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and Monitoring Centers  
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## Abstract

We investigate the impact of Violence Prevention and Monitoring Centers on the risk of intimate partner violence against women in Türkiye. Using a difference-in-differences design, we find that the establishment of these centers significantly reduced female homicides by intimate partners and reduced the self-reported risk of physical violence by intimate partners by 19.6 percent in provinces where they were implemented. There is no evidence of pre-existing trends influencing the homicide outcomes, validating our empirical design. Exploring potential mechanisms, we find that the programs also increased women's help-seeking behavior through women's organizations and social services, without affecting attitudes towards domestic violence, divorce or separation probability, or employment rates. Our study underscores the importance of investing in institutional support structures to protect and empower women, highlighting the need for comprehensive support programs to effectively combat domestic violence.

*JEL Codes:* J12, J16, O15.

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# 1 Introduction

The prevalence of intimate partner violence (IPV) remains a significant concern worldwide, with severe physical, psychological, and economic consequences for victims and their children (White et al. 2024; Peterson et al. 2018). Globally, over a quarter (27%) of women aged 15–49 who have been in a relationship report experiencing physical and/or sexual violence by their intimate partner (World Health Organization 2021). Despite global efforts to address this problem, IPV remains pervasive, particularly in societies with deep gender inequalities. In Türkiye, IPV has been a major concern, prompting the government to take significant legislative and institutional measures to protect and empower women.

In 2012, the Turkish government enacted Law No. 6284 on the Protection of the Family and Prevention of Violence Against Women, a comprehensive legal framework designed to combat domestic violence in line with the provisions of the Council of Europe Convention on Preventing and Combating Violence Against Women and Domestic Violence, also known as the Istanbul Convention. This law introduced a broad range of legal and administrative measures to safeguard potential victims and ensure their access to essential services.

As part of its institutional response, the government established the Violence Prevention and Monitoring Centers (*Şiddet Önleme ve İzleme Merkezleri*—SONIMs), with the dual mandate of implementing protective and preventive measures and providing comprehensive support services to victims of domestic violence. Initially launched in 14 pilot provinces in 2012, SONIMs were later expanded to all 81 provinces by 2019. These centers operate 24/7 and are staffed by multidisciplinary teams including social workers, psychologists, and legal counselors. SONIMs are tasked with delivering a broad range of integrated services, including legal assistance, psychosocial support, economic empowerment programs, emergency health referrals, and coordination of protection orders (Algan and Alev 2024; Demirhan et al. 2023). They also serve as a hub for inter-agency coordination and data collection, and play a key role in monitoring compliance with court-mandated measures.

While these institutional reforms represent a significant policy response, there is no empirical evidence on their effectiveness in reducing IPV in Türkiye. This study addresses that gap by evaluating the impact of SONIMs on female intimate partner homicides and multiple forms of IPV. Our research design leverages variation in the timing of SONIM implementation across provinces using a difference-in-differences (DID) approach. Our identifying assumption is that the trends in female intimate partner homicides would have followed similar trajectories across treated and control provinces in the absence of these interventions. By comparing changes over time in provinces with and without the implementation of SONIMs, we aim to isolate the causal effects of these policies on women's risk of experiencing IPV. Our analysis draws on data from the "Male Violence Monitoring Portal," which is a data portal compiling information on female homicides from national and local press. We also use data from the Turkish National Research on Domestic Violence Against Women, conducted in 2008 and 2014, which offers detailed information on various forms of IPV and potential mechanisms through which these policy changes may affect IPV.

This study contributes to the broader literature on the effectiveness of institutional measures in addressing domestic violence. There is considerable research indicating that public interventions can effectively reduce IPV through various mechanisms. Economic support, for example, can lead to economic empowerment, reducing women's financial dependence on their abusers and enabling them to leave abusive relationships more safely (Buller et al. 2018; Haushofer et al. 2019).<sup>1</sup> Legal interventions, such as the enforcement of protection orders and the establishment of specialized courts, enhance the legal recourse available to survivors and deter perpetrators from further violence (García-Hombrados et al. 2024; Sviatschi and Trako 2024). Moreover, community-based approaches that involve education and awareness campaigns can shift social norms and attitudes towards IPV, fostering environments that are less tolerant of violence (Abramsky et al. 2014).

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<sup>1</sup>The evidence on the effectiveness of cash transfers is mixed as transfers targeting women can also lead to increases in threats of violence and psychological violence if men have incentives to use such violence as a tool for resource extraction (Bobonis et al. 2013).

Compared to many of these interventions, SONIMs represent a more centralized, state-led, and integrated institutional response. Unlike programs that focus narrowly on one dimension of IPV (e.g., legal protection or shelter provision), SONIMs offer a comprehensive, multi-service model under one roof—combining legal assistance, psychosocial counseling, emergency support, and coordination of protection orders through a unified agency structure. This approach differs from, for example, the decentralized shelter-based systems common in countries like the United States, where services are often provided by a patchwork of NGOs with variable funding and uneven access. In Latin America and parts of Asia, several countries have created specialized gender violence courts and women’s police stations, which have improved institutional responsiveness but often lack consistent integration with other social services (Sviatschi and Trako 2024; Amaral et al. 2021). SONIMs, by contrast, are mandated by national law, embedded in the Ministry of Family and Social Services, and designed to operate with standardized procedures and 24/7 availability, making them a more vertically integrated model of IPV intervention.

However, public policy interventions may also lead to male backlash, increasing the risk of IPV, if they trigger retaliation from the partner or threaten partner’s status within the household (Eswaran and Malhotra 2011; Bobonis et al. 2015; Erten and Keskin 2024). Angelucci and Heath (2020) discuss how initiatives aimed at enhancing women’s economic and social standing can provoke violent reactions from male partners who feel threatened by the shifting power dynamics. In the context of Türkiye, prior studies documented an increase in financial control and psychological violence for women who received more education and were more likely to work in response to a compulsory schooling law, supporting instrumental theories of violence (Erten and Keskin 2018). Similarly, other work has found that IPV victimization of women in Türkiye declined more in provinces that received a disproportionate share of refugee inflows as women were less likely to be employed in these locations, suggesting again a backlash mechanism (Erten and Keskin 2021). Related work showed that a panic button project implemented in Türkiye led to male backlash, increasing the risk of IPV in treated provinces (Tumen and Ulucan 2024). In the US, there is evidence

that mandatory arrest laws that enable the police to arrest the abuser in domestic violence cases without a warrant increased the number of female partner homicides (Iyengar 2009).

What sets SONIMs apart is their emphasis on coordinated service delivery, risk assessment, and follow-up, which may help mitigate backlash effects by addressing victims' needs holistically while reducing the likelihood of abrupt disruptions that could provoke retaliation. Our findings suggest that when institutional interventions are thoughtfully designed and comprehensively implemented, they can reduce IPV without triggering the kinds of backlash documented in other contexts. This underscores the potential of integrated state-led models like SONIMs as a viable policy strategy for reducing IPV.

Our study also relate to recent work on how social norms influence the acceptability of domestic violence laws. Sanin (2024) shows that domestic violence laws are more effective when they align with prevailing social norms. Using the 2008 Rwandan domestic violence law, which criminalized abuse and allowed unilateral divorce, she finds large reductions in violence in areas where social norms already supported women's exit from abusive marriages, with evidence that exposure to such exits shifted attitudes in younger cohorts. In contrast, Gulesci et al. (2025) examine staggered adoption of domestic violence laws across Pakistani provinces and find limited effects in Punjab and Sindh, but significant increases in IPV and femicides in Balochistan, driven by groups with conservative norms around divorce, highlighting the potential for backlash when laws conflict with entrenched social attitudes. Asik and Mocan (2024) show that government actions shape social norms around domestic violence by examining Türkiye's entry into and exit from the Council of Europe Convention on preventing and combating violence against women and domestic violence (also known as Istanbul Convention). The authors find that Türkiye's 2011 signing of the Convention reduced female murders by signaling social disapproval of violence against women, while the 2021 withdrawal—though the domestic laws remained intact—increased female murders by approximately 65 per year, driven primarily by intimate partners. Our work complements these studies by showing that SONIMs are much more effective in provinces with more gender-equal social norms.

The significance of our research lies in its potential to inform policymakers and stakeholders about the efficacy of comprehensive support systems in combating IPV. By demonstrating the impact of SONIMs, our findings can guide future policy decisions and the allocation of resources to protect and empower women. While legislative measures are critical, the implementation of supportive institutional frameworks plays a vital role in the effort to ensure that victims receive the help they need. Our analysis not only sheds light on the effectiveness of Türkiye’s interventions but provides actionable recommendations for enhancing IPV prevention and support mechanisms globally.

The rest of the paper is organized as follows. Section 2 provides background information on the institutional context of our study. Section 3 describes the data sources. Section 4 outlines the empirical strategy. Sections 5 and 6 present the primary results and explore potential mechanisms. Section 7 concludes the paper.

## **2 The Violence Prevention and Monitoring Centers (SONIMs)**

Türkiye officially adopted the Council of Europe Convention on Preventing and Combating Violence Against Women and Domestic Violence on November 24, 2011, after ratification by the Turkish Parliament. The subsequent legal framework, Law No. 6284, "Family Protection and Prevention of Violence against Women" was enacted on March 8, 2012, to align national legislation with the Convention’s standards on protecting women from violence. SONIMs were formally authorized by this legislation as key institutions responsible for implementing prevention and protection measures, coordinated by the Republic of Türkiye Ministry of Family and Social Policies ([RTMFSP 2012](#)).

The rollout of SONIMs began in 2012 with the establishment of centers in 14 pilot provinces,<sup>2</sup> with the intention of extending coverage nationwide in subsequent years. As illustrated in Figure 1, the expansion proceeded in phases: by 2015, SONIMs operated in 40 provinces, rising to 49 in 2016, and reaching all 81 provinces by 2019. In parallel with

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<sup>2</sup>These provinces are Adana, Ankara, Antalya, Bursa, Denizli, Diyarbakır, Gaziantep, Mersin, İstanbul, İzmir, Malatya, Samsun, Trabzon, and Şanlıurfa.

this institutional rollout, statistics from the Ministry of Family and Social Services indicate that the number of individuals served by SONIMs increased markedly from 19,183 in 2013 to 193,451 in 2019, reaching 313,475 by 2023.<sup>3</sup>

SONIMs guide victims of violence and assist them in communicating with relevant institutions and organizations (RTMFSP 2013a). They evaluate victims of violence and their accompanying children and direct them to appropriate shelters. SONIMs also prepare social assessment reports by evaluating the social, economic, and psychological conditions of both the victims and perpetrators of violence. These centers implement intervention plans for those receiving services. Training and awareness services are among the essential parts of these services. In some cases, they may also direct victims of violence to vocational training courses to help them improve their skills for finding a job. SONIMs also monitor the enforcement of protective orders issued for victims of violence.

Upon arrival at a SONIM, whether through direct walk-in, court or police referral, hot-line (ALO 183), or third-party notification, a woman undergoes an initial intake interview where a first contact form is completed and a case file is opened. Her immediate needs and the level of risk she faces are assessed, which may lead to urgent interventions, including protective measures and health services. If she is in immediate danger, restraining orders are requested and, if needed, she may be escorted by police to a hospital or a safe shelter.

Following the initial assessment, a multidisciplinary team comprising social workers, psychologists, and legal experts prepares a customized service plan. This may include psychological counseling, legal support, economic assistance, vocational training, and referrals to shelters or child services. A social assessment report is produced to guide the intervention and facilitate coordination with other state institutions such as hospitals, municipalities, and judicial authorities.

Throughout the process, SONIMs engage in regular follow-ups to monitor the victim's safety and service outcomes. If the woman relocates, her file is transferred to the SONIM

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<sup>3</sup>See <https://www.aile.gov.tr/sgbd/istatistik-sayfalari/aylik-istatistik-bulteni/>. While the vast majority of individuals served by SONIMs are women, they also provide services to children and men. For instance, in 2023, of the total individuals served, 273,222 were women, 28,352 were men, and 11,901 were children.

in the new province, ensuring continuity of care. Case closure is determined based on the resolution of the threat, successful completion of the intervention plan, or at the client's request, provided her safety is not at risk. All case details and service records are maintained in an integrated national database for accountability and follow-up.

In addition to direct service provision, SONIMs also play a broader role in prevention through community outreach, training, and awareness campaigns aimed at challenging harmful gender norms and promoting social change. Operating 24/7 with interdisciplinary teams, SONIMs represent a central pillar of Türkiye's institutional infrastructure for preventing and addressing domestic violence.

### 3 Data

#### 3.1 Female Homicide Data

The data on female homicides come from the "Male Violence Monitoring Portal," a database maintained by the independent media outlet Bianet.<sup>4</sup> Bianet compiles data on female homicides, physical and sexual assaults on women, and child abuse from national and local press daily, verifying the information with the Turkish Bar Association and the General Directorate of Security.<sup>5</sup> According to the website, the Male Violence Monitoring Report database records only those women who have been killed as a result of male violence, excluding non-gender-based violence cases. Bianet's male violence portal includes the date, location, and details about the perpetrator. Although the data source is available up to this date, we use information on homicides between 2010 and 2019 to keep some

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<sup>4</sup>Publicly accessible real-time or high-frequency data on domestic violence incidents and homicides in Türkiye do not exist, limiting our ability to use official statistics or administrative data. Additionally, current judicial statistics do not separately categorize female homicides or domestic violence and are not available in high frequency. Given these limitations, news data on female homicides serve as the most reliable source of information.

<sup>5</sup>Bianet's Male Violence report has previously been used in academic studies, including research on Covid-19-related curfews and female homicides (Asik and Ozen 2021), analyses of the geographical distribution, economic development, and female homicides (Kavakli 2022), and on the impact of exit from The Council of Europe Convention on Preventing and Combating Violence Against Women and Domestic Violence on female homicides in Türkiye (Asik and Mocan 2024). For more details, visit: <http://bianet.org/english/gender/134394-bianet-is-monitoring-male-violence>.

untreated units for comparison since all provinces had SONIMs by the end of 2019. Our dataset includes 2,628 female homicides across all provinces of Türkiye. Of these cases, 1,972 were perpetrated by a current (66 percent) or former intimate partner (34 percent). The average female homicide rate per one thousand women is 13.4 per quarter, while the rate for women murdered by intimate partners is 10.

### **3.2 Self-Reported Data on IPV and Potential Channels**

The individual level data on domestic violence come from the 2008 and 2014 waves of the Turkish National Survey on Domestic Violence Against Women (NSDVAW), provided by the Turkish Statistical Office (TurkStat). These datasets consist of 20,257 women aged between 15 and 59 in Türkiye. The survey presents information on a wide range of areas, including household socioeconomic indicators, demographic characteristics, labor market and marital histories, mental health status, gender role attitudes, and the kinds of help-seeking tools used against violence. The domestic violence module provides detailed data on experiences of physical, sexual, and psychological violence. The survey sample consists of women, including those who were ever married, those who were in a relationship, and those who had never been in a relationship. Within each household, one eligible woman was randomly selected for an interview. Interviews were conducted in private, with no other individuals present, and respondents were informed that their answers would remain confidential. <sup>6</sup> To maintain confidentiality, only one woman per household is interviewed, and the survey is referred to as a "family survey" to protect participants from potential threats. Trained experts conducted the interviews, carefully phrasing the questions to avoid explicitly using the term "violence" and ensuring that sensitive information is collected with caution (Yuksel Kaptanoglu et al. 2015).

The violence variables are constructed as binary indicators capturing whether a woman has experienced physical, sexual, psychological violence, or financial control perpetrated by her intimate partner in the 12 months preceding the survey. Physical violence encompasses

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<sup>6</sup>Yuksel Kaptanoglu et al. (2015) outline the study's sampling and survey design, emphasizing that the field study adhered to the ethical and security standards set by the World Health Organization.

acts such as slapping or throwing objects with the potential to cause harm; pushing, shoving, or pulling hair; hitting with the fist or subject in a manner that inflicts injury; kicking, forcing onto the ground, or beating; and choking or burning. Psychological violence refers to behaviors including insulting, humiliating, and scaring or threatening. Sexual violence is defined by forced sexual acts, coerced sexual relations arising from fear of the partner's reaction, and degrading sexual acts.

Gender role attitudes are measured using respondents' level of agreement with a set of statements reflecting normative views on gender relations. These include whether a woman should refrain from arguing with her partner when she disagrees with him; whether she should have autonomy over spending her own income; whether men are justified in beating their partners under certain circumstances; whether disciplining children through physical punishment is acceptable; whether men should also share household responsibilities such as cooking and cleaning; whether male family members are responsible for a woman's behavior; and whether it is a woman's duty to engage in sexual intercourse with her husband. To summarize variation across these items, we construct a composite gender attitudes index by averaging the standardized scores of the individual attitude measures.

## 4 Empirical Strategy

As Table [A1](#) and Table [A2](#) presents, to assess whether rollout of SONIMs is systematically correlated with provincial characteristics, we conduct two balance tests using both the quarterly femicide dataset and the 2008–2014 self-reported survey data. In both exercises, each cell corresponds to a separate regression of the corresponding variable on the SONIM treatment indicator and a varying combination of time, province, and region-time fixed effects. The regressions use quarterly province–year observations and include province and time fixed effects in Column (1), and additionally five–region-time interactions in Column (2). The variables include the main outcome variables and the covariates used in

the analysis, ordered by femicide and self-reported data. Across both datasets, we find no systematic associations between SONIM rollout and the variables used in our analyses. The only exception is hospital beds per capita, which appears significant in the second specification in the balance test for femicide data and in the first for the self-reported data. However, the direction and magnitude of this coefficient are unstable across specifications. Taken together, the results provide strong evidence that there is no systematic relationship between the main variables and the provincial rollout of SONIMs, which supports our identification strategy.

Our baseline TWFE specification takes the following form:

$$Y_{ipt} = \beta(SONIM_{pt}) + \gamma X_{ipt} + \theta Z_{pt} + \delta_p + \tau_t + \epsilon_{ipt} \quad (1)$$

where  $Y_{ipt}$  represents the outcome in province  $p$  at time  $t$  for individual  $i$  (for survey data) or aggregated at province level (for homicide data, where individual dimension does not exist).  $SONIM_{pt}$  is a binary indicator equal to one for all periods from the opening of a SONIM in province  $p$  at time  $t$  onward.  $X_{ipt}$  denotes individual-level controls including woman's age fixed effects, mother tongue indicators, and urban residence indicator for the survey analysis (this vector is absent in the homicide data analysis).  $Z_{pt}$  represents province-specific time-varying controls including the logarithm of GDP per capita, the number of hospital beds per population, the logarithm of the Arab and Kurdish populations based on the 1960 population census, the unemployment rate at the 26-region level, and the number of women with high school and above degrees.  $\delta_p$  represents province fixed effects and  $\tau_t$  captures time effects.

The time dimension is specified differently across our two analyses to accommodate the inherent features of each dataset. For the quarterly homicide panel,  $\tau_t$  includes quarter-year fixed effects and region-specific linear time trends ( $\delta_r t$ ). For the two-period survey data,  $\tau_t$  is specified as a post-2014 indicator and region-year fixed effects. In both specifications, we

cluster standard errors at the province level to account for serial correlation in outcomes within provinces.

The coefficient of interest,  $\beta$ , captures the impact of SONIM implementation on our outcomes of interest. However, recent methodological advances highlight potential biases in TWFE estimates when treatment timing varies and effects are heterogeneous. Our setting may be susceptible to these concerns because: (i) SONIMs were rolled out gradually across provinces over an eight-year period, creating substantial variation in treatment timing; (ii) the effects of SONIMs may vary across provinces due to differences in institutional capacity, local attitudes toward IPV, and pre-existing support services; and (iii) the impacts could evolve dynamically as centers build capacity and establish community relationships over time.

#### **4.1 Staggered DID Specification**

While several alternatives have emerged to address the shortcomings of TWFE designs with staggered treatment timing, including de Chaisemartin and D’Haultfoeuille (2020), Borusyak et al. (2021), and Sun and Abraham (2021), we opt for the Callaway and Sant’anna (2020) estimator for several reasons specific to our research context.

First, the gradual rollout of SONIMs followed a complex implementation pattern, with treatment intensity varying across provinces based on local institutional capacity and resource availability. Unlike other estimators that require more restrictive assumptions about treatment timing and homogeneity, the CS approach explicitly accommodates this type of treatment effect heterogeneity while maintaining clear interpretability of the estimates.

Second, our identification strategy relies heavily on the comparison of not-yet-treated provinces as controls, rather than never-treated units (as all provinces eventually received SONIMs by 2019). The CS estimator is particularly well-suited for this setup as it allows for clean comparisons using not-yet-treated units as controls, avoiding the issues that arise when already-treated units serve as controls. This is especially important in our context, where spillover effects might occur if treated provinces affect outcomes in neighboring

areas.

Third, the ability to incorporate time-varying covariates through the doubly-robust approach is crucial for our analysis, as provincial characteristics such as GDP, unemployment, and demographic composition may influence both SONIM implementation and outcomes. While other methods like Sun and Abraham (2021) can accommodate covariates, the CS estimator's doubly-robust property provides additional protection against model misspecification, which is particularly valuable given the complex relationship between socioeconomic factors and intimate partner violence.

Fourth, the CS framework provides a natural way to examine treatment effect dynamics through the estimation of group-time average treatment effects. This is essential for our analysis as the impact of SONIMs likely evolves over time as centers establish operations, build community relationships, and develop institutional expertise. Alternative estimators may not capture these dynamics as flexibly or transparently.

Let  $G_g$  denote the group of provinces that first received a SONIM in year  $g$ . For each treatment cohort  $g$  and time period  $t$ , we estimate group-time average treatment effects:

$$ATT(g, t) = E[Y_t(g) - Y_t(\infty) | G_g = 1] \quad (2)$$

where  $Y_t(g)$  represents the potential outcome at time  $t$  for provinces first treated in year  $g$ , and  $Y_t(\infty)$  denotes the potential outcome had treatment never occurred. The group-time ATTs are then aggregated into an overall treatment effect:

$$ATT = \sum_g w_g \sum_t w_{g,t} ATT(g, t) \quad (3)$$

where  $w_g$  and  $w_{g,t}$  are weights proportional to group size. We use not-yet-treated provinces as the comparison group, following the recommendations of Sun and Abraham (2021) for settings with staggered adoption. This choice avoids the "forbidden comparisons" highlighted by Goodman-Bacon (2021), where already-treated units serve as controls for newly-treated units.

Our implementation includes the same covariates as in the TWFE specification, adjusted following the doubly-robust approach proposed by Sant’Anna and Zhao (2020). This approach combines outcome regression and propensity score weighting to achieve double robustness while controlling for time-varying confounders. The resulting estimates can be interpreted as the average treatment effect on the treated (ATT), representing the average impact of SONIMs on provinces that received them, when they received them.

We assess the validity of both specifications by examining pre-treatment trends through event study analyses and conducting various robustness checks, including alternative control groups and specifications. For inference, we cluster standard errors at the province level and implement randomization inference procedures to account for potential spatial correlation.

## 5 Primary Results

### 5.1 Female Homicides

We begin by examining the dynamic effects of SONIM openings on female homicides using the event study specification in Eq. 2. Figure 2 presents event study estimates for four categories: all female homicides, intimate partner homicides, current partner homicides, and ex-partner homicides. We restrict the analysis to an eight-quarter window around SONIM openings. As Figure 2 shows, there are no pre-existing differences in female homicide trends between treated and untreated provinces, as the pre-trend coefficients are statistically indistinguishable from zero. There also seems to be no impact during the first year of SONIM openings, however, the effects seem start kicking after the fourth quarter, leading to a decline of around two women overall per quarter per province. The intimate partner homicides follow a similar trend, and the decline is about one women per quarter driven mostly by the current partner homicide after the first year of SONIM rollouts. In contrast, SONIM openings do not seem to have a significant impact on ex-partner homicides. The staggered difference in differences estimations suggest that overall

the decline in female homicides are highly significant with an ATT coefficient of -0.73 women overall, and an ATT coefficient of -0.69 for intimate partner homicide.

Since our violence measures represent the number of independent occurrences of homicides per unit of time, assuming a Poisson distribution for homicides might be preferable to linear specifications. Female homicides are low-frequency count outcomes, making Poisson models more appropriate than linear estimators for capturing their distribution and avoiding negative fitted values. [Wooldridge \(2021\)](#) proposes estimation algorithms for the identification of ATTs that allow for staggered interventions under non-linear models. The two-way fixed effects framework by [Wooldridge \(2021\)](#) extends the difference-in-differences methods to staggered treatment timing, ensuring that the estimated effects are not biased by treatment effect heterogeneity or by comparisons of already-treated units to newly treated ones—issues that are common in traditional two-way fixed-effects models. This estimator is therefore particularly useful when policies such as prevention helplines, enforcement reforms, or support centers are rolled out at different times across regions and when the outcomes are rare, discrete events like domestic violence-related homicides.

In Table 2, we test the validity of our results by using the Poisson DID method by [Wooldridge \(2021\)](#). As before, we use the same set of control variables; 2010 values of province population, log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, NUTS2-unemployment rate, Kurdish and Arabic speaking population (both in logs). Also included are the four DHS region dummies interacted with time dummies.<sup>7</sup> As Table 2 show, our results are consistent with the ones estimated using the [Callaway and Sant’Anna \(2020\)](#) estimator. The estimated semi-elasticity in Column (1) is -0.79, suggesting that SONIM policies led to a decline of about 55 percent decline in overall homicide per quarter, per province. The decline in homicides by intimate partners and by current partners are approximately 43 and 38 percent, respectively. Consistent with earlier results, we do not find a statistically meaningful impact on homicides

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<sup>7</sup>As ex-partner crimes are the rarest crime type in our data set, we face convergence problems associated with poisson estimations and therefore use a restricted set of control variables for ex-partner homicide in column (4).

by ex-partners.

Although female homicides are rare events, our estimations provide support for the reduction of physical violence as a result of SONIM. It is important to highlight again that if domestic violence policies are effective, one would expect to observe a decline in crimes perpetrated by intimate partners, and this is precisely what we find relying on homicide data.

### 5.1.1 Heterogeneous Effects of SONIM on Female Homicides

We investigate how the impact of SONIM on female homicides by intimate partners varies across provincial characteristics. In Figure 3, we present heterogeneous estimates by provincial share of votes for the Justice and Development Party, which has ruled the country since 2002, GDP per capita, metropolitan status, and the share of households unable to meet basic needs. For the political alignment, income level, and poverty dimensions, provinces are divided into two groups according to the median threshold. The classification of metropolitan cities is based on the definition established by the Metropolitan Municipality Law, according to which, there are currently 30 metropolitan municipalities in Turkey.

First, we observe that the impact of SONIM differs significantly by provincial political alignment. Provinces with below-median JDP vote shares exhibit a significantly stronger effect than those with higher levels of electoral support for the ruling party. The JDP represents a religiously conservative political identity, framing the country as the successor to the Ottoman Empire and thereby embodying nationalist and traditionalist roots. Therefore, provinces with above-median JDP vote shares are more likely to align with patriarchal cultural norms, limiting the effectiveness of institutional measures such as SONIM. Our results are consistent with [Acemoglu and Jackson \(2017\)](#), who show that laws are more effective when they align with prevailing social norms, and with [Sanin \(2024\)](#), who provides evidence that this mechanism is particularly relevant in the context of domestic violence.

The heterogeneity by GDP per capita is less prominent, yet the results still indicate a tendency for SONIM to be more effective in provinces with above-median income levels.

These provinces have broader economic activity and thereby provide more labor market opportunities for women. Thus, women living in these regions tend to have higher bargaining power within households, increasing their ability to seek institutional support. Women's greater autonomy may allow them to benefit more from institutional measures like SONIM aimed at preventing domestic violence. In parallel, the estimates indicate a relatively stronger effect of SONIM in metropolitan provinces. These provinces generally possess stronger institutional structures, better enforcement capacity, and broader access to social services, which can enhance the effectiveness of SONIM.

Finally, when heterogeneity is examined by the share of households unable to meet basic needs, the results reveal that SONIM are less effective in provinces where a higher proportion of households report economic hardship. This finding suggests that economic stress exacerbates intimate partner violence, weakening the capacity of institutional interventions to mitigate it. In regions where economic insecurity is widespread, households face multiple stressors, such as unemployment and income instability, which may limit both the utilization and effectiveness of protective mechanisms like SONIM. This interpretation is consistent with [Fox et al. \(2002\)](#), who document that economic strain increases the likelihood of marital conflict and violence, and [Hidrobo et al. \(2016\)](#), who demonstrate that cash and in-kind transfers that reduce poverty and food insecurity significantly decrease the incidence of intimate partner violence. These results underline the importance of integrating economic stress reduction into the operational framework of SONIM. While SONIMs are primarily designed to provide legal and protective services to women at risk, they currently lack mechanisms to address economic vulnerabilities associated with domestic violence. Strengthening the institutional coordination between SONIM and social assistance programs could enhance the overall effectiveness of the system.

## **5.2 Self-reported IPV outcomes**

We next evaluate the effects of SONIMs on the probability of women's self-reported risk of experiencing intimate partner violence from their intimate partners. Panel A of Table 3

indicates that women report a lower likelihood of experiencing physical violence from their intimate partners in affected provinces after the introduction of SONIMs.<sup>8</sup> The estimates in the most saturated model in column (3) indicate a decline of 1.9 percentage points (p.p.), which corresponds to a 20.5 percent decline relative to the outcome mean. The subsequent panels examine whether treatment effects are heterogeneous by women’s age and education levels. The estimates in Panels B and C indicate that the effects of SONIMs are more pronounced among women younger than 35, the median age in our sample. The estimates in Panels D, E, and F indicate that the effects are larger for less educated women, those with a middle school education or less, and are especially pronounced among illiterate women. These findings suggest that SONIMs could be particularly effective in reaching and supporting younger and more vulnerable women with limited outside options, experiencing greater barriers to protection. It should be noted that these estimates are likely a lower bound, as SONIMs could also have led to increased violence reporting behavior by women in treated provinces.

## 6 Potential Channels

In this section, we examine several potential channels through which SONIM openings could affect women’s risk of experiencing IPV. Specifically, we focus on three sets of outcomes: (i) help-seeking mechanisms, (ii) gender attitudes, (iii) labor market outcomes, (iv) relationship status and marriage market outcomes, and (v) mental health outcomes.

### 6.1 Help-Seeking Behavior

The implementation of SONIMs, coupled with their active coordination with other local institutions, provides women experiencing violence with structured pathways to seek assistance from law enforcement agencies, legal authorities, or women’s organizations. A central mandate of SONIMs is to guide women in reporting incidents to the relevant in-

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<sup>8</sup>Appendix Table A4 shows no evidence of a significant impact on women’s risk of experiencing psychological or sexual violence from their intimate partners.

stitutions that can deliver appropriate protection and support. For example, SONIM staff may refer women to police agencies when a protection order or criminal investigation is warranted, or connect them with women’s NGOs and social services that offer shelter, safe housing, and legal guidance on matters such as custody or divorce. By serving as a centralized hub for legal, psychosocial, and protective services, SONIMs reduce the fragmentation of available resources and help ensure that women—particularly those facing heightened vulnerability—receive timely and comprehensive assistance.

To investigate these potential impacts on victims’ help-seeking behavior, we analyze responses to a set of questions from the NSDVAW surveys answered by women who reported ever experiencing IPV. Since this is a select and relatively small sample, we interpret these findings as suggestive evidence. Table 4 reports the effects of SONIM openings on whether victim women sought assistance from protective and social services, including the police, gendarmerie, women’s organizations, social services, hospitals, and municipalities. The first row reports estimates for a z-score index constructed from these underlying indicators. The estimates indicate a significant increase of 0.11 standard deviations (S.D.) in women’s help-seeking behavior through applications to protective and social services. Among the individual components, we also observe significant increases in help-seeking through women’s organizations and social services, which play an important role in moving women to safe shelters, providing them with legal counseling, and offering financial support to facilitate their transition to safety and independence. We also note that while the estimates for help-seeking through police and hospitals are imprecise, their magnitudes are sizable relative to the sample means.<sup>9</sup>

Table 5 reports results for help-seeking behavior through legal services. The estimates in the first row show a decline of 0.15 S.D. in legal services index in response to SONIM openings. Examining components, there is a significant decline in women’s applications to prosecutors instead of lawyers. This decline in applications to prosecutors could reflect a shift in how legal assistance is accessed after the establishment of SONIMs. One possibility

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<sup>9</sup>Since the sample in this analysis only includes women who have experienced domestic violence before, we may be underpowered to detect some of the treatment effects due to the limited sample size.

is that women increasingly obtain legal counseling and case support directly through women's NGOs, which are often accessed via SONIM referrals. Another possibility is that police now refer women to SONIMs rather than directly to prosecutors, with SONIM staff themselves facilitating the necessary legal procedures. In both cases, SONIMs may act as an intermediary, consolidating and streamlining victims' access to legal channels, thereby reducing the need for women to approach prosecutors independently.

## 6.2 Attitudes towards Domestic Violence

The implementation of SONIMs may also influence women's attitudes toward domestic violence. By signaling that the state is actively addressing domestic violence through specialized prevention centers, these initiatives can raise awareness of women's rights and available protections. Such awareness may reduce women's tolerance of abusive behavior, shifting perceptions of what constitutes acceptable treatment. Moreover, these changes in gender attitudes could also affect how women respond to survey questions, potentially generating reporting bias if increased awareness leads to greater recognition and disclosure of abusive behaviors that might previously have gone unreported.

In Table 6, we test whether these institutions had a significant impact on women's gender attitudes, including their attitudes towards domestic violence. The first row reports estimates for a gender attitudes index, which is a z-score constructed from whether women disagree with several statements listed in subsequent rows.<sup>10</sup> The index reflects more gender-equal attitudes as the index values increase. The estimates show no evidence of a significant impact of SONIM expansion on women's gender attitudes. The individual component estimate of whether women agree with the statement of "men can beat their partners in certain situations" is also insignificant, and only one component out of seven shows a statistically significant estimate. Overall, we find little evidence that SONIMs significantly changed gender norms. This result also implies that the findings are less likely to be driven by changes in women's reporting associated with potential changes in

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<sup>10</sup>Two components are reverse coded: "a woman should be able to spend her money as she wishes" and "men should also do housework, e.g., cooking and cleaning".

her awareness induced by policy changes.

### **6.3 Relationship Status and Marriage Market Outcomes**

We next examine whether the SONIM openings have any significant impact on women's relationship status or marriage market outcomes. If these institutions enable women to obtain assistance in filing for divorce, provide access to shelters, and help them remain separated from their intimate partners, the resulting reduction in exposure to a potentially violent partner could also account for the observed effects. In Table 7, the results show no evidence of a significant impact on the probability of marriage, divorce, or becoming separated, or widowed.<sup>11</sup> Moreover, Table 8 tests whether SONIM openings have a significant effect on other marriage market outcomes, including age difference between partners, schooling difference between partners, an indicator for whether the woman had a say in who she married, and the number of children the couple had. We find no evidence of a significant impact on these outcomes. Hence, we conclude that the marriage market mechanism does not appear to explain our results.

### **6.4 Labor Market Outcomes**

We also examine whether the observed effects could be driven by changes in women's employment status or income generation. Since one of the stated objectives of SONIMs is to support women's economic empowerment—often by assisting them in seeking job opportunities or facilitating access to vocational training—such pathways could, in principle, reduce economic dependence on abusive partners and lower the risk of IPV. However, the estimates reported in Table ?? show no statistically significant impact of SONIM openings on the probability of working in the previous week, having a personal income, or employment in specific sectors such as agriculture, industry, or services. These findings suggest that SONIMs did not meaningfully alter women's short-term labor market outcomes during the study period. Consequently, changes in employment or income are unlikely to

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<sup>11</sup>We further test whether the SONIM openings had a significant test on the probability of ever having a relationship or ever being married in Appendix Table A5. We find no evidence of such an effect.

explain the reductions in IPV risk that we document.

## 6.5 Mental Health Outcomes

Finally, we examine whether the establishment of SONIMs affected women's mental health outcomes. In addition to offering shelter and assistance with legal or protective services, SONIMs also provide mental health counseling aimed at helping women cope with trauma and rebuild emotional resilience. If these services successfully reduce mental distress, they may improve women's overall well-being, enhance their capacity to make independent decisions, and lower their tolerance for abuse from intimate partners.

Following [Altindag et al. \(2022\)](#) and [Erten and Keskin \(2020\)](#), we create three standardized mental distress indices based on the 20-Item Self Reporting Questionnaire (SRQ-20) developed by the World Health Organization ([WHO 1994](#)). The SRQ-20 stands out as one of the few mental health screening instruments developed specifically for use in low- and middle-income countries. Specifically, we construct three summary indices: (i) a mental distress index, calculated as the mean of the z-scores for 20 mental health indicators; (ii) a somatic distress index, based on the average of four bodily-symptom indicators that provide relatively objective measures of anxiety and depression; and (iii) a nonsomatic distress index, derived from the average of the remaining 16 indicators reflecting more subjective assessments of anxiety and depression. Following ([Anderson 2008](#)), all indices are standardized to have a mean of 0 and a standard deviation of 1. Higher values of indices reflect greater mental distress.

Table 10 presents the results. We find no evidence of a significant change in mental distress measures in response to SONIM openings. Hence, the mental health channel does not explain our findings.

## 7 Conclusion

In this paper, we investigate the effects of violence prevention centers and a large-scale shelter project on women's risk of experiencing domestic violence in Türkiye. Our results show that both of these programs were effective in significantly reducing women's self-reported risk of physical violence from their intimate partners, and female homicides by intimate partners. The estimates indicate an 18 percent reduction in self-reported physical violence risk, and a 2.2 fewer women being murdered in affected provinces after the program implementation.

Importantly, we find no evidence of any differential pre-trends driving homicide outcomes, suggesting that the provinces that received these programs were not following differential trends in gender-based violence compared to non-treated provinces. Exploring potential mechanisms, we find that the violence prevention centers and the shelter project both had a significant impact on women's help-seeking through women's organizations and social services that were promoted through these programs. We find no evidence of a significant change in women's probability of divorce or employment in response to these programs.

Overall, our findings suggest that improving institutional structures to provide shelters for women at risk of intimate partner violence, along with additional tools to empower them through legal counseling, health services, and social services, is crucial in reducing domestic violence and supporting women's overall well-being. These insights underline the importance of continued investment in comprehensive support programs to combat domestic violence effectively.

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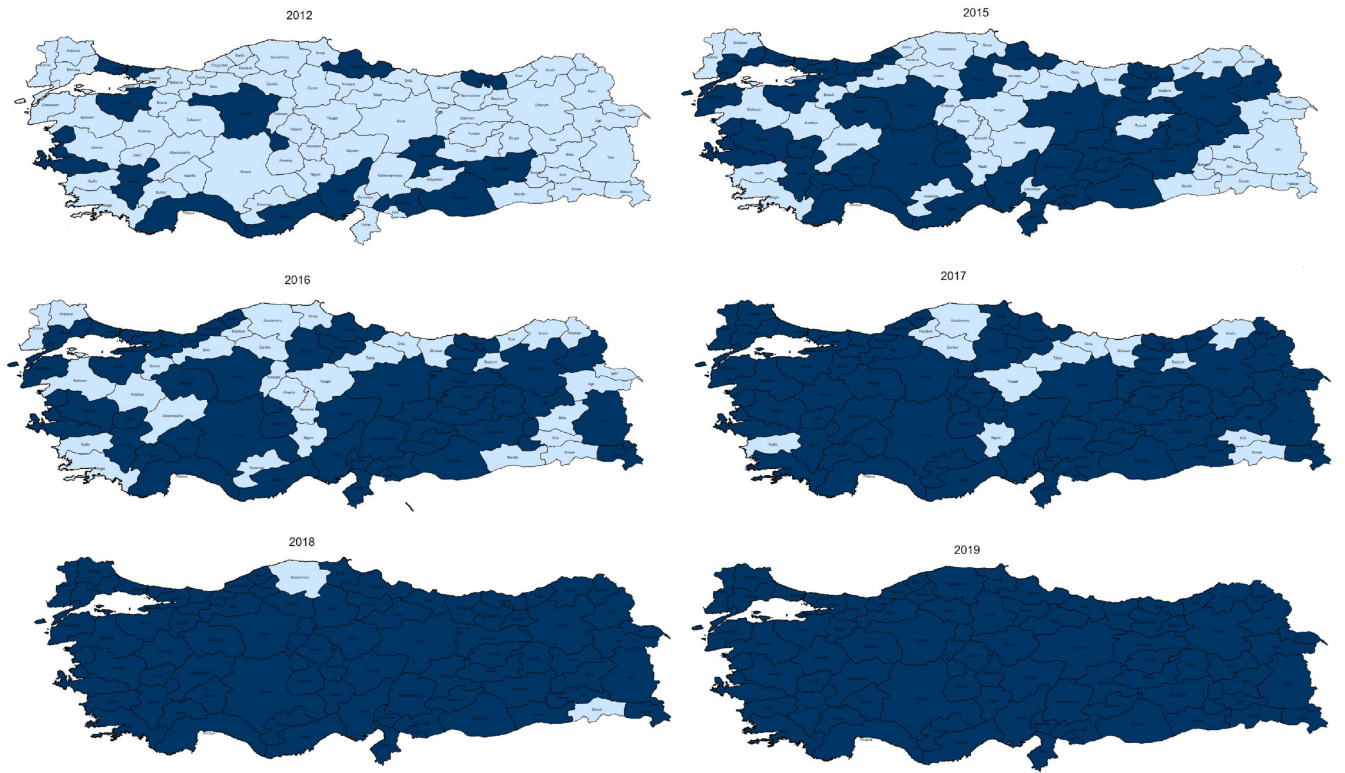
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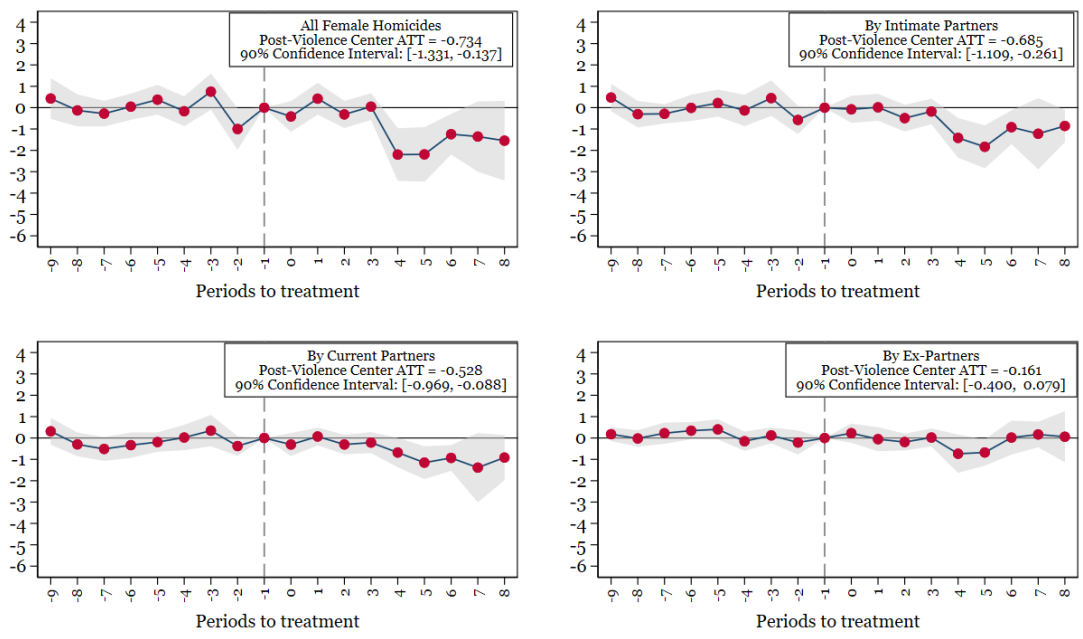
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FIGURE 1: Rollout of SONIMs Across Turkish Provinces, 2012-2019



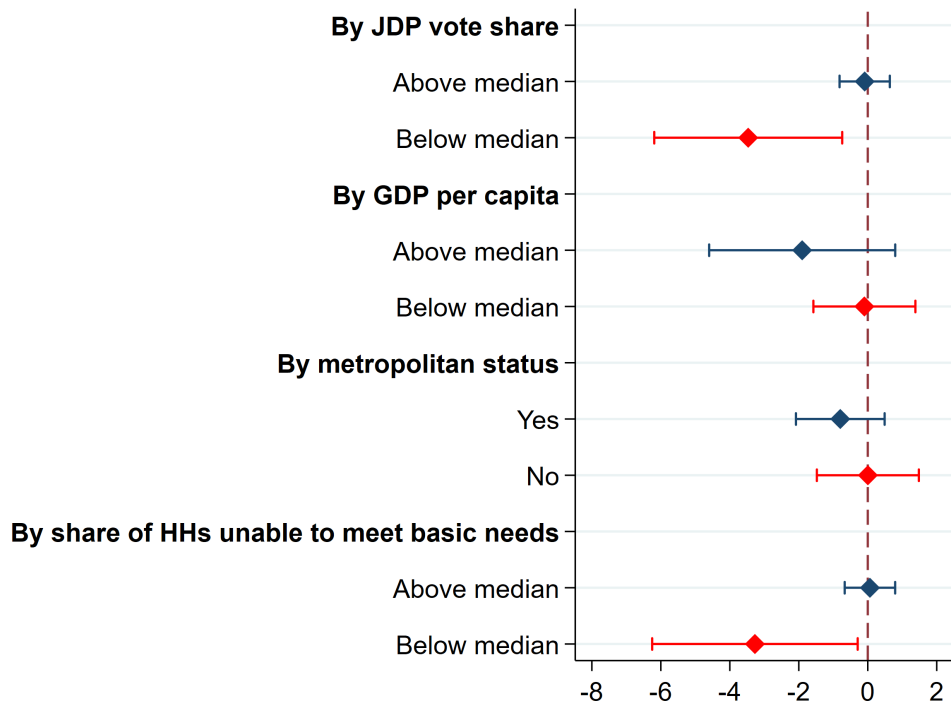
**Notes:** Provinces shaded in dark blue indicate the presence of an operational SONIM, while light blue indicates no operational center in that year. The figure is based on data obtained from the Ministry of Family, Labour and Social Services.

FIGURE 2: Staggered DID, All Female Homicides



**Notes:** ATT coefficients are estimated using the `csdid` command in STATA based on the doubly robust stabilized inverse probability weighting by Callaway and Sant’Anna (2020). 90% confidence bands are reported based on standard errors clustered at province level.

FIGURE 3: Staggered DID, Heterogeneity Analysis of the Female Homicides by Intimate Partners



**Notes:** JDP vote share is based on the provincial share of votes received by the Justice and Development Party (JDP) in the 2007 general elections. GDP per capita is based on the provincial initial GDP per capita values. Metropolitan status follows the official classification of metropolitan provinces in Türkiye. The share of households unable to meet basic needs is calculated using the proportion of households reporting that they are unable to meet their basic needs. ATT coefficients are estimated using the `csdid` command in STATA based on the doubly robust stabilized inverse probability weighting by Callaway and Sant'Anna (2020). 95% confidence bands are reported based on standard errors clustered at province level.

TABLE 1: SUMMARY STATISTICS

	Mean	SD	Min	Max	N
<b>Demographic and partner characteristics</b>					
Age	36.58	11.16	15.00	59.00	18420
Urban	0.72	0.45	0.00	1.00	18420
Turkish mother tongue	0.97	0.18	0.00	1.00	18420
Kurdish mother tongue	0.03	0.17	0.00	1.00	18420
Arabic mother tongue	0.00	0.04	0.00	1.00	18420
Years of education	6.25	4.14	0.00	20.00	17940
Illiterate	0.15	0.35	0.00	1.00	18419
Age difference between husband and wife	4.69	5.90	-34.00	89.00	16845
Schooling difference between husband and wife	-1.88	3.45	-17.00	11.00	17171
Marriage Decision	0.41	0.49	0.00	1.00	16980
Number of children	2.32	1.77	0.00	20.00	18413
<b>IPV in the last 12 months</b>					
Physical violence	0.09	0.29	0.00	1.00	18420
Psychological violence	0.25	0.43	0.00	1.00	18363
Sexual violence	0.07	0.25	0.00	1.00	18382
<b>Labor Market Variables</b>					
Worked last week	0.18	0.38	0.00	1.00	18417
Has personal income	0.21	0.41	0.00	1.00	18412
Worked in agriculture	0.11	0.31	0.00	1.00	18420
Worked in industry	0.02	0.14	0.00	1.00	18420
Worked in services	0.16	0.37	0.00	1.00	18420
<b>Relationship Status</b>					
Married	0.86	0.35	0.00	1.00	18420
Divorced	0.02	0.15	0.00	1.00	18420
Separated	0.01	0.08	0.00	1.00	18420
Widowed	0.03	0.18	0.00	1.00	18420
<b>Gender attitude variables</b>					
A woman should not argue with her partner if she disagrees with him	0.48	0.50	0.00	1.00	18276
Men can beat their partners in certain situations	0.22	0.42	0.00	1.00	18370
A woman should be able to spend her money as she wishes	0.67	0.47	0.00	1.00	18214
Men should also do housework, e.g., cooking and cleaning	0.68	0.47	0.00	1.00	18322
It may be necessary to beat children for discipline	0.33	0.47	0.00	1.00	18342
Men in the family are responsible for a woman's behavior	0.47	0.50	0.00	1.00	18081
It is a woman's duty to have sexual intercourse with her husband	0.23	0.42	0.00	1.00	18187

*Notes:* This table reports summary statistics (mean, standard deviation, minimum, maximum, and number of observations) for selected variables. The sample includes women who have ever been in a relationship. Partner characteristics refer to the most recent partner, and all violence variables capture experiences within the past 12 months.

TABLE 2: Impact of SONIMs on Female Homicides: Poisson Difference-in-Differences Estimations

	(1) Female Homicides	(2) By Intimate Partners	(3) By Current Partners	(4) By Ex-Partners
Treatment $\times$ post	-0.799** (0.368)	-0.563** (0.279)	-0.487** (0.228)	-0.242 (0.271)
Pre-treatment mean	3.60	3.44	2.72	0.72
Observations	3,159	3,159	3,159	3,159
Controls	Yes	Yes	Yes	Yes

*Notes:* Data source for female homicides between 2010 and 2019 is Bianet’s Male Violence Monitor. The two-way fixed effects coefficients associated with the staggered rollout of SONIMs are estimated using the `jwddid` algorithm with `poisson` option provided by [Wooldridge \(2021\)](#). Specifications in columns (1)-(3) full interaction of time and policy dummies with initial values of province population, log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, NUTS2-unemployment rate, Kurdish and Arabic speaking population (both in logs). The specifications in columns (1)-(3) also include 4 DHS region dummies interacted with time dummies. Due to convergence issues in poisson estimations, the specification for ex-partner crimes in Column (4) excludes the initial values of log of GDP per capita, number of hospital beds per capita and Kurdish speaking population. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE 3: EFFECTS OF SONIMs ON PHYSICAL IPV

<b>Panel A: Full sample</b>	(1)	(2)	(3)
SONIM <sub>pt</sub>	-0.017*	-0.018*	-0.019*
	(0.010)	(0.010)	(0.010)
Observations	18,420	18,420	18,420
Outcome mean	0.0926	0.0926	0.0926
<b>Panel B: Women younger than 35</b>			
SONIM <sub>pt</sub>	-0.023	-0.027*	-0.027**
	(0.016)	(0.014)	(0.014)
Observations	8,624	8,624	8,624
Outcome mean	0.1218	0.1218	0.1218
<b>Panel C: Women older than or equal to 35</b>			
SONIM <sub>pt</sub>	-0.015	-0.014	-0.014
	(0.011)	(0.012)	(0.012)
Observations	9,796	9,796	9,796
Outcome mean	0.0669	0.0669	0.0669
<b>Panel D: Illiterate women</b>			
SONIM <sub>pt</sub>	-0.038	-0.066***	-0.064**
	(0.039)	(0.024)	(0.026)
Observations	2,718	2,718	2,718
Outcome mean	0.1045	0.1045	0.1045
<b>Panel E: Women who completed middle school or less</b>			
SONIM <sub>pt</sub>	-0.018	-0.018*	-0.018*
	(0.011)	(0.009)	(0.010)
Observations	14,017	14,017	14,017
Outcome mean	0.0998	0.0998	0.0998
<b>Panel F: Women with above middle school education</b>			
SONIM <sub>pt</sub>	-0.001	-0.008	-0.008
	(0.015)	(0.015)	(0.014)
Observations	3,919	3,919	3,919
Outcome mean	0.0638	0.0638	0.0638
Province fixed effects, post indicator, age fixed effects	Yes	Yes	Yes
Five-region × year fixed effects	Yes	Yes	Yes
Time-varying province characteristics	No	Yes	Yes
Additional individual controls	No	No	Yes

Notes: Data are from the 2008 and 2014 NSDVAW. The table presents average treatment effects of the SONIM openings on an indicator of whether the respondent experienced physical IPV in the last 12 months for the full sample and different sub-samples. All specifications include province fixed effects, a post indicator, five-region indicators interacted with post indicator, and women's age fixed effects. Column (2) adds log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, unemployment claims per capita. Column (3) adds additional individual covariates, including indicators for mother tongue and an indicator for urban locations. Outcome means are listed in rows under observation numbers. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE 4: THE EFFECTS OF SONIMs ON HELP-SEEKING THROUGH PROTECTIVE AND SOCIAL SERVICES

	(1)	(2)	(3)
Protective and social services index	0.161*	0.111*	0.112*
	(0.093)	(0.065)	(0.066)
Observations	6,881	6,881	6,881
Outcome mean	0.0000	0.0000	0.0000
Police	0.016	0.008	0.010
	(0.024)	(0.024)	(0.023)
Observations	6,761	6,761	6,761
Outcome mean	0.0504	0.0504	0.0504
Gendarmerie	0.009	0.007	0.006
	(0.010)	(0.009)	(0.009)
Observations	6,448	6,448	6,448
Outcome mean	0.0102	0.0102	0.0102
Women's organizations	0.008**	0.005*	0.006*
	(0.004)	(0.003)	(0.003)
Observations	5,936	5,936	5,936
Outcome mean	0.0020	0.0020	0.0020
Social services	0.010**	0.009**	0.009**
	(0.004)	(0.004)	(0.004)
Observations	6,008	6,008	6,008
Outcome mean	0.0028	0.0028	0.0028
Hospitals	0.021	0.017	0.018
	(0.013)	(0.013)	(0.013)
Observations	6,335	6,335	6,335
Outcome mean	0.0406	0.0406	0.0406
Municipalities	-0.007	-0.005	-0.005
	(0.005)	(0.005)	(0.005)
Observations	5,543	5,543	5,543
Outcome mean	0.0023	0.0023	0.0023
Province fixed effects, post indicator, age fixed effects	Yes	Yes	Yes
Five-region $\times$ year fixed effects	Yes	Yes	Yes
Time-varying province characteristics	No	Yes	Yes
Additional individual controls	No	No	Yes

Notes: Data are from the 2008 and 2014 NSDVAW. The table presents average treatment effects of the SONIM openings on indicators for help-seeking behavior for women who ever experienced IPV. The first row reports estimates for a composite z-score index based on all components listed in other rows. All specifications include province fixed effects, a post indicator, five-region indicators interacted with post indicator, and women's age fixed effects. Column (2) adds log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, unemployment claims per capita. Column (3) adds additional individual covariates, including indicators for mother tongue and an indicator for urban locations. Outcome means are listed in rows under observation numbers. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE 5: THE EFFECTS OF SONIMs ON HELP-SEEKING THROUGH LEGAL SERVICES

	(1)	(2)	(3)
Legal services index	-0.160*	-0.158*	-0.152*
	(0.081)	(0.081)	(0.081)
Observations	6,426	6,426	6,426
Outcome mean	0.0001	0.0001	0.0001
Lawyer	0.010	0.001	0.001
	(0.016)	(0.013)	(0.013)
Observations	5,704	5,704	5,704
Outcome mean	0.0228	0.0228	0.0228
Prosecutor	-0.046***	-0.040***	-0.039***
	(0.016)	(0.014)	(0.014)
Observations	6,372	6,372	6,372
Outcome mean	0.0308	0.0308	0.0308
Province fixed effects, post indicator, age fixed effects	Yes	Yes	Yes
Five-region $\times$ year fixed effects	Yes	Yes	Yes
Time-varying province characteristics	No	Yes	Yes
Additional individual controls	No	No	Yes

*Notes:* Data are from the 2008 and 2014 NSDVAW. The table presents average treatment effects of the SONIM openings on indicators for help-seeking behavior for women who ever experienced IPV. The first row reports estimates for a composite z-score index based on all components listed in other rows. All specifications include province fixed effects, a post indicator, five-region indicators interacted with post indicator, and women's age fixed effects. Column (2) adds log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, unemployment claims per capita. Column (3) adds additional individual covariates, including indicators for mother tongue and an indicator for urban locations. Outcome means are listed in rows under observation numbers. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE 6: THE EFFECTS OF SONIMs ON GENDER ATTITUDES

	(1)	(2)	(3)
Gender attitudes index	0.033 (0.053)	0.057 (0.049)	0.044 (0.050)
Observations	18,413	18,413	18,413
Outcome mean	0.0131	0.0131	0.0131
A woman should not argue with her partner if she disagrees with him	-0.015 (0.023)	-0.012 (0.021)	-0.022 (0.020)
Observations	18,276	18,276	18,276
Outcome mean	0.4840	0.4840	0.4840
A woman should be able to spend her money as she wishes	0.013 (0.020)	0.019 (0.021)	0.022 (0.021)
Observations	18,214	18,214	18,214
Outcome mean	0.6718	0.6718	0.6718
Men can beat their partners in certain situations	-0.036 (0.024)	-0.028 (0.023)	-0.033 (0.024)
Observations	18,370	18,370	18,370
Outcome mean	0.2229	0.2229	0.2229
Men should also do housework, e.g., cooking and cleaning	0.019 (0.017)	0.023 (0.020)	0.028 (0.019)
Observations	18,322	18,322	18,322
Outcome mean	0.6798	0.6798	0.6798
Men in the family are responsible for a woman's behavior	-0.016 (0.028)	-0.007 (0.027)	-0.014 (0.027)
Observations	18,081	18,081	18,081
Outcome mean	0.4660	0.4660	0.4660
It is a woman's duty to have sexual intercourse with her husband	0.057** (0.022)	0.058** (0.023)	0.053** (0.022)
Observations	18,187	18,187	18,187
Outcome mean	0.2253	0.2253	0.2253
It may be necessary to beat children for discipline	0.013 (0.025)	0.014 (0.026)	0.007 (0.025)
Observations	18,342	18,342	18,342
Outcome mean	0.3308	0.3308	0.3308
Province fixed effects, post indicator, age fixed effects	Yes	Yes	Yes
Five-region × year fixed effects	Yes	Yes	Yes
Time-varying province characteristics	No	Yes	Yes
Additional individual controls	No	No	Yes

*Notes:* Data are from the 2008 and 2014 NSDVAW. The table presents average treatment effects of the SONIM openings on indicators for gender attitudes for the sample of women in domestic violence module. The first row reports estimates for a composite z-score index based on all components listed in other rows, and higher values reflect more equal gender norms. All specifications include province fixed effects, a post indicator, five-region indicators interacted with post indicator, and women's age fixed effects. Column (2) adds log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, unemployment claims per capita. Column (3) adds additional individual covariates, including indicators for mother tongue and an indicator for urban locations. Outcome means are listed in rows under observation numbers. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE 7: THE EFFECTS OF SONIMs ON RELATIONSHIP STATUS

	(1)	(2)	(3)
Married	0.016 (0.014)	0.017 (0.015)	0.014 (0.016)
Observations	18,420	18,420	18,420
Outcome mean	0.8603	0.8603	0.8603
Divorced	0.001 (0.007)	-0.001 (0.006)	0.000 (0.007)
Observations	18,420	18,420	18,420
Outcome mean	0.0226	0.0226	0.0226
Separated	-0.005 (0.003)	-0.006 (0.003)	-0.005 (0.003)
Observations	18,420	18,420	18,420
Outcome mean	0.0064	0.0064	0.0064
Widowed	-0.003 (0.006)	-0.004 (0.006)	-0.003 (0.006)
Observations	18,420	18,420	18,420
Outcome mean	0.0330	0.0330	0.0330
Province fixed effects, post indicator, age fixed effects	Yes	Yes	Yes
Five-region $\times$ year fixed effects	Yes	Yes	Yes
Time-varying province characteristics	No	Yes	Yes
Additional individual controls	No	No	Yes

Notes: Data are from the 2008 and 2014 NSDVAW. The table presents average treatment effects of the SONIM openings on indicators for relationship status for the sample of women in domestic violence module (conditional on being in a relationship). All specifications include province fixed effects, a post indicator, five-region indicators interacted with post indicator, and women's age fixed effects. Column (2) adds log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, unemployment claims per capita. Column (3) adds additional individual covariates, including indicators for mother tongue and an indicator for urban locations. Outcome means are listed in rows under observation numbers. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE 8: THE EFFECTS OF SONIMs ON MARRIAGE MARKET OUTCOMES

	(1)	(2)	(3)
Age difference between husband and wife	-0.500 (0.326)	-0.550* (0.320)	-0.506 (0.310)
Observations	16,845	16,845	16,845
Outcome mean	4.6886	4.6886	4.6886
Schooling difference between husband and wife	-0.007 (0.126)	-0.055 (0.119)	-0.075 (0.121)
Observations	17,171	17,171	17,171
Outcome mean	-1.8789	-1.8789	-1.8789
Marriage decision	0.029 (0.020)	0.021 (0.018)	0.023 (0.019)
Observations	16,980	16,980	16,980
Outcome mean	0.4117	0.4117	0.4117
Number of children	-0.007 (0.074)	0.010 (0.085)	0.009 (0.083)
Observations	18,413	18,413	18,413
Outcome mean	2.3244	2.3244	2.3244
Province fixed effects, post indicator, age fixed effects	Yes	Yes	Yes
Five-region $\times$ year fixed effects	Yes	Yes	Yes
Time-varying province characteristics	No	Yes	Yes
Additional individual controls	No	No	Yes

*Notes:* Data are from the 2008 and 2014 NSDVAW. Age difference between husband and wife is calculated as husband's age at the time of survey minus wife's age. Schooling difference is computed as husband's total years of schooling minus wife's total years of schooling. Marriage decision is a binary variable coded as 1 if the marriage was self-decided, and 0 if it was arranged by families, through abduction, exchange (berdel), or other traditional means. All specifications include province fixed effects, a post indicator, five-region indicators interacted with post indicator, and women's age fixed effects. Column (2) adds log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, unemployment claims per capita. Column (3) adds additional individual covariates, including indicators for mother tongue and an indicator for urban locations. Outcome means are listed in rows under observation numbers. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE 9: THE EFFECTS OF SONIMs ON LABOR MARKET OUTCOMES

	(1)	(2)	(3)
Worked last week	0.025 (0.018)	0.030 (0.019)	0.024 (0.017)
Observations	18,417	18,417	18,417
Outcome mean	0.1775	0.1775	0.1775
Has personal income	0.000 (0.020)	0.002 (0.020)	0.008 (0.020)
Observations	18,412	18,412	18,412
Outcome mean	0.2141	0.2141	0.2141
Worked in agriculture	0.016 (0.023)	0.021 (0.026)	0.004 (0.018)
Observations	18,420	18,420	18,420
Outcome mean	0.1063	0.1063	0.1063
Worked in industry	-0.002 (0.008)	-0.002 (0.007)	-0.002 (0.007)
Observations	18,420	18,420	18,420
Outcome mean	0.0187	0.0187	0.0187
Worked in services	0.009 (0.016)	0.012 (0.015)	0.018 (0.015)
Observations	18,420	18,420	18,420
Outcome mean	0.1597	0.1597	0.1597
Province fixed effects, post indicator, age fixed effects	Yes	Yes	Yes
Five-region $\times$ year fixed effects	Yes	Yes	Yes
Time-varying province characteristics	No	Yes	Yes
Additional individual controls	No	No	Yes

*Notes:* Data are from the 2008 and 2014 NSDVAW. The table presents average treatment effects of the SONIM openings on indicators for labor market outcomes for the sample of women in domestic violence module. All specifications include province fixed effects, a post indicator, five-region indicators interacted with post indicator, and women's age fixed effects. Column (2) adds log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, unemployment claims per capita. Column (3) adds additional individual covariates, including indicators for mother tongue and an indicator for urban locations. Outcome means are listed in rows under observation numbers. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE 10: THE EFFECTS OF SONIMs ON WOMEN'S MENTAL HEALTH

Mental distress index	-0.004 (0.042)	-0.023 (0.038)	-0.021 (0.039)
Observations	18,418	18,418	18,418
Outcome mean	0.0246	0.0246	0.0246
Somatic mental distress index	0.036 (0.039)	0.030 (0.038)	0.030 (0.038)
Observations	20,255	20,255	20,255
Outcome mean	0.0000	0.0000	0.0000
Non-somatic mental health distress index	-0.029 (0.041)	-0.046 (0.036)	-0.044 (0.037)
Observations	20,255	20,255	20,255
Outcome mean	-0.0000	-0.0000	-0.0000
Province fixed effects	Yes	Yes	Yes
Post indicator	Yes	Yes	Yes
5-region $\times$ year fixed effects	No	Yes	Yes
Time-varying province characteristics	Yes	Yes	Yes
Individual controls	No	No	Yes

*Notes:* The main outcome variable is the standardized mental health index (Z-Score) of women. Each individual indicator takes the value 1 if the respondent reported experiencing the problem and 0 otherwise. The somatic mental health indicators include headache, hand tremors, indigestion, and stomach discomfort. The non-somatic mental health indicators cover emotional, cognitive, and behavioral symptoms such as anxiety, sadness, fatigue, crying, indecisiveness, and suicidal thoughts. The year-region interactions are based on the regional classification that divides the country into 5 regions. Standard errors clustered at the province level are shown in parentheses. \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

# APPENDIX

## Additional Tables and Figures

TABLE A1: BALANCE TESTS FOR STAGGERED ROLLOUT OF SONIMS

<b>Dependent variable</b>	(1)	(2)
Homicides by intimate partners	0.029 (0.054)	0.017 (0.047)
Homicides by current partners	0.007 (0.039)	0.007 (0.035)
Log of GDP per capita	0.013 (0.010)	0.013 (0.011)
Log of population	0.010* (0.006)	0.008 (0.007)
Share of women with high school education or above	-0.001 (0.001)	-0.000 (0.001)
Hospital beds per capita	-109.085 (78.943)	-176.732** (84.482)
Province fixed effects, time fixed effects	Yes	Yes
Five-region $\times$ time fixed effects	No	Yes

*Notes:* This table reports estimates from regressions of provincial-level variables on SONIM treatment indicator. Each cell in the table corresponds to a separate regression of the corresponding single provincial-level variable on the SONIM treatment indicator. For femicide-related outcomes, quarterly data are used and the specifications include province and year-quarter fixed effects. For other provincial characteristics, annual data are used with province and year fixed effects. Column (1) includes province and year fixed effects. Column (2) additionally controls for five-region  $\times$  time fixed effects. Standard errors are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE A2: BALANCE TEST FOR SURVEY DATA

<b>Dependent variable</b>	(1)	(2)
Physical violence	-0.007 (0.014)	-0.016 (0.010)
Log of GDP per capita	-0.015 (0.022)	-0.000 (0.023)
Age	-0.214 (0.344)	-0.224 (0.345)
Share of women with high school education or above	0.001 (0.002)	0.001 (0.001)
Urban	-0.036 (0.078)	-0.059 (0.064)
Hospital beds per population	-0.000* (0.000)	-0.000 (0.000)
Province fixed effects, time fixed effects	Yes	Yes
Five-region $\times$ time fixed effects	No	Yes

*Notes:* This table reports estimates from regressions of provincial-level variables on SONIM treatment indicator for our survey data. Each cell in the table corresponds to a separate regression of the corresponding single provincial-level variable on the SONIM treatment indicator. Column (1) includes province and year fixed effects. Column (2) additionally controls for five-region  $\times$  time fixed effects. Standard errors are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE A3: Staggered DID Estimates using Poisson Regressions

	(1)	(2)	(3)
	Female Homicides	By Intimate Partners	By Current Partners
SONIM <sub>pt</sub>	-0.945** (0.475)	-0.695** (0.332)	-0.690** (0.305)
Pre-treatment mean	3.60	3.48	2.75
Observations	3,159	3,159	3,159

**Notes:** ATT coefficients are estimated using the `jwddid` command in STATA using fully interacted Poisson regression model by [Wooldridge \(2021\)](#). Exposure variable is female population. Controls include initial values of GDP per capita, unemployment rate, province population, female population with at least a high school degree, number of hospital beds, security expenditures per capita kurkish and arabic speaking populations (all in natural logs, except for unemployment rate). Also included are the 5 region dummies. Standard errors clustered at province level are shown in parentheses. \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.1$ .

TABLE A4: EFFECTS OF SONIMs ON PSYCHOLOGICAL AND SEXUAL IPV

<b>Panel A: Psychological violence</b>		(1)	(2)	(3)
SONIM <sub>pt</sub>		0.014 (0.021)	-0.004 (0.019)	-0.003 (0.019)
Observations		18,438	18,438	18,438
Outcome mean		0.2462	0.2462	0.2462
<b>Panel B: Sexual violence</b>				
SONIM <sub>pt</sub>		0.013 (0.009)	0.010 (0.010)	0.010 (0.010)
Observations		18,466	18,466	18,466
Outcome mean		0.0676	0.0676	0.0676
Province fixed effects, post indicator, age fixed effects		Yes	Yes	Yes
Five-region × year fixed effects		Yes	Yes	Yes
Time-varying province characteristics		No	Yes	Yes
Additional individual controls		No	No	Yes

*Notes:* Data are from the 2008 and 2014 NSDVAW. The table presents average treatment effects of the SONIM openings on indicators of whether the respondent experienced psychological IPV and sexual IPV in the last 12 months for the full sample and different sub-samples. All specifications include province fixed effects, a post indicator, five-region indicators interacted with post indicator, and women's age fixed effects. Column (2) adds log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, unemployment claims per capita. Column (3) adds additional individual covariates, including indicators for mother tongue and an indicator for urban locations. Outcome means are listed in rows under observation numbers. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

TABLE A5: THE EFFECTS OF SONIMs ON EVER HAVING A RELATIONSHIP OR EVER BEING MARRIED

	(1)	(2)	(3)
Ever had a relationship	-0.006	-0.010	-0.009
	(0.012)	(0.013)	(0.013)
Observations	20,257	20,257	20,257
Outcome mean	0.9152	0.9152	0.9152
Ever married	0.003	-0.002	-0.002
	(0.012)	(0.013)	(0.013)
Observations	20,257	20,257	20,257
Outcome mean	0.8434	0.8434	0.8434
Province fixed effects, post indicator, age fixed effects	Yes	Yes	Yes
Five-region $\times$ year fixed effects	Yes	Yes	Yes
Time-varying province characteristics	No	Yes	Yes
Additional individual controls	No	No	Yes

*Notes:* Data are from the 2008 and 2014 NSDVAW. The table presents average treatment effects of the SONIM openings on indicators for relationship status for women in full sample. All specifications include province fixed effects, a post indicator, five-region indicators interacted with post indicator, and women's age fixed effects. Column (2) adds log of GDP per capita, number of hospital beds per capita, share of women with high school education or above, unemployment claims per capita. Column (3) adds additional individual covariates, including indicators for mother tongue and an indicator for urban locations. Outcome means are listed in rows under observation numbers. Standard errors in parentheses are clustered at the province level. \*\*\*, \*\*, and \* denote significance at the 1, 5, and 10 percent levels.

FIGURE A1: The projects of non-governmental organizations and their corresponding donations

BAŞVURU SAHİBİ	PROJE ADI	PROJE BÜTÇESİ (AVRO)	PROJE SÜRESİ	PROJE İLİ	UYGULANACAĞI İLLER
KAMER Vakfı Gaziantep Şubesi	Kadın Hakları İnsan Haklarıdır	200000	18 Ay	Gaziantep	Gaziantep, Erzurum, Şanlıurfa, Trabzon, Kırşehir, Nevşehir
Nevşehir Etioloji ve Sosyal Hayatı Geliştirme Derneği	Kadın Danışma Merkezi ve Şiddet Veritabanı	63596,52	15 ay	Nevşehir	Trabzon, Mardin, Nevşehir
Türkiye Çocuklara Yenziden Özgürlük Vakfı	Mor Güvercin Projesi	151021,71	18 Ay	İstanbul	Ankara, İzmir, Denizli, Adana, İstanbul
Kapadokya Kadın Dayanışma Derneği	Cinsiyete Dayalı Şiddetle Mücadele için Uzmanlık Koşulları	155053,51	21 Ay	Nevşehir	Türkiye (Nevşehir, Kırşehir, Karadeniz Egeği, Zonguldak) İtalya, Slovenya, Fransa
Çağdaş Aile Derneği	Ölme Şiddet Dyalektikliğinde Kadın	219129,50	16 Ay	Konya	Konya
Hezar Eğitim Kültür ve Dayanışma Derneği	Kadınlar için Kadınlar	16804671	12 Ay	İstanbul	İstanbul
Mardin Ortak Kadın İşbirliği Derneği	Kadın Yönelik Şiddetle Mücadelede Etkin Kadınlar için Modelere Dayalı Yeni İşbirlikleri Oluşturmak	145069,60	15 ay	Mardin	Mardin, Trabzon, Nevşehir
Kadın Dayanışma Vakfı	Yeni İşbirlikleri Aracılığıyla Şiddetle Mücadelede Aktörlerin Rolünün Geliştirilmesi	153505,28	15 ay	Ankara	Ankara, İzmir, Adana
Sosyal Hizmet Uzmanları Derneği Kocaeli Şubesi	Güvenli Bir Hayat Var	143826,10	18 Ay	Kocaeli	Türkiye (Kocaeli, Sakarya, Düzce), Almanya
Sosyoloji Derneği	Suzakunluğun Çözümleri	142280,74	16 Ay	Ankara	Ankara
Denizati Kadın Dayanışma Derneği	Kadın Yönelik Şiddet Hakkında Dayanışma ve Farkındalık Artırma Projesi	143687,24	14 Ay	Düzce	Bursa, Düzce
Anne Çocuk Eğitim Vakfı (AÇEV)	Kadın Karşı Şiddet Önlemede Topulukların Rolünün Geliştirilmesi Projesi	195260,20	22 Ay	İstanbul	Adana, Ankara, Antalya, Çanakkale, Denizli, Eskişehir, İzmir, Konya, Manisa
Türk-Jinekoloji ve Obstetrik Derneği	Emniyetçiyim	15993290	15 ay	İstanbul	İstanbul
S.S. Toros Kadın İncisvratifi İstihdam Çevre Kültür ve İşletme Kooperatifi	Kadın Yönelik Şiddet ve Avrımçılığın Önlenmesinde Yenilikçi Yaklaşımlar	139785,32	24 Ay	Adana	Adana
Internationaler Bund	Kadın Karşı Şiddetle Mücadelede Önceme ve Destek Projesi	221301,72	20 Ay	İstanbul	Ankara, Düzce, Kırşehir, Nevşehir
Türkiye Soroptimist Kulüpleri Federasyonu	Değişim Atölyesi	180339,73	18 Ay	İstanbul	Ankara, İstanbul, İzmir, Adana, Gaziantep, Kocaeli, Mersin
Uluslararası Mavi Hıal İnsan Yardım ve Kalkınma Vakfı	İstanbul Gaziosmanpaşa ve Sultanbeyli İlçeleri Kadına ve Risk Altındaki İnsanlara Karşı Şiddetin Önlenmesi	204447,79	12 Ay	İstanbul	İstanbul
Samsun Soroptimist Kulübü	Siddetsiz Toplum Hakkımızdır	124580,10	14 Ay	Samsun	Samsun
Lider Yaratici Kadınlar Derneği	4 Kadın	221222,50	24 Ay	İzmir	Türkiye (İzmir), İtalya

Tablo Hibe bileşeni kapsamındaki hibe projeleri Tamamlanan hibe projeleri (Mayıs 2015)

Source: The official document RTMFSP (2013b).