Master in Economics Thesis

"Gender-Based Violence: Evidence from a Municipal Program in Chile"

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Gender-Based Violence: Evidence from a Municipal Program in Chile

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Abstract

I study the impact of a municipal program on gender-based violence in Chile. I exploit the fact that the implementation of the program is through "Centros de la Mujer" and only some municipalities have one. This allows to measure the effect of the program with a difference-in-difference approach including municipal and month fixed effects. The study concludes that in municipalities in which the program is implemented, all kinds of violence against women decrease 4.13%. Results suggest that the program reduces violent crimes (domestic violence, sexual abuses and rapes) for both women and men. The program has heterogeneous effects across age of victims and a 1-year delay since its implementation until results are observed.

Key Words: *Gender-based violence, Difference-in-difference.*

JEL codes:H43, H55, I38, J16

Contents

1. Introduction

From childhood, women are more likely to suffer psychological violence than men, being ignored, isolated or victims of false rumours (UNESCO, 2017). Furthermore, in the economic sphere, there are differences in wages depending on gender. According to statistics from OECD (2020), the average of this wage gap is 13.2 % and it reaches 34.1% in South Korea. Besides, more than a third of women report having been victim of physical or sexual violence at some point in their lives (WHO, 2013). According to a study by UNODC (2019), it is estimated that in 2017, 87.000 women were intentionally killed, of which 58 % by relatives (or partner). Then, violence against women is a worldwide problem driven by psychological, economic and physical issues.

According to the World Health Organization (WHO), gender-based violence has health, social and economic consequences. At the health level, studies show that depressive experiences are observed more often due to gender-based violence (Paolucci et al., 2001). Post-traumatic stress syndrome, depression, anxiety and low self-esteem are some of the psychological issues triggered on women who suffered violence (Morrison et al., 2007). But these effects do not only remain at an internal level, some behavioural changes are observed after victimization. Heise (1993) explains that battered women are at increased risk of alcohol abuse and drug dependence. There is also evidence of worse quality of life in terms of health (Coker et al., 2002). Gender-based violence increases health problems like injuries, chronic pains and sexually-transmitted diseases (Campbell, 2002). Also, Sadler et al. (2000) show that women that have experienced violence are more likely to report chronic health problems. Morevorer, researchers have documented that gender-based violence increases infant and child mortality (Åsling-Monemi et al., 2003).

Also, there are problems at a social level because, according to Sadler et al. (2000), violence isolates victims from everyday life and, in cases of domestic violence, encourages women not to work (Bhalotra et al., 2019). Then, there is an economic impact of violence against women. Currie and Madrian (1999) observe a deterioration of women's abilities to work, reducing wages. Furthermore, a decrease in their income and a negative component on their reputation (WHO, 2013). Gender-based violence puts barriers to the employability and job performance of the victim (Anderberg and Rainer, 2013). This effect is observed as a decline in female labour force participation (Sabia et al., 2013) because of a performance decrease caused by violence. Also, for those women that remain working after victimization, lower incomes are observed (Sadler et al., 2000).

All of these edges trigger problems related to public spending, due to medical care and productivity losses at a country level. For instance, 14 billion dollars were spent in Australia in one year for cases

of violence against women (KMPG, 2016). Meanwhile, in Vietnam, productivity decrease caused a drop of 1,78% of GDP (Duvvury and Carney, 2012). The article from Tchamo et al. (2020) calculates the economic cost of violence against women. This cost is composed by health care, judicial costs, assistance from justice services and support by civil society organizations. They calculate the cost over four years for Mozambique's main cities. Results show that 81% of the amount was destined to health care. In addition to those costs, the European Institute for Gender Equality includes the economic output cost caused by gender-based violence due to its impact on women's unemployment (EIGE, 2014). This economic output cost includes tardiness, distraction, absences and administration issues leading to productivity losses. In order to have an idea of this cost, all taken in consideration, the amount reached over 160 million dollars in 2011 in Switzerland (Stern et al., 2013).

Given all consequences of gender-based violence, countries focus resources in the reduction of violence against women in order to improve women's quality of life and reduce national costs. This shows that gender-based violence is a public issue and must be taken into account by the State, to reduce personal, private and public costs.

In Chile, the picture does not get away from the world's evidence. During 2019, more women were victim of threats (60% of cases). In addition, 79% out of 118.861 cases of domestic violence were against women. That same year, 88% of rape victims and 86% of sexual abuse cases were women [1].

During 2015, a program called "Integral Prevention of Violence Against Women Program" is created by the Woman's and Gender Equity National Service (SERNAMEG), an organ of the Woman's and Gender Equity Ministry. Although it is a program designed at a national scale, it is implemented by municipalities. More specifically, the implementation takes place in "Centros de la Mujer" (from now on, woman's centers), places where women who have experienced gender-based violence are cared for. Here, women can approach without the need of a previous police report, nor to do it during the support process. In 2015, there were 102 municipalities with a woman's center, spread through the national territory, leaving 243 municipalities without one.

In order to carefully analyse this program's effect in Chile and thus determine its impact on gender-based violence, I use an empirical strategy of difference-in-difference.

This article's main objective is identifying the effect of the Integral Prevention of Violence Against Women Program on gender-based violence in Chile. Results found on the article could help authorities such as SERNAMEG and the Woman's and Gender Equity Ministry to enhance, reduce or modify certain components of the program, looking for a better performance in the reduction of violence against women

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[1]Data from "Centro de Estudios y Análisis del Delito" (CEAD): http://cead.spd.gov.cl/estadisticas-delictuales/

in Chile.

The program's impact is a reduction of 4.13% on all violent crimes against women. This effect is driven by a reduction on most violent crimes (domestic violence in 6.34% and rapes in 2.7 percentage points) which are reduced for men as well. The effect is heterogeneous for different ages and takes one year since the implementation to show impact. The impact of the program is significant for violence in general and robust to spatial autocorrelation. Results show to be robust to population weights, several controls and they are not driven by population nor violence outliers. However, results are not robust to linear trends.

The rest of the paper is organized as it follows. Section 2 analyses the literature review, then section 3 describes the program in question and section 4 presents the data. Next, section 5 presents the empirical framework, section 6 reports the results and finally section 7 concludes.

2. Literature Review

Violence against women is defined as "any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivations of liberty, whether occurring in public or private life" (UNGA, 1993). In this section I walk through the vast literature studying violence against women. First, I study different triggers that increase chances of finding gender-based violence, in order to have a better understanding of situations in which this type of violence is observed. Then, I describe the empirical evidence analysing similar programs in other countries in order to have an idea of the program's context and the expected results for the study.

2.1. Triggering variables

Morrison et al. (2007) states that violence against women is found at individual, relationship, community and society levels. The first factor is the presence of violence around people's life. Martin et al. (2002) find that intimate violence as a child, association to delinquent peers, high neighbourhood crime rate or an environment that supports violence as a way to resolve conflicts, could trigger into higher rates of gender-based violence. This is a very studied issue on literature because it has several impacts such as psychological costs (Paolucci et al., 2001), health problems (Coker et al., 2002) and even consequences to the labour market (Sabia et al., 2013).

Then, some articles affirm that gender norms play an important role in the number of cases of

violence against women (Hindin and Adair, 2002). Literature suggests that economic violence is due to the origins of gender roles, leaving women behind men (Alesina et al., 2013). Greathouse et al. (2015) examine common characteristics of male perpetrators. They converge into violent childhood, delinquency and beliefs in traditional gender roles. Some examples of these common characteristics are male control of household decisions, differences in partner education and laws that discriminate against women in social, economic or political spheres. In this line, Kishor and Johnson (2004) explain that an interesting variable to take into account is the number of divorces because they are very often caused by violence problems.

A third risk factor is related to people's human capital. The article of Jewkes (2002) concludes that violence against women is often found in places with higher poverty rates. This element's explanation is given by crisis in male identity caused by poverty. This mutates into the inability of controlling women, which derives into violence against them. This mechanism would explain that the presence of poverty increases the ratio of gender-based violence. This issue is also drawn by the aversion to a situation where the wife earns more than the husband. Bertrand et al. (2015) emphasize in the importance of gender identity norms in this kind of situations that lead to violence against women. A clear example on this matter is the increase of violence associated to men's unemployment (Anderberg et al., 2015). Also, psychological abuse, including the use of ridicule, harassment, criticism and emotional withdrawal against women (Sullivan and Bybee, 1999) is observed in this matter. For instance, Bobonis et al. (2013) find that women receiving public transfers are more likely to be threaten with violence. This interaction is caused by interests of males to extract rents from females without physical violence. This is very difficult to identify, mostly because it leaves no trail and demands the victim to expose it, explaining why most of the evidence comes from domestic violence.

Finally, literature shows that education, for men and women, provokes a decrease in violence against women. This issue is related to women's empowerment through education and the decreasing use of violence among educated people (Koenig et al., 2003). After analysing all triggering issues of violence against women, some of these factors are identified affecting from individual to societal level, like the presence of violence around. This is why programs that try to fight against gender-based violence usually aim not only to a personal level but also to a relationship, community and societal level.

2.2. Similar programs

There is a specific literature studying the effects of programs aiming to reduce gender-based violence. In order to compare this program, there are two articles that analyse variations on violence against women due to public programs in Latin America. In this section I describe them in order to compare methods

and results coming from similar programs implemented in the same region.

The first article studies the effect of a transfer program called "Oportunidades" in which funds are given to women in Mexico. The program is not directly aimed to reduce gender-based violence but the authors' analysis reports a decrease in the incidence of partner abuse by 40%. Bobonis et al. (2013) find that women are less likely to be victims of physical abuse but are more likely to receive threats from their partners. The logic behind these results comes from the monetary incentive of transfers. Male offenders can use threats of violence to extract rents instead of physically abusing their partners. This study shows that male offenders respond to incentives so they adapt their behaviour in order to obtain rents. That is the main reason of the decrease of physical abuses in this article. However, women keep suffering of gender-based violence (even though is not physical).

The second study analyses the impact of the implementation of all-women's justice centers in Peru. These institutions provide police and legal services to reduce gender-based violence. Kavanaugh et al. (2019) find that the opening of a center reduces the incidence of gender-based violence (domestic violence, feminicide and hospitalizations) by about 10%. This program's main objective is the reduction of violence against women through police and legal services, which means persecution of offenders and also support for victims. Same as for the previous article, offenders respond to incentives (negative this time) so they reduce the number of violent crimes against women because these justice centers have police and legal services to prosecute them. For this program, levels of violence against women are reduced and offenders prosecuted, showing a better performance than the previous program.

The specific existing evidence related to this kind of program reveals that the implementation of strategies aiming to reduce gender-based violence has positive results. Offenders respond to incentives (positives such as money and negatives such as legal prosecution) and change their behaviour by reducing violence against women. In the next section the program of interest is described.

3. Integral Prevention of Violence Against Women Program

In Chile, gender-based violence has historically been an issue. In 1972, an entity called "Woman's National Secretary" is created but quickly modified during the military dictatorship into a propagandistic organism until 1991. Back in democracy, the "Woman's National Service" replaced the Woman's National Secretary. Since, only its name changed in 2016 to Woman's and Gender Equity National Service. Along the years, different programs and laws have been created to reduce gender-based violence. In 2005, woman's centers are installed in several municipalities all around the country, to offer orientation to

women (older than 18 years old) who suffer or have suffered any kind of violence and also to the ones who have witnessed it. By 2010, there were 102 woman's centers spread across the country. Moreover, women are supported through psychological, social and legal advisory for approximately 6 months (depending on each woman's needs). The service is totally free and available all year long directly on woman's centers or by telephone and email contact.

In 2014, the "Integral Prevention of Violence Against Women Program"is designed with the intention to reduce gender-based violence, by understanding it as a product of unequal exercise of power. Therefore, the program generates an integral intervention (interdisciplinary, coordinated with institutional and community networks) through personal attention, protection and reparation. This model of integral protection of violence against women includes a primary intervention (before the violence occurs) and a secondary intervention (after it occurs), to avoid extreme gender-based violence and femicides. The program's objective is to prevent violence against women but also accompanying them to repair psychological and social damage (Belmar et al., 2017). The program aims to reduce violence against women considering risk factors through personal and community awareness. It also takes into account all kinds of gender-based violence through an interdisciplinary approach. And finally, supports the victims so they are able to overcome trauma.

The Center of Analysis and Crime Studies (hereinafter CEAD) registers an increase on violence since 2005, reaching its peak in 2011 with more than 600.000 violent cases (54,1% to women) including injuries, rapes, femicides and other violent crimes. Since, due to certain programs to prevent crime and violence (taken into account on the estimation), the number of violent crimes decreased, reaching 470.000 in 2018. However, proportion of crimes against women began to decrease in 2015, which leads to think that the program in study has a positive effect in reducing the proportion of violent crimes against women.

In 2015, this program started being deployed through woman's centers, with four main components: First, create community awareness: the program looks for the community to know the reality of violence against women. This diffusion includes distribution of flyers and brochures, holding community events and appearance of the program in massive media. Second, sensitize people: this line of work is dedicated to promote a change of attitude and behaviour on society. This section consists of individual and collective actions such as talks and workshops that look forward to inform but also make people become active in the subject. Third, inter-sectoral coordination: creating work, coordination and organization networks. Through different disciplines and institutions, this component make it possible to treat women in a more complete way. This component includes coordination at a regional level. Fourth, and most importantly, trainings: delivering tools to change the reality of gender-based violence by helping strategic people to acquire these tools for action. Trainings are reserved for community social leaders and employees of

strategic institutions. For community leaders to approve the training, it takes 20 hours of theory and a community sensitization project reaching at least 30 people from their community. For institutional employees, they attend to 4-hour workshops. Finally, an e-learning program is available, which consists of 30 hours of a basic course.

As the program is still in progress, there is information about budget, number of workshops, trainings, flyers distribution and other details for the period 2015-2018 (SERNAMEG (2015), SERNAMEG (2016), SERNAMEG (2017) & SERNAMEG (2018)) so the size of the program can be illustrated. Table 1 puts together descriptive information relating to the size of the program and its variation over the years. Most of years have similar statistics. The only year that differs from this trend is 2016, with higher budget, more community events, higher rates of reached people and trainings. This could be explained because it is an election year (for municipalities). As this is a municipal program, it could be inferred that bigger amount of budget and resources are invested by the national government in order to convince voters at a municipal level. Excepting 2016, all components of the program remain constant. On the one hand, the number of media appearances and workshops decreases, but on the other, the number of trainings (to social community leaders and via e-learning) increases. Also, some activities such as trainings to institutional employees or total budget show no changes over the years. All together, a consistent effect of the program is expected after its implementation (with some delay), given a constant yearly investment of resources on the program.

4. Data

In this section, I describe all the obtained data that is used to measure the program's effect on gender-based violence at a municipal level. Chile has 16 regions separated in a total of 346 municipalities but the study uses only 345 (leaving Antarctica out because of absence of data and a very small population). I have access to violence reports, municipal socio-economic data and detailed information from the woman's centers administration. Each data source is described in detail below.

4.1. Violence

I obtain monthly data on violent crimes during the period 2005-2018. To build this violence panel, I put together data from the Center of Analysis and Data Studies (CEAD), depending on the Ministry of Interior and Public Security, which in collaboration with "Investigations Police"(PDI) and "Carabineros de Chile"(Police), stores data classed by type of crime for several categories. This way, I

find monthly data at municipal level by gender and age for the following violent crimes: sexual abuses and other sexual crimes, threats, homicides, injuries, damages, violent or intimidating robberies, rapes and domestic violence. The main dependent variables are constructed from this data, further on the article this construction will be detailed. It is important to establish that this data corresponds to police reports so it can be biased due to under reporting or fake reports.

4.2. Municipalities

Municipal characteristics data during the period of interest comes from the "National System of Municipal Information"(SINIM), organ of the Deputy-Secretary of Regional and Administrative Development. Several socio-economic variables affect violence rates so it is important to establish measures of population, unemployment, municipal income and others for each municipality. The frequency of this data is smaller so it has only yearly measures. These independent time-varying variables are useful controls for the identification strategy. They allow to test pre-treatment balance between groups of treated and controls in order to prove the parallel trends assumption. Also, the surveillance of this information confirms that changes on cases of violence against women are triggered by the inclusion of the program and not because of a change in some of these characteristics, which shows results to be causal.

4.3. Woman's Centers

I have access to data on each woman's center so I can identify municipalities that are treated by the program and the exact location of each woman's center. Also, I obtain information corresponding to the development of the program through the years. It is important to mention that woman's centers are located in all 16 regions of Chile but only 102 municipalities out of 345 have one. The fact that a municipality has a woman's center is not random, it is a governmental decision taking into account population, density, municipal income and levels of violence. This issue is detailed in pre-treatment statistics.

4.4. Descriptive Statistics

Figure 1 shows that over the years, the number of violent crimes fluctuates but it has been higher for women since 2006. In 2011, this number reached its peak, and from that year, the number of violent crimes have been decreasing for both genders. But the interesting fact is that the gap between genders for violent crimes is strongly reduced in 2015, suggesting that the impact of the program helps to reduce

violence against women. Figure 2 shows how the gap between violent crimes against women and men is decreasing since 2011 but only in 2015 a significant reduction is observed.

Taking a closer look on violence against women, not all violent crimes are equally distributed by gender. Table 2 resumes the ratio of cases against women over the years by type of crime. Taking into account the observed levels for the period previous to the implementation of the program, I realize that crimes such as rapes, sexual abuses and domestic violence are more common against women whereas damages, robberies and homicides are less addressed to women. Also threats appear as a much more women-addressed crime (consistent with empirical evidence of psychological abuse). This can also be observed in Figure 3, which shows the average ratio of crimes against women for each type of crime.

Moreover I analyse the heterogeneity of the program's effect by age. Figure 4 illustrates that women under the age of 18 or over 65 are much less victims of violent crimes. Women that are mostly affected by violent crimes are between 19 and 64 years old, taking into account all kinds of violence. This information motivates to search if the program has a greater impact for victims of a certain age. It is also important to remind that woman's centers are designed for women over 18 years old, so normally results for victims under 18 should not be obtained. Now, I have to recall that these results can be biased due to an under report situation for under age and older women. Nevertheless, it is interesting to study the effectiveness of the program across different age groups, specially since there is a group (19-64) on which most of violence is focused.

Then, Figure 5 shows that the average number of violent crimes is much higher for municipalities having a woman's center. Also, the trend between these two groups seems to be parallel before 2015 (this is empirically proved further). To compare these two groups I only use the period 2010-2018 because before that year, several municipalities did not count with a woman's center. Table 3 consists on descriptive statistics from each group (with and without woman's center) for the period previous to the treatment and the period after the treatment. I realize that municipalities with a woman's center have higher population, density and total income. This can also be seen in Figure 6, Figure 7 and Figure 8, which show population by municipality and municipalities having a woman's center. Also, these treated municipalities show higher number of violent cases against women and men before the treatment. But when the number of crimes by 10.000 habitants is measured, the control group shows higher numbers than the treated group, suggesting that population plays an important role in this matter. Now, for both groups, an increase of population, density and income after the treatment is observed. Then, even though for both groups there is a decrease in violence levels for both women and men, these levels remain always higher for women. This is important because the article's objective is to determine whether the program has a significant impact on this decrease or if it is due to a general effect for all observations.

5. Empirical Framework

In this section I describe the proposed empirical strategy to identify the impact of the Integral Prevention of Violence Against Women Program on gender-based violence. First I describe strategies from existing papers in order to justify the identification strategy. I also comment the most common ways of studying gender-based violence, which variables to use and how to use them. Then, I explain the identification strategy and expected results given the model.

Empirical evidence indicates there are different ways to measure variables of violence against women. One of them is the natural logarithm of (one plus) the number of crimes. This allows to identify the variation over time as a percentage when there is a high number of crimes (Aizer (2010), Arriagada (2018)). This measure can be related to the intensive margin. The other measure taken into consideration is a binary indicator which is equal to 1 in case of presence of violence and 0 otherwise. This is often found in studies using survey data at a personal level or data with a small number of crimes by observation (Anderberg et al. (2015), Bhalotra et al. (2019)). This measure usually leads to identify prevalence of violence against women, such as an extensive margin. Following Kavanaugh et al. (2019), I use both measures given the data. Since there is a high number of crimes (specially for domestic violence), I employ the natural logarithm for total crimes and domestic violence in order to measure the intensive margin. However, the number of rapes and sexual abuses per month per municipality is low, so I measure the prevalence variable to identify the extensive margin.

I compute the gender-based violence through domestic violence, sexual abuses and rapes since they are the most common variables found in literature (Coker et al. (2002), Hindin and Adair (2002), Jewkes (2002), Sabia et al. (2013)). Also, they are the most common cases of violence against women. Over 80% of these crimes are against women in Chile (as seen previously in Table 2). This way, results are comparable to the empirical evidence.

In order to evaluate the impact of a program or a natural event on gender-based violence, there is evidence using models with fixed effects (Bobonis et al., 2013) which aim is to estimate the average treatment effect by capturing any unobserved heterogeneity. In that case, the authors study a transfer program in intimate partner violence. Other approach, only possible with a panel data, is a difference-in-difference estimation, considering fixed effects (Arriagada, 2018). In this study, the author measures the impact of a natural disaster (fires) in domestic violence and other crimes. The importance on both studies is the identification of two groups randomly assigned, one group that is not affected by the treatment and other group that is affected by the treatment. These two groups have to show parallel trends previous to

the treatment so results evidence a causal effect due to the treatment and not just a correlation.

In this article, I exploit the fact that the program is implemented through woman's centers and only a portion of municipalities have one (102 in 2015). I also count with monthly data on violence for several years before and after the implementation of the program. This, and taking into account the empirical evidence, motivates the use of a difference-in-difference strategy with fixed effects to identify the impact of the program on gender-based violence. So, the treated group corresponds to all municipalities having a woman's center (102) and the control group is composed by the remaining municipalities (243). These two groups are not expected to be balanced because the decision of having a woman's center is taken by the national government (not randomly). So I expect to see different levels of population (Figure 8), income and violence (Table 3).

Nevertheless, these two groups should have similar trends for these variables, even if they start at different levels, the difference-and-difference approach requires parallel trends in order to correctly identify a causal effect of the treatment. Then, fixed effects correct these level differences.

5.1. Identification Strategy

The empirical strategy corresponds to difference-in-difference with fixed effects exploiting the fact that the program is implemented only at municipalities having a woman's center. The model measuring the program's effect on violence against women can be expressed as:

$$Y_{it} = \beta_1 WomanCenter_i + \beta_2 post_t + \beta_3 WomanCenter_i * post_t + \gamma_i + \delta_t + \epsilon_{it}$$

Where i and t denote respectively municipality and month. Y_{it} is the variable measuring violence against women in municipality i in month t, $WomanCenter_i$ is a dummy equal to 1 if municipality i has the program, $post_t$ is a dummy that is 1 if the time period t is after the implementation of the program and 0 otherwise, γ_i and δ_t capture municipal and monthly fixed effects respectively and ϵ_{it} is the error term. Standard errors are clustered at the municipal and monthly level in order to allow correlation between people within municipalities and within municipalities over time.

The β_3 coefficient corresponds to the interaction of having the program once it is implemented. This is the coefficient of interest because it shows the difference (1) between the period before and after the program and (2) between municipalities with and without the program. Thus, β_3 represents the causal effect of the program on gender-based violence and is expected to be negative, meaning that the program reduces violence against women. The variable of violence against women Y_{it} is measured as a logarithm for total crimes and domestic violence (intensive margin) and as prevalence for sexual abuses

and rapes (extensive margin) as suggested by empirical evidence. This, because for total crimes and domestic violence, several cases are counted for each observation whereas for sexual abuses and rapes there are few cases by month by municipality.

In addition, I estimate the program's effect considering age heterogeneity in order to establish if the program has a greater impact for women of most affected ages (Figure 4). Also, I measure the impact of the program through the years in order to observe if there is any delay or difference and what could be the possible reason for it (Table 1). Finally, I compute the effect of all these variables for men and for women and men together. This way, not only I identify the effect of the program on violence against women, but also distinguish if the program has a greater effect on violence against women rather than on violence against men.

Table 4 resumes pre-treatment balance checks between treated and control groups in order to control the parallel trend assumption. First, columns (1) and (2) show that treated municipalities are, on average, more populated and they have a greater density in 2014 (the last year previous to the treatment). This means that municipalities with and without woman's center could have similar territories but the concentration of people in treated municipalities is greater. Also, income is higher in treated municipalities but income per capita is lower. This is possible because, even though municipalities with woman's center have more resources, they also have more population, making income per capita lower. Violence variables, expressed in logarithms, show statistically significant differences between both groups. Municipalities that have a woman's center show higher violence rates. This is consistent for total cases of violence and domestic violence. Poverty and unemployment rates show no difference between the two groups. These results are as expected, showing differences between both groups in several variables (Table 3). Now, columns (3) and (4) show the difference between treated and controls on trends for the period 2010-2014. These columns' results ensure that before the treatment, both groups have parallel trends in all variables, even if it is at different levels, the trend of variables previous to the treatment is similar (not significantly different). The absence of statistically significant coefficients on column (4) confirms that the parallel trend assumption is respected. This way, results show causal estimators of the program's impact on gender-based violence, due to the difference-in-difference strategy.

I have to recognize that this data comes from a police-reported database. This means that it lacks of information about crimes that have never been reported and can be contaminated by fake reports. Other concern is the possibility of contamination due to people moving from one municipality to another. A person living in a control municipality (without woman's center) can go to the nearest woman's center of other municipality. This last issue can be compared to a spillover effect. Finally, there is also a chance of having problems with the model because of the population difference between treated and control groups

(Figure 6) so I could be measuring the impact of big cities only. These and other issues will be treated after reporting the main results.

6. Results

This section presents the main results obtained from the empirical strategy. I also develop some robustness checks to insist on the consistency of results. All outcomes come from regressions having municipal and month fixed effect to absorb municipal invariant and seasonal characteristics. Standard errors are clustered at municipal and monthly level to allow correlation between individuals in municipalities and within municipalities over time. As said before, the sample is composed by all 345 municipalities from Chile (except Antarctica) for the period from 2010 to 2018 (108 months).

6.1. Main Results

Main results are separated in different stages. First, I review levels of violence against women to identify if the program had an effect on violence against women. Secondly, I go over the heterogeneity effects concerning age of the victims. Then, to extract some conclusions about invested resources on this program, I propose a third analysis measuring the effect of the program for each year after its implementation. Finally, in order to verify that it is not a reduction of violence in general, I evaluate levels of violence against men and also women and men together. For both women and men I estimate the total of violent cases and also a specification for some crimes separately.

Table 5 shows the difference-in-difference results for violence against women for the period 2010-2018. Columns (1) and (2) show results for all crimes and domestic violence measured by natural logarithm of (one plus) the number of crimes against women. Columns (3) and (4) show results for sexual abuses and rapes calculated by a dummy equal to 1 when there is at least one crime against women. For all the different measures of violence, results show a negative and statistically significant impact of the program on violence (except sexual abuses, which is not significant but still negative). This means the program reduces violence against women. Now, when measuring the effect of the program on total cases of violence against women, the program reduces them by 4.13%. But when studying the impact of the program for different kinds of crimes (in this case, the ones that are more common against women), the program reduces them even more. Domestic violence cases are reduced in 6.34% and prevalence in rapes decreases by 2.7 percentage points. Considering the average number of violent crimes, this program's effect can be interpreted as an average reduction of 2.8 violent crimes by municipality by month from which 1.6 are

cases of domestic violence. Results explain that the program reduces all kinds of crimes against women with a greater impact on crimes that are more often addressed to women.

Then, I calculate the impact of the program for different ages of the victims. As seen in Figure 4, women are more likely to be victim of violence between 19 and 64 years old. This approach enables to identify if the program has a more important impact for a certain age group among women. Table 6 resumes these results, from which it can be deduced that the program has a statistically significant effect on all ages when it comes to all violent crimes. The effect is greater for victims under 18 years old, with a reduction of 13.5%, then for women between 19 and 64 and for women older than 65 reducing violence by 4.03% and 4.66% respectively. When observing every type of crime separately, there is a similar effect. A greater effect for victims younger than 18 years old followed by an important effect for women between ages of 19 to 64 and, at last, a smaller and sometimes non-statistically significant effect for women older than 65 years old. Since woman's centers are open to treat women older than 18, the fact of observing a greater effect for younger women seems surprising. Now, considering the number of cases that these percentages imply, the program's effect on domestic violence is a reduction of 2.8 cases from which 1.5 cases are against women between 19 and 64 years old, showing that the program has greater effect on women that age. Even though there is an important effect for women from 19 to 64 years old and there is a small effect for women older than 65 years old, the impact on women under 18 is not expected, suggesting that the program reduces most common crimes against women for women of all ages, and not only for the most affected group.

In third place, I analyse the impact of the program over the years. As commented while describing the program, in 2016 (an election year), the assigned budget is higher than any other year, which is transformed in greater number of media appearances, community events and trainings. Therefore, a slightly greater impact could be found for that year. I would also like to prove if the program has a delay in showing results given the time it takes for social changes to be implemented. Table 7 exposes that in 2015, there is no statistically significant effect of the program on violence against women and very small point estimates. In 2016, both total crimes and domestic violence show negative and statistically significant results. These remain as such until 2018. As for sexual abuses, there is no statistically significant outcomes across the entire period. Finally, rapes show a negative effect for all the period and a significant impact in 2017. These results imply that the program has a one-year delay until having an impact on gender-based violence and then remains constant through the years. Also, slightly better results are observed in 2017 (specially for rapes), which might suggest that the budget increase of 2016 could have trigger it. All taken into consideration, the program takes time to show results but then remain constant over time with a reduction around 5% and 7% for total crimes and domestic violence

respectively.

The interpretation of the previous results confirms that the program helps reducing gender-based violence in crimes with higher ratios against women. Now, this could be due to a reduction of these crimes in general instead of a reduction of violence against women. In order to prove that the program is correctly addressed to women, I measure the impact of the program on violence against men and then women and men together. Figure 1 shows that in this period, total crime is decreasing. With these measures, I can check if the program is not only part of this reduction of violence in general, but it has a significant impact in the reduction of violence against women. Table 8 shows that, in average, municipalities having the program, reduced violent cases against men by 2.37% and cases against women and men by 3.10%. Both of these results are smaller than the result found for women and are not statistically significant. However, the program shows statistically significant reductions for domestic violence, sexual abuses and rapes against men with 6.32% and 5.3 and 2.2 percentage points respectively. Similar effects are showed when measuring for women and men together. This shows the program has no significant impact for all cases of violence against men but only in the cases which affect women the most. This suggests that the program has a general impact on most common crimes against women (since it reduces them for both women and men). Also, these results imply that the program has no effect on reducing all kinds of violence in general, but only the most common against women (domestic violence, sexual abuses and rapes).

I have identified the program's main effects on gender-based violence. The program reduces all kinds of crimes against women, specially the ones affecting women the most. This effect is different among women of different age, showing greater impact in women between 19 and 64 but still reducing violence against women for all ages. Then, the program needs time to start showing its impact since social changes do not occur immediately. After a year of implementation, the program starts having an effect on violence, which is persistent through years, with some improvement due to greater investments in 2016. Finally, the program reduces all kinds of violence against women (specially the most common against them) and it also reduces most common crimes against women in general (for women and men). Next, I will test these results through different approaches and mechanisms to show their consistence.

6.2. Robustness Checks

I have already described the main results, which allow to find a significant effect of the program on the reduction of violence against women and a reduction of violence against women and men among most common crimes addressed to women. Now, I prove these results to be consistent and not due to other

mechanisms.

First of all, the fact that this program reduces violence against women could be driven by a reduction of all crimes against women in general (including non-violent crimes). There are several other programs focused on crime reduction, so the identification strategy could be measuring the effect of these programs. To reject this hypothesis, I measure the impact of the program on crimes that are less common against women. Table 9 shows the effect on crimes that have lower ratios against women (damages, robberies and homicides) in order to deny the fact that the program has an impact on crime against women in general. The only statistically significant result is for robberies and the extensive margin of damages (but they are positive), indicating that robberies and damages against women increase for municipalities having the program (so the program has no decreasing effect on all crimes). As for men and also women and men together, statistically significant reductions in damages and robberies (extensive margin) and increasing results for homicides are observed, which means that there are less damages crimes, less prevalence of robberies and more prevalence of homicides. Results show no significant reduction for crimes against women but they do for crimes against men. This suggests the program has a significant effect on reduction of crime in general, which can be explained by a higher protection of population and higher presence of police.

Then, other of the problems is the possible contamination between municipalities that are very close to each other. In some cases, distance between the center of a municipality without a woman's center and the closest woman's center from other municipality is very small. This allows people from the control group switch to the treated group. In order to erase this problem, I measure the distance between all control municipalities and the nearest woman's center (I take the municipality building as the center of each control municipality). This way, I estimate the model allowing spatial autocorrelation for different distances (Conley, 1999) and then drop all municipalities that are close to a woman's center but do not have one. Table 10 resumes results with these specifications and show consistency with main findings. The impact of the program is negative and significant for all the crimes against women, which is exactly what is found earlier. This specification shows a significant reduction when allowing spatial autocorrelation in 30, 50 and 100 kilometres and also when possible contaminating observations are eliminated. These results show that even if there is a spillover effect among municipalities that are very close to each other, a significant reduction of violence against women remains.

Now, it is important to inform that, as can be seen in Figures 6, 7 and 8, there is correlation between municipal population and the presence of a woman's center. In order to clean this effect, I add some controls to the model. Tables 11 and 12 resume results when controlling for different population specifications: First, I apply weights to the estimation (corresponding to municipal population), this way

results are considering the size of the municipality when calculating each effect. For this specification there is a reduction of all coefficients and only the effect on domestic violence remains statistically significant. Then, I perform different controls, which consist on dropping outliers. This means the less populated and more populated municipalities are dropped from the sample in order prove that the measured effect is not driven by only some extreme observations (the same procedure is done for violence outliers). This time, all coefficients are reduced but only total crimes measure is not significant any more. Finally, I control for linear trends for each municipality in order to eliminate specific within-municipality effects. When controlling for linear trends, all coefficients decrease and are not statistically significant for women. As for men, results keep statistically significant. So I can deduce that results are robust to population weights, not driven by population outliers nor violence outliers but robust to linear trends only for men. So, the program has an effect that is not driven by some extreme municipalities but it seems it could be driven by an effect of population and individual changes of each municipality.

In order to truly understand previous results, I add several controls interacted with the dummy $post_t$ in order to prove that the effect of the program is correctly identified. Table 13 shows similar coefficients and remain statistically significant when adding several controls but they are all reduced and not statistically significant when linear trends are included. Wolfers (2006) studies the problems of linear trends in difference-in-difference approaches and states that they "are led to confound pre-existing trends with the effects of the policy shock". Then, there are unobservable variables from each municipality that are not correctly identified so the effect of the program is not statistically significant any more for women and men.

In general, results show the studied program has a statistically significant reduction effect of 4.13% on violence against women. This effect is driven by the reduction of violent crimes with higher proportion against women (6.14% reduction for domestic violence), which also provokes a reduction in violence against men in these cases, implying the program has a general effect on the reduction of most common crimes against women. Then, the program has an impact on reduction of all crimes against women, and even greater effect on most common crimes against women. This means that the program reduces most common violent crimes in general (for women and men). These results are confirmed by measuring the effects of the program on less common crimes and finding no significant impact for women and a significant impact for men. This shows the program has an impact on violence in general. Also, the impact of the program showed to be consistent when controlling for potential contaminated observations, population weights, population outliers and violence outliers. However, results are not robust to linear trends, suggesting unobservable changes of each municipality are working, diminishing the program's effect.

7. Conclusions

This article aims to evaluate the impact of a prevention program on gender-based violence at a municipal level in Chile. The Integral Prevention of Violence Against Women Program is implemented in 2015 in all municipalities counting with a woman's center. The objective of this program is to reduce violence against women through diffusion, sensitization, coordination and trainings in order to correct this problem at a personal, local and societal level.

Results show the program reduces levels for all kinds of violence against women by 4.13%. Moreover, the program has a greater impact for crimes with a higher women victimization, reducing these crimes for both women and men. Furthermore, the program shows some heterogeneous effects concerning the age of victims. This result confirms the efficiency of the program focusing on the most affected age group (from 19 to 64 years old). Then, the study of each year's effect of the program reveals that after one year of implementation results start to appear and stay constant through time. Also, the program shows to have a significant impact for all kinds of violence. All results are robust to spatial autocorrelation, several controls, population weights and are not driven by population nor violence outliers. However, results are not robust to linear trends, implying there are important variables changing through time for each municipality that are not being measured.

This article adds to the vast literature studying gender-based violence and contributes to the novel evidence evaluating national programs to reduce violence against women. Compared to the existing evidence, this program shows similar, yet less important results. The program studied by Kavanaugh et al. (2019) counts with police support, an important component that is absent in this program. Because of this lack of law enforcement component, offenders are not prosecuted and that could be reducing the program's impact on violence against women. Nevertheless, this program's effect remains consistent with empirical evidence and its results are a contribution for both the literature on the subject and the implied authorities of the program.

As for public recommendations, this article's results suggest two actions: In an extensive sense, the program reduces violence rates in municipalities having implemented the program. It is desirable to open new woman's centers in municipalities with high violence rates, in order to reduce gender-based violence across the country. Then, in an intensive sense, the program shows lower impact compared to existing evidence on similar programs. Improving the program with police support, in order to increase offenders' prosecution, would prevent gender-based violence more effectively in municipalities counting with the program, reducing violence against women even more.

Besides the program's structural limitation on reducing gender-based violence, empirical limitations are found as well. The parallel trends assumption is somehow proved by measuring it before the treatment. Even though positive results are obtained, this assumption cannot be statistically proved. This issue could trigger biased results. Also, data comes from police reports, therefore, under report or/and fake reports are possible problems, so as auto-selection of self reports. Then, when controlling for linear trends, results are not robust any more. This suggests the existence of time-changing variables particular to each municipality that are not identified and therefore reduce the program's measured impact on violence against women.

Even considering these limitations, the study contributes with novel evidence through this program's effect on gender-based violence, proving a reduction of violence against women due to the program. Future studies could go further on this analysis by treating the problem with survey data, in order to capture the individual impact of the program. That disaggregated approach reveals more detailed and specific information compared to the average by municipality. Also, hospitalization data could be used in order to erase the auto-selection problem of self reports. With these two new sets of data, this article's results would be confirmed and also linear trends issue could be solved. As for the program's effect in particular, the impact of the trainings' effect can be measured by exploiting the difference in the time of implementation for different municipalities with an event study strategy. That way, trainings can be evaluated to identify their impact on the reduction of violence against women. Finally, studying the impact of the program on children's human capital could be interesting, in order to analyse secondary effects of the program. All these approaches are beyond this article's scope but remain plausible avenues for future research.

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Appendix

1. Figures

Figure 1: Total violent crimes by gender
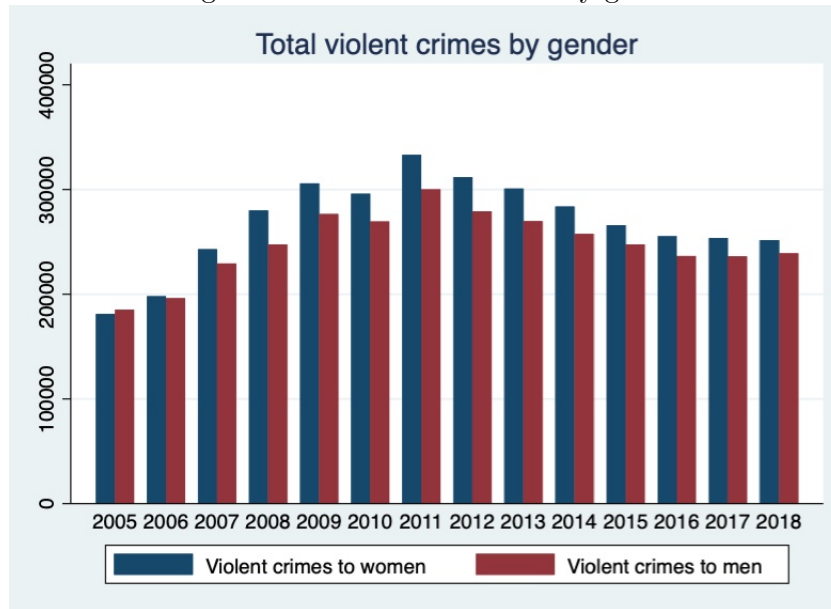
Figure 2: Gap of violent crimes by gender
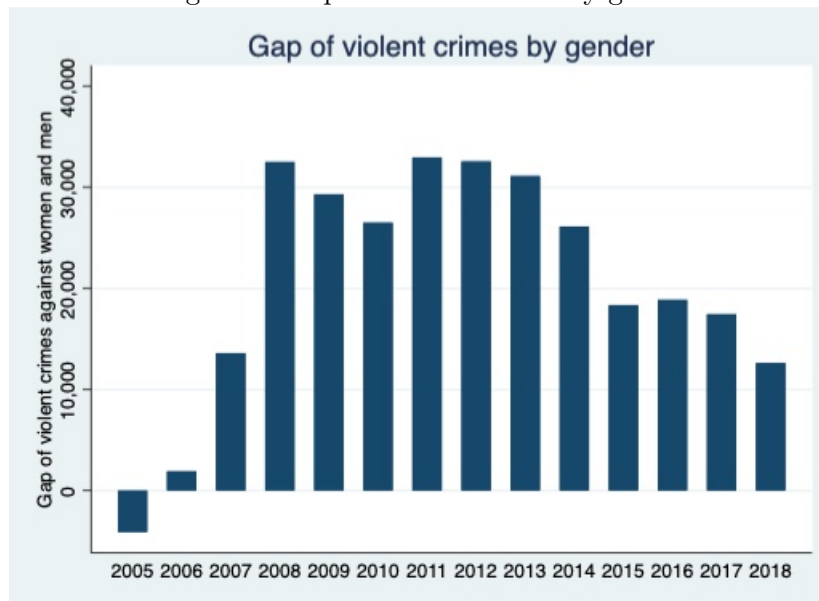
Figure 3: Proportion of female victims by type of crime: 2010-2014
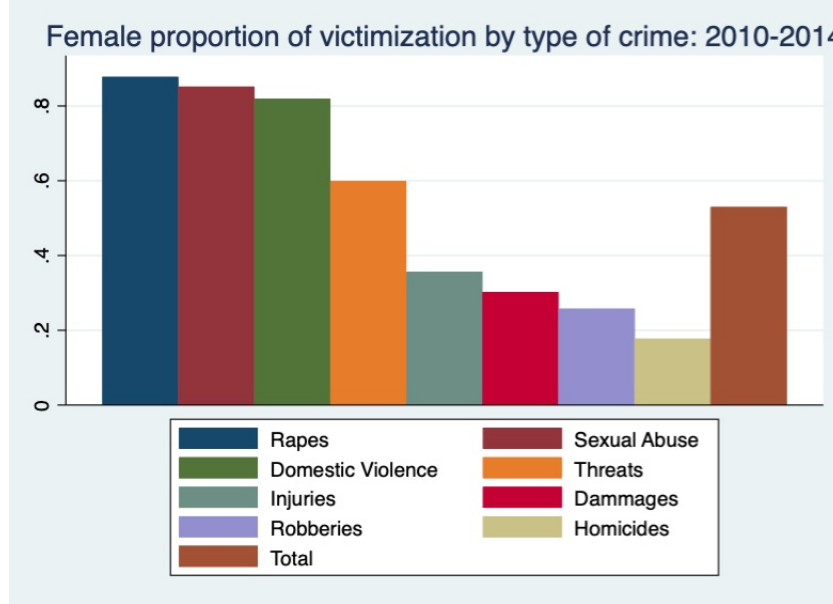
Note: Ratios obtained dividing the number of cases against women by total number of cases for each type of crime. Then, more than 80% of rapes, sexual abuses and domestic violence cases are against women.

Figure 4: Average number of cases of violence against women by age: 2010-2014
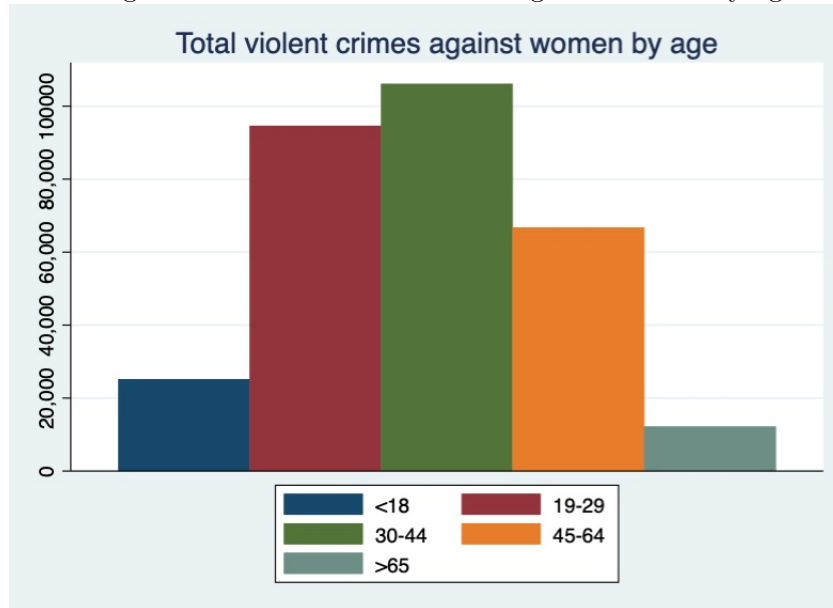
Figure 5: Total cases of violence against women by groups
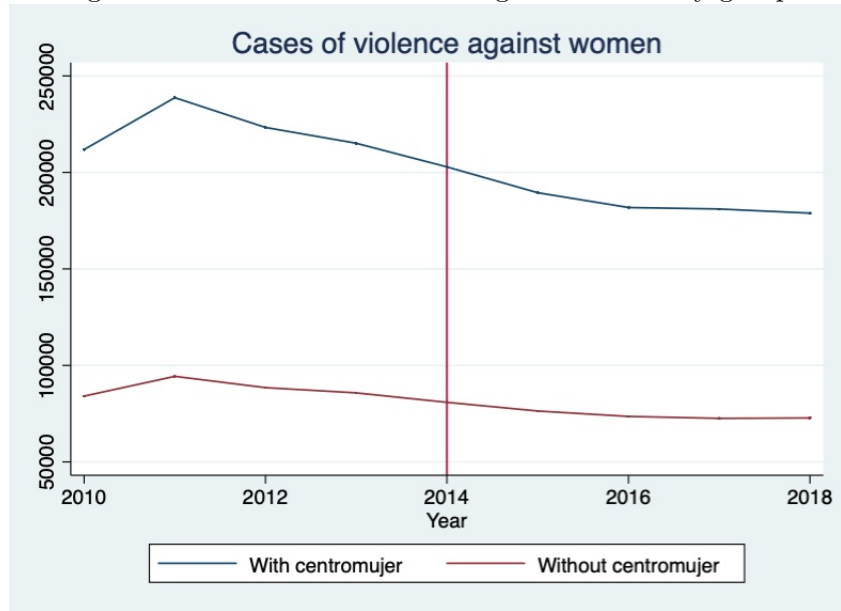
Figure 6: Municipal population and woman's center location
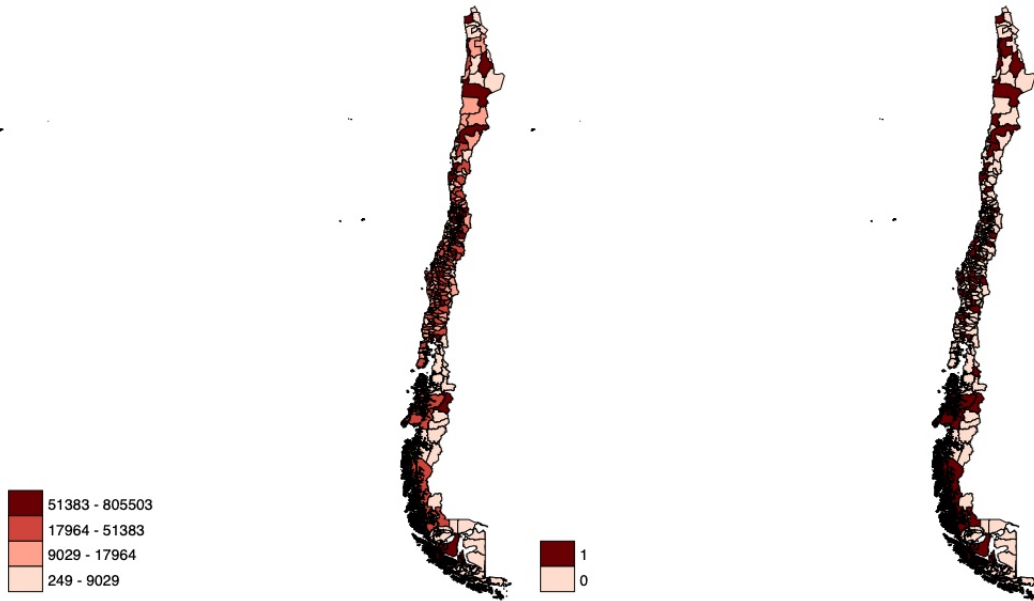
Note: The left figure shows a map of Chile with different colors for each level of municipal population. Light red is less populated and darker red is more populated. The right map shows municipalities having a woman's center in dark red and municipalities with no woman's center in light red.

Figure 7: Municipal population and woman's center location: Central zone
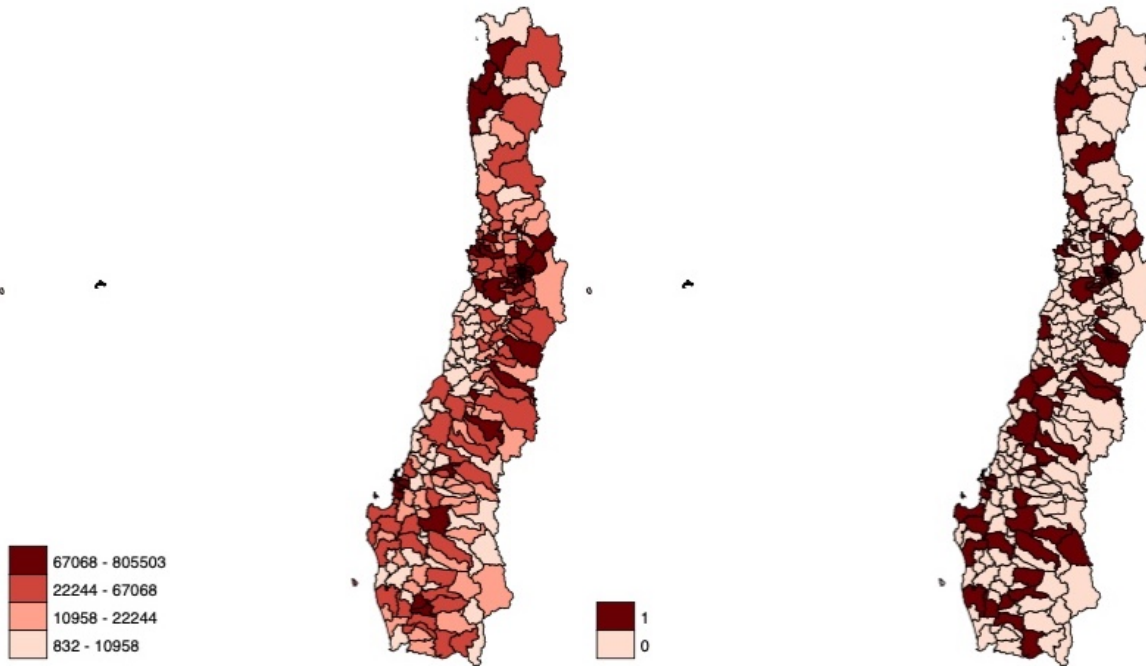
Note: This figure respects the same legend that figure 6 with population in the left figure and presence of a woman's center in the right figure. Now it focuses only on the central zone of the country in order to better identify each municipality.

Figure 8: Municipal population and woman's center location: Metropolitan Region
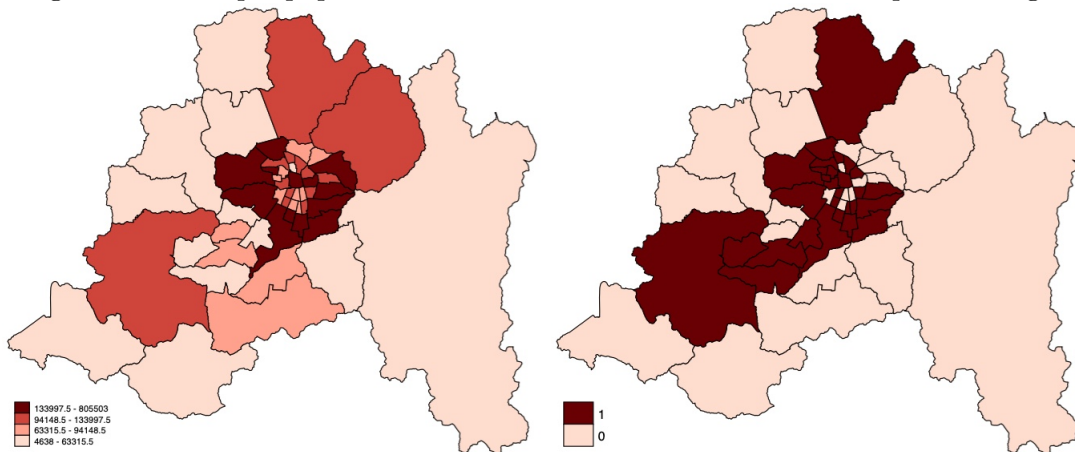
Note: Like the two previous figures, the left map represents municipal population and the right map indicates the presence of a woman's center. This focuses on the main region of Chile, the Metropolitan Region, in order to appreciate with detail the correlation between population and the presence of a woman's center.

2. Tables

Table 1: Yearly Statistics of the Program 2015-2018

Year	2015	2016	2017	2018
1. Diffusion Activities				
Flyers	374871	408094	837576	265568
Community events	442	600	410	345
Media appearances	1829	1680	695	612
2. Sensitization				
Talks and Workshops	3143	3349	2870	2599
People reached	125176	96874	74033	69393
3. Trainings				
Social Community leaders	1417	2206	2244	2262
People Reached by projects	58490	80574	66141	-
Institutional Employees	9636	15779	10109	10734
E-learning	108	362	419	414
4. Budget (in million pesos)	1162	1224	1178	1095

Note: Quantifiable information of components 1 (diffusion activities), 2 (sensitization) and 4 (trainings) of the program are detailed in the table. Component 3 has no information available since it consists on regional and institutional coordination. Finally, total annual budgets are informed.

Table 2: Ratios of violence against women by type of crime (Period 2010-2014)

| Year	2010	2011	2012	2013	2014
Homicides	0.155	0.168	0.177	0.200	0.187
Robberies	0.232	0.246	0.255	0.265	0.291
Dammages	0.292	0.300	0.307	0.304	0.309
Injuries	0.363	0.357	0.352	0.355	0.356
Threats	0.595	0.596	0.601	0.606	0.598
VIF	0.821	0.821	0.817	0.822	0.816
Sexual Abuses	0.859	0.853	0.838	0.844	0.866
Rapes	0.873	0.865	0.878	0.881	0.893
Total	0.524	0.527	0.532	0.535	0.532

Note: Ratios obtained dividing the number of cases against women by total number of cases for each type of crime. VIF stands for domestic violence.

Table 3: Descriptive Statistics between treated and controls, before and after treatment

Period	2010-2014	2015-2018	2010-2014	2015-2018
	(1)	(2)	(3)	(4)
N	243	243	102	102
Population	21,688	23,778	119,115	122,575
Female proportion	0.475	0.476	0.500	0.501
Density	297	376.65	2116	2444.97
Communal Income	4,730,414	7,092,285	16,333,340	24,703,030
Income per capita	369	507	159	228
Poverty Ratio	0.163	0.194	0.171	0.147
Unemployment Ratio	0.034	0.075	0.025	0.031
Total cases of violence against women	29.74	25.32	178.42	149.36
Violence against women (per 10.000 habs)	16.83	13.08	15.01	11.81
Cases of VIF against women	11.72	9.67	65.20	52.06
VIF against women (per 10.000 habs)	6.87	5.27	5.92	4.50
Total cases of violence against men	26.65	23.25	161.38	140.55
Violence against men (per 10.000 habs)	14.63	11.63	13.36	10.69
Cases of VIF against men	2.67	2.32	15.09	13.08
VIF against men (per 10.000 habs)	1.56	1.20	1.37	1.11

Note: Columns (1) and (2) show average information of the 243 municipalities without woman's center (control). Columns (3) and (4) do the same for the 102 municipalities with woman's center (treated). VIF stands for domestic violence.

Table 4: Balance check in pre-treatment characteristics

t-test	Treatment 2014	p-value	Treatment trend 2010-2014	p-value
	(1)	(2)	(3)	(4)
Population	96435.188***	0.000	-0.011	0.599
Female proportion	0.023***	0.000	-0.039	0.469
Density	2036.987***	0.000	-0.013	0.532
Municipal Income	14564.433***	0.000	0.046	0.313
Income per capita	-0.282***	0.001	0.026	0.681
Poverty ratio	0.197	0.830	-0.097	0.302
Unemployment ratio	-0.463	0.145	-0.506	0.427
ln(VAW)	1.839***	0.000	-0.026	0.378
ln(VIF)	1.665***	0.000	-0.052	0.116
N	345		345	

Note: Columns (1) and (3) show the t-test between treated and control group. Columns (2) and (4) show the corresponding p-value for that t-test. Column (3) shows percentage trends. VAW and VIF stand for all violence against women and domestic violence against women. With a total of 345 municipalities.

Table 5: Differences-in-Difference: Women

	ln(1+violent crime)		Extensive Margin (Prevalence)	
	Total	Domestic Violence	Sexual Abuses	Rapes
	(1)	(2)	(3)	(4)
Woman's center*post	-0.0413**	-0.0634***	-0.00152	-0.0267**
	(0.0184)	(0.0182)	(0.0102)	(0.0104)
Mean	68.50	25.16	0.468	0.252
N	37260	37260	37260	37260
R^2	0.955	0.917	0.398	0.341
Municipal FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes

Note: Standard errors clustered at municipal and month level in parentheses. Fixed effects at municipal and month level. Total and domestic violence variables are logarithm of (one plus) the number of cases against women. Rapes and sexual abuses variables are dummies equal to 1 when there is at least one crime against women. Woman's center*post is a dummy equal to 1 if the municipality has a woman's center and the period is after the treatment and 0 otherwise. For columns (1) and (2), Mean is the average number of crimes by month by municipality. For columns (3) and (4), Mean is the average percentage of presence of crimes by month by municipality. For the period 2010-2018 (108 months) and 345 municipalities. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Heterogeneous effects by age

Age	< 18	19-64	≥ 65	All
	(1)	(2)	(3)	(4)
ln(1+violent crimes)	*Panel A: Total violence against women*			
Woman's center*post	-0.135***	-0.0403**	-0.0466**	-0.0413**
	(0.0241)	(0.0186)	(0.0190)	(0.0184)
Mean	5.38	60.23	2.84	68.50
R^2	0.819	0.953	0.758	0.955
ln(1+violent crimes)	*Panel B: Domestic violence against women*			
Woman's center*post	-0.150***	-0.0652***	-0.0487**	-0.0634***
	(0.0194)	(0.0183)	(0.0193)	(0.0182)
Mean	1.36	22.64	1.14	25.16
R^2	0.662	0.915	0.628	0.917
Extensive Margin (Prevalence)	*Panel C: Sexual abuses against women*			
Woman's center*post	-0.0132	-0.0319***	-0.00291	-0.00152
	(0.00997)	(0.0115)	(0.00293)	(0.0102)
Mean	0.373	0.308	0.007	0.468
R^2	0.400	0.382	0.025	0.398
Extensive Margin (Prevalence)	*Panel D: Rapes against women*			
Woman's center*post	-0.0258**	-0.0227**	-0.000968	-0.0466**
	(0.0104)	(0.0102)	(0.00171)	(0.0190)
Mean	0.149	0.172	0.004	0.252
R^2	0.255	0.306	0.025	0.758
N	37260	37260	37260	37260
Municipal FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes

Note: Standard errors clustered at municipal and month level in parentheses. Fixed effects at municipal and month level. Total and domestic violence variables are logarithm of (one plus) the number of cases against women (Panels A and B). Rapes and sexual abuses variables are dummies equal to 1 when there is at least one crime against women (Panels C and D). Woman's center*post is a dummy equal to 1 if the municipality has a woman's center and the period is after the treatment and 0 otherwise. For Panels A and B, Mean is the average number of crimes by month by municipality. For Panels C and D, Mean is the average percentage of presence of crimes by month by municipality. Each column shows a different age group. For the period 2010-2018 (108 months) and 345 municipalities. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Intensity by year

	ln(1+violent crime)		Extensive Margin (Prevalence)	
	Total	Domestic Violence	Sexual Abuses	Rapes
	(1)	(2)	(3)	(4)
Woman's center*2015	-0.0172	-0.0302	0.0135	-0.0295
	(0.0210)	(0.0196)	(0.0150)	(0.0207)
Woman's center*2016	-0.0418**	-0.0755***	0.0000363	-0.0214
	(0.0199)	(0.0185)	(0.0134)	(0.0166)
Woman's center*2017	-0.0500**	-0.0741***	-0.00431	-0.0512***
	(0.0221)	(0.0230)	(0.0164)	(0.0146)
Woman's center*2018	-0.0561**	-0.0739***	-0.0153	-0.00476
	(0.0261)	(0.0247)	(0.0118)	(0.0111)
Mean	68.50	25.16	0.468	0.252
N	37260	37260	37260	37260
R^2	0.955	0.917	0.398	0.341
Municipal FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes

Note: Standard errors clustered at municipal and month level in parentheses. Fixed effects at municipal and month level. Total and domestic violence variables are logarithm of (one plus) the number of cases against women. Rapes and sexual abuses variables are dummies equal to 1 when there is at least one crime against women. Each Woman's center*year variable is a dummy equal to 1 if the municipality has a woman's center and the period is that year. Woman's center*2015 is equal to 1 if year=2015 and the municipality has a woman's center. For columns (1) and (2), Mean is the average number of crimes by month by municipality. For columns (3) and (4), Mean is the average percentage of presence of crimes by month by municipality. For the period 2010-2018 (108 months) and 345 municipalities. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Differences-in-Difference: Men and Total

| | ln(1+violent crime) | | Extensive Margin (Prevalence) | |
| | Total | Domestic Violence | Sexual Abuses | Rapes |
	(1)	(2)	(3)	(4)
	Panel A: Violence against Men			
Woman's center*post	-0.0237	-0.0632***	-0.0526***	-0.0223***
	(0.0200)	(0.0207)	(0.0106)	(0.00659)
Mean	62.68	5.97	0.173	0.055
R^2	0.946	0.826	0.306	0.154
	Panel B: Violence against Women and Men			
Woman's center*post	-0.0310	-0.0549***	0.000550	-0.0291***
	(0.0190)	(0.0190)	(0.0100)	(0.0107)
Mean	131.18	31.13	0.494	0.268
R^2	0.965	0.923	0.397	0.351
N	37260	37260	37260	37260
Municipal FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes

Note: Standard errors clustered at municipal and month level in parentheses. Fixed effects at municipal and month level. Total and domestic violence variables are logarithm of (one plus) the number of cases. Rapes and sexual abuses variables are dummies equal to 1 when there is at least one crime. Woman's center*post is a dummy equal to 1 if the municipality has a woman's center and the period is after the treatment and 0 otherwise. For columns (1) and (2), Mean is the average number of crimes by month by municipality. For columns (3) and (4), Mean is the average percentage of presence of crimes by month by municipality. For the period 2010-2018 (108 months) and 345 municipalities. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Robustness: Other Crimes

	ln(1+violent crime)		Extensive Margin (Prevalence)		
	Damages	Robberies	Damages	Robberies	Homicides
	(1)	(2)	(3)	(4)	(5)
Panel A: Violence against Women					
Woman's center*post	-0.0289	0.0990***	0.0121*	0.000838	-0.000998
	(0.0210)	(0.0206)	(0.00630)	(0.0106)	(0.00497)
Mean	8.52	5.18	0.827	0.412	0.022
R^2	0.847	0.914	0.410	0.604	0.065
Panel B: Violence against Men					
Woman's center*post	-0.0527**	-0.0224	0.0121**	-0.0223**	0.0240***
	(0.0243)	(0.0221)	(0.00541)	(0.00998)	(0.00712)
Mean	21.04	10.61	0.914	0.568	0.080
R^2	0.890	0.917	0.455	0.551	0.185
Panel C: Violence against Women and Men					
Woman's center*post	-0.0418*	0.00721	0.00403	-0.0183*	0.0240***
	(0.0240)	(0.0224)	(0.00471)	(0.00938)	(0.00799)
Mean	29.56	15.79	0.941	0.606	0.090
R^2	0.907	0.925	0.509	0.564	0.195
N	37260	37260	37260	37260	37260
Municipal FE	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes

Note: Standard errors clustered at municipal and month level in parentheses. Fixed effects at municipal and month level. Columns (1) and (2) variables are logarithm of (one plus) the number of cases. Columns (3)-(5) are dummies equal to 1 when there is at least one crime. Woman's center*post is a dummy equal to 1 if the municipality has a woman's center and the period is after the treatment and 0 otherwise. For columns (1) and (2), Mean is the average number of crimes by month by municipality. For columns (3)-(5), Mean is the average percentage of presence of crimes by month by municipality. For the period 2010-2018 (108 months) and 345 municipalities. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 10: Robustness: Proximity to woman's center. Spillover effect.

	ln(1+violent crime)		Extensive Margin (Prevalence)	
	Total	Domestic Violence	Sexual Abuses	Rapes
	(1)	(2)	(3)	(4)
	Panel A: Whole sample allowing spatial autocorrelation			
Woman's center*post	-0.0413***	-0.0634***	-0.00152	-0.0267***
30kms	(0.00593)	(0.00724)	(0.00833)	(0.00874)
50kms	(0.00598)	(0.00724)	(0.00837)	(0.00872)
100kms	(0.00602)	(0.00721)	(0.00840)	(0.00868)
Mean	68.50	25.16	0.468	0.252
N	37260	37260	37260	37260
	Panel B: Sub-sample (30 km)			
Woman's center*post	-0.0581**	-0.0794***	-0.00897	-0.0305***
	(0.0227)	(0.0220)	(0.0115)	(0.0107)
Mean	85.58	31.21	0.482	0.282
N	23544	23544	23544	23544
R^2	0.964	0.938	0.477	0.415
Municipal FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes

Note: Conley (1999, calculated assuming correlation within 30, 50 and 100km) errors clustered at municipal and month level in parentheses for Panel A. Standard errors clustered at municipal and month level in parentheses for Panel B. Fixed effects at municipal and month level. Total and domestic violence variables are logarithm of (one plus) the number of cases against women. Rapes and sexual abuses variables are dummies equal to 1 when there is at least one crime against women. Woman's center*post is a dummy equal to 1 if the municipality has a woman's center and the period is after the treatment and 0 otherwise. For columns (1) and (2), Mean is the average number of crimes by month by municipality. For columns (3) and (4), Mean is the average percentage of presence of crimes by month by municipality. For the period 2010-2018 (108 months). Panel A counts 345 municipalities, Panel B drops 127 municipalities with no woman's center and closer than 30 km to a woman's center from another municipality. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 11: Robustness: Weights, Outliers and linear trends (Women)

	ln(1+violent crime)		Extensive Margin (Prevalence)	
	Total	Domestic Violence	Sexual Abuses	Rapes
	(1)	(2)	(3)	(4)
Panel A: Adding population weights				
Woman's center*post	-0.0198	-0.0388**	0.0296***	-0.00276
	(0.0171)	(0.0181)	(0.0102)	(0.0150)
Mean	68.50	25.16	0.468	0.252
N	37260	37260	37260	37260
R^2	0.980	0.960	0.447	0.391
Panel B: Dropping population outliers				
Woman's center*post	-0.0264	-0.0456**	-0.00703	-0.0313***
	(0.0221)	(0.0221)	(0.0136)	(0.0116)
Mean	42.80	16.44	0.451	0.215
N	29916	29916	29916	29916
R^2	0.920	0.847	0.282	0.204
Panel C: Dropping violence outliers				
Woman's center*post	-0.0347	-0.0518**	-0.0114	-0.0300***
	(0.0220)	(0.0227)	(0.0140)	(0.0114)
Mean	41.68	16.25	0.453	0.211
N	29820	29820	29820	29820
R^2	0.916	0.841	0.275	0.184
Panel D: Adding linear trends				
Woman's center*post	-0.0138	-0.0300	0.0219	-0.0180
	(0.0241)	(0.0238)	(0.0193)	(0.0243)
Mean	68.50	25.16	0.468	0.252
N	37260	37260	37260	37260
R^2	0.958	0.922	0.405	0.349
Municipal FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes

Standard errors clustered at municipal and month level in parentheses. Fixed effects at municipal and month level. Total and domestic violence variables are logarithm of (one plus) the number of cases against women. Rapes and sexual abuses variables are dummies equal to 1 when there is at least one crime against women. Woman's center*post is a dummy equal to 1 if the municipality has a woman's center and the period is after the treatment and 0 otherwise. For columns (1) and (2), Mean is the average number of crimes by month by municipality. For columns (3) and (4), Mean is the average percentage of presence of crimes by month by municipality. For the period 2010-2018 (108 months). Panel A weights estimations by population size. Panel B drops 68 municipalities with extreme population (lower and higher 10%). Panel C drops 68 municipalities with extreme violence (lower and higher 10%). Panel D controls for individual linear trend for each municipality. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 12: Robustness: Weights, Outliers and linear trends (Men)

	ln(1+violent crime)		Extensive Margin (Prevalence)	
	Total	Domestic Violence	Sexual Abuses	Rapes
	(1)	(2)	(3)	(4)
Panel A: Adding population weights				
Woman's center*post	-0.00389	-0.0345	-0.0260*	-0.0281**
	(0.0209)	(0.0265)	(0.0149)	(0.0129)
Mean	62.68	5.97	0.173	0.055
N	37260	37260	37260	37260
R^2	0.976	0.899	0.343	0.205
Panel B: Dropping population outliers				
Woman's center*post	-0.0185	-0.0606**	-0.0412***	-0.0131*
	(0.0234)	(0.0243)	(0.0119)	(0.00678)
Mean	38.40	3.87	0.137	0.040
N	29916	29916	29916	29916
R^2	0.907	0.687	0.177	0.083
Panel C: Dropping violence outliers				
Woman's center*post	-0.0280	-0.0561**	-0.0377***	-0.00564
	(0.0238)	(0.0255)	(0.0113)	(0.00658)
Mean	37.01	3.87	0.136	0.037
N	29820	29820	29820	29820
R^2	0.901	0.682	0.162	0.060
Panel D: Adding linear trends				
Woman's center*post	-0.0191	-0.0657*	-0.0390*	-0.0000207
	(0.0269)	(0.0339)	(0.0216)	(0.0140)
Mean	62.68	5.97	0.173	0.055
N	37260	37260	37260	37260
R^2	0.950	0.832	0.316	0.162
Municipal FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes

Standard errors clustered at municipal and month level in parentheses. Fixed effects at municipal and month level. Total and domestic violence variables are logarithm of (one plus) the number of cases against men. Rapes and sexual abuses variables are dummies equal to 1 when there is at least one crime against men. Woman's center*post is a dummy equal to 1 if the municipality has a woman's center and the period is after the treatment and 0 otherwise. For columns (1) and (2), Mean is the average number of crimes by month by municipality. For columns (3) and (4), Mean is the average percentage of presence of crimes by month by municipality. For the period 2010-2018 (108 months). Panel A weights estimations by population size. Panel B drops 68 municipalities with extreme population (lower and higher 10%). Panel C drops 68 municipalities with extreme violence (lower and higher 10%). Panel D controls for individual linear trend for each municipality. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 13: Robustness: Controls and linear trends

	ln(1+violent crime)		Extensive Margin (Prevalence)	
	Total	Domestic Violence	Sexual Abuses	Rapes
	(1)	(2)	(3)	(4)
Panel A: Adding several controls (Women)				
Woman's center*post	-0.0351	-0.0559**	-0.00252	-0.0254**
	(0.0229)	(0.0229)	(0.0142)	(0.0126)
Mean	68.50	25.16	0.468	0.252
R^2	0.956	0.918	0.395	0.343
Panel B: Controls and linear trends (Women)				
Woman's center*post	-0.00397	-0.00434	0.0105	0.00572
	(0.0272)	(0.0286)	(0.0282)	(0.0292)
Mean	68.50	25.16	0.468	0.252
R^2	0.959	0.922	0.403	0.351
Panel C: Adding several controls (Men)				
Woman's center*post	-0.0429*	-0.0723***	-0.0206**	-0.000678
	(0.0241)	(0.0239)	(0.0103)	(0.00617)
Mean	62.68	5.97	0.173	0.055
R^2	0.947	0.824	0.307	0.156
Panel D: Controls and linear trends (Men)				
Woman's center*post	-0.00958	-0.00869	-0.0172	0.0111
	(0.0264)	(0.0368)	(0.0201)	(0.0137)
Mean	62.68	5.97	0.173	0.055
R^2	0.950	0.831	0.316	0.164
N	34392	34392	34392	34392
Municipal FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes

Standard errors clustered at municipal and month level in parentheses. Fixed effects at municipal and month level. Total and domestic violence variables are logarithm of (one plus) the number of crimes. Rapes and sexual abuses variables are dummies equal to 1 when there is at least one crime. Woman's center*post is a dummy equal to 1 if the municipality has a woman's center and the period is after the treatment and 0 otherwise. For columns (1) and (2), Mean is the average number of crimes by month by municipality. For columns (3) and (4), Mean is the average percentage of presence of crimes by month by municipality. Panels A and B show results for women and Panels C and D show results for men. For the period 2010-2018 (108 months) and 345 municipalities. Controls are: Municipal population, female population, density, Municipal income (total and per capita), poverty and unemployment. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$