

SUPPLEMENTARY MATERIAL

EXPRESSIVE POWER OF ANTI-VIOLENCE LEGISLATION Changes in Social Norms on Violence Against Women in Mexico

By Mala Htun and Francesca Jensenius

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Appendix A Description of data and variables

This paper analyzes data from the Mexican National Survey on the Dynamics of Household Relations (ENDIREH) from 2003, 2006, 2011, and 2016. The ENDIREH was designed and implemented by National Institute of Statistics and Geography (INEGI) in collaboration with the National Women’s Institute (INMUJERES). All four waves of the survey sample households from across Mexico. In 2003, the sample includes 57,230 households from across the country’s 32 states. For the 2006 and 2011 surveys, 128,000 households were sampled (4,000 in each state). For the 2016 survey there are 142,363 households. The samples were chosen to be representative of each state, and also to include urban and rural areas within each state.

In each household, the enumerators identified women aged 15 or older and interviewed at least one of them individually, about her work, living conditions, and personal life, with an emphasis on experiences of different forms of violence. Survey enumerators asked one key person in each of the sampled households to respond to questions about all the individuals living in the household, in order to identify all women aged 15 or older. Then, the enumerators interviewed at least one of these women individually. In 2003, they interviewed all women in a household who were currently living with a husband or partner. In 2006, the survey categorized women as single, in a relationship, and divorced or widowed, and interviewed up to one woman from each category.¹⁰² In 2011, they interviewed every woman older than 15 years of age. In 2016, they selected the woman with the date of birth closest to the date of the interview within each household.

The final sample of women, each of whom was individually interviewed, is 34,355 in 2003; 133,398 in 2006; 152,636 in 2011; and 111,256 in 2016. We reduce the sample to women who were currently in a relationship—either married or living with a partner—to

¹⁰²If there was more than one woman in a category, they interviewed the one with the birthday closest to the day of the interview.

allow comparison across the surveys. The samples we look at therefore cover 34,148 in 2003; 80,086 in 2006; 87,169 in 2011; and 70,585 in 2016 (see Table A.1). Further methodological information is available through the INEGI website.¹⁰³

The variables used in the paper all draw on the survey questionnaires designed for women currently in a relationship:

Domestic abuse: A dichotomous indicator for whether a woman has experienced at least one out of the 28 questions about violence in her current relationship that are comparable across the four surveys we look at. See a full list of the included questions in Table A.2.

Physical domestic abuse: A dichotomous indicator which is 1 for women who say they have been pushed or had their hair pulled, been tied up, kicked, had items thrown at them, been hit by hand or with objects, strangled, threatened or attacked with a knife, shot at, or forced into sexual relations against their will by their current partner in the previous year. This covers sub-questions 20-30 of question 6.1 in the 2011 survey (see Table A.2).

Education: An ordinal scale ranging from 1-6, where 1=no education; 2=primary school; 3=middle school; 4=high school; 5=undergraduate studies; 6=graduate studies. The variable is treated as continuous in the models we run.

Age: Numerical variable for the self-reported age of the women.

Working: A dichotomous indicator which is 1 for women who say they worked in the previous week and 0 otherwise.

Indigenous: A dichotomous indicator which is 1 for women who say they speak an indigenous language and 0 otherwise.

¹⁰³See [URL] www.inegi.org.

Non-married: A dichotomous indicator which is 1 for women who say they are married to the partner they live with and 0 otherwise. As all the included women are living with a partner, 0 indicated a non-married partnership.

Urban locality: A dichotomous indicator which is 1 for women living in localities with a population larger than 2,500 people.

Murder rates: A continuous variable based on the dataset “Intentional homicides in Mexico by Municipality from 1990 to 2015” by Instituto Nacional de Estadística y Geografía (INEGI 2018). This dataset includes the number of murders that occurred in any given year, as opposed to murders that were registered in that year. For the years used (2005 and 2010) we collapsed the total number of murders in a state and divided it by the population in the state. The numbers were then multiplied with 1000, and can be interpreted as the number of intentional murders per 1000 people in the population.

Table A.1: Demographic and socio-economic characteristics of women interviewed in ENDI-REH surveys

	2003 survey	2006 survey	2011 survey	2016 survey
Education level (1-6)	2.7	2.9	3.0	3.1
Age	39.7	40.9	41.2	41.6
Working (%)	36.2	31.5	32.9	34.8
Indigenous (%)	10.3	6.4	6.4	8.0
Non-married (%)	18.2	20.3	24.5	29.3
Urban locality (%)	—	82.5	79.5	73.2
Number of women	34,148	80,086	87,169	70,585

Table A.2: Questions on domestic abuse included in our analyses (question numbers are from ENDIREH 2011)

Question number	Question wording
6.1.1	la ha avergonzado, menospreciado o humillado (le ha dicho que es fea o la ha comparado con otras mujeres)
6.1.2	la ha ignorado, no la ha tomado en cuenta o no le ha brindado cariño
6.1.3	le ha dicho que usted lo engaña
6.1.4	le ha hecho sentir miedo
6.1.5	la ha amenazado con irse, dañarla, quitarle a los hijos o correrla de la casa
6.1.6	la ha encerrado, le ha prohibido salir o que la visiten
6.1.7	ha hecho que los hijos o parientes se pongan contra usted
6.1.9	la ha amenazado con algún arma (cuchillo, navaja, pistola o rifle)
6.1.10	la ha amenazado con matarla, matarse él o matar a los niños
6.1.11	le ha destruido, tirado o escondido cosas de usted o del hogar
6.1.12	le ha dejado de hablar
6.1.13	se ha enojado mucho porque no está listo el quehacer, porque la comida no está como él quiere o cree que usted no cumplió con sus obligaciones
6.1.14	le ha reclamado por cómo gasta usted el dinero
6.1.15	aunque tenga dinero ha sido codo o tacaño con los gastos de la casa
6.1.16	no ha cumplido con dar el gasto o ha amenazado con no darlo
6.1.17	se ha gastado el dinero que se necesita para la casa
6.1.19	le ha prohibido trabajar o estudiar
6.1.20	la ha empujado o le ha jalado el cabello
6.1.21	la ha amarrado
6.1.22	la ha pateado
6.1.23	le ha aventado algún objeto
6.1.24	la ha golpeado con las manos o con algún objeto
6.1.25	la ha tratado de ahorcar o asfixiar
6.1.26	la ha agredido con cuchillo o navaja
6.1.27	le ha disparado con un arma
6.1.28	le ha exigido tener relaciones sexuales, aunque usted no quiera
6.1.29	cuando tienen relaciones sexuales la ha obligado a hacer cosas que a usted no le gustan
6.1.30	ha usado su fuerza física para obligarla a tener relaciones sexuales

Table A.3: Empirical evidence we present and what explanations they are consistent with

No.	Empirical pattern	Where we show it	Expressive of the Law	Non-legal explanations
1	Decline in experiences of domestic abuse	Figure 1	Yes	Yes
2	Fewer women condone violence	Figure 4	Yes	Yes
3	More women report abuse to authorities	Figure 5	Yes	Yes
4	More women tell friends/family of abuse	Figure 6	Yes	Yes
5	Fewer women calling abuse unimportant	Figure 7	Yes	Yes
6	Knowledge of the law	Section “Common knowledge”	Yes	Yes
7	Points 1-3 correlate with 6	Table B.2	Yes	No
8	Changes within birth cohorts	Section “Alternative explanations”	Yes	No
9	GDP-growth uncorrelated with 1–3	Figure B.2	Yes	No
10	Changes in homicide uncorrelated with 1	Figure B.3	Yes	No
11	VAW-related norms change faster	Figure 8	Yes	No

Appendix B Supplementary Tables and Figures

Table B.1: Linear multi-level models of women experiencing domestic abuse during previous year

	2003 survey	2006 survey	2011 survey	2016 survey
(Intercept)	0.676*** (0.019)	0.584*** (0.014)	0.463*** (0.011)	0.366*** (0.013)
Education level	-0.025*** (0.003)	-0.027*** (0.002)	-0.019*** (0.002)	-0.020*** (0.002)
Worked last week	0.040*** (0.006)	0.010** (0.004)	0.035*** (0.004)	0.036*** (0.004)
Non-married partnership	0.079*** (0.007)	0.065*** (0.004)	0.067*** (0.004)	0.058*** (0.004)
Age	-0.005*** (0.000)	-0.005*** (0.000)	-0.004*** (0.000)	-0.002*** (0.000)
Knows indigenous language	-0.025* (0.010)	-0.030*** (0.008)	-0.053*** (0.007)	-0.027*** (0.007)
Urban locality		0.083*** (0.005)	0.069*** (0.004)	0.047*** (0.004)
N women	33,746	80,023	86,892	70,487
N states	32	32	32	32

Note: Multilevel linear regression models with random effects for states. The outcome variable is binary with 1 indicating that a woman experienced domestic abuse during the previous year. Education level is ordinal ranging from 1 (no education) to 6 (graduate degree), but is treated as a continuous variable; worked last week is coded 1 if the woman said she worked in the previous week and 0 otherwise; Non-married partnership is 0 if she is married to the partner she lives with and 1 if she is not married; age is numeric, ranging from 15 to 104; indigenous is coded 1 if a woman says she speaks an indigenous language and 0 otherwise; urban area is 1 if the woman lives in a locality with a population larger than 2,500 and 0 otherwise.

* significant at $p < .05$; ** $p < .01$; *** $p < .001$

Figure B.1: Reduction in domestic abuse (2003–16) by the education level of women (95% confidence intervals at the top of each bar)

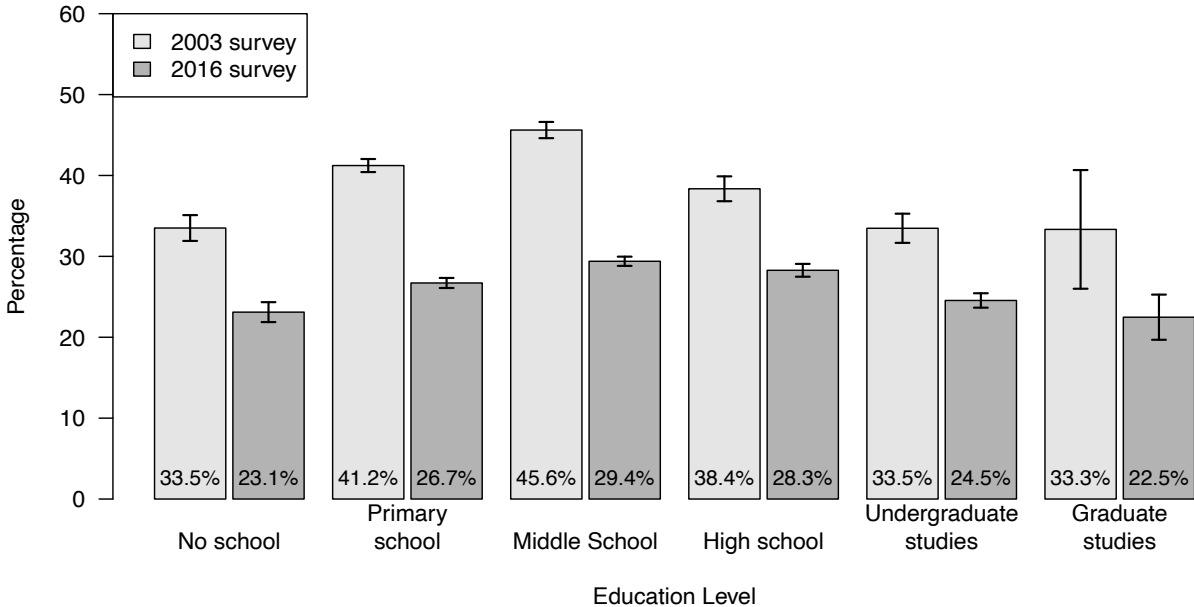


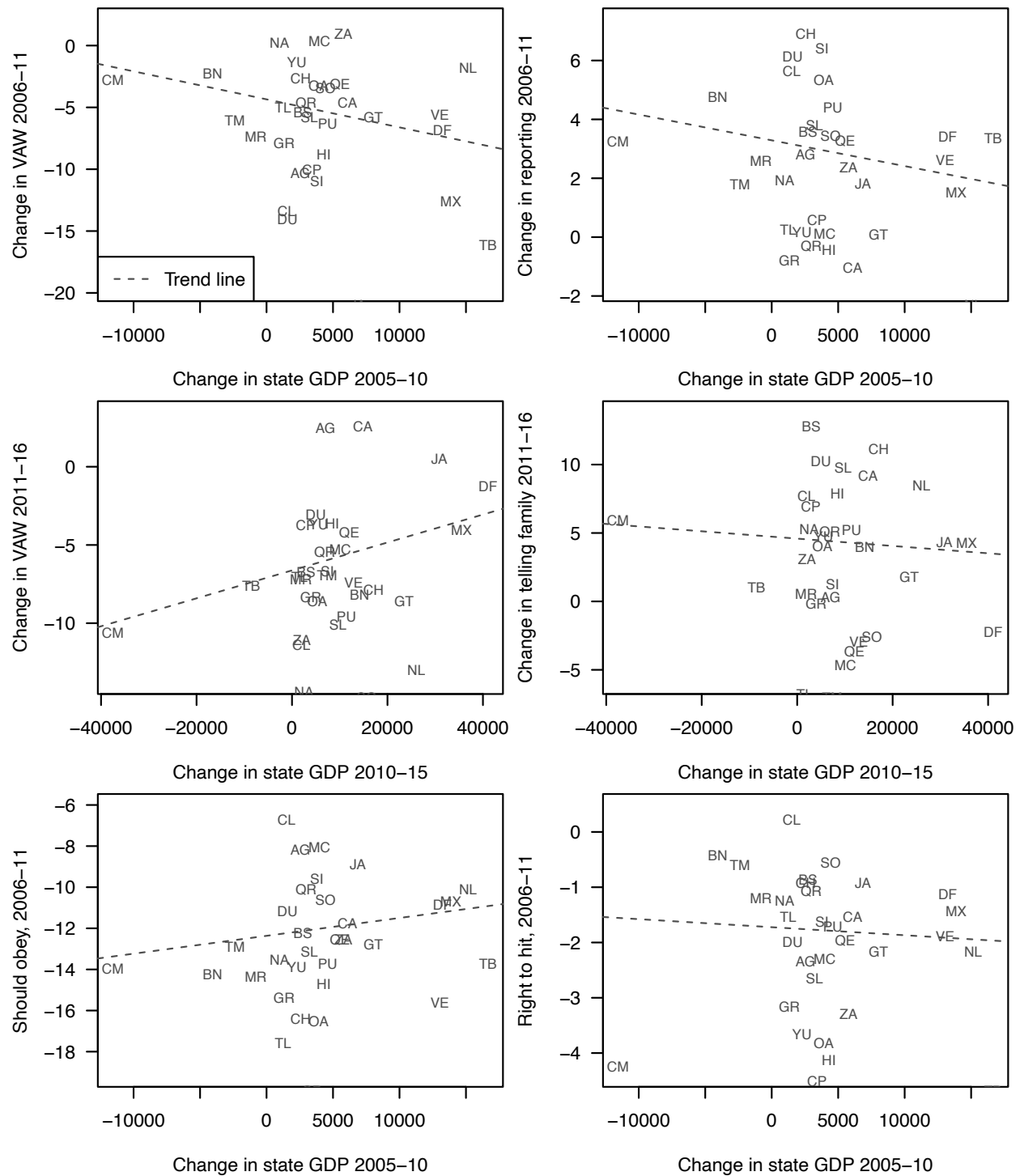
Table B.2: Knowing the law as predictor for experiencing domestic abuse in the previous year, reporting abuse, saying that men have the right to hit their wives, and saying that women should obey their husbands (ENDIREH 2011)

	Model 1	Model 2	Model 3	Model 4
	Experiencing	Reporting	Right to hit	Obey husband
(Intercept)	0.477*** (0.012)	0.181*** (0.024)	0.029*** (0.003)	0.523*** (0.011)
Knowing the law	-0.018*** (0.004)	0.016 (0.010)	-0.020*** (0.001)	-0.137*** (0.004)
Education level	-0.018*** (0.002)	0.000 (0.004)	-0.003*** (0.000)	-0.087*** (0.001)
Worked last week	0.035*** (0.004)	0.023** (0.009)	0.000 (0.001)	-0.042*** (0.003)
Non-married	0.066*** (0.004)	0.004 (0.009)	0.003* (0.001)	0.016*** (0.003)
Age	-0.004*** (0.000)	-0.003*** (0.000)	0.000*** (0.000)	0.004*** (0.000)
Speaks indigenous language	-0.055*** (0.007)	0.014 (0.017)	0.020*** (0.002)	0.142*** (0.006)
Urban locality	0.069*** (0.004)	0.025* (0.010)	-0.008*** (0.001)	-0.113*** (0.003)
State Random Effects	Yes	Yes	Yes	Yes
N states	32	32	32	32
N respondents	86892	6631	86892	86892

Note: Multilevel linear regression models with random effects for states. The outcome variables are binary indicators of experiencing domestic abuse in the previous year, reporting on abuse (conditional on experiencing it), agreeing that the husband has the right to hit their wife, and agreeing that a woman should obey her husband. Education level is treated as numerical, ranging from 1 (no education) to 6 (graduate degree); Working is coded 1 if the woman said she worked in the previous week and 0 otherwise; Non-married is 0 if a woman is married to the partner she lives with and 1 if she lives with a partner but is not married; Age is numeric, ranging from 15 to 104; Indigenous is coded 1 if a woman says she speaks an indigenous language and 0 otherwise; Urban is 1 if the woman lives in a locality with a population larger than 2,500 and 0 otherwise.

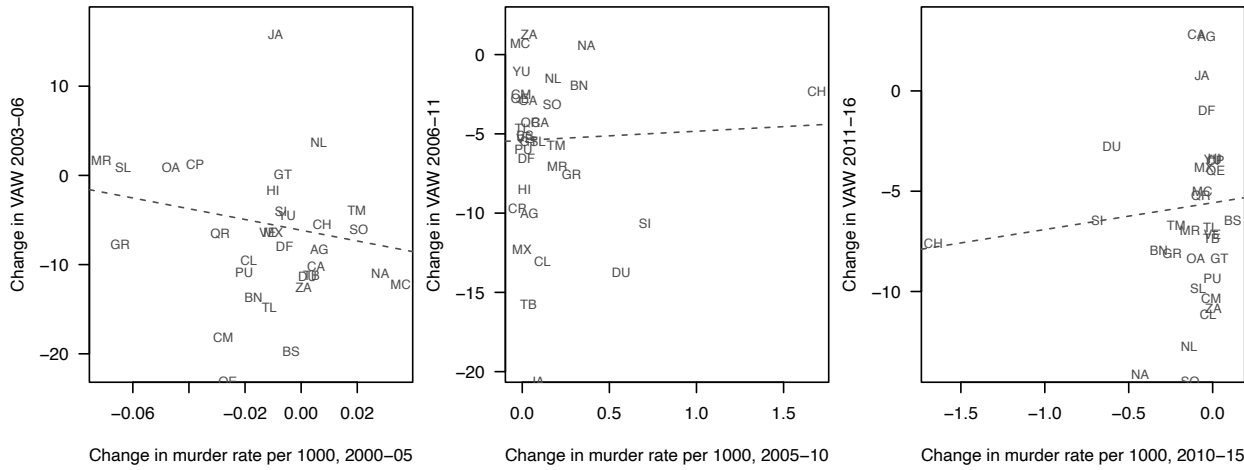
* significant at $p < .05$; ** $p < .01$; *** $p < .001$

Figure B.2: Association between changes in state GDP and the state-level change in domestic abuse, reporting or telling others of such incidents, and responses to the questions about women having to obey their husbands and men having the right to hit their spouse



Note: Data on GDP are from OECD (millions USD, constant prices, constant PPP, base year 2015). The other variables are from the ENDIREH 2006, 2011, and 2016, as described in the paper, and are aggregated to the state level.

Figure B.3: Association between changing state-level murder rates and the state-level change in women saying they experienced domestic abuse



Note: Data on murders (per 1000 people) are from [INEGI 2018](#), data on the reduction in domestic abuse is based on ENDIREH 2003, 2006, 2011, and 2016, as described in section . The trend lines are based on linear regression models. None of the slopes are statistically significant.

Figure B.4: Changes in share saying a husband has the right to hit his wife, by age group

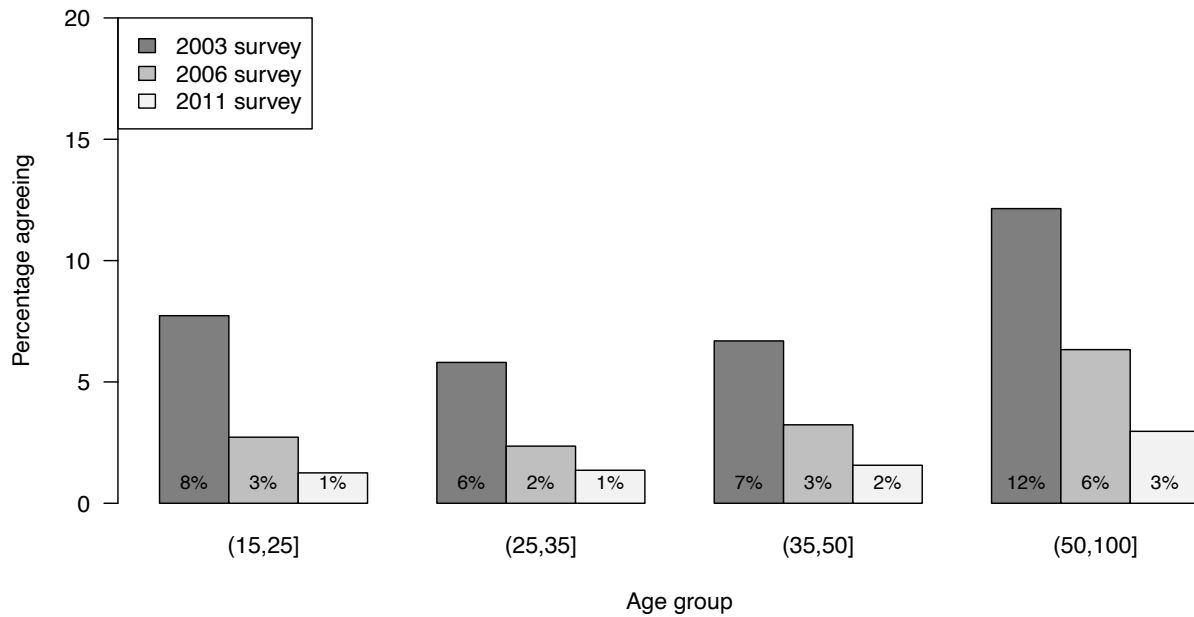


Figure B.5: Changes in share saying a wife should obey her husband, by age group

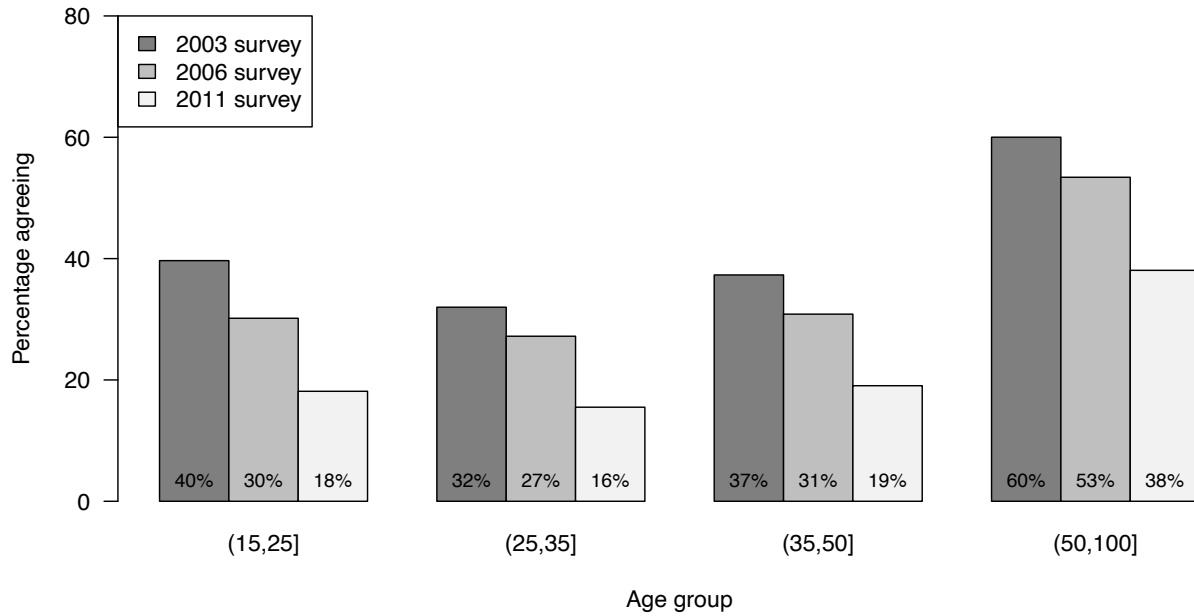


Figure B.6: Changes in share saying a husband has the right to hit his wife, by birth cohort

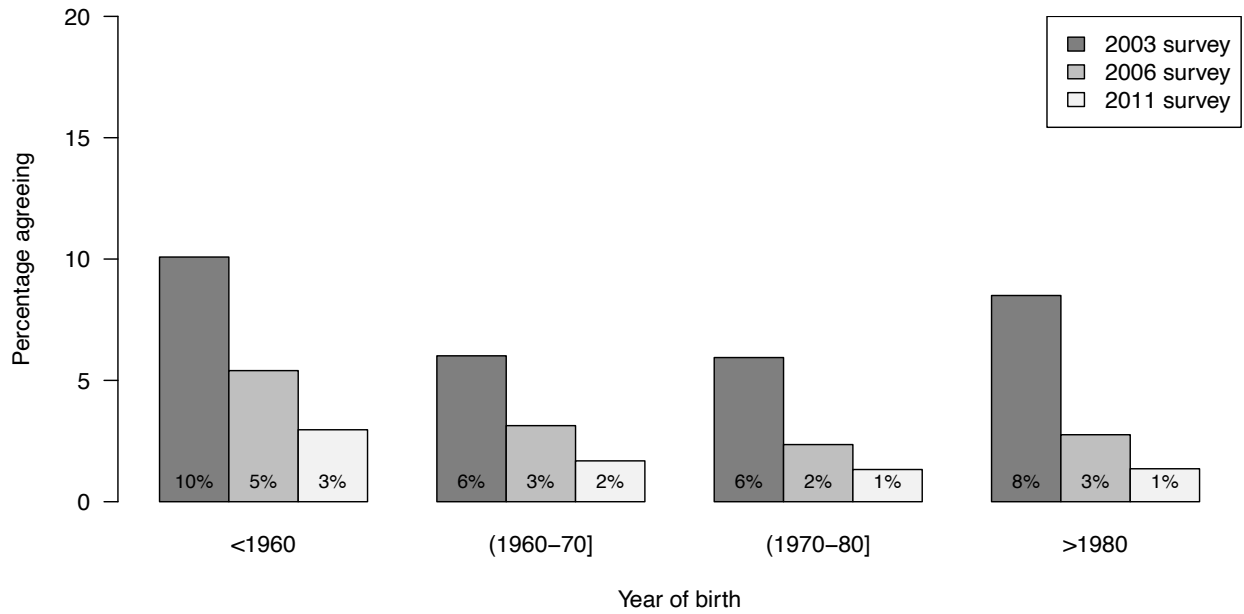


Figure B.7: Changes in share saying a wife should obey her husband, by birth cohort

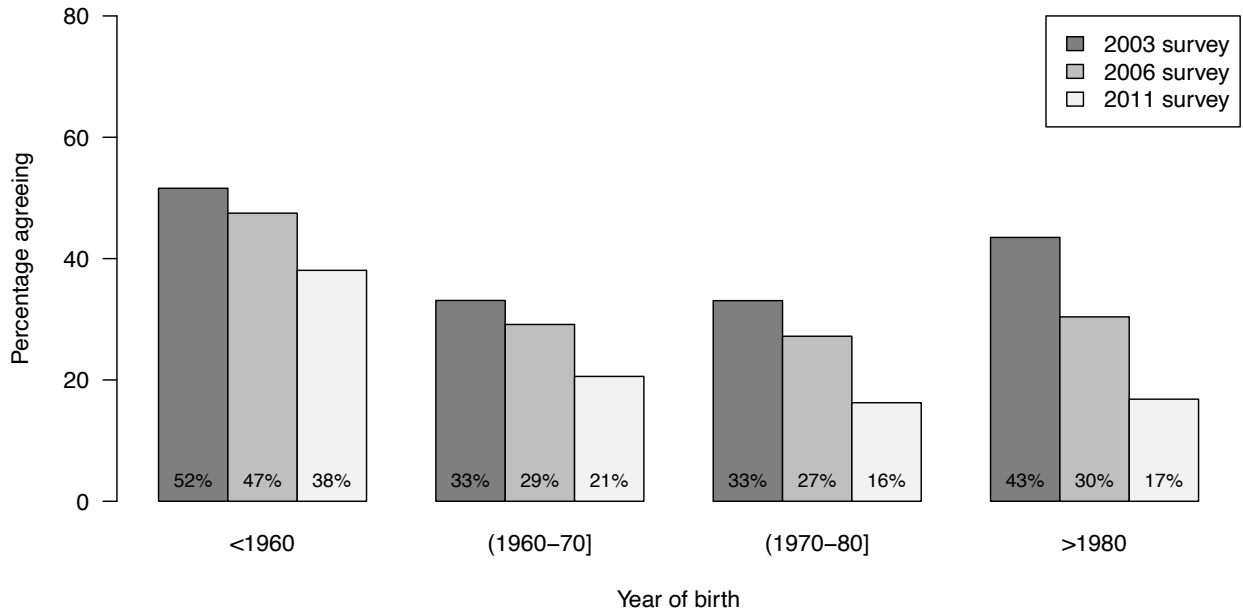


Figure B.8: Changes in experiences of domestic abuse, by birth cohort

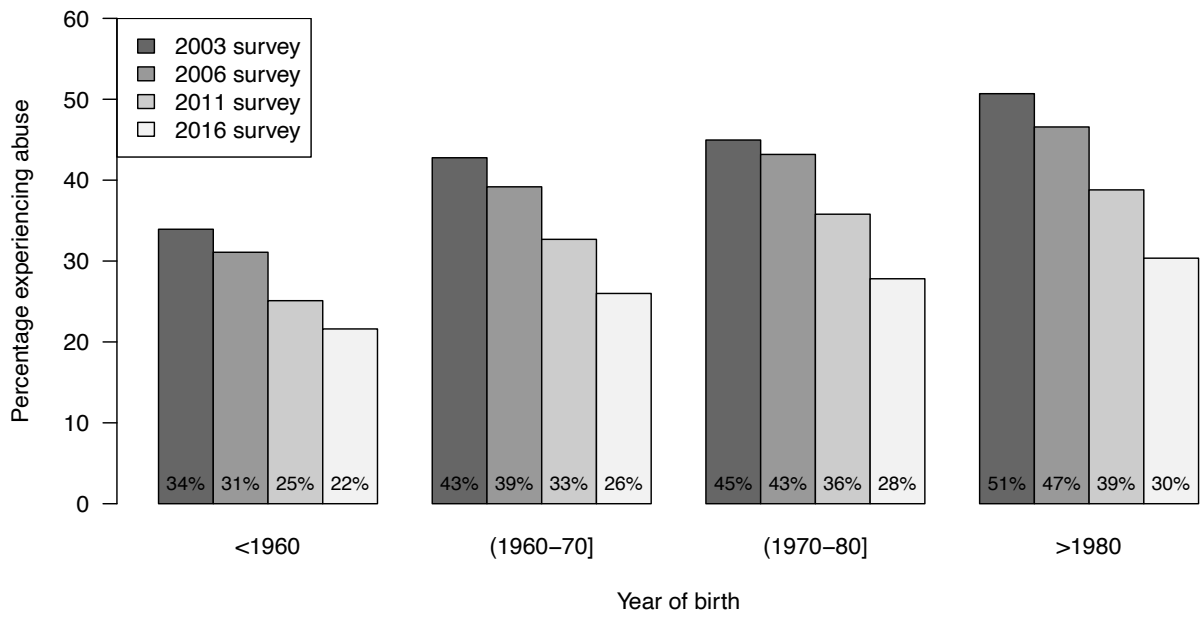


Figure B.9: Changes in reporting, by birth cohort

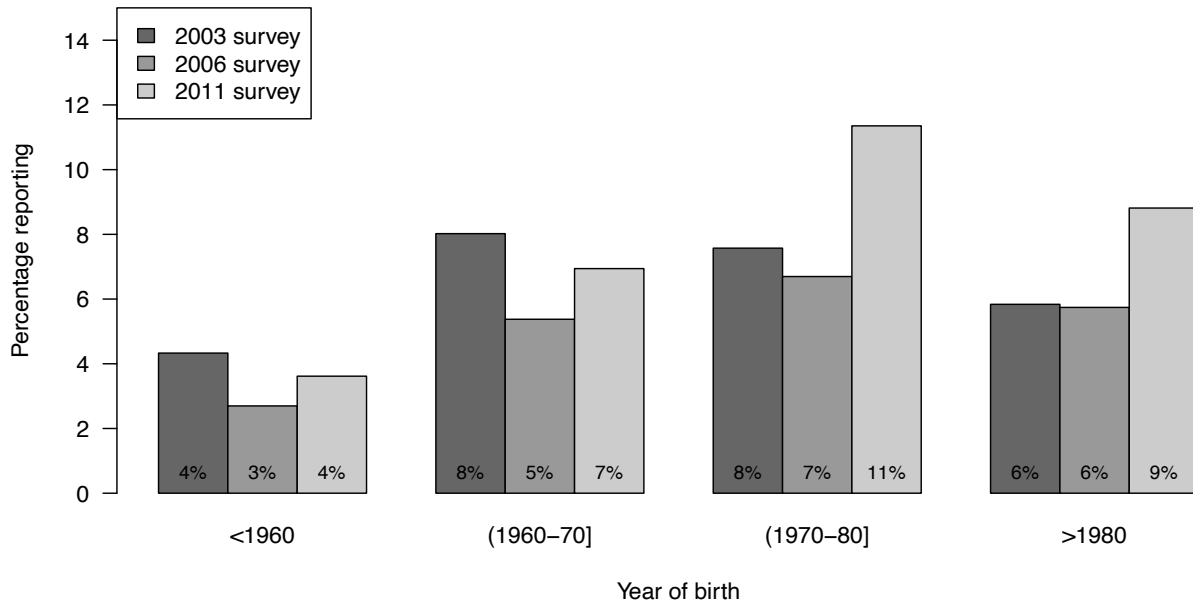


Figure B.10: Change in share of women saying a man has the right to hit his wife, by education level

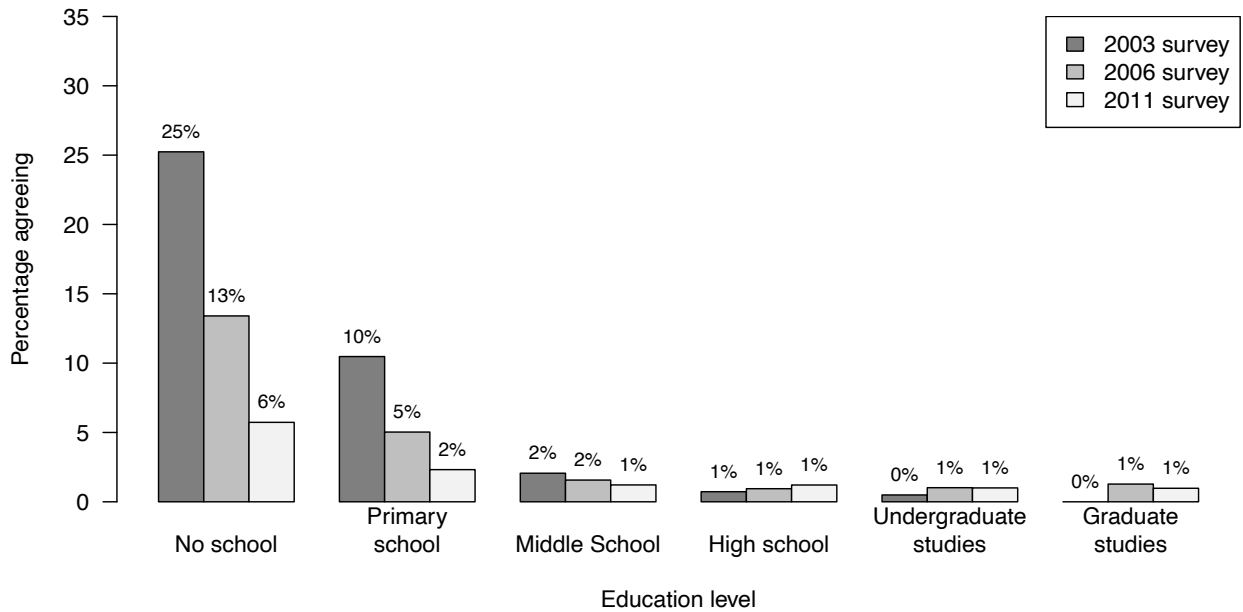


Figure B.11: Change in share of women saying a woman should obey her partner, by education level

