Do Spouses Negotiate in the Shadow of the Law? Evidence from Unilateral Divorce, Suicides, and Homicides in Mexico

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In this paper, we analyze whether state-level no-fault divorce reforms in Mexico led to declines in the homicide and suicide rates. Using an event-study design, we find that the unilateral reform had no impact on state-level suicide rates or homicide rates. This finding contrasts with results from high-income countries (Stevenson and Wolfers, 2006; Brassiolo, 2016). To reconcile the differences from the existing literature, we show that intimate partner violence did not decline following the reform, which corroborates related studies (Silverio-Murillo, 2019; Garcıa-Ramos, 2019). The combined results suggest that in Mexico, women are less able to escape abusive marriages through a divorce.

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1 Introduction

Can the liberalization of divorce laws reduce household violence? In the United States and Spain, the rollout of unilateral no-fault divorce decreased intimate partner violence (IPV), suicide rates, and homicide rates (Stevenson and Wolfers, 2006; Brassiolo, 2016). In this paper, we question whether similar no-fault divorce reforms in Mexico led to corresponding declines in the homicide and suicide rates. Using an event-study design, we take advantage of the exogenous variation in the passage of no-fault divorce legislation and track the resulting changes in the state-level suicide and homicide rates. The findings indicate that the unilateral reform had no effect on either suicide or homicide rates. For men and women, suicide and homicides remain unchanged throughout the main results, the age-specific findings, and the robustness checks.

Our results diverge substantially from the literature in high-income countries (Stevenson and Wolfers, 2006; Brassiolo, 2016) and previous findings in Mexico (Beleche, 2019). Stevenson and Wolfers (2006) finds a small short-term reduction in female suicides and a more robust long-term decline. Beleche (2019) concludes that the criminalization of domestic violence led to a 22–34% decline in female suicide rates in Mexico. The unilateral divorce reform in Mexico appears to be substantially less effective at reducing violence and family distress than related work. Mexico may have distinct divorce social norms and outside options that prevent women from escaping an abusive relationship by leaving their partner.

Still, the contrasting findings between related work are surprising. A portion of these observed differences may be due to weaker alimony laws, fewer public support systems, and limited labor market opportunities (Aizer, 2010). A second explanation is that Stevenson and Wolfers (2006) finds stronger long-term effects, which suggests that our current results may be too preliminary to find a robust reduction in suicides. A final explanation is that unilateral divorce increased intimate partner violence (IPV), and the elevated IPV impaired women's ability to leave abusive marriages. In the appendix, we corroborate conclusions from related studies (Silverio-Murillo, 2019; Garcıa-Ramos, 2019), and show that IPV between married couples may have increased following the liberalization of divorce laws.

2 Background and Data

To study the effects of the unilateral reform on suicide and homicide rates, we collect the legal passage of unilateral divorce from state-level family and civil legal codes. This information is presented in Table A1. We also check when states began practicing divorce using INEGI divorce statistics. When there are differences, we default to the divorce regime in practice or *de facto*.[1] These reforms have been shown to increase divorce rates (Hoehn-Velasco and Penglase, 2019a), affect IPV (Silverio-Murillo, 2019; Garcıa-Ramos, 2019), and increase married women's

[1]For more information on the dates, see Section C.1 or Hoehn-Velasco and Penglase (2019a)

labor supply (Hoehn-Velasco and Penglase, 2019a; Silverio-Murillo, 2019).

We combine the divorce legislation information with national suicide and homicides records from the death records provided by the *Instituto Nacional de Estadística y Geografía* (INEGI). The data includes an individual record for each death from suicide and homicide in Mexico over 2005-2017. We aggregate this data and combine it with the population totals for the 32 Mexican states. The suicide and homicide rates are summarized in Table A6. Across the summary statistics, homicides and suicides rates are similar pre and post-reform, with only suicides increasing slightly for women.

3 Event-Study Strategy

We apply a flexible event-study design to observe changes in suicide and homicide rates surrounding the reform. Our main specification follows related literature (e.g., Stevenson and Wolfers (2006); Hoehn-Velasco and Penglase (2019a)) and appears as:

$$Y_{st} = a_s + \eta_t + \pi_s t + \pi_s t^2 + \sum_{Q=-10}^{10} \beta_Q \text{ Unilateral}_{sQ} + \epsilon_{st} \tag{1}$$

where Y_{st} is defined as the number of suicides/homicides per 100,000 persons in each population (men and women) in state s during quarter-year t =2005 Q1, ..., 2017 Q4. State fixed effects, a_s, control for factors that would affect selection into treatment by absorbing time-invariant characteristics of each state. Time fixed effects are captured by η_t and include quarter-year combination. Lastly, we add linear and quadratic state-specific time trends, which appear as $\pi_s t$ and $\pi_s t^2$, respectively. The regression error is given by ϵ_{st}, which we cluster at the state level. Controls include annual state economic activity and the state-level unemployment rate.

4 Suicide Rates

Figure 1 displays three separate estimations: (i) the circles show the estimates without any trend, (ii) the triangle estimates add a linear trend, and (iii) the cross estimates add a quadratic trend. All three plotted estimations across both men and women suggest little impact of the reform. For women, the coefficients do not show either an apparent increase or decrease, and the estimated effect hovers near zero. For men, there is a slight increase in suicide rates, but the effect is not significant. For completeness, we then show the event study results for women as a table instead of a figure in Table A2 Columns (1)-(4).[2]

Next in Figure 2, we show the results by age for women. Panel A shows girls up to age 14, Panel B shows teenagers and young women who are 15-29, Panel C shows middle-

[2]We also show the results without weights in Table A3, and they are similar

aged women who are 30-44, Panel D shows those 45 to 64. Across each panel, the suicide rate, which is plotted in pink, shows no discernible pattern before or after the reform. The coefficients leading up to, and following the reform, are near zero. These findings are similar for men in Figure B.I, where the suicide rate by age, appears similar pre- and post-reform.

5 Homicide Rates

Next, we consider the effect of the unilateral reform on homicide rates. Figure 3 and Table A2 Columns (5)-(8) show the event-study design (Equation 1) over female homicides. We break out the specification into all homicides (Columns (5)-(8)) and family-committed homicides in Column (9). Similar to the suicide rates, the female homicide rate appears mostly unchanged following the reform.

We then conclude the event study analysis by breaking out the homicide rate by age for women in Figure 2. Similar to the suicide rates, Panel A shows girls up to age 14, Panel B shows teenagers and young women who are 15-29, Panel C shows middle-aged women who are 30-44, and Panel D shows those 45 to 64. Across all columns, there is no significant change in the homicide rates before or after the reform. While there appears to be some increase for teens, young adults, and middle-aged women, the effect appears more clearly before the reform than after the reform. If anything, the reform appears to have increased rather than decreased homicides.

6 Conclusion

In this paper, we study the effect of unilateral no-fault divorce on Mexican family distress. Using an event-study framework, we find that state-level divorce practices had no discernible impact on suicide or homicide rates in the three years (10 quarters) following the unilateral reform. Our findings diverge from related findings in high-income countries such as the United States (Stevenson and Wolfers, 2006) and Continental Europe (Brassiolo, 2016). The effect also differs from related work suggesting that Mexican legal reforms targeting domestic violence may reduce female suicide (Beleche, 2019).

Our findings corroborate a growing body of research documenting the effect of Mexican unilateral divorce reforms on household outcomes (Silverio-Murillo, 2019; Garcıa-Ramos, 2019; Hoehn-Velasco and Penglase, 2019b). The IPV results presented in the appendix combined with the homicide and suicide results suggest that women are not experiencing a decline in violence following the unilateral reform. Suicide rates, homicide rates, and domestic violence for married women are largely unchanged. For married women relative to cohabitating couples, there appears to be an increase in violence post-reform. These results, combined with the related literature, suggest that this divorce reform may have negatively impacted women

(Lew and Beleche, 2008; Garcıa-Ramos, 2019; Hoehn-Velasco and Penglase, 2019b,a; Silverio-Murillo, 2019).

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7 Figures

Figure 1: Unilateral Reform and Suicide Rates

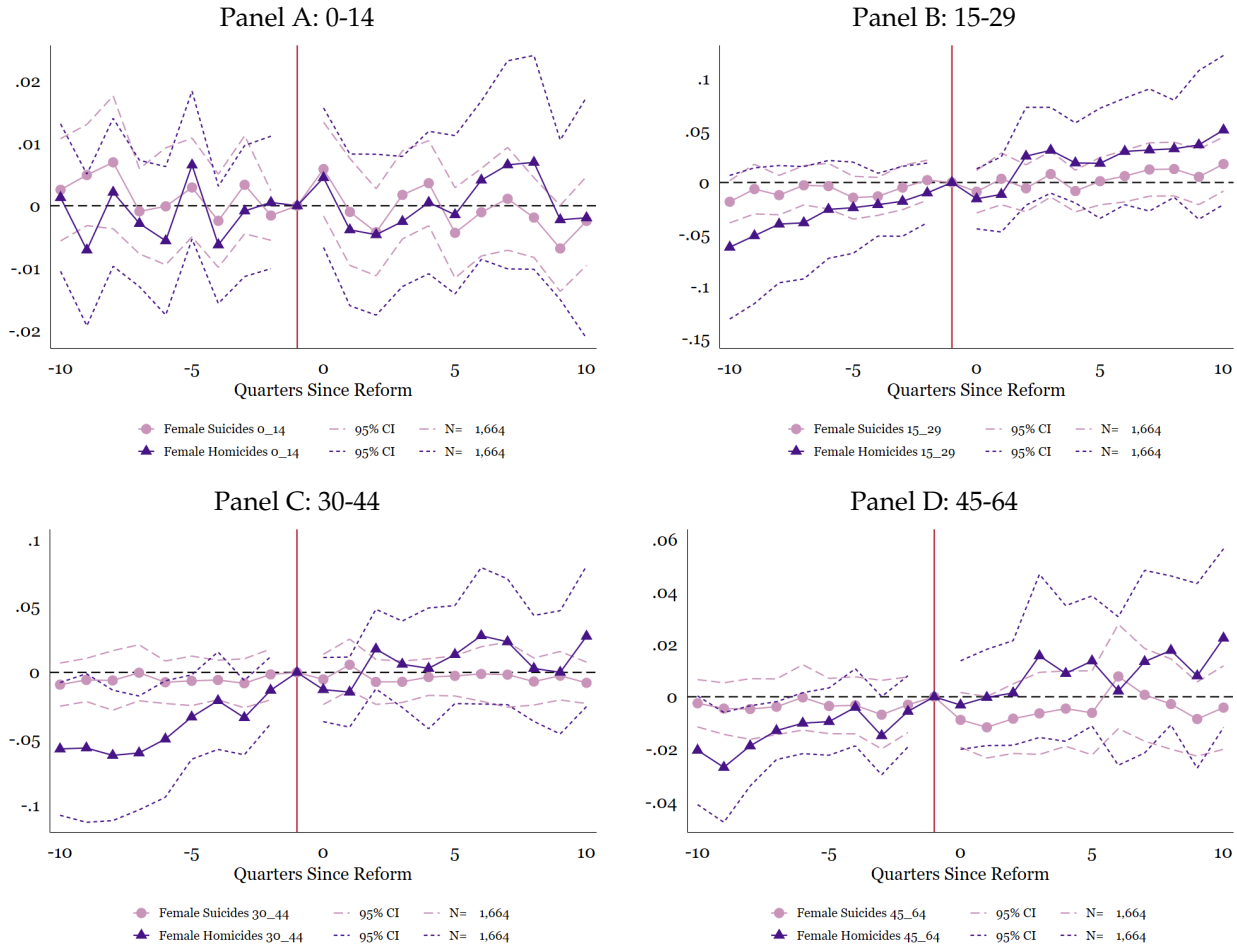
Panel A: Women

Panel B: Men

SOURCE: INEGI statistics.

NOTES: Plotted coefficients are event-study dummy variables, β_Q. Each plotted point is the quarter relative to the unilateral reform. $Q = -1$ is excluded. Weights are based on the relevant population of either men or women. Solid lines represent point estimates. Dashed and dotted lines display the 95 percent confidence intervals. The suicide rates and homicide rates are reported per 100,000 persons, men or women. Fixed effects are included at the state level and quarter-year. The full specification includes linear and quadratic time trends. Controls include annual state economic activity and the state-level unemployment rate. Robust standard errors are clustered at the state level.

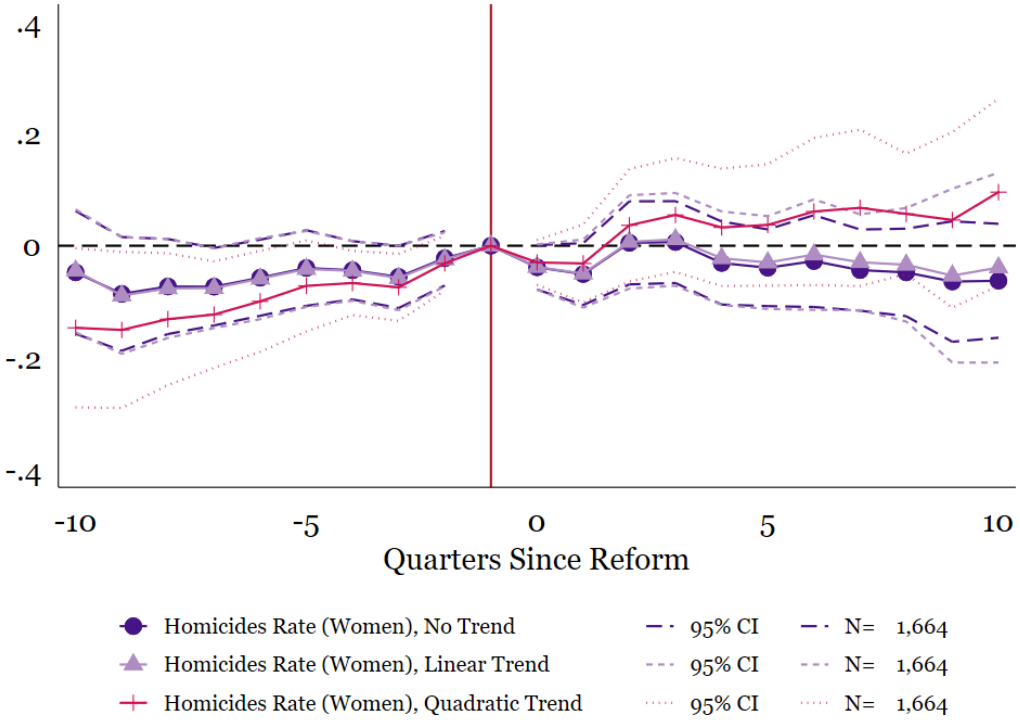
Figure 2: Age-Specific Female Suicide and Homicide Rates



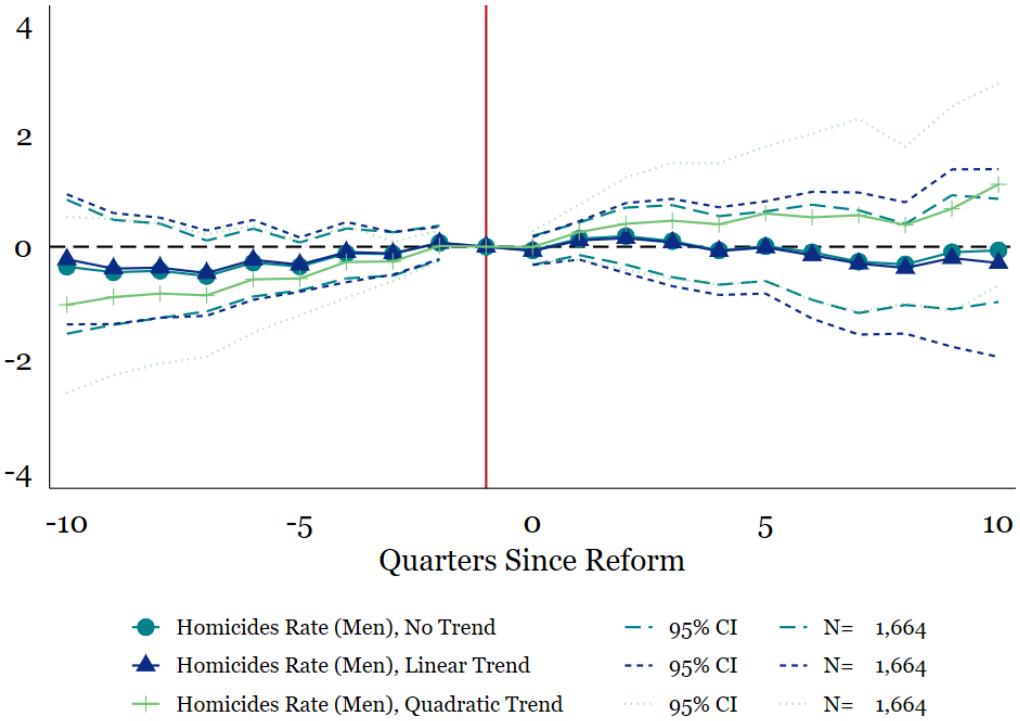
SOURCE: INEGI statistics.
NOTES: Specification and controls defined as in Figure 1. Robust standard errors are clustered at the state level.

Figure 3: Unilateral Reform and Homicide Rates

Panel A: Women



Panel B: Men



SOURCE: INEGI statistics.
NOTES: Specification and controls defined as in Figure 1. Robust standard errors are clustered at the state level.

A Additional Tables and Figures

Table A1: Unilateral Divorce Legislation Year and State, 2008-2017

Region	State	De Facto Year	De Jure Year	Legal Code (Family v. Civil)	Divorce Articles (#)
Central	Mexico City	2008	2008	Civil	266, 267, 272
	Guanajuato	2015		Civil	328, 323, 329
	Hidalgo	2011	2011	Family	102, 103
	Mexico	2012	2012	Civil	4.89, 4.91, 4.191, 4.102, 4.105
	Morelos	2016	2016	Family	174, 175
	Puebla	2016	2016	Civil	442 - 453
	Queretaro	2015	2016	Civil	246, 249, 252, 253
	Tlaxcala	2016	2016	Civil	123, 125
North	Aguascalientes	2015	2015	Civil	288, 289, 294, 295, 296, 298
	Baja California	2016		Civil	264, 269, 271
	Baja California Sur	2017	2017	Civil	305, 273, 277, 278, 279, 284, 288, 289
	Coahuila	2013	2013	Civil	362, 363, 369, 374
	Chihuahua	2016		Civil	255, 256
	Durango	2016		Civil	261-286
	Nuevo Leon	2014	2016	Civil	267, 272, 274
	San Luis Potosi	2016	2017	Family	86, 87
	Sinaloa	2013	2013	Family	181, 182, 184
	Sonora	2015	2015	Family	141-156
	Tamaulipas	2014	2015	Civil	248, 249, 253
	Zacatecas	2017	2017	Family	214, 215, 223, 224, 231
West	Colima	2016	2016	Civil	267, 268, 272, 273, 278
	Jalisco	2016	2018	Civil	404, 405
	Michoacan	2016	2015	Family	253- 258
	Nayarit	2015	2015	Civil	221, 260, 261, 263, 265
South-East	Campeche	2014		Civil	281, 282, 283, 284, 287
	Chiapas	2014		Civil	263, 268, 269, 270
	Guerrero	2012	2012	Ley de Divorcio	4, 11, 12, 13, 16, 17, 27, 28, 44
	Oaxaca	2017	2017	Civil	278, 279, 284, 285
	Quintana Roo	2014	2013	Civil	798, 799, 800, 801, 804, 805
	Tabasco	2015		Civil	257, 258, 267, 268, 269, 272
	Veracruz	2015	2015	Civil	141, 146, 147, 148, 150
	Yucatan	2013	2013	Family	191, 192

KEY: Blue indicates conflict between the *de facto* and *de jure* years. There are additional states including Guerrero, Hidalgo, Morelos, Oaxaca, Sonora, Veracruz, and Yucatan, where the quarters differ by more than a single quarter between *de facto* and *de jure* practices.
NOTES: When the sources conflict, for our baseline analysis, we default to the *de facto* quarter-year combination where the number of unilateral divorces sentenced exceeds ten (see INEGI). Based on our research, states with blank years had not passed unilateral divorce *as of 2017*.
SOURCES: Author's combination of the sources including: (i) family and civil codes of each state, (ii) popular press articles, (iii) Garcia-Ramos (2017), (iv) Mendez-Sachez (2014), and (v) INEGI statistics.

Table A2: Baseline Event Study: Suicide and Homicide Rates

Specification:	Suicides Women				Homicides Women				Family Homicides	Sexual Violence
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Q=-10	-0.040**	-0.032**	-0.029**	-0.027	-0.108	-0.048	-0.045	-0.146*	-0.004	0.958
	(0.019)	(0.013)	(0.013)	(0.016)	(0.071)	(0.056)	(0.056)	(0.072)	(0.004)	(0.673)
Q=-9	-0.028	-0.008	-0.008	-0.009	-0.136*	-0.086	-0.089	-0.150**	-0.004	0.728
	(0.022)	(0.016)	(0.017)	(0.019)	(0.071)	(0.052)	(0.053)	(0.071)	(0.003)	(0.530)
Q=-8	0.002	-0.016	-0.015	-0.016	-0.113*	-0.073	-0.076	-0.131**	-0.005	0.607
	(0.027)	(0.019)	(0.020)	(0.022)	(0.059)	(0.043)	(0.045)	(0.060)	(0.005)	(0.491)
Q=-7	-0.009	-0.005	-0.005	-0.006	-0.089	-0.073**	-0.076**	-0.123**	0.004	0.595
	(0.021)	(0.016)	(0.017)	(0.018)	(0.061)	(0.035)	(0.036)	(0.048)	(0.005)	(0.363)
Q=-6	-0.009	-0.009	-0.008	-0.009	-0.104*	-0.057	-0.059	-0.099**	-0.001	0.501
	(0.014)	(0.013)	(0.013)	(0.014)	(0.057)	(0.035)	(0.037)	(0.046)	(0.005)	(0.328)
Q=-5	-0.028	-0.022	-0.022	-0.023	-0.094*	-0.040	-0.041	-0.072*	0.000	0.544*
	(0.019)	(0.015)	(0.016)	(0.017)	(0.049)	(0.034)	(0.035)	(0.041)	(0.004)	(0.281)
Q=-4	-0.024	-0.024	-0.024	-0.024	-0.104*	-0.044	-0.045	-0.067**	-0.002	0.285
	(0.020)	(0.016)	(0.017)	(0.017)	(0.055)	(0.027)	(0.027)	(0.029)	(0.003)	(0.233)
Q=-3	-0.009	-0.016	-0.016	-0.016	-0.090*	-0.056*	-0.058*	-0.074**	0.001	0.174
	(0.015)	(0.014)	(0.014)	(0.015)	(0.049)	(0.028)	(0.029)	(0.031)	(0.004)	(0.198)
Q=-2	0.006	-0.003	-0.002	-0.002	-0.071	-0.022	-0.024	-0.031	-0.004	-0.016
	(0.018)	(0.012)	(0.012)	(0.012)	(0.044)	(0.025)	(0.025)	(0.025)	(0.004)	(0.119)
Q=0	-0.005	-0.018	-0.018	-0.018	-0.059	-0.039*	-0.038*	-0.030	0.003	-0.173
	(0.017)	(0.015)	(0.015)	(0.016)	(0.038)	(0.020)	(0.021)	(0.020)	(0.004)	(0.138)
Q=1	0.006	-0.002	-0.004	-0.003	-0.087*	-0.051*	-0.050	-0.032	-0.003	-0.108
	(0.019)	(0.016)	(0.016)	(0.016)	(0.045)	(0.028)	(0.031)	(0.035)	(0.003)	(0.142)
Q=2	-0.013	-0.024	-0.026	-0.025	0.052	0.005	0.007	0.036	0.001	-0.251*
	(0.022)	(0.017)	(0.017)	(0.017)	(0.077)	(0.038)	(0.042)	(0.051)	(0.005)	(0.130)
Q=3	0.008	-0.004	-0.007	-0.006	-0.048	0.007	0.011	0.055	0.001	-0.378*
	(0.021)	(0.018)	(0.017)	(0.018)	(0.057)	(0.037)	(0.042)	(0.052)	(0.004)	(0.193)
Q=4	-0.010	-0.009	-0.012	-0.010	-0.110*	-0.031	-0.022	0.033	-0.002	-0.508**
	(0.021)	(0.015)	(0.015)	(0.015)	(0.064)	(0.038)	(0.043)	(0.053)	(0.005)	(0.233)
Q=5	-0.000	-0.007	-0.010	-0.008	-0.094	-0.039	-0.030	0.037	0.002	-0.396
	(0.020)	(0.016)	(0.016)	(0.018)	(0.062)	(0.035)	(0.042)	(0.055)	(0.004)	(0.310)
Q=6	0.032	0.018	0.015	0.018	-0.112	-0.027	-0.016	0.061	0.006	-0.402
	(0.029)	(0.025)	(0.025)	(0.026)	(0.069)	(0.042)	(0.050)	(0.067)	(0.004)	(0.299)
Q=7	0.034	0.014	0.013	0.016	-0.111	-0.043	-0.029	0.068	-0.004	-0.504*
	(0.030)	(0.021)	(0.020)	(0.022)	(0.090)	(0.037)	(0.044)	(0.071)	(0.005)	(0.293)
Q=8	0.008	-0.007	-0.005	0.004	-0.094	-0.048	-0.034	0.057	0.006	-1.107**
	(0.023)	(0.018)	(0.017)	(0.021)	(0.089)	(0.040)	(0.052)	(0.055)	(0.004)	(0.494)
Q=9	0.001	-0.015	-0.017	-0.007	-0.156	-0.064	-0.053	0.046	-0.003	-1.171**
	(0.021)	(0.020)	(0.018)	(0.018)	(0.101)	(0.055)	(0.079)	(0.080)	(0.005)	(0.512)
Q=10	0.001	-0.012	-0.013	0.007	-0.153	-0.062	-0.039	0.096	0.002	-2.004***
	(0.023)	(0.020)	(0.014)	(0.020)	(0.106)	(0.052)	(0.086)	(0.085)	(0.005)	(0.560)
Observations	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00
R-squared	0.30	0.38	0.41	0.41	0.46	0.51	0.54	0.63	0.07	0.85
Mean Dep. Var.	0.15	0.15	0.15	0.15	0.32	0.32	0.32	0.32	0.01	4.42
State and Time FE	X	X	X	X	X	X	X	X	X	X
Controls		X	X	X		X	X	X	X	X
State x Trend			X	X			X	X	X	X
State x Trend-sq				X				X	X	X

SOURCE: INEGI statistics.
NOTES: Coefficients are event-study dummy variables, β_m, from a weighted least squares estimation of Equation 1. Weights are based on the relevant population of either ment or women. The period before the reform (-1) is the excluded period. Each period (Q) represents a quarter-year. Controls include annual state economic activity and the state-level unemployment rate. The suicide rates and homicide rates are reported per 100,000 persons, men or women. Fixed effects are included at the state level and quarter-year. The full specification includes linear and quadratic time trends. Robust standard errors are clustered at the state level. Significance levels reported at the 10, 5, and 1 percent levels.

Table A3: Baseline Event Study: Suicide and Homicide Rates, No Weights

Specification:	Suicides Women				Homicides Women				Family Homicides	Sexual Violence
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Q=-10	-0.040**	-0.036*	-0.031	-0.037	-0.108	-0.126*	-0.151*	-0.239**	-0.007	0.110
	(0.019)	(0.020)	(0.020)	(0.026)	(0.071)	(0.074)	(0.082)	(0.092)	(0.005)	(0.497)
Q=-9	-0.028	-0.025	-0.021	-0.027	-0.136*	-0.148*	-0.165**	-0.230**	-0.010*	0.162
	(0.022)	(0.022)	(0.022)	(0.026)	(0.071)	(0.073)	(0.078)	(0.090)	(0.005)	(0.411)
Q=-8	0.002	0.004	0.008	0.002	-0.113*	-0.121*	-0.137**	-0.197**	-0.006	0.069
	(0.027)	(0.027)	(0.028)	(0.030)	(0.059)	(0.060)	(0.065)	(0.075)	(0.006)	(0.415)
Q=-7	-0.009	-0.008	-0.005	-0.010	-0.089	-0.096	-0.109*	-0.162**	0.010	0.156
	(0.021)	(0.021)	(0.021)	(0.023)	(0.061)	(0.063)	(0.064)	(0.068)	(0.008)	(0.362)
Q=-6	-0.009	-0.008	-0.006	-0.010	-0.104*	-0.109*	-0.120*	-0.167**	0.001	0.185
	(0.014)	(0.014)	(0.014)	(0.015)	(0.057)	(0.059)	(0.063)	(0.069)	(0.006)	(0.286)
Q=-5	-0.028	-0.026	-0.025	-0.028	-0.094*	-0.105*	-0.112**	-0.147**	-0.003	0.273
	(0.019)	(0.019)	(0.019)	(0.021)	(0.049)	(0.052)	(0.054)	(0.060)	(0.005)	(0.242)
Q=-4	-0.024	-0.023	-0.022	-0.025	-0.104*	-0.107*	-0.114*	-0.144**	-0.002	0.152
	(0.020)	(0.019)	(0.020)	(0.020)	(0.055)	(0.056)	(0.059)	(0.061)	(0.005)	(0.204)
Q=-3	-0.009	-0.008	-0.008	-0.010	-0.090*	-0.092*	-0.097*	-0.117**	0.001	0.118
	(0.015)	(0.016)	(0.016)	(0.016)	(0.049)	(0.050)	(0.051)	(0.051)	(0.006)	(0.205)
Q=-2	0.006	0.006	0.007	0.006	-0.071	-0.072	-0.074	-0.084*	-0.002	-0.105
	(0.018)	(0.018)	(0.018)	(0.019)	(0.044)	(0.045)	(0.045)	(0.046)	(0.004)	(0.165)
Q=0	-0.005	-0.006	-0.006	-0.006	-0.059	-0.058	-0.054	-0.045	0.001	-0.079
	(0.017)	(0.017)	(0.017)	(0.018)	(0.038)	(0.037)	(0.037)	(0.038)	(0.006)	(0.146)
Q=1	0.006	0.005	0.002	0.004	-0.087*	-0.085*	-0.079*	-0.058	0.001	0.004
	(0.019)	(0.019)	(0.018)	(0.019)	(0.045)	(0.046)	(0.046)	(0.051)	(0.006)	(0.179)
Q=2	-0.013	-0.014	-0.018	-0.014	0.052	0.052	0.061	0.094	0.007	-0.186
	(0.022)	(0.022)	(0.022)	(0.023)	(0.077)	(0.078)	(0.081)	(0.086)	(0.005)	(0.166)
Q=3	0.008	0.007	0.002	0.005	-0.048	-0.047	-0.029	0.036	0.004	-0.238
	(0.021)	(0.021)	(0.021)	(0.022)	(0.057)	(0.055)	(0.052)	(0.055)	(0.004)	(0.258)
Q=4	-0.010	-0.010	-0.016	-0.010	-0.110*	-0.109*	-0.079	0.010	0.001	-0.387
	(0.021)	(0.021)	(0.022)	(0.022)	(0.064)	(0.063)	(0.057)	(0.060)	(0.004)	(0.278)
Q=5	-0.000	-0.000	-0.007	0.000	-0.094	-0.093	-0.062	0.042	0.006	-0.099
	(0.020)	(0.020)	(0.021)	(0.023)	(0.062)	(0.061)	(0.056)	(0.061)	(0.005)	(0.368)
Q=6	0.032	0.031	0.025	0.033	-0.112	-0.107	-0.073	0.036	0.010	-0.120
	(0.029)	(0.029)	(0.030)	(0.031)	(0.069)	(0.069)	(0.063)	(0.074)	(0.006)	(0.404)
Q=7	0.034	0.035	0.028	0.037	-0.111	-0.110	-0.054	0.098	0.000	-0.131
	(0.030)	(0.030)	(0.029)	(0.033)	(0.090)	(0.088)	(0.075)	(0.086)	(0.005)	(0.413)
Q=8	0.008	0.010	0.005	0.025	-0.094	-0.097	-0.040	0.103	0.014	-0.489
	(0.023)	(0.022)	(0.021)	(0.026)	(0.089)	(0.087)	(0.079)	(0.072)	(0.012)	(0.530)
Q=9	0.001	0.002	-0.006	0.014	-0.156	-0.157	-0.100	0.056	0.001	-0.372
	(0.021)	(0.021)	(0.020)	(0.023)	(0.101)	(0.098)	(0.098)	(0.086)	(0.006)	(0.558)
Q=10	0.001	-0.001	-0.011	0.026	-0.153	-0.143	-0.098	0.122	0.008	-1.073*
	(0.023)	(0.022)	(0.022)	(0.030)	(0.106)	(0.101)	(0.105)	(0.080)	(0.006)	(0.606)
Observations	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00	1,664.00
R-squared	0.30	0.30	0.32	0.31	0.46	0.46	0.50	0.61	0.04	0.85
Mean Dep. Var.	0.16	0.16	0.16	0.16	0.32	0.32	0.32	0.32	0.02	4.67
State and Time FE	X	X	X	X	X	X	X	X	X	X
Controls		X	X	X		X	X	X	X	X
State x Trend			X	X			X	X	X	X
State x Trend-sq				X				X	X	X

SOURCE: INEGI statistics.
NOTES: Coefficients are event-study dummy variables, β_m, from a weighted least squares estimation of Equation 1. Weights are based on the relevant population of either ment or women. The period before the reform (-1) is the excluded period. Each period (Q) represents a quarter-year. Controls include annual state economic activity and the state-level unemployment rate. The suicide rates and homicide rates are reported per 100,000 persons, men or women. Fixed effects are included at the state level and quarter-year. The full specification includes linear and quadratic time trends. Robust standard errors are clustered at the state level. Significance levels reported at the 10, 5, and 1 percent levels.

Table A4: Intimate Partner Violence

	Diff-in-Diff All Violence			Diff-in-Diff-in-Diff All Violence		
	(1)	(2)	(3)	(4)	(5)	(6)
De-Facto Reform x Post=1	0.013	0.011	-0.026	0.001	-0.002	-0.040
	(0.013)	(0.011)	(0.027)	(0.012)	(0.011)	(0.027)
De-Facto Reform x Post=1 × Married=1				0.020**	0.018**	0.015**
				(0.008)	(0.007)	(0.007)
Married=1				-0.098***	-0.062***	-0.062***
				(0.004)	(0.004)	(0.004)
N	139,070	138,275	138,275	183,055	182,010	182,010
Adj. R-Sq.	0.02	0.08	0.08	0.02	0.09	0.09
Mean Dep	0.33	0.33	0.33	0.35	0.35	0.35
State and Year FE	X	X	X	X	X	X
Controls		X	X		X	X
State x Trend			X			X

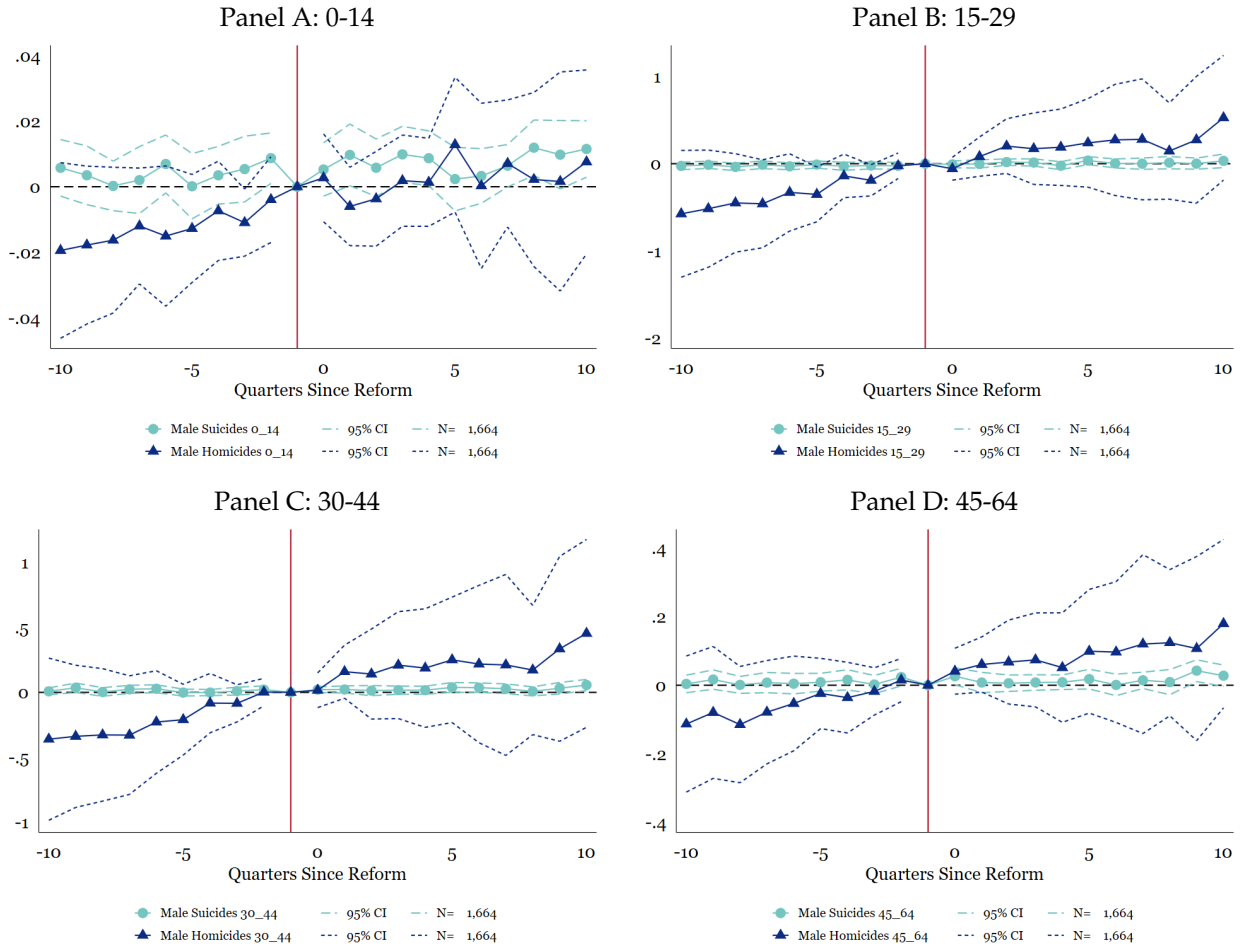
SOURCE: INEGI statistics.
NOTES: OLS coefficients reported. Robust standard errors are clustered at the state level and are reported in parentheses. ***, **, * represent statistical significance at 1, 5 and 10 percent levels.

Table A5: Intimate Partner Violence, by Type

	Sexual Violence		Physical Violence		Economic Violence		Emotional Violence	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
De-Facto Reform x Post=1	-0.001	-0.003	-0.005	-0.007	-0.013	-0.030	-0.028	-0.034
	(0.007)	(0.007)	(0.007)	(0.008)	(0.018)	(0.019)	(0.026)	(0.027)
De-Facto Reform x Post=1 × Married=1		0.004		0.005		0.015***		0.011
		(0.002)		(0.004)		(0.004)		(0.007)
Married=1		-0.010***		-0.027***		-0.041***		-0.056***
		(0.002)		(0.002)		(0.003)		(0.004)
N	138,238	181,964	138,269	182,000	138,264	181,992	138,272	182,002
Adj. R-Sq.	0.03	0.03	0.03	0.04	0.05	0.06	0.07	0.07
Mean Dep	0.04	0.04	0.07	0.08	0.17	0.18	0.27	0.29
State and Year FE	X	X	X	X	X	X	X	X
Controls	X	X	X	X	X	X	X	X
State x Trend	X	X	X	X	X	X	X	X

SOURCE: INEGI statistics.
NOTES: OLS coefficients reported. Robust standard errors are clustered at the state level and are reported in parentheses. ***, **, * represent statistical significance at 1, 5 and 10 percent levels.

Figure B.I: Age-Specific Male Suicide and Homicide Rates

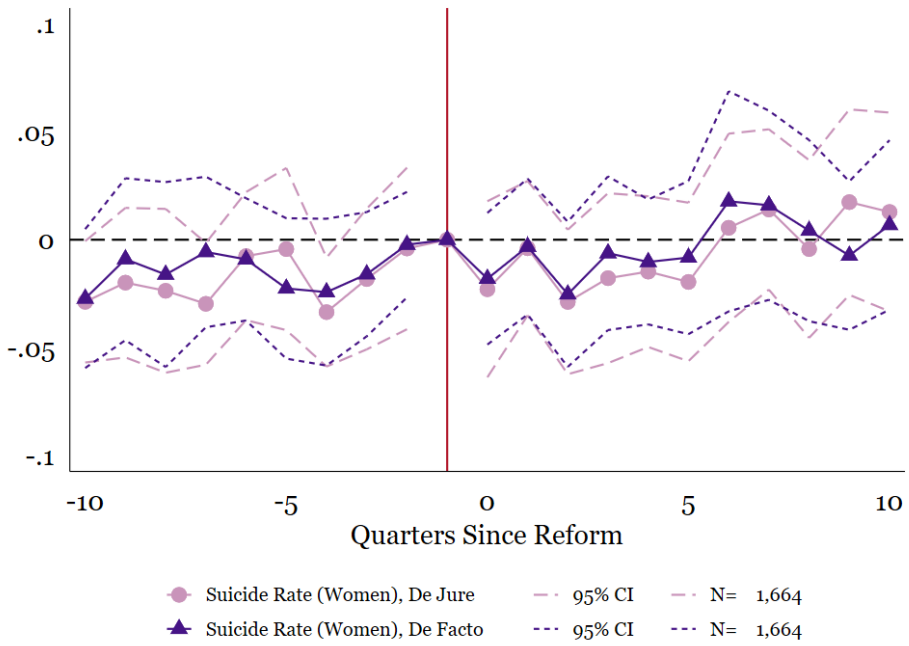


SOURCE: INEGI statistics.

NOTES: Plotted coefficients are event-study dummy variables, β_Q. Each plotted point is the quarter relative to the unilateral reform. $Q = -1$ is excluded. Weights are based on the relevant population of either men or women. Solid lines represent point estimates. Dashed and dotted lines display the 95 percent confidence intervals. The suicide rates and homicide rates are reported per 100,000 persons, men or women. Fixed effects are included at the state level and quarter-year. The full specification includes linear and quadratic time trends. Controls include annual state economic activity and the state-level unemployment rate. Robust standard errors are clustered at the state level.

Figure B.II: Baseline Effect of Reform on Suicide Rates, De Facto v. De Jure

Panel A: Women



Panel B: Men

SOURCE: INEGI statistics.

NOTES: Plotted coefficients are event-study dummy variables, β_Q. Each plotted point is the quarter relative to the unilateral reform. $Q = -1$ is excluded. Weights are based on the relevant population of either men or women. Solid lines represent point estimates. Dashed and dotted lines display the 95 percent confidence intervals. The suicide rates and homicide rates are reported per 100,000 persons, men or women. Fixed effects are included at the state level and quarter-year. The full specification includes linear and quadratic time trends. Controls include annual state economic activity and the state-level unemployment rate. Robust standard errors are clustered at the state level.

B Intimate Partner Violence

After considering the effect on suicide and homicides, we turn to the effect of the reform on IPV. IPV has been studied in Silverio-Murillo (2019) and Garcıa-Ramos (2019), and thus, this section acts as a replication exercise to consolidate the suicide and homicide findings with household-level observations. To study the effect of the reform on IPV we use the ENDIREH data and a difference-in-differences regression analysis. Our estimating equation for individual i in state s during year t as:

$$\text{IPV}_{ist} = \alpha + \beta(\text{Uni}_s \times \text{Post}_t) + \mathbf{X}'_{ist} + \phi_s t + \gamma_s + \tau_t + \epsilon_{ist} \tag{2}$$

where IPV_{ist} is the measure of intimate partner violence. Uni_s indicates state-level adoption of unilateral divorce. $Post_t$ denotes whether the state has adopted the divorce reform as of the first quarter of year t. Our parameter of interest is β. γ_s represents state fixed effects. τ_t captures the year fixed effects. $\phi_s t$ are state-specific time trends, which help to reduce concern over the parallel trends assumption. X_{ist} is a vector of individual controls. We cluster standard errors at the state level.

Along with the difference-in-difference results, we also provide estimates that follow Silverio-Murillo (2019) and show the effect on IPV for the difference-in-difference-in-differences model, where we compare married versus cohabitating couples.[3] We apply a difference-in-difference-in-differences approach to capture whether married households respond differently to the reform when compared with cohabitating couples. While all individuals should experience some level of treatment post-reform, the effect on married couples should be most salient relative to other groups.

While the IPV effect has been studied previously (Silverio-Murillo, 2019; Garcıa-Ramos, 2019), the findings are worth replicating here as our strategy diverges slightly from the literature. First, we add to Garcıa-Ramos (2019) by extending the difference-in-differences to a difference-in-difference-differences approach to study the effect of the reform for married relative to cohabitating couples. This builds up Silverio-Murillo (2019), but uses a slightly different approach to model reform years. Silverio-Murillo (2019) uses the Supreme Court resolution in 2015 that allowed couples to apply unilateral divorce throughout Mexico. Here we use dates that are 'in practice' or *de facto* in each state. In other words, we use the dates that individuals are observed to exercise the unilateral reform in each state. If there are more than 10 unilateral divorces in a state in a given quarter we count this state as treated. We also replicate our results using the legal or *de jure* dates in the appendix Table **??**.

Table A4 shows the results for total IPV across both strategies in Equations 2 and 3. Focusing on the difference-in-differences results across Columns (1)-(3) we show that the legislation has no effect on IPV in all three specifications. Column (1) shows the results without controls and only state and year fixed effects. Column (2) adds controls and Column (3) add state-by-year linear trends. For married couples, across all three columns, there is little-to-no observable effect of the reform.

This finding corroborates related findings in Garcıa-Ramos (2019), who shows little short-term change in IPV following the unilateral reform. Garcıa-Ramos (2019) then breaks out the effect over time

[3]For individual i in state s during year t this appears as:

$$Y_{ist} = \alpha + \beta_1(\text{Uni}_s \times \text{Post}_t \times \text{Married}_{ist}) + \beta_2(\text{Uni}_s \times \text{Post}_t) + \beta_3(\text{Married}_{ist}) + \mathbf{X}'_{ist} + \phi_s t + \gamma_s + \tau_t + \epsilon_{ist} \tag{3}$$

where IPV_{ist} is our measure of labor supply. Uni_s indicates state-level adoption of unilateral divorce. $Post_t$ denotes whether the state has adopted the divorce reform as of the first quarter of year t. $Married_{ist}$ is an indicator capturing whether the couple is legally married. $\phi_s t$ are state-level time trends, which address any concern about different states having different trends from one another. γ_s and τ_t are the state and year fixed effects, respectively. X_{ist} is a vector of individual controls.

and shows that the treatment effect varies over time. This change in treatment over time effectively violates the parallel trend assumption underlying difference-in-differences. While a portion of this violation is addressed by the state-by-year trends, difference-in-difference-in-differences can also become a preferred strategy.

Thus, we extend the findings from Garcıa-Ramos (2019) to include a difference-in-difference-in-differences approach, where we compare cohabitating couples to married couples. While cohabitating couples should experience some level of treatment post-reform, the exit options for cohabitating women should not change. Thus, married couples will experience a more clear treatment post-reform. We show the results for all violence using the difference-in-difference-in-differences specification in Columns (4)-(6). The results are apparent across all three specifications, married couples experience an increase in violence post-reform.

In Table A5 we explore the type of violence that is increasing post reform. Columns (1)-(2) show sexual violence, Columns (3)-(4) show physical violence, Columns (5)-(6) show economic violence, and (7)-(8) show emotional violence. The main effect appears to be driven by increasing economic violence. Women may face increase financial control or restriction from the labor market post reform. These findings are consistent with the conclusions in Silverio-Murillo (2019); Garcıa-Ramos (2019), and suggest that economic IPV is likely used to prevent married women from leaving the marriage.

C Additional Data and Background

C.1 Background

To study the effects of the unilateral reform, we use information from state-level family and civil legal codes. This information is presented in Table A1, which shows the timing of divorce and where the law was recorded in the state's legal code. A distinction is made between states that record divorce law in the civil codes versus family codes. For the estimation, we rely on the quarter-year passage of unilateral no-fault divorce.[4]

An issue with the reform dates is that while states passed legal reforms throughout the period 2008 to 2017, individuals received unilateral divorces prior to the legal reforms. Thus, the 'in practice' dates differ from the 'legal dates' of the reform. We present this issue by separating *de jure* years from *de facto* years in Table A1.[5] Comparing across *de facto* years and *de jure* years, it is clear there are discrepancies between when a state passed the reform and when an individual could exercise the right a no-fault divorce. The blue text indicates when there is a mismatch by year.[6] For our main analysis, we rely on the observed *de facto* dates rather than the *de jure* legal reforms. In the appendix, we also check the *de jure* dates to see if the results hold across both sets of dates.

A growing body of literature studying these reforms in Mexico has documented the multifaceted effects of divorce reforms on household outcomes (Lew and Beleche, 2008; Garcıa-Ramos, 2019; Hoehn-Velasco and Penglase, 2019b,a; Silverio-Murillo, 2019). Findings from prior divorce reforms, Lew and Beleche (2008) attributed little change in the divorce rates to changes in divorce laws over the 1990s through the 2000s. These reforms introduced divorce *with cause* and expedited mutual consent divorce. By contrast, Hoehn-Velasco and Penglase (2019a) builds upon Lew and Beleche (2008) and shows an increase in divorce rates following the passage of the unilateral no-fault divorce in 2008. Hoehn-Velasco and Penglase (2019a) finds a steady increase in divorce rates, by about 30%, following the reform. Thus while divorce reforms generally does not provide a better exit option, the spread of unilateral divorce does appear to allow couples to dissolve poor-quality marriages. This better exit option may allow women to leave abusive partners and experience lower homicides, suicides, and IPV as a result of the reform (Silverio-Murillo, 2019; Garcıa-Ramos, 2019).

INEGI Suicide and Homicide Records

We use national suicide and homicides records from the deaths records provided by the Instituto *Nacional de Estadística y Geografía* (INEGI). The data includes an individual record for each death from suicide and homicide in Mexico over 2005-2017. We aggregate this data and combine it with the population totals for the 32 Mexican states. The rates are summarized for suicides and homicides in Table A6. Across the rates presented, there appears to be similar rates of homicides and suicides pre and post reform, with only suicides increasing slightly.

[4] To collect this data, we frequently rely on popular press articles covering the reform to measure the precise dates that the law passed. We corroborate our findings with the reform dates provided in Mendez-Sanchez (2014) and Garcıa-Ramos (2019).

[5] In the *de jure* column, states that do not show evidence of having passed unilateral divorce as of 2017 have blank years.

[6] There are 14 states that mismatch years. An additional seven states are off by one quarter (but match years), where the states include Aguascalientes, Baja California Sur, Colima, Mexico City, Nayarit, Sinaloa, an Zacatecas. Seven more states match years but the dates differ by more than one quarter, these States include Guerrero, Hidalgo, Morelos, Oaxaca, Sonora, Veracruz, and Yucatan. Only four states exactly match between *de facto* dates and *de jure* dates, suggesting an immediate implementation of no-fault divorce in these states. The four matching states include Coahuila, Mexico, Tlaxcala, and Puebla.

Table A6: Summary Statistics, by Reform

Panel A: Suicide and Homicide Rates

	Not Unilateral	Unilateral	Difference
	Mean	Mean	b
Rate Suicide Women	0.155	0.176	0.021*
Rate Suicide Men	0.752	0.716	-0.035
Rate Suicide All	0.450	0.441	-0.009
Rate Homicides Women	0.301	0.341	0.040
Rate Homicides Men	2.698	2.760	0.062
Rate Homicides All	1.495	1.528	0.033
Rate Family Homicides Men	0.023	0.020	-0.003
Rate Family Homicides Women	0.017	0.014	-0.003
Rate Family Homicides All	0.020	0.017	-0.003
N	1,148	132	1,280

Panel B: Intimate Partner Violence

	Not Unilateral	Unilateral	Difference
	Mean	Mean	b
Sexual IPV	0.036	0.042	0.007***
Physical IPV	0.069	0.106	0.037***
Economic IPV	0.171	0.218	0.048***
Emotional IPV	0.270	0.344	0.074***
Intimate Partner Violence (IPV)	0.327	0.405	0.078***
N	139,070	43,985	183,070

SOURCE: INEGI statistics.
NOTES: The suicide rates and homicide rates are reported per 100,000 persons, men or women.

ENDIREH

The INEGI provides survey data covering IPV in *The National Survey on Relationships within the Household* for 2006, 2011, and 2016. The ENDIREH provides a national-state representative on household domestic violence. We follow related work (Silverio-Murillo, 2019; Garcıa-Ramos, 2019), and use this data to examine the effect of the reform on IPV. The ENDIREH collects IPV data for four major categories. These include violence that is emotional, economic, physical, and sexual. Individuals report whether they experience each item – 'never,' 'sometimes,' or 'frequent' – in the past 12 months. We assign a value of one if the woman experienced violence in one of the four categories over the last 12 months, and zero otherwise. Thus, our measure of IPV ranges from zero to one. Table A6 Panel B shows the measures of IPV that we use throughout this study. Across all measures of IPV, there is an estimates increase post reform.

Economic Data

We aggregate the individual suicides and homicides into state-level data and combine the records with INEGI quarterly state-level data on employment and population from the Encuesta Nacional de Ocupacion y Empleo (ENOE). We further add an INEGI computed measure of state economic activity[7] to control for economic conditions that might influence the divorce rate or marriage rate in individual states at particular times. In our primary analysis, we rely on controls, including the unemployment rate and INEGI's measure of state economic conditions.

[7]Indicator Trimestral de la Actividad Economica Estatal.