide from 2002-2015. Such a graph will allow to see if violence for both groups spiked at the same time and if it has an overall similar behavior. Figure 3 replicates the information shown in figure 2 but for the male population.

Several relevant patterns can be highlighted from comparing both graphs. First, figure 3 shows that the levels of violence for men are almost 10 times higher than those for women. Second, it reveals that the most violent year for the male population was 2011, while the most violent year for females was 2012. Another relevant finding of this graph is that males always had a higher level of firearm homicides than any of the other types of homicides. This, however, does not seem to be the case for women. Women’s firearm homicides were almost the same level as undetermined homicides, and they were also quite close to strangling and
sharp object homicides until 2006. It is in 2007 that the trend in firearm homicides of women starts diverging from the other types of killings.

In addition to this, what I consider one of the most important patterns is that violence against women seems more “diverse” than that of men. For men, almost the whole area under the total homicide curve can be explained by firearm homicides. However, for women, a far smaller proportion of the total homicides are represented by firearm homicides. This means that other types of violence still play a crucial role in explaining total murders of women.

Figure 3: Trends in violence against men

The main driver, nevertheless, of increase in violence of women seems to be the same than that of men: fire-arm homicides. One puzzling finding of comparing both graphs, however, is that violence for males and females does not reach its maximum in the same year. This finding could indicate that both types of violence are related, but do not have the exact same dynamics. We also see that the fire-arm homicides for women reach their peak two
years before the total homicides of women reaches its maximum. This might be indicating that violence against women could have both components: first, one related to the war on drugs and, later, a gender targeted violence component. This could be suggesting that violence against women first appears in the form of fire-arm homicides (which are probably related to the war on drugs) and then “diversifies” into other types of violence that specifically targets women.

5.3 Geographical Distribution of Violence

In this section I present maps that portray the violence for both females and males. I want to be able to pinpoint which regions have the biggest problem of violence against women and violence against men. For this purpose, given that I’m interested in seeing how this violence has changed during the war on drugs period, I first plot the per 100,000 inhabitants homicides per municipality in 2005, the year before the war on drugs started. Then, I do the same map but for 2012, the most violent year for women in the last decade. I will produce one map for males and one for females. I then compare how violence distributes geographically for both groups over time and see if the patterns look similar. Afterwards, I present similar maps that show different types of violence against women see if they have the same geographical patterns as fire-arm homicides.

5.3.1 Geographical Distribution of Total Female Homicides

Figure 4 describes how total female homicides in Mexico were geographically distributed at the municipality level in 2005 and 2012. Each dot is the centroid of a Mexican Municipality. The size of the dot represents the rate of homicides per 100,00 inhabitants. The two maps are homicides per 100,000 inhabitants in 2005 and in 2012 respectively.
In 2005 violence against women is very much concentrated in the center/south of the country, mostly in the states of Mexico, Puebla, Oaxaca, and Guerrero, the poorest states in the country. In 2005 there is almost no large dot in the northern part of the country. In 2012, however, we see a geographical shift in violence. Violence against women displays a higher quantity of larger dots in the northern part of the country. This graph clearly shows that violence is no longer solely concentrated in the poorest regions of the country (center/south); it has dispersed to the affluent region of the country: the north.

5.3.2 Geographical Distribution of Total Male Homicides

Figure 5 describes how total male homicides in Mexico were geographically distributed at the municipality level in 2005 and 2012. The story for males seems somewhat
different from that of women in 2005. Even though there is also a large concentration of homicides in the same region than women (center/south). There is another fairly concentrated area of large dots in the north west and the north east. Both of these high concentration regions have been historically know for drug-cartel presence.  In 2012, similarly to women, we see a geographical shift in violence to the north.

The main finding of figures 4 and 5 is that violence, both for men and for women, is moving north. It appears that before the war on drugs violence was mostly concentrated in the poorest region of the country: the sates of Mexico, Guerrero, Oaxaca, and Puebla. During the most violent year of the war on drugs, however, this violence seems to have moved to the north. Such movement makes sense because most powerful cartels were located in the north, and the strategy from the government against drug cartels was mostly located in that region. The fact that female homicides are moving in the same direction as male homicides makes again a case for my second hypothesis: the increase in violence against women is probably due to an increase in crossfires from the war on drugs.

5.3.3 Geographical Distribution of Firearm Female Homicides

*Figure 5: Female Firearm Homicides per 100,000 inhabitants by municipality*

Figure 5 describes how firearm female homicides in Mexico were geographically distributed at the municipality level in 2005 and 2012. Firearm homicides of women behave
relatively similar to total female homicides. Again, in 2005 most firearm homicides were happening in the center/south of the country. Then, in 2012, figure 5 displays how many large dots start appearing in the north. This again indicates that women are being victims of what could be drug related crossfires or killings in the area of the country that was most affected by this war.

5.3.4 Geographical Distribution of Strangling Female Homicides

Figure 6 describes how strangling female homicides in Mexico were geographically distributed at the municipality level in 2005 and 2012. Once more, strangling homicides of women behave relatively similar to total female homicides. In 2005 most firearm homicides occurred in the center/south of the country. By 2012 this violence had clearly spread to the north. Since strangling homicides are more related to gender targeted violence, these maps could be indicating that as drug-related violence spreads, violence that specifically targets women spreads to those newly violent places.

*Figure 6: Female Strangling Homicides per 100,000 inhabitants by municipality*
5.3.4 Geographical Distribution of Sharp Object Female Homicides

Figure 7 describes how sharp object female homicides in Mexico were geographically distributed at the municipality level in 2005 and 2012. Again, we see the same pattern. In 2005 most firearm homicides occurred in the center/south of the country, but by 2012 this violence appears with more frequency in the north. Like strangling homicides, sharp object homicides are associated to violence that targets women. These maps could once more be indicating that as drug-related violence spreads north, violence that specifically targets women spreads to those newly violent places.

Figure 7: Female Sharp Object Homicides per 100,000 inhabitants by municipality
6. Conclusion and Policy Suggestions

The main objective of this study is to explore how violence against women has changed in the past decade, how it compares to violence against males, how it distributes geographically, and the characteristics of the murders of women in the context of the war on drugs. Many relevant patterns were identified from analyzing the trends of violence against women. First, that violence against women has been increasing at a high rate since the war on drugs started. Moreover, the main driver of the increase in violence against women seems to be the same than that of men: fire-arm homicides. However, there are some discrepancies that indicate that violence for both genders works in slightly different ways. For instance, violence against women does not reach its maximum on the same year as violence against men. Additionally, violence against women seems to be more “diverse” in the sense that strangling and sharp object homicides play a much larger role than in violence against men, which is mainly composed of firearm homicides. In addition to this, the maps show how violence against women is being geographically displaced to the north for all types of violence.

Some of these findings are consistent with the hypothesis that the war on drugs is having more female victims than originally thought. Similar to men, there has been a spike in firearm homicides for women. Moreover, violence against women has moved geographically to the north, area in which most war on drugs confrontations occur. However, this change has not only occurred in the form of firearm homicides. Northern regions that previously did not have incidence of female homicides in the form of strangling or sharp objects, started having these types of violence after the war on drugs. These types of violence tend to be related to gender targeted violence, which could indicate that as generalized drug violence expands so does violence that specifically targets women.
These findings show that places in which the war on drugs is expanding, need policy interventions that protect women from violence that targets them. A possible policy intervention would be to introduce women’s police centers in areas in which generalized violence is expanding. Following the results of Perova and Reynolds (2015), such an intervention could positively affect women living in such areas. This gender violence problem could further be tackled by implementing programs that promote empowerment, de-escalation, and self-defense skills for women such as the ones analyzed by Sarnquist et al (2014) and Rasul et al. (2012). Finally, interventions that tackle changing the support of men for inequitable gender norms are very important in this violent context where violence against women is expanding so quickly (Verma et. al, 2008).

This study found relevant patterns that fill the literature gap as to how violence against women has behaved during the Mexican war on drugs. This study presents a few limitations in the sense that it does not analyze the demographic and socioeconomic characteristics of the women that are most vulnerable to such violence. Future research should explore in depth the characteristics of such vulnerable groups in order to be able to create targeted policies that help those women most in need.
References


