# Having a Daughter Reduces Male Violence Against a Partner 

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# Having a Daughter Reduces Male Violence Against a Partner* 

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In a global sample of around 310,000 couples, men whose firstborn child is a girl (instead of a boy) are 10 percent less likely to strangle their partner each year. The probability that they kick, punch, or slap her also decreases by about 4 percent. These are causal effects under the assumption that the sex of the firstborn child is exogenous. Intimate partner violence has enormous costs, but is not yet fully understood. This paper reveals the importance of having daughters in regard to curbing male violence. It also contributes to the burgeoning literature on how children influence their parents.

JEL: J12, J13, J16, O12

[^0]
## 1. Introduction

Intimate partner violence (IPV) is universal, with around one-third of all women aged 15 years and over having experienced violence from their partner during their lifetime (Devries et al., 2013). ${ }^{1}$ IPV has direct consequences for victims, including an increased prevalence of depression and suicidal behavior, and is a leading cause of homicide death in women (Stöckl et al., 2013). On top of the direct consequences for the victims' health, well-being, and productivity, society bears the cost of protective and preventive measures, property damage, victim services, and the police and criminal justice system. The existing estimates of the total cost of IPV are astronomical, for example, at about GBP 66 billion in England and Wales in 2017 alone (Oliver et al., 2019).

The global prevalence of IPV and its enormous costs to society stand in contrast to the relatively thin understanding we have of this phenomenon. I contribute to the literature by revealing the importance of men's children's gender in shaping their actual use of violence. I estimate the daughter effect on IPV using data from Demographic and Health Surveys (DHS). I include all the surveys aggregated by IPUMS International (Boyle et al., 2019) that contain the domestic violence module. ${ }^{2}$ The final sample includes around 310,000 households with at least one child from 18 different African countries surveyed between 2006 and 2017. In each household, one eligible woman is randomly selected for the violence module, interviewed in private, and asked about violence perpetrated by her husband or partner. The data also contain the woman's birth history, which makes it possible to compare IPV prevalence in couples with a daughter or a son.

To obtain an estimate that can be interpreted as causal, I use only couples who have given birth to at least one child and compare the violence of men who had a firstborn boy with that of men who had a firstborn girl. The assumption is that the sex of the firstborn child

[^1]is a random variable. ${ }^{3}$ If parenting daughters indeed affects fathers' propensity for violence toward their wife or partner, then the estimates based on the sex of the firstborn child will plausibly underestimate the true effect, given that some fathers with a firstborn son will also have daughters. But the correlation between the number of daughters, even when controlling for the total number of children, would provide presumably biased estimates because the decision to have more children may be dependent on the number and gender of children already born.

I find that the proportion of women who are victims of IPV in a given year is reduced by 3.4 percent $(p$-value $=.0001)$ when their firstborn child is a daughter instead of a son. The DHS decompose violence into specific acts: having a daughter reduces the proportion of men strangling or burning their partner by 10.1 percent ( p -value $=.0067$ ), punching by 2.6 percent $(\mathrm{p}$-value $=.1848)$, kicking, dragging, or beating by 4.3 percent $(\mathrm{p}$-value $=$ $.0291)$, slapping by 3.6 percent $(p-v a l u e=.0022)$, twisting the arm or pulling the hair by 2.3 percent $(p$-value $=.3178)$, pushing, shaking, or throwing something at their partner by 3.6 percent $(p$-value $=.0323)$, threatening their partner with harm by 3.1 percent $(\mathrm{p}$-value $=.0948)$, and insulting their partner or making them feel bad by 3.2 percent $(\mathrm{p}$-value $=.005)$.

Decades ago, psychologists and sociologists began describing the reciprocity of the parentchild relationship and the effects that children could have on their parents (Bell, 1968; Walters and Walters, 1980). Several studies emphasized the importance of parenting daughters instead of sons in explaining parental views and behavior (Downey et al., 1994; Raley and Bianchi, 2006; Warner, 1991). Scholars of economics, finance, and political science also began noticing that parenting daughters affects fathers' views and behaviors in domains related to gender equality and female well-being. Evidence from the US suggests that congressmen are more likely to vote liberally, particularly on issues related to reproductive rights, when they have more daughters (Washington, 2008) ${ }^{4}$, and that fathers with a firstborn daughter were more likely to support and vote for Hillary Clinton in the 2016 presidential election (Greenlee et al., 2018). Judges from the US who have daughters also vote in a more feminist fashion (Glynn and Sen, 2015). Consistent evidence

[^2]has been reported from the UK; Oswald and Powdthavee (2010) found that people who have daughters are more likely to vote for left-wing political parties, while Borrell-Porta et al. (2019) observed effects on fathers' views about gender norms. Additional evidence of the daughter effect comes from research in finance showing that firms led by CEOs who have a daughter are more likely to hire new women to their board of directors (Dasgupta et al., 2018), and to attain a higher corporate social responsibility rating (Cronqvist and $\mathrm{Yu}, 2017) .{ }^{5}$

Given the findings of this emerging literature on the daughter effect, it is sensible to investigate its importance in explaining IPV. The existing evidence also comes from a small number of very specific countries characterized by high incomes and gender inequalities that are smaller than in many other countries. It is therefore important to document whether the daughter effect is found in a broader context.

An additional important observation is that the daughter effect is not immediate after birth, but grows as the years spent with a daughter pass. It is therefore consistent with the hypothesis that fathers' views and behavior are slowly being influenced by parenting daughters.

Importantly, the main factors that have been identified in the literature as influencing IPV are also independent of the firstborn sex and cannot explain my findings. Part of the literature emphasizes the role of institutional factors, such as prevalent traditional norms (Alesina et al., 2016; Tur-Prats, forthcoming) or gender inequalities before the law (Heise and Kotsadam, 2015) and the police (Miller and Segal, 2019) that can explain differences in prevalence between regions. Other factors identified at the macro level include alcohol prohibition (Luca et al., 2015) and the relative disadvantages of women on the labor market (e.g., the gender wage gap (Aizer, 2010), unemployment (Anderberg et al., 2016), access to public work programs (Sarma, 2019), women's education and labor market outcomes (Erten and Keskin, 2018; Heath, 2014)). Although these factors are fundamental, they cannot explain the important variations in IPV observed within societies or labor markets. A related line of research investigating the effects of transfers to women found that violence could be reduced when women's outside options were improved (Bobonis

[^3]et al., 2013; Hidrobo et al., 2016; Roy et al., 2018), but could increase in contexts where women could not easily leave their partner and withdraw from an abusive relationship (Bulte and Lensink, 2019). ${ }^{6}$ These transfers were independent of the sex of the firstborn and could not explain the findings of this paper.

At the household and individual levels, economists have begun investigating the role of men's emotional status (Card and Dahl, 2011; Cesur and Sabia, 2016) and the influence of role models (Banerjee et al., 2019; Jensen and Oster, 2009). I do not have any evidence that having a daughter affects fathers' emotional status or their exposure to female role models, and I cannot formally test those channels with the data at hand. It may be that having a daughter increases exposure to female role models and promotes reaching an emotional status less favorable to violence against female partners, in which case, these channels would be a part of the daughter effect.

Finally, IPV is, in general, positively correlated with alcohol consumption and the total number of children. In this sample, however, having a firstborn daughter was not correlated with having more or fewer children, or with alcohol consumption by the father; therefore, the daughter effect cannot be explained by these factors.

I present the research design in Section 2, the data in Section 3, and the results in Section 4 before concluding in Section 5.

## 2. Empirical approach

Are fathers that have daughters less likely to be violent with their female partner? To answer this question, I consider only men who have children; otherwise, the effect of having a daughter would include the effect of having a child. I therefore compare "having a daughter" to "having a son instead". Moreover, I focus on comparing fathers with firstborn daughters to those with firstborn sons. In contexts where the absence of sex-selective

[^4]abortion is a reasonable assumption, the correlations with the sex of the first born-child can plausibly be interpreted as causal effects. Other comparisons are of course possible (e.g., comparing fathers with two daughters to those with two sons), but a causal interpretation would require strong assumptions about the parents' fertility decisions (Dahl and Moretti, 2008).

More precisely, I estimate the following equation using ordinary least squares:

$$
\begin{equation*}
Y_{i c t}=\alpha+\beta_{1} D_{i}+\beta_{2} T_{t}+\beta_{3} C_{c}+\epsilon_{i c t} \tag{1}
\end{equation*}
$$

where $Y_{i c t}$ is one of the violence measures, $D_{i}$ is equal to one if $i$ 's firstborn is a girl and zero if a boy, $T_{t}$ are time of survey fixed effects, $C_{c}$ are country fixed effects, and $\epsilon_{i c t}$ is the error term.

A substantial challenge to identifying a daughter effect on domestic violence is that it requires a very large number of observations. This is because the prevalence of specific acts of violence in any given year is low, and because there are no reasons to expect a very large effect size. The prevalence of most of the acts included in this analysis is around 3-5 percent, and that of the main violence measure, "experienced any violence in the past 12 months", is around 13 percent. Specifically, using a $\chi^{2}$ test, one needs a sample of 168954 observations to detect a 3.5 percent reduction in violence when the base rate is 13 percent with a statistical significance level of 0.05 and a power of 0.8 . Using the 0.005 significance level threshold suggested for new discoveries instead leads to a required sample size of 286 568 observations (Benjamin et al., 2018). ${ }^{7}$ The sample used in this study, with around 310000 observations, is therefore appropriate to obtain reliable estimates.

## 3. Data

The data come from the DHS, aggregated by IPUMS international (Boyle et al., 2019). The DHS are nationally representative household surveys conducted about every 5 years

[^5]in several countries, and are commonly used in research. As the name indicates, the DHS focus on collecting health and demographic measures. From the complete sample, I only keep women who have given birth at least one and who answered the domestic violence questions. ${ }^{8}$

The domestic violence module that I use is included in only some of the surveys. ${ }^{9}$ In each household, one women aged 15-49 years is randomly selected for the module. The DHS insist on absolute privacy, where the interview is scheduled and takes place at a time in which privacy can be ensured.

In the interview, the woman is asked if her current (or previous) husband or partner ever (i) insulted her or made her feel bad, (ii) threatened her with harm, (iii) pushed her, shook her, or threw something at her, (iv) twisted her arm or pulled her hair, (v) slapped her, (vi) kicked her or dragged her, (vii) punched her with his fist or with something that could hurt her, or (viii) tried to strangle or burn her. ${ }^{10}$ For each question, the women are asked if the event occurred in the past 12 months and how frequently. My main measure of violence is a binary variable equal to one if any episode of violence happened in the past 12 months. I also use each type of violence separately.

The complete list of countries and survey years is available in the Appendix, Table 5. Table 1 presents the sociodemographic statistics of the sample, overall and separately for couples with a firstborn son or daughter.

The first thing to note is that couples with a firstborn son or daughter are very similar for all measures. They have the same total number of children, the same wealth index value, education, age, and relationship to the household head; the only difference is in the number of sons and daughters. In contrast with the situation described by Dahl and Moretti (2008) in the US, the father is equally likely to be present in both groups; they have the same likelihood of being married and the same duration of marriage or

[^6]cohabitation.

Mothers and fathers have a mean age of 32 and 39 years, respectively. Five percent are not married, the duration of the marriage of the remaining 95 percent varies between 0 and more than 30 years. Fifteen percent of the fathers live away from home. They have 3.87 children on average: 1.37 sons and 1.29 daughters living at home, .34 sons and .39 daughters living away, and .26 sons and .22 daughters who are no longer living. The mother is almost always the household head (18 percent), the head's wife ( 65 percent), or the head's daughter or daughter-in-law (11 percent). The households have around six members on average and a wealth index of zero. ${ }^{11}$ Finally, the levels of education are relatively low: 29 percent of mothers and 24 percent of fathers have no education at all, 42 percent of mothers and 37 percent of fathers reached the primary level, and 25 percent of mothers and 31 percent of fathers reached the secondary level.

[^7]Table 1: Descriptive statistics.

|  | All samples |  |  | Firstborn son |  |  | Firstborn daughter |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Mean | SD | Obs. | Mean | SD | Obs. | Mean | SD | Obs. |
| Woman's age | 31.76 | 8.47 | 309387 | 31.78 | 8.49 | 157874 | 31.74 | 8.46 | 151513 |
| Man's age | 39.51 | 11.11 | 246064 | 39.62 | 11.16 | 125742 | 39.4 | 11.07 | 120322 |
| Marital or cohabitation duration: |  |  |  |  |  |  |  |  |  |
| Never married | . 05 | . 22 | 309387 | . 05 | . 22 | 157874 | . 05 | . 22 | 151513 |
| 0 to 4 | . 17 | . 37 | 309387 | . 17 | . 37 | 157874 | . 17 | . 37 | 151513 |
| 5 to 9 | . 21 | . 4 | 309387 | . 2 | . 4 | 157874 | . 21 | . 4 | 151513 |
| 10 to 14 | . 19 | . 39 | 309387 | . 18 | . 39 | 157874 | . 19 | . 39 | 151513 |
| 15 to 19 | . 15 | . 36 | 309387 | . 15 | . 36 | 157874 | . 15 | . 36 | 151513 |
| 20 to 24 | . 12 | . 32 | 309387 | . 12 | . 32 | 157874 | . 12 | . 32 | 151513 |
| 25 to 29 | . 08 | . 27 | 309387 | . 08 | . 27 | 157874 | . 08 | . 27 | 151513 |
| $30+$ | . 04 | . 2 | 309387 | . 04 | . 21 | 157874 | . 04 | 2 | 151513 |
| Man living away from home | . 15 | . 35 | 227397 | . 15 | . 35 | 115991 | . 15 | . 35 | 111406 |
| Total number of children | 3.87 | 2.49 | 309387 | 3.86 | 2.5 | 157874 | 3.87 | 2.48 | 151513 |
| Sons living at home | 1.37 | 1.23 | 309387 | 1.66 | 1.22 | 157874 | 1.06 | 1.17 | 151513 |
| Daughters living at home | 1.29 | 1.18 | 309387 | 1 | 1.13 | 157874 | 1.6 | 1.16 | 151513 |
| Sons living away from home | . 34 | . 74 | 309387 | . 46 | . 84 | 157874 | . 21 | . 59 | 151513 |
| Daughters away from home | . 39 | . 8 | 309387 | . 25 | . 65 | 157874 | . 54 | . 91 | 151513 |
| Sons who died | . 26 | . 62 | 309387 | . 33 | . 69 | 157874 | . 19 | . 53 | 151513 |
| Daughters who died | . 22 | . 57 | 309387 | . 16 | . 5 | 157874 | . 28 | . 63 | 151513 |
| Relation to household head: |  |  |  |  |  |  |  |  |  |
| Daughter (-in-law) | . 11 | . 31 | 309387 | . 11 | . 31 | 157874 | . 11 | . 31 | 151513 |
| Head | . 18 | . 39 | 309387 | . 18 | . 39 | 157874 | . 18 | . 39 | 151513 |
| Other | . 06 | . 23 | 309387 | . 06 | . 24 | 157874 | . 06 | . 23 | 151513 |
| Wife | . 65 | . 48 | 309387 | . 65 | . 48 | 157874 | . 65 | . 48 | 151513 |
| \# Household members | 6.28 | 3.68 | 309387 | 6.27 | 3.69 | 157874 | 6.28 | 3.68 | 151513 |
| Household wealth index | -. 01 | 1.75 | 309387 | -. 02 | 1.74 | 157874 | 0 | 1.76 | 151513 |
| Woman's education: |  |  |  |  |  |  |  |  |  |
| No education | . 29 | . 45 | 309379 | . 29 | . 46 | 157869 | . 28 | . 45 | 151510 |
| Primary | . 42 | . 49 | 309379 | . 41 | . 49 | 157869 | . 42 | . 49 | 151510 |
| Secondary | . 25 | . 43 | 309379 | . 25 | . 43 | 157869 | . 25 | . 43 | 151510 |
| Higher | . 05 | . 21 | 309379 | . 05 | . 21 | 157869 | . 05 | . 21 | 151510 |
| Man's education: |  |  |  |  |  |  |  |  |  |
| No education | . 24 | . 43 | 263492 | . 24 | . 43 | 134576 | . 23 | . 42 | 128916 |
| Primary | . 37 | . 48 | 263492 | . 36 | . 48 | 134576 | . 37 | . 48 | 128916 |
| Secondary | . 31 | . 46 | 263492 | . 31 | . 46 | 134576 | . 31 | . 46 | 128916 |
| Higher | . 09 | . 28 | 263492 | . 08 | . 28 | 134576 | . 09 | . 28 | 128916 |

Table 2: Daughter effect on intimate partner violence.

|  | Effect in \% | b/(SE) | $p$-value | Mean if son | Obs. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Experienced any violence | -3.4\% | $\begin{aligned} & \hline-.00468 \\ & (.0012) \end{aligned}$ | . 0001 | . 136 | 309387 |
| Decomposition of violent acts: |  |  |  |  |  |
| Insults her or makes her feel bad | -3.2 \% | $\begin{gathered} -.00281 \\ (.001) \end{gathered}$ | . 005 | . 088 | 309387 |
| Threatens her with harm | -3.1 \% | $\begin{gathered} -.0011 \\ (.00066) \end{gathered}$ | . 0948 | . 035 | 309387 |
| Pushes, shakes, or throws something at her | -3.6 \% | $\begin{aligned} & -.00153 \\ & (.00071) \end{aligned}$ | . 0323 | . 042 | 309387 |
| Twists her arm or pulls her hair | -2.3\% | $\begin{aligned} & -.00055 \\ & (.00055) \end{aligned}$ | . 3178 | . 024 | 309387 |
| Slaps her | -3.6 \% | $\begin{aligned} & -.00295 \\ & (.00096) \end{aligned}$ | . 0022 | . 082 | 309387 |
| Kicks, drags, or beats her up | -4.3\% | $\begin{aligned} & -.00136 \\ & (.00062) \end{aligned}$ | . 0291 | . 032 | 309387 |
| Punches her with his fist or something else | -2.6 \% | $\begin{aligned} & -.00083 \\ & (.00063) \end{aligned}$ | . 1848 | . 032 | 309387 |
| Strangles or burns her | -10.1 \% | $\begin{aligned} & -.00089 \\ & (.00033) \end{aligned}$ | . 0067 | . 009 | 309387 |

All estimations include country and time fixed effects.

## 4. Empirical analysis and results

The main results are shown in Table 2. It contains the estimates of $\beta_{1}$ in equation 1 , reported in percentage change and value. The standard errors are in parentheses. The table also provides the p-value of the test of equality between the estimate and zero, the mean value of the dependent variable when the firstborn is a son, and the number of observations.

On average, men who have a firstborn daughter instead of a firstborn son are 3.4 percent less likely to be violent with their partner each year. The estimates of the daughter effect on the decomposition of violence are all negative and of the same magnitude as the main effect. The estimate of the effect on "strangle or burn her" is larger, at -10.1 percent, but the base rate is also lower.

If the daughter effect estimated in Table 2 is explained by a socialization mechanism, where

Table 3: Daughter effects on intimate partner violence - interaction with daughter's age categories.

|  | Effect in \% | b/(SE) | p-value | Mean if son | Obs. |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Birth less than 5 years ago | $-2.4 \%$ | -.00324 | .1633 | .135 | 79493 |
| Birth 6 to 11 years ago | $.6 \%$ | .0009 | .7221 | .159 | 78934 |
| Birth 12 to 19 years ago | $-8.4 \%$ | -.01151 | $<.0001$ | .137 | 81994 |
| Birth more than 19 years ago | $-5.9 \%$ | -.00621 | .0076 | .105 | 68966 |

All estimations include country and time fixed effects.
the fathers parenting daughters become more sensitive to women's welfare as suggested by the literature on daughter effects, then we do not expect it to appear immediately after the daughter's birth.

In Table 3, I report the estimates of the daughter effect separately for different age groups, restricting the sample to children born (i) less than 5 years ago, (ii) between 6 and 11 years ago, (iii) between 12 and 19 years ago, and (iv) more than 19 years ago (four groups of similar size). The results indicate no significant daughter effect in the first years after birth, but an effect emerges after more than 11 years of parenting. ${ }^{12}$

Finally, I perform a few additional checks before concluding. First, for our interpretation to be valid, men with a firstborn daughter must also have more daughters overall. Second, a positive correlation exists between the number of children that a man has and IPV. Third, a positive correlation also exists between a man's alcohol consumption and IPV. In Table 4, we show that having a firstborn daughter is highly correlated with the total number of daughters, but not with the man's total number of children or alcohol consumption. The alcohol measure is a binary variable equal to one if the woman answered that her husband or partner drinks alcohol. It is therefore not an ideal measure, but it is indicative of the extent of alcohol consumption. Note that this question is not asked in all surveys, and thus, the sample size is smaller.

[^8]Table 4: Daughter effects on the number of daughters, the number of children, and alcohol consumption.

|  | Effect in $\%$ | $\mathrm{~b} /(\mathrm{SE})$ | p -value | Mean if son | Obs. |
| :--- | :---: | :---: | :---: | :---: | :---: |
| \# daughters | $70 \%$ | .99309 <br> $(.00535)$ | $<.0001$ | 1.42 | 309387 |
| \# children | $.2 \%$ | .00949 <br> $(.00883)$ | .2822 | 3.864 | 309387 |
| Drinks alcohol | $-.8 \%$ | -.0027 <br> $(.00231)$ | .2422 | .346 | 149865 |

All estimations include country and time fixed effects.

## 5. Conclusion

In this paper, we found that men who have a firstborn daughter instead of a firstborn son are significantly less likely to be violent with their partnerWe also found that these effects do not happen immediately after birth, but rather, after around 10 years of parenting.

The difference in behavior of men with daughters compared with sons cannot be explained by most factors identified in the literature as important in explaining violence (e.g., norms, women's opportunities on the labor market). As we summarized in the Introduction, these factors are independent of the sex of the firstborn children and cannot explain variations in violence within a country (or market).

Instead, we interpret our findings as being due to the parenting effect. Men who raise daughters have been shown to adopt views and behaviors more favorable to women in different domains. This paper provides the first evidence of a daughter effect on male violence.

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This is the online appendix for "Having a Daughter Reduces Male Violence Against a Partner" by Vincent Somville.

## A. Countries and years

Table 5 shows the number of observations per country and year of survey made available by Boyle et al. (2019), and include the domestic violence data. The main results (Table 2) use only the countries in bold. The full sample is used in the Appendix, Section B.

Table 5: Observations per country per year.

|  | 2005 | 2006 | 2007 | 2008 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Afghanistan | - | - | - | - | - | - | - | - | - | 26,400 | - | - | 26,400 |
| Angola | - | - | - | - | - | - | - | - | - | 11,044 | - | - | 11,044 |
| Myanmar | - | - | - | - | - | - | - | - | - | 7,734 | - | - | 7,734 |
| Burundi | - | - | - | - | - | - | - | - | - | - | 10,956 | - | 10,956 |
| Cameroon | - | - | - | - | - | 10,881 | - | - | - | - | - | - | 10,881 |
| Congo Democratic Republic | - | - | - | - | - | - | - | 14,039 | - | - | - | - | 14,039 |
| Ethiopia | - | - | - | - | - | - | - | - | - | - | 10,201 | - | 10,201 |
| Ghana | - | - | - | 3,265 | - | - | - | - | - | - | - | - | 3,265 |
| India | 84,143 | - | - | - | - | - | - | - | - | 473,941 | - | - | 558,084 |
| Jordan |  | - | - | - | - | - | 10,132 | - | - | , | - | 12,690 | 22,822 |
| Kenya | - | - | - | 6,041 | - | - | - | - | 23,051 | - | - | - | 29,092 |
| Malawi | - | - | - | - | 17,855 | - | - | - | - | - | 18,807 | - | 36,662 |
| Mali | - | - | - | - | , | - | 8,414 | - | - | - | , | - | 8,414 |
| Mozambique | - | - | - | - | - | 10,509 | - | - | - | - | - | - | 10,509 |
| Nepal | - | - | - | - | - | 8,751 | - | - | - | - | 9,181 | - | 17,932 |
| Nigeria | - | - | - | 23,491 | - | - | - | 27,150 | - | - | - | - | 50,641 |
| Pakistan | - | - | - | - | - | - | 11,882 | , | - | - | - | 13,002 | 24,884 |
| Rwanda | - | - | - | - | - | - | - | - | 8,615 | - | - | - | 8,615 |
| Senegal | - | - | - | - | - | - | - | - | - | - | - | 11,011 | 11,011 |
| Zimbabwe | - | - | - | - | 6,646 | - | - | - | - | 7,177 | - | , | 13,823 |
| Uganda | - | 6,349 | - | - | - | 6,332 | - | - | - | - | 13,606 | - | 26,287 |
| Egypt | - |  | - | - | - |  | - | - | 19,413 | - | - | - | 19,413 |
| Tanzania | - | - | - | - | 7,255 | - | - | - | - | 9,625 | - | - | 16,880 |
| Zambia | - | - | 5,359 | - |  | - | - | 12,295 | - | - | - | - | 17,654 |
| Total | 84,143 | 6,349 | 5,359 | 32,797 | 31,756 | 36,473 | 30,428 | 53,484 | 51,079 | 535,921 | 62,751 | 36,703 | 967,243 |

[^9]
## B. All countries

Table 6 is similar to Table 2, but includes all countries, even if they have unbalanced sex ratios at first birth. The estimates are in line with those of Table 2 .

Table 6: Daughter effects on intimate partner violence - all countries.

|  | Effect in \% | b/(SE) | p-value | Mean if son | Obs. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Experienced any violence | -4.1 \% | $\begin{aligned} & -.0036 \\ & (.00055) \end{aligned}$ | <. 0001 | . 088 | 967243 |
| Decomposition of violent acts: |  |  |  |  |  |
| Insults her or makes her feel bad | -3.1 \% | $\begin{aligned} & -.00132 \\ & (.0004) \end{aligned}$ | . 001 | . 043 | 967243 |
| Threatens her with harm | -4.6 \% | $\begin{aligned} & -.00089 \\ & (.00028) \end{aligned}$ | . 0012 | . 02 | 967243 |
| Pushes, shakes, or throws something at her | -3.7\% | $\begin{aligned} & -.00127 \\ & (.00035) \end{aligned}$ | . 0003 | . 034 | 967243 |
| Twists her arm or pulls her hair | -4.8\% | $\begin{aligned} & -.00117 \\ & (.0003) \end{aligned}$ | . 0001 | . 024 | 967243 |
| Slaps her | -4.7\% | $\begin{aligned} & -.00284 \\ & (.00047) \end{aligned}$ | <. 0001 | . 061 | 967243 |
| Kicks, drags, or beats her up | -4.5 \% | $\begin{aligned} & -.00095 \\ & (.00029) \end{aligned}$ | . 001 | . 021 | 967243 |
| Punches her with his fist or something else | -2.7\% | $\begin{aligned} & -.00061 \\ & (.00029) \end{aligned}$ | . 0373 | . 022 | 967243 |
| Strangles or burns her | -4.3 \% | $\begin{aligned} & -.00022 \\ & (.00014) \end{aligned}$ | . 1258 | . 005 | 967243 |

All estimations include country and time fixed effects.

Table 7: Daughter effects on intimate partner violence - interaction with daughter's age.

|  | Effect in \% | b/(SE) | p-value | Mean if son | Obs. |
| :--- | :---: | :---: | :---: | :---: | :---: |
| $1^{\text {st }}$ born daughter | $-.5 \%$ | -.00072 | .7355 | .136 | 309387 |
|  |  | $(.00214)$ |  |  |  |
| Years since birth | $-.7 \%$ | -.00098 | $<.0001$ |  |  |
|  |  | $(.0001)$ |  |  |  |
| Daughter $\cdot$ years | $-.2 \%$ | -.00033 | .0223 |  |  |
|  |  | $(.00014)$ |  |  |  |

All estimations include country and time fixed effects.

## C. Interaction with daughter's age.

In Table 7, we report the estimates from the following equation:

$$
\begin{equation*}
Y_{i c t}=\alpha+\delta_{1} D_{i}+\delta_{2} A_{i}+\delta_{3} A_{i} \times D_{i}+\delta_{4} T_{t}+\delta_{5} C_{c}+\epsilon_{i c t} \tag{2}
\end{equation*}
$$

where $A_{i}$ is years since the first child's birth and the other variables are as in Equation 1. Estimating this equation provides us with an alternative way of testing how the daughter effect evolves in time, in addition to the description provided in Table 3. Both approaches lead to the consistent observation that the daughter effect is not significant in the first years, but grows with time.

## D. Interaction with daughter's age: all outcomes.

Tables 8 and 9 correspond to Tables 7 and 3, but reporting the estimated effects on all the outcomes, not only the main violence measure.

Table 9: Daughter effects on intimate partner violence - exposure time.

|  | Effect in \% | b/(SE) | p-value | Mean if son | Obs. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| A. Birth less than 5 years ago |  |  |  |  |  |
| Experienced any violence | -2.4\% | -. 00324 | . 1633 | . 135 | 79493 |
|  |  | $(.00232)$ |  |  |  |
| Insults her or makes her feel bad | -1.7\% | -. 00154 | . 4057 | . 089 | 82723 |
|  |  | (.00185) |  |  |  |
| Threatens her with harm | $-2.2 \%$ | -. 00079 | . 4815 | . 036 | 93970 |
|  |  | $(.00112)$ |  |  |  |
| Pushes, shakes, or throws something at her | . 3 \% | . 00012 | . 9193 | . 043 | 96399 |
|  |  | (.00123) |  |  |  |
| Twists her arm or pulls her hair | -1.7\% | -. 00042 | . 6808 | . 025 | 81922 |
|  |  | $(.00102)$ |  |  |  |
| Slaps her | -1.6\% | -. 00129 | . 4558 | . 08 | 94961 |
|  |  | $(.00173)$ |  |  |  |
| Kicks, drags, or beats her up | -3.8\% | -. 00121 | . 2607 | . 032 | 94607 |
|  |  | (.00108) |  |  |  |
| Punches her with his fist or something else | -4.2\% | -. 00141 | . 1819 | . 034 | 94961 |
|  |  | (.00106) |  |  |  |
| Strangles or burns her | 4.3 \% | . 00037 | . 5426 | . 009 | 96399 |
|  |  | $(.00061)$ |  |  |  |
| B. Birth 6 to 11 years ago |  |  |  |  |  |
| Experienced any violence | . 6 \% | . 0009 | . 7221 | . 159 | 78934 |
|  |  | (.00253) |  |  |  |
| Insults her or makes her feel bad | . 3 \% | . 00029 | . 8893 | . 101 | 82072 |
|  |  | (.00208) |  |  |  |
| Threatens her with harm | . $2 \%$ | . 00009 | . 9451 | . 04 | 93197 |
|  |  | (.00128) |  |  |  |
|  |  |  |  | ntinued on $n$ | xt page |

Table 9 - Continued from previous page

|  | Effect in \% | b/(SE) | p-value | Mean if son | Obs. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Pushes, shakes, or throws something at her | -2.4 \% | -. 00117 | . 4079 | . 049 | 95169 |
|  |  | (.00141) |  |  |  |
| Twists her arm or pulls her hair | -. 7 \% | -. 0002 | . 8656 | . 029 | 80906 |
|  |  | (.00117) |  |  |  |
| Slaps her | -. 2 \% | -. 00019 | . 9197 | . 098 | 93587 |
|  |  | (.0019) |  |  |  |
| Kicks, drags, or beats her up | -3.4 \% | -. 00127 | . 3109 | . 038 | 93613 |
|  |  | (.00126) |  |  |  |
| Punches her with his fist or something else | -1.4 \% | -. 00055 | . 6681 | . 039 | 93587 |
|  |  | (.00127) |  |  |  |
| Strangles or burns her | -6.8 \% | -. 00067 | . 3589 | . 01 | 95169 |
|  |  | (.00073) |  |  |  |
| C. Birth 12 to 19 years ago |  |  |  |  |  |
| Experienced any violence | -8.4 \% | -. 01151 | $<.0001$ | . 137 | 81994 |
|  |  | (.00239) |  |  |  |
| Insults her or makes her feel bad | $-7.6 \%$ | -. 00697 | . 0004 | . 091 | 84969 |
|  |  | (.00198) |  |  |  |
| Threatens her with harm | -8.4 \% | -. 00315 | . 0108 | . 037 | 96553 |
|  |  | (.00124) |  |  |  |
| Pushes, shakes, or throws something at her | -7.8\% | -. 00346 | . 0093 | . 044 | 98853 |
|  |  | (.00133) |  |  |  |
| Twists her arm or pulls her hair | $-5.4 \%$ | -. 00143 | . 1971 | . 026 | 84294 |
|  |  | (.00111) |  |  |  |
| Slaps her | -7.8\% | -. 00635 | . 0003 | . 081 | 97321 |
|  |  | (.00173) |  |  |  |
| Kicks, drags, or beats her up | -5.1\% | -. 0017 | . 1456 | . 033 | 97410 |
|  |  | (.00117) |  |  |  |
| Punches her with his fist or something else | -3.5\% | -. 00126 | . 2892 | . 036 | 97321 |
|  |  | (.00119) |  |  |  |
| Strangles or burns her | -17.5\% | -. 00156 | . 0241 | . 009 | 98853 |
|  |  | (.00069) |  |  |  |

D. Birth more than 19 years ago

Table 9 - Continued from previous page

|  | Effect in \% | b/(SE) | p-value | Mean if son | Obs. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Experienced any violence | -5.9\% | -. 00621 | . 0076 | . 105 | 68966 |
|  |  | (.00233) |  |  |  |
| Insults her or makes her feel bad | -4.4 \% | -. 00321 | . 0992 | . 072 | 71920 |
|  |  | (.00195) |  |  |  |
| Threatens her with harm | -5.2 \% | -. 00152 | . 1996 | . 029 | 82890 |
|  |  | (.00118) |  |  |  |
| Pushes, shakes, or throws something at her | -5.9\% | -. 00195 | . 1195 | . 033 | 84592 |
|  |  | (.00125) |  |  |  |
| Twists her arm or pulls her hair | -2.1 \% | -. 00039 | . 7035 | . 018 | 70668 |
|  |  | (.00102) |  |  |  |
| Slaps her | -8.9 \% | -. 00513 | . 0016 | . 057 | 83068 |
|  |  | (.00162) |  |  |  |
| Kicks, drags, or beats her up | -4.3\% | -. 00103 | . 3356 | . 024 | 83162 |
|  |  | (.00107) |  |  |  |
| Punches her with his fist or something else | $-6.4 \%$ | -. 00163 | . 1463 | . 025 | 83068 |
|  |  | (.00112) |  |  |  |
| Strangles or burns her | -13.4 \% | -. 00097 | . 1353 | . 007 | 84592 |
|  |  | (.00065) |  |  |  |

All estimations include country and time fixed effects.

Table 8: Daughter effects on intimate partner violence - interaction with daughter's age.

|  |  | Effect in \% | b/(SE) | p-value | Mean if son | Obs. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Experienced any violence | $1^{\text {st }}$ born daughter | -. 5 \% | $\begin{gathered} -.00072 \\ (.00214) \end{gathered}$ | . 7355 | . 136 | 309387 |
|  | Years since birth | -. 7 \% | $\begin{aligned} & -.00098 \\ & (.0001) \end{aligned}$ | <. 0001 |  |  |
|  | Daughter • years | -. 2 \% | $\begin{aligned} & -.00033 \\ & (.00014) \end{aligned}$ | . 0223 |  |  |
| Insults her or makes her feel bad | $1{ }^{\text {st }}$ born daughter | -. 5 \% | $\begin{gathered} -.00041 \\ (.00178) \end{gathered}$ | . 8187 | . 088 | 309387 |
|  | Years since birth | -. 3 \% | $\begin{aligned} & -.00025 \\ & (.00008) \end{aligned}$ | . 0025 |  |  |
|  | Daughter • years | -. 2 \% | $\begin{gathered} -.0002 \\ (.00012) \end{gathered}$ | . 0986 |  |  |
| Threatens her with harm | $1{ }^{\text {st }}$ born daughter | 2 \% | $\begin{gathered} .00071 \\ (.00117) \end{gathered}$ | . 5403 | . 035 | 309387 |
|  | Years since birth | 0 \% | $\begin{gathered} 0 \\ (.00005) \end{gathered}$ | . 9435 |  |  |
|  | Daughter • years | -. 4 \% | $\begin{aligned} & -.00015 \\ & (.00008) \end{aligned}$ | . 0596 |  |  |
| Pushes, shakes, or throws something at her | $1{ }^{\text {st }}$ born daughter | 1.7 \% | $\begin{gathered} .00074 \\ (.00127) \end{gathered}$ | . 5614 | . 042 | 309387 |
|  | Years since birth | -. 3 \% | $\begin{gathered} -.00011 \\ (.00006) \end{gathered}$ | . 0727 |  |  |
|  | Daughter • years | -. 4 \% | $\begin{aligned} & -.00018 \\ & (.00008) \end{aligned}$ | . 0298 |  |  |
| Twists her arm or pulls her hair | $1{ }^{\text {st }}$ born daughter | -. 1 \% | $\begin{aligned} & -.00003 \\ & (.00098) \end{aligned}$ | . 9732 | . 024 | 309387 |
|  | Years since birth | -. 7 \% | $\begin{aligned} & -.00016 \\ & (.00005) \end{aligned}$ | . 0005 |  |  |
|  | Daughter • years | -. 2 \% | $\begin{aligned} & -.00004 \\ & (.00006) \end{aligned}$ | . 513 |  |  |
| Slaps her | $1^{\text {st }}$ born daughter | . 9 \% | $\begin{gathered} .00071 \\ (.00171) \end{gathered}$ | . 6781 | . 082 | 309387 |
|  | Years since birth | -1 \% | $\begin{aligned} & -.00085 \\ & (.00008) \end{aligned}$ | <. 0001 |  |  |
|  | Daughter • years | -. 4 \% | $\begin{gathered} -.0003 \\ (.00011) \end{gathered}$ | . 0084 |  |  |
| Kicks, drags, or beats her up | $1^{\text {st }}$ born daughter | -4.3\% | $\begin{aligned} & -.00136 \\ & (.0011) \end{aligned}$ | . 2166 | . 032 | 309387 |
|  | Years since birth | -. 7 \% | $\begin{gathered} -.00023 \\ (.00005) \end{gathered}$ | <. 0001 |  |  |
|  | Daughter • years | 0 \% | $\begin{gathered} 0 \\ (.00007) \end{gathered}$ | . 9939 |  |  |
| Punches her with his fist or something else | $1{ }^{\text {st }}$ born daughter | -1.2 \% | $\begin{aligned} & -.00037 \\ & (.00111) \end{aligned}$ | . 7395 | . 032 | 309387 |
|  | Years since birth | -. 3 \% | $\begin{aligned} & -.00009 \\ & (.00005) \end{aligned}$ | . 0746 |  |  |
|  | Daughter • years | -. 1 \% | $\begin{aligned} & -.00004 \\ & (.00007) \end{aligned}$ | . 6109 |  |  |
| Strangles or burns her | $1^{\text {st }}$ born daughter | -. 4 \% | $\begin{aligned} & -.00003 \\ & (.00058) \end{aligned}$ | . 9551 | . 009 | 309387 |
|  | Years since birth | . 9 \% | $\begin{gathered} .00008 \\ (.00003) \end{gathered}$ | . 0031 |  |  |
|  | Daughter • years | -. 8 \% | $\begin{aligned} & -.00007 \\ & (.00004) \end{aligned}$ | . 0761 |  |  |

All estimations include country and time fixed effects.

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13/19 June. Eva M. Berger, Henning Hermes, Guenther Koenig, Felix Schmidt, and Daniel Schunk. "Self-regulation Training and Job Search Behavior: A Natural Field Experiment Within an Active Labor Market Program"

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> 18/19 September. Julie Riise, Barton Willage and Alexander Willén. "Can Female Doctors Cure the Gender STEMM Gap? Evidence from Randomly Assigned General Practitioners"

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21/19 July. Mai Nguyen-Ones, and Frode Steen. "Market Power in Retail Gasoline Markets"

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[^0]:    *I have received valuable comments from Catalina Franco, Selim Gulesci, Andreas Kotsadam, Katrine Vellesen Løken and Lore Vandewalle. I also acknowledge support from the Research Council of Norway (Nos. 250415 and 262675). Contact information: NHH Norwegian School of Economics, Helleveien 30, 5045 Bergen, Norway, vincent.somville@nhh.no.

[^1]:    ${ }^{1}$ IPV is observed in not only humans, but also other species; similar behaviors have recently been observed among baboons (Baniel et al., 2017) and chimpanzees (Feldblum et al., 2014), leading biologists to speculate on the genetic and evolutionary origins of IPV.
    ${ }^{2}$ I exclude Asian countries (Afghanistan, Myanmar, India, Jordan, Nepal, and Pakistan) given the literature emphasizing strong son preferences in these countries and unbalanced sex ratios even at first birth (for example, according to the latest DHS survey done in Afghanistan only 42 percent of the firstborn children are girls, which raises doubts about the randomness of the sex of the reported firstborn). However, as shown in the Appendix, using all countries does not affect the estimates much B.

[^2]:    ${ }^{3}$ e.g., that couples do not practice sex-selective abortion, a reasonable assumption in the populations under study who generally do not have access to in-utero sex detection technologies.
    ${ }^{4}$ Note that this finding is currently being challenged by Costa et al. (2019).

[^3]:    ${ }^{5}$ See also the Lundberg (2005) review documenting the effects that children have on other domains.

[^4]:    ${ }^{6}$ Note that such interventions don't always have an effect on violence (Green et al., 2015). Also see Buller et al. (2018) for a recent review of the effects of cash transfers on IPV.

[^5]:    ${ }^{7}$ Calculated using Stata ${ }^{\circledR}$ 16: power twoproportions . 13 .12545, test(chi2) alpha(0.05) power(0.8) and power twoproportions .13 .12545, test(chi2) alpha(0.005) power(0.8).

[^6]:    ${ }^{8}$ I also dropped the women whose firstborns are twins, and the Namibia 2013 survey due to missing data about the sex of children.
    ${ }^{9}$ The module can be consulted here: https://dhsprogram.com/publications/publication-dhsqm-dhs-questionnaires-and-manuals.cfm
    ${ }^{10}$ Additional questions have been asked in some of the surveys, but to preserve a high sample size, here I focus on those that are available in all surveys.

[^7]:    ${ }^{11}$ This is by construction; the index is normalized, but including it in the table is important to check that couples with a firstborn son or daughter have similar wealth.

[^8]:    ${ }^{12}$ In the Appendix, Table 7, I follow the alternative approach of interacting the sex of the firstborn child and the years since birth, and reach the same conclusion.

[^9]:    The countries used in the main tables are in bold (Tables 1 to ??).

