

Women Politicians and Violence Against Women: Evidence from Mexico

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Abstract

Do women politicians better address violence against women than men politicians? While much attention has been given to the role of women politicians in legislatures, much less is known about their impact on gendered outcomes when they hold executive positions. This study estimates the effects that women politicians in local office have on violence against women in Mexico using a pre-registered regression discontinuity design of close elections. We find that women mayors reduce some of the most egregious violent crimes committed against women compared to men mayors, and that this effect seems to become more pronounced the longer women politicians are in office. The findings highlight the importance of women political leaders for women's safety and security.

Keywords: violence against women; women politicians; Mexico

Do women politicians better address violence against women (VAW) than men politicians? VAW is a pervasive problem across the world, with one in three women experiencing physical or sexual violence at least once in their lifetime (World Health Organization 2021). While some research finds that women’s representation in national legislatures matters for the creation, support, and implementation of gendered laws, policies, and programs (Franceschet et al. 2012; Cain Miller 2016; Piscopo 2014; Barnes 2016; Clayton and Zetterberg 2018; Volden et al. 2018; Barnes and Holman 2020; Barnes et al. 2021). At the sub-national level, studies in India and Indonesia find that women representation in local governments does matter for addressing citizen attitudes and behaviors towards VAW (Beaman et al. 2009; Iyer et al. 2012; Kuipers 2020). Yet, beyond the effect of women’s representation in local councils on citizen beliefs and behavior towards VAW, significant gaps remain in our understanding of the impact of women politicians—and particularly women in executive positions—on actual instances of VAW.

This article examines whether women mayors better address VAW in Mexico, where VAW is prevalent and politically salient, using a pre-registered quasi-experimental research design.¹ Specifically, we use a regression discontinuity design (RDD) to compare VAW outcomes in municipalities where women politicians defeated men politicians with municipalities where men politicians defeated women politicians.

Drawing on data from the 2018 local elections across 1,324 municipalities and VAW outcomes during the three-year mayoral terms that followed (2019-21), we find that women politicians that narrowly win office reduce VAW, particularly severe forms of VAW, including homicides of women and young women. Specifically, our results suggest that women mayors prevent 4.4 homicides of women and 2.6 homicides of young women during their three year term. We also explore possible mechanisms and find that women politicians hire more women staff and appoint more women to lead government institutions, and suggestive evidence that

¹Pre-Analysis Plan was registered in the Open Science Foundation registry prior to data collection and is available at –.

they increase budgets for institutions that address gender issues. Additional exploratory tests show that women politicians also reduce homicides of men but have no effect on other non-VAW crimes.

Background and Data

We focus on Mexico, where women political representation is high and VAW is prevalent and politically salient. In 2018, women went from holding 14% of mayoral positions to 26%, a historic high (ONU Mujeres 2018). At the same time, over 66% of women reported suffering at least one form of violence during their lives in 2016 (INEGI 2017), and ten women were murdered per day, on average (OECD 2017). Given its prevalence, VAW has become a key political and electoral topic (Arista 2022), with 96% of women and 94% of men considering it “a grave or very grave issue” (Morán Breña and Galindo 2021). Since the early 2000s, Mexican national and subnational governments have created various institutions specifically to address women’s issues, including their safety.²

We focus on mayors because local politicians tend to have the closest links to citizens and thus be more responsive to local issues. We believe mayors provide an appropriate case because Mexico’s federal system bestows considerable *de jure* and *de facto* powers to local governments (Selee 2011, 2012). Mayors are elected by plurality rule, serve for three years and start their terms towards the end of the election year. We collect data on the 1,324 local elections that took place in 2018 across 22 states,³ and VAW data for the three years of the mayoral administration (2019–2021).

Using data from each state’s electoral agency, we hand-code the gender of the first and

²For example, see [here](#), [here](#), and [here](#).

³25 states held local elections in 2018. We exclude Oaxaca, as is standard in the literature, because hundreds of municipalities follow indigenous self-governance, and Tabasco and Yucatán due to lack of data on candidate gender.

second place candidates⁴, the number of votes they received, and the total number of votes to calculate the winning margin. Of the 1,324 municipalities, 559 (42%) held elections where a woman and a man were the top two vote-receiving candidates (see Appendix for a map).

We use multiple measures to capture different dimensions of VAW for each of the three years of the 2018 mayoral administration. We explore these outcomes disaggregated by year of the mayors' term to analyze temporal effects, and pooled (total instances) to examine overall effects (summary statistics shown in Appendix).

To measure femicides, or the intentional murder of women because of their gender, we create two measures using official death certificate data (INEGI 2021b). First, we use the total number of homicides of women. Second, we create a measure of homicides of young women (women between the ages of 15 and 44) because sources find that the majority of femicide victims in Mexico (SEGOB et al. 2017) and Latin America (ECLAC 2021) fall within this age group. To measure other forms of VAW, we use official data on instances of crimes reported to authorities, including the number of reported cases of sexual harassment, sexual abuse, rape, and domestic violence from 2019 to 2021 (SESNSP 2022). One limitation is that these reported crimes are not disaggregated by the gender of the victim. However, since the vast majority of sexual crimes and domestic violence crimes are perpetrated against women (CDC 2021; Jaitman and Anauati 2019), we believe that these data are a valid measure of our proposed concept. Additionally, these data measure reported, not actual, crimes, and therefore understates the prevalence of these crimes (Jaitman and Anauati 2019).

Research Design

To estimate the effect women politicians have on VAW, we leverage an RDD of close elections. Our research design exploits close mayoral races in 2018 where either: (1) a woman candidate narrowly defeats a man candidate, or (2) a man candidate narrowly defeats a

⁴Details on how gender was coded can be found in the Appendix.

woman candidate. By comparing the outcomes for women and men who narrowly defeated an opponent of the opposite gender, we can estimate the causal effect of electing women politicians on VAW if the continuity assumption is met (De la Cuesta and Imai 2016).

Formally, we estimate the following specification:

$$y_i = \alpha + \tau W_i + \beta f(X_i) + \epsilon_i \quad (1)$$

where y_i denotes the different VAW measures, X_i is the margin of victory that takes positive values when a woman candidate wins and negative values when a man candidate wins, W_i is a binary variable that takes the value of 1 when $X_i \geq 0$ and 0 otherwise, and $f(X_i)$ is a polynomial that denotes the functional form used to estimate the model. The coefficient of interest is τ , which estimates the causal effect of having a woman mayor on outcome y_i .

Following the literature, we estimate first and second-order polynomials (Calonico et al. 2014; Gelman and Imbens 2019) using optimal bandwidths that minimize the mean-squared error (Calonico et al. 2014) and robust standard errors. We report and interpret conventional RDD estimates in the main body and include the robust bias-corrected RDD estimates in the Appendix. Results across the two estimation methods are consistent, but conventional estimates are more conservative. We rely on the `rdrobust` package in `R` to estimate the RDD (Calonico et al. 2015).

Identification and Threats to Inference

The key assumption of the RDD is that potential outcomes are continuously distributed at the treatment cutoff; that is, the only change at the cutoff is the treatment status (De la Cuesta and Imai 2016). First, the continuity assumption could be violated if candidates can influence their assignment-to-treatment (the margin of victory) and sort nonrandomly around the threshold. We conduct the McCrary test (McCrary 2008) and a nonparametric

test (Cattaneo et al. 2020) and find no evidence of sorting (see Appendix for details). Second, discontinuities in confounders at the threshold could violate the identification assumption. Using data on municipality-specific sociodemographic factors from the 2010 Census (IN-EGI 2021a), including gender-specific variables such as the number of women, women-run households, and economically active women, and the average education of women, we conduct balance tests by estimating the RDD with these variables as outcomes and find no discontinuity at the threshold (see Appendix for details).

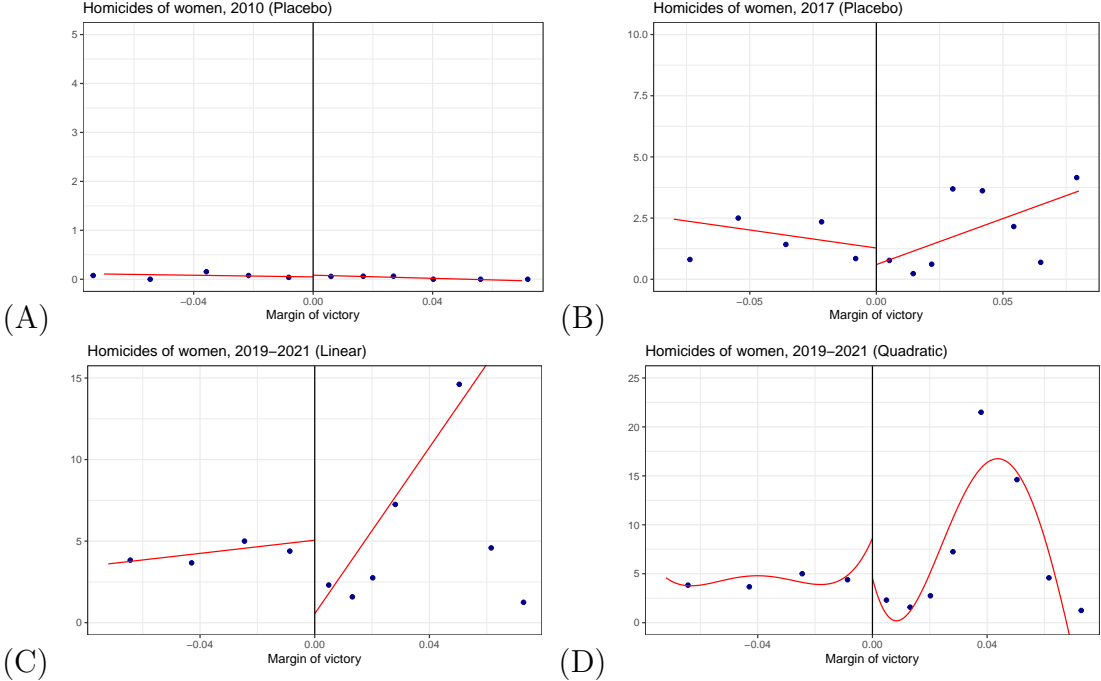


Figure 1: Linear RDD plots for (A) homicides of women in 2010 (placebo), (B) homicides of women in 2017 (placebo), (C) homicides of women from 2019-2021, and quadratic RDD plot for (D) homicides of women from 2019-2021. Running variable is winning margin. Bandwidths are optimized to minimize the mean-squared error. Data is binned using spacing estimators.

Additionally, we conduct two placebo tests by using *past* VAW outcomes: homicides of women and young women in 2010 and 2017 (results shown in the Appendix). We select 2010 because it is the same year as the sociodemographic data and 2017 because candidates for the 2018 election had to register their candidacy in late 2017. Null results in both placebo tests provide compelling evidence that women politicians did not self-select into *and* win close

Table 1: Regression discontinuity results: Effect of women politicians on VAW.

	Linear RDD				Quadratic RDD			
	2019	2020	2021	Pooled	2019	2020	2021	Pooled
Homicides of women	-1.029 (0.769)	-1.680** (0.666)	-1.069 (0.840)	-4.439** (2.075)	-3.082** (1.419)	-3.277** (1.357)	-3.395** (1.441)	-9.453*** (3.644)
n	210	205	255	209	228	220	252	225
Bandwidth	0.073	0.070	0.093	0.072	0.081	0.077	0.092	0.079
Homicides of young women	-0.503 (0.584)	-1.632** (0.676)	-0.261 (0.609)	-2.597* (1.497)	-2.068** (1.051)	-2.417** (1.109)	-1.940* (1.068)	-6.223** (2.734)
n	227	179	285	216	241	223	248	225
Bandwidth	0.081	0.061	0.108	0.075	0.086	0.078	0.090	0.080
Rape	-2.894 (2.657)	-4.622 (2.960)	-6.842* (3.638)	-14.968 (9.279)	-6.325 (3.927)	-6.223* (3.590)	-9.676** (4.408)	-22.353* (11.669)
n	249	194	195	206	257	264	264	261
Bandwidth	0.090	0.067	0.067	0.070	0.095	0.100	0.099	0.097
Domestic violence (in tens)	-6.991 (5.486)	-5.486 (5.350)	-7.182 (5.771)	-22.026 (16.390)	-10.939 (6.825)	-14.746* (7.578)	-16.141** (8.097)	-41.816* (22.285)
n	219	265	255	244	274	275	268	273
Bandwidth	0.076	0.100	0.092	0.087	0.104	0.105	0.101	0.103
Sex abuse	-4.051 (5.175)	-2.824 (5.552)	-8.264 (6.969)	-12.191 (17.487)	-14.431* (8.771)	-15.286* (7.918)	-19.832** (9.670)	-49.477* (25.976)
n	264	274	240	263	259	266	258	260
Bandwidth	0.099	0.104	0.085	0.098	0.097	0.101	0.096	0.097
Sexual harassment	-1.939 (1.420)	-0.830 (2.091)	-2.536 (2.557)	-5.174 (6.026)	-3.263* (1.951)	-3.577 (2.319)	-5.964** (3.030)	-12.942* (7.079)
n	222	295	265	262	284	311	295	293
Bandwidth	0.077	0.113	0.100	0.098	0.108	0.122	0.113	0.112

Conventional RDD estimates with robust standard errors and optimal bandwidth that minimizes mean-squared errors.

Robust standard errors shown in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

elections in municipalities with low VAW levels, and that there is no spurious correlation due to some third confounder driving both low VAW levels and the electoral success of women politicians in close elections. Figure 1 shows the raw data using homicides of women for both placebos and the post-election sample.

Results

Table 1 shows the main RDD estimates for the different VAW outcomes during the mayor's first (2019), second (2020), and third (2021) years in office, as well as pooled results for their three-year administration, using both linear and second-order polynomial specifications. RDD results using higher order polynomials, though not pre-registered and thus not included here, are consistent with the results of the quadratic RDD model.

Generally, we find strong evidence that women politicians reduce the most severe forms of VAW (homicides of women, homicides of young women, and rape), and mixed evidence for other forms of VAW (sexual harassment, sexual abuse, and domestic violence), which are only statistically significant at conventional levels using the quadratic RDD. Specifically, the more conservative linear RDD point estimates find that during their terms, women mayors reduce homicides of women by 0.505 standard deviations (SDs) (SD = 8.783 among observations within the MSE optimal bandwidth, to the left of the cutoff) and homicides of young women by 0.409 SDs (SD = 6.349 among observations within the MSE optimal bandwidth, to the left of the cutoff). These effects are substantively large, as they suggest that during their first two years in office, women mayors prevent 4.439 homicides of women and 2.597 homicides of young women.

For other VAW-related crimes, both linear and quadratic point RDD estimates are negative, and they increase in size by the third year of a mayor's term. However, linear RDD results are only statistically significant at the 10% level for rape during the third year of a mayor's term. Conservative linear RDD point estimates suggest that women politicians reduce rapes by 0.47 SDs (SD = 14.695 among observations within the MSE optimal bandwidth, to the left of the cutoff) during their third year in office. Quadratic RDD estimates, nevertheless, are statistically significant at the 10% level for sexual abuse in 2019, rape, domestic violence and sexual abuse in 2020, and at the 5% level for rape, domestic violence, sexual abuse, and sexual harassment in 2021. Finally, the pooled results using the quadratic RDD are all negative and statistically significant at $p < 0.1$. A limitation is that data on VAW crimes come from reported crimes. Thus, we cannot empirically rule out that women politicians reduce reporting of VAW and not their prevalence. However, since the results using death certificate data show reduced homicides of women, results using reported non-VAW crimes are null, and previous research shows that women politicians *increase* VAW reporting (Iyer et al. 2012), we interpret the results using crime reports as an actual reduction and not a negative reporting effect. Consequently, if women politicians in our sample

also increase the reporting of VAW, our estimates underestimate the true effect.

Probing Mechanisms

Women politicians could impact VAW through various avenues. Like existing studies, we are limited by data availability, so we take two approaches to probe possible mechanisms (see Appendix for full results). First, we use official administrative data on municipal governments in 2020 (data does not exist for 2019 or 2021) to estimate the RDD. We find that women politicians increased the percent of women support staff and the percent of women leading municipal government institutions. Results also suggest that women politicians increase the percent of budget designated to institutions that address women and gender issues and whether municipal government established formal channels for citizen participation, though these results are not statistically significant. Second, we conduct qualitative research on women politicians in our sample that won close elections (margin of victory $\leq 0.2\%$, $n=33$) to examine whether they advanced women's issues. We find that many were publicly recognized as their municipality's first woman mayor, they took a wide variety of actions to bring awareness to and address VAW, and that Municipal Women's Institutes are common avenues through which mayors implement programs, workshops, events, and provide services to address VAW.

Additional Tests

We also explore the possibility that women politicians may address violence and crime more broadly by estimating the RDD using the following outcomes: homicides of men and young men, and four of the most prevalent crimes in Mexico (extortion, home burglary and vehicle theft, kidnapping, and drug dealing). We find that women politicians are also associated with a reduction of homicides of men and young men. However, unlike the results for women, the coefficients for homicides of men and young men decrease and lose their statistical significance at the 5% level during the second year. We also find that women politicians have no effect on

the prevalence of reported non-VAW crimes for any year. These results suggest that women have an overall effect on reducing homicides in general, and no effect on non-VAW crimes. Results are discussed in detail and shown in the Appendix.

Concluding Remarks

Our results suggest that women’s leadership in local politics may be an important factor for improving women’s well-being and safety. We find that women politicians that narrowly defeat men politicians in mayoral elections reduce various forms of actual and reported VAW instances and provide some evidence of the mechanisms through which they do. These findings are consistent with and complement existing studies showing that women’s political representation at the local level matters for the behavior and attitudes of citizens regarding gendered issues in different contexts. However, future research benefit from investigating more closely *how* women politicians affect the prevalence of VAW and the conditions, tools, and institutions that allow them to do so.

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