

The Effect of Civil Conflict on Domestic Violence: The Case of Peru

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THE EFFECT OF CIVIL CONFLICT ON DOMESTIC VIOLENCE: THE CASE OF PERU

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Abstract

We study the effect of women's exposure to civil conflict violent events during childhood and early teenage years on the probability that they will experience domestic violence in their marriages as adults. In particular, we investigate the case of the internal conflict in Peru during the 1980s and early 1990s, and its effect on the incidence of domestic violence between 2004 and 2012. We find that female exposure to conflict violence increases their later risk of being a perpetrator and a victim of domestic violence. The average effects for women affected by the conflict are small, although they mask important heterogeneities as some regions were affected by the conflict more severely than others. The effects are substantial for women in the highest categories of exposure. We also find evidence that a potential mechanism through which exposure to the conflict affects domestic violence in the long-term is normalization of the use of violence. Women more exposed to conflict violent events are more likely to justify the use of violence against women and more likely to stay in a violent relationship.

Keywords: domestic violence, civil conflicts, social norms, Peru

JEL Classification Codes: J12; J16;

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1. Introduction

There is ample evidence that domestic violence is more likely to occur among persons who were exposed to domestic violence as children. Many studies have provided support for the link between growing up in a violent family environment and being a perpetrator of spousal abuse (Barnett, Miller-Perrin and Perrin, 2005, Caesar, 1988, Stith et al., 2000), as well as being a victim of spousal abuse (Cappell and Heiner, 1990, Mihalic and Elliott, 1997, Simons et al., 1993, Stith et al., 2000). In contrast, the relationship between exposure to any type of community violence and experience of subsequent domestic violence has been less well-established empirically (Buvinic, Morrison and Shifter, 1999). This study is one of the first to examine this relationship. In particular, we study the effect of women's exposure to civil conflict events during their childhood and early teenage years on their probability of being perpetrators and victim of domestic violence in their adult relationships. We do this analysis for the case of Peru, by linking pooled cross-sections of the Peruvian Demographic and Health Survey (DHS) across the years 2004 through 2012, which provides information on domestic violence, with a detailed registry of conflict-related events between 1980 and 2000.

Civil conflicts are known to have long term effects. In the Peruvian case, previous research has found effects on schooling, physical height and earnings capacity. Leon (2012) found that the average person exposed to the political violence in Peru before starting school accumulated about 0.21 less years of education by adulthood. This effect is more important for women than for men and for Spanish speakers than for native speakers. Sanchez (2010) found evidence that the conflict had an impact on child nutrition. He found that in regions that were affected by a high level of violence, a one percent increase in conflict intensity reduced average

height-for-age by about 3% of the standard deviation. Grimard and Laszlo (2014) found that the effects of the conflict on height persist in the long term, at least in the case of women. Galdo (2010) found that a one standard deviation increase in civil war exposure during the first 36 months of life leads to a 4% fall in adult monthly earnings.

Our study contributes to this literature by examining another possible long-term outcome of the civil conflict in Peru. Our empirical investigation is based upon the hypothesis that early exposure to violence in the community can increase the likelihood of experiencing violence within households. Although there is no prior direct evidence of this link in the psychology literature, there are many studies that suggest that violence is a learned behavior (or a social norm). These studies would support our prediction that people that were exposed to conflict violence in their childhood may be more likely to resort to violence when dealing with their own partners. For example, Fowler et al. (2009) states that “Social cognition theories propose that exposure to community violence normalizes the use of aggressive behavior. As a result, youths learn that violence is an effective method of problem solving and, therefore, are more likely to engage in violent acts themselves” (p. 228). Guerra, Huesmann and Spindler (2003) also find that exposure to community violence among urban elementary school children in Chicago increases normative beliefs approving aggression and aggressive fantasies. Schwab-Stone et al. (1995) find that, among 6th, 8th and 10th graders, exposure to violence is associated with greater willingness to use physical aggression, diminished perception of risk (of risky activities), lower personal expectations, alcohol use and diminished academic achievement. Scarpa, Haden and Hurley (2006) explore the consequences of lifetime community violence exposure and find that the incidence of depression, post-traumatic stress symptoms, aggressive behavior, and

interpersonal problems is higher among individuals who were exposed to community violence during their early adulthood.

In addition, there is evidence that not only being a victim, but witnessing or hearing about violent events also impacts child development (Fowler et al., 2009, Scarpa et al., 2006). Living in constant fear of violence can result in severe psychological damage and affect child development. Irritability, interpersonal conflict and anger are usually mentioned as normal reactions to trauma. According to Williams (2007) , “the negative developmental effects appear more likely if children experience repeated or repetitive 'process' trauma or live in unpredictable climates of fear” (p. 274). This evidence is important for our research because even though we cannot identify in our data direct victims of the armed conflict in Peru, we can measure the level of violence in their area of residence.

Although this is not the only paper that studies the effects of civil conflicts on domestic violence, it is the first that focuses on the effects of exposure in early childhood and teenage years.¹ Grimard and Laszlo (2014) also focus on the Peruvian case, but they focus on in-utero exposure to the conflict (until 12 months after birth) and find no effects. Noe and Rieckmann (2013) analyze the case of Colombia, finding that higher conflict intensity increases the likelihood of women becoming a victim of domestic violence. However, they investigate the effect of contemporary violence on domestic violence, while our study evaluates the long-term impact of early exposure on the incidence of domestic violence in adult relationships. La-Mattina (2015) investigates the case of the Rwandan genocide. She finds that women who married after the 1994 genocide experience significantly increased domestic violence than women who

¹ It is worth noting that the papers cited here were developed contemporaneously with our study. Some of them (La-Mattina, 2015, Noe and Rieckmann, 2013) cite an early version of this study.

married before. La-Mattina (2015) also explores long term effects, as she uses the 2005 Rwanda Demographic and Health Survey (DHS). However, unlike the Peruvian case, the Rwanda conflict was a high intensity, short duration conflict that substantially changed the structure of the population. As a result, La-Mattina (2015) finds that part of the effect of the genocide on domestic violence is driven by changes in the marriage market sex ratios induced by the conflict. The Peruvian case provides a different context, since it was a longer conflict (for over a decade) and its intensity (measured by total related deaths and disappearances) were not as large as in the Rwandan genocide. Hence, we do not find evidence that in the Peruvian case the long-term effects of the conflict on domestic violence operates through the marriage market. Also, as noted earlier, an important difference is that we investigate the effects of the conflict not for women of marriageable age, but for women exposed to the conflict as children and early teenagers.

Our results indicate that women's exposure to civil conflict violent events during their childhood and early teenage years is associated with increases in the probability of being a perpetrator of violence towards their partners and in the probability of being a victim of violence from their partners. The sizes of the effects are small for the average woman affected by the conflict. However, we find substantial effects for women with high levels of exposure to the conflict. For example, a level of exposure corresponding to the highest decile increases the probability of a woman being victim of any kind of violence (psychological, physical or sexual) in the last 12 months by 11 percentage points. This is a substantial effect, given that the sample average is 22%.

The rest of the paper is organized as follows. Section 2 of this paper presents a brief description on the evolution of the civil conflict in Peru during the 1980s and 1990s. Section 3 describes the data sources. Section 4 discusses the empirical approaches and presents the

estimation results. Section 5 discusses potential mechanisms through which exposure to conflict violence at an early age can affect domestic violence later in life. Section 6 presents a number of robustness checks. Section 7 discusses the data limitations and their implication for our estimated results. Finally, Section 8 presents the conclusions of this study.

2. The Civil Conflict in Peru

The aim of this section is to provide a brief recount of the evolution of the conflict in Peru. It started in 1980 when the Peruvian Communist Party-Shining Path (PCP-SL) declared war against the Peruvian State. The symbolic action that started the conflict was the burning of the election ballots in the district of Chuschi, in the region of Ayacucho (south-central highlands of Peru), in May 1980 (TRC 2004). Initially, the PCP-SL carried out isolated attacks against public and private property and different propaganda actions in favor of the armed conflict. The government perceived them as marginal events, concentrated in the region of Ayacucho and perpetrated by a small group of left wing insurgents. However, the level of violence of the attacks systematically escalated between 1980 and 1982 (see Figure 1). The government answered by increasing the severity of its response and by 1983 the Peruvian army joined the war against the PCP-SL. The level of violence and unrest spiked in 1983-1984 and then again in 1989-1990 (Figure 1). In 1984, the Revolutionary Movement Tupac Amaru (MRTA), a self-proclaimed left-wing group, also joined the war against the State.

By 1986, the conflict had spread to other parts of the country including the regions of Puno, Junin, the Huallaga Valley and Lima, the capital of Peru. By the early 1990s the violence peaked in the capital, especially in the form of murders and terrorists attacks. In 1991, more than half of the population in Peru lived under a curfew system with restricted civil rights.

The PCP-SL not only targeted popular leaders, local authorities and land holders, but also attacked the civil population. Part of the strategy of PCP-SL was to recruit individuals using ideological propaganda and a strategy of intimidation. Thus, whenever residents of a village declared themselves against the revolution or did not want to provide food or supplies, they were brutally punished (Leon, 2012). As a result, the vast majority of the victims of human rights violations during the conflict were civilians. Farmers accounted for almost half of the victims (48%), while local traders, independent workers and housewives accounted for an additional 20% (Leon, 2012).

In September 1992 the leader of the PCP-SL, Abimael Guzman, was captured. In the years that followed the level of violence decreased rapidly. A peace agreement was proposed by Guzman in October 1993. Although an agreement was not reached, it was a key factor in the Government propaganda strategy and many militants of the PCP-SL decided to abandon the armed conflict against the State. Additional arrests of important leaders from the PCP-SL and the MRTA further weakened these movements. By the second half of the 90s the conflict had largely subsided with only a few significant isolated violent events taking place. In total, according to the Truth and Reconciliation Commission (TRC) nearly 70,000 people died in Peru between 1980 and 2000 due to the civil conflict.

3. Data Description

We use two main datasets in this study. Information on domestic violence comes from the Peruvian Demographic and Health Survey (DHS), across years 2004 through 2012 (pooled yearly cross-sections). The DHS is a nationally-representative sample of women between 15 and 49 years of age. The DHS includes an extensive set of questions to determine if the respondent is

(or has been) a victim of domestic violence. Also, it is perhaps one of the few surveys that collect this information using a representative population sample rather than using, for example, data from shelters for abused women. In the Peruvian DHS, one woman per household is randomly selected to answer the domestic violence questionnaire, which is the last section of the interview. The available information in the DHS allows us to distinguish between three types of violence against women: psychological, physical and sexual violence. Psychological violence encompasses verbal abuse, threats of physical violence or threats about leaving or withdrawing economic support. Physical violence includes different forms of battering and attacks (or threats) with a knife, gun or other weapons. Sexual violence is defined as having sexual relations against the partner's will. The DHS also contains questions regarding physical violence from the woman towards her husband or partner. The Appendix shows how the questions available in the DHS regarding domestic violence are used in this study.

A limitation of the DHS for this study is the lack of complete information about women's migratory history. In order to construct a reliable measure of women exposure to conflict violence during childhood and early teenage years, we select for our analysis women who report to have always lived in the same town, i.e. non-migrant women, which represents about half of the sample. This selection can introduce bias in our results since non-migrant women may be different from women who migrated. For example, women that migrated may have been affected more severely by the conflict. Thus, our analysis would only include women that were not displaced by the conflict. We return to this point in Section 7.

The second dataset are detailed records on conflict-related events that occurred in Peru between 1980 and 2000. These records were collected by the Peruvian Truth and Reconciliation Commission (TRC, 2004) and provide information on the location, year, type, victims, and

perpetrator group associated with each event. This allows us to construct variables measuring exposure to violent events related to the civil conflict. We define a violent event as an assassination, a kidnapping, a sexual assault, or an attack on a public or private facility or institution that occurred in a particular province of Peru. We aggregate events at the province level rather than at a lower level (i.e. district) because the DHS is not representative at low levels of geographic disaggregation. Peru is comprised of 24 regions, 194 provinces and 1,818 districts. The DHS is designed to be representative only at the regional level. Moreover, since only one woman per household in the DHS is selected for the domestic violence questionnaire, the number of available observations is smaller than in the full sample. However, since we are pooling many years of data, we are able to perform inference at lower level of geographic aggregation. In our analysis, we aggregate conflict-related violent events at the province level as compromise between measuring localized exposure to conflict-related violence and the statistical representativeness of the data.

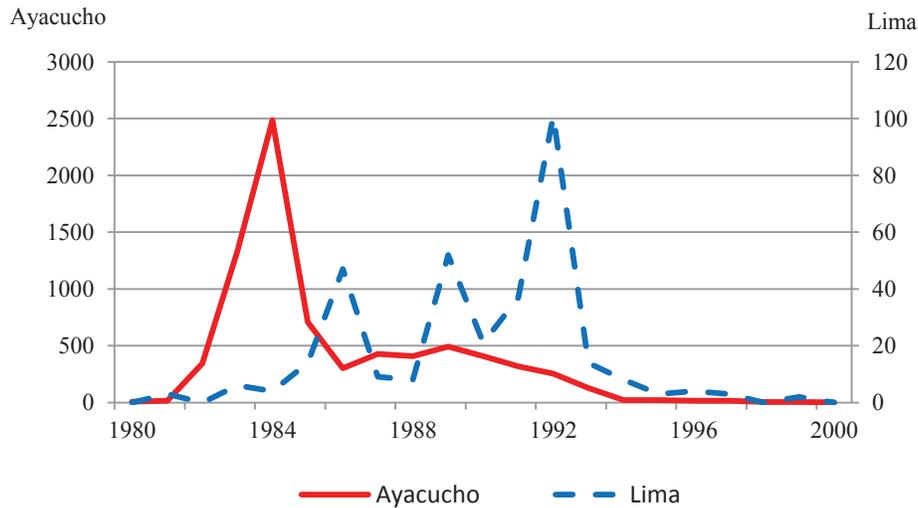
Based upon the timing of the conflict-related events, the woman's year and province of birth, we constructed her early exposure to conflict violence, following a methodology similar to Leon (2012). Our measure records the total number of conflict violent events that occurred in the woman's province of residence until the age of 16. We stopped at age 16 because we want to restrict our measure of exposure to conflict violent events to the years prior to the marriageable age, to be certain that the exposure has occurred prior to marriage.²

² In Peru, even though the majority is reached at age 18, individuals can get married at the age of 16 with parental consent. In fact, we observe in the data that a non-trivial fraction of women are married as early as age 16.

4. Empirical strategy and estimation results

The empirical strategy relies on the variation in the timing and frequency of conflict violent events over time and across provinces. The civil conflict reached different geographic areas in different years and with different intensities over time as was described in Section 2. Figure 1 provides two examples. It shows the incidence of deaths and reported missing people in the region of Ayacucho, where the conflict started and one of the most affected regions, and the region Lima, the capital of Peru. Figure 1 shows that conflict-related violence peaked in Ayacucho by 1984, to slowly decline after that (as it spread to other regions in the country). In comparison, in Lima the violence peaked relatively late, in the early 90s, and declined towards the end of the decade.

Figure 1: Number of Deaths and Missing People



Source: TRC (2004)

We use this geographic and temporal variation in the occurrence of conflict violent events to identify their effects on the probability of domestic violence in later-life relationships. Our main specification is the linear probability model shown in equation (1):

$$y_{i,j,t,w} = \alpha + \beta CVE_{i,j,t} + \gamma X_i + \delta_j + \phi_t + \lambda_w + \epsilon_i \quad (1)$$

The subscript i indexes individuals, the subscript j indexes provinces, the subscript t indexes year of birth, and the subscript w indexes wave or year of interview. The variable $CVE_{i,j,t}$ measures the total exposure to conflict violent events up to the age of 16, our main variable of interest. The term X_i is a vector that controls for other factors that can affect the occurrence of domestic violence. In particular, vector X_i controls for: i) violence observed at home as a child (whether women were battered by their fathers or by their mothers or whether their fathers used to batter their mothers); ii) education attainment (the woman's education level, her husband or partner's education level and whether the education level of the woman is lower than her husband's as a measure of being in a disadvantaged position in the household); iii) labor force status and labor income (whether the woman works for pay and whether woman's income is lower than her husband's income as a measure of being in a disadvantaged position in the household); iv) women's body mass index (BMI); v) age at which the woman got married or started the union; vi) the woman's ethnicity; vii) the household's wealth index; and, viii) the number of children five years old or younger. We also control for province effects (term δ_j), for cohort or birth year effects (term ϕ_t) and for year of interview effects (term λ_w).

We investigate the effect of early exposure to conflict violent events on several measures of domestic violence, represented by the dependent variable $y_{i,j,t,w}$ in equation (1). In particular, we look at the effects on the following variables: i) physical violence from the woman to her partner; ii) physical violence from partner to the woman; iii) sexual violence from the partner to the woman; iv) psychological violence from the partner to the woman. The Appendix shows how each of these variables is measured in the DHS. The impacts of early exposure to conflict violent events are estimated for whether these measures of domestic violence have ever occurred and for

whether they have occurred within the last 12-months prior to the interview. Thus, we estimate not only if exposure to conflict violence (in the pre-marriageable years) has ever affected the incidence of domestic violence within the marriage, but also whether exposure to conflict violence continues to affect the incidence of domestic violence in the long term, i.e. more than 20 years after the start of the conflict.

Table 1 shows the sample averages of the outcome variables and of exposure to conflict violent events. Table 1 shows that about 10% of women report to have physically abused their partners at some point. In comparison, 39% of women report to have been physically abused by their partners at some point. Also, about 32% and 9% of women report to have been abused psychologically or sexually, respectively, by their partners. In total, almost half of the women in the sample (47%) report to have been abused (physically, sexually, or psychologically) by their partners at some point. Table 1 also shows that the incidence of domestic violence in the last 12 months prior to the interview is smaller (as expected) but still large. Almost one quarter (22%) of the women in the sample report to have been victims of some type of violence (physical, sexual, or psychological) within the last year. The prevalence of domestic violence in Peru is incontestably large. In fact, Peru is one of the countries with the highest rates of violence against women in the Latin American and Caribbean region, only below Bolivia and similar to Colombia (ECLAC, 2015). Table 1 also shows that women in the sample were exposed on average to 28 violent events related to the civil conflict when they were between 0 and 16 years old. It also shows that this variable has very extreme values, indicating that some areas were affected more severely by the conflict than others.

Estimation of equation (1) is limited to provinces with at least one conflict-related violent event, since the identification strategy relies on variation in the amount of exposure among

women born in the same province at different times. We also limit the sample to women born between 1965 and 1990, so that all women in our sample were 15 years old or younger when the internal conflict started, and are of marriageable age by the start of the estimation sample (i.e. 2004). Since we are studying domestic violence or intimate partner violence, we also limit our sample to women who are married (or cohabitate with a partner) or were married (cohabitated) in the past. Standard errors in equation (1) are clustered at the province level. Table 2 shows the estimation results. We report the coefficient associated with early exposure to conflict violent events up to the age of 16 (CVE). For comparison purposes, we also report the coefficients associated with measures of violence observed at home as a child. These variables are strong predictors of domestic violence in later life, both in our data and in the literature.

Table 1: Descriptive Statistics of Outcomes and Exposure to Conflict-Violence

Variable	Mean	Std. Dev	Min	Max
<i>Domestic violence against women - Ever (0=No; 1=Yes)</i>				
Physical violence from woman to partner	0.10	0.29	0.00	1.00
Physical violence from partner to woman	0.39	0.49	0.00	1.00
Sexual violence from partner to woman	0.09	0.28	0.00	1.00
Psychological violence from partner to woman	0.32	0.47	0.00	1.00
Any kind of violence from partner to woman	0.47	0.50	0.00	1.00
<i>Domestic violence against women - Last 12 months (0=No; 1=Yes)</i>				
Physical violence from woman to partner	0.04	0.19	0.00	1.00
Physical violence from partner to woman	0.14	0.35	0.00	1.00
Sexual violence from partner to woman	0.04	0.18	0.00	1.00
Psychological violence from partner to woman	0.17	0.37	0.00	1.00
Any kind of violence from partner to woman	0.22	0.41	0.00	1.00
<i>Exposure to Civil Conflict Violence</i>				
Total CVE between 0 and 16 years old (in hundreds)	0.28	0.67	0.00	4.52
Total CVE between 0 and 8 years old (in hundreds)	0.12	0.42	0.00	4.10
Total CVE between 9 and 16 years old (in hundreds)	0.16	0.41	0.00	3.90
Placebo: Total CVE between minus 8 and 0 years old (in hundreds)	0.02	0.20	0.00	3.57

Source: DHS (2004-2012)

Notes: Includes only non-migrant women from provinces affected by the internal conflict, born in 1965-1990 (see text for more details).

Table 2: Regression Results - Effect of Early Exposure to Conflict Violent Events on Domestic Violence Outcomes

	Physical violence from woman to partner (0=No; 1=Yes)		Physical violence from partner to woman (0=No; 1=Yes)		Sexual violence from partner to woman (0=No; 1=Yes)		Psychological violence from partner to woman (0=No; 1=Yes)		Any type of violence from partner to woman (0=No; 1=Yes)	
	Ever	Last 12 months	Ever	Last 12 months	Ever	Last 12 months	Ever	Last 12 months	Ever	Last 12 months
<i>Early Exposure to Civil Conflict Violence</i>										
Total CVE between 0 and 16 years old (in hundreds)	0.010* (0.006)	0.010** (0.004)	0.018* (0.010)	0.012** (0.006)	0.003 (0.009)	0.000 (0.004)	0.019* (0.010)	0.019* (0.011)	0.027*** (0.009)	0.022* (0.012)
<i>Exposure to Violence at Home as a child</i>										
Woman battered by mother when child	0.057*** (0.016)	0.037*** (0.013)	0.076*** (0.017)	0.051*** (0.015)	0.021* (0.012)	0.009 (0.008)	0.075*** (0.017)	0.057*** (0.016)	0.094*** (0.019)	0.072*** (0.020)
Woman battered by father when child	0.063*** (0.011)	0.031*** (0.009)	0.072*** (0.013)	0.042*** (0.014)	0.046*** (0.012)	0.019** (0.009)	0.075*** (0.017)	0.048*** (0.016)	0.089*** (0.014)	0.060*** (0.018)
Father used to batter mother	0.041*** (0.005)	0.014*** (0.003)	0.147*** (0.006)	0.062*** (0.006)	0.036*** (0.005)	0.016*** (0.002)	0.098*** (0.007)	0.059*** (0.006)	0.156*** (0.006)	0.083*** (0.006)
# Observations	17,270	17,261	17,270	17,269	17,269	17,269	17,270	17,267	17,270	17,270

Notes: Standard errors are clustered at the province level. Includes only non-migrant women from provinces affected by the internal conflict, born in 1965-1990. Each regression includes controls for province effects, year of birth effects, and interview year effects. We also control for the following characteristics: i) violence observed at home as a child (whether women were battered by their fathers or by their mothers or whether their fathers used to batter their mothers); ii) education attainment (women's education level, their husband or partners' education level, and whether the education level of the woman is lower than her husband's); iii) labor force status and labor income (whether the women works for pay and whether woman's income is lower than her husband's income); iv) women's BMI; v) age at which the women got married or started the union; vi) women's ethnicity; vii) household's wealth index; and, viii) the number of children five years old or younger in the household. *** denotes statistical significance at 1% level; ** denotes statistical significance at 5% level; * denotes statistical significance at 10% level.

The results in Table 2 indicate that early exposure to conflict violent events increases the probability of physical violence from the woman to her partner and from the partner to the woman. It also increases the probability of psychological violence against the woman, although the effects are statistically significant at the 10% level. We find no statistically significant effect of early exposure to conflict violence on sexual violence. Interestingly, Table 2 also shows that the effects of exposure do not seem to lessen much over time. The effects are similar in size regardless whether we measure the occurrence of domestic violence at any point in time (ever) or in the last 12 months (the small differences in size are not statistically significant).

We can also assess the importance of the civil conflict as a determinant of the incidence of domestic violence, using the estimation results in Table 2. The average woman in the sample was exposed to 28 violent events prior to the age of 16. Using the estimates from the last two columns of Table 2, back-of-the-envelope calculations indicate that the conflict increased on average by 0.8 percentage points (i.e. 0.027×0.28) the probability of ever occurring any type of violence against a woman from her partner, and by 0.6 percentage points (i.e. 0.022×0.28) the probability of its occurrence in the last 12 months. These average effects are small. In comparison, following a similar exercise, we calculate that the average effect of exposure to violence at home during childhood, in particular of seeing their fathers battering their mothers (which has a prevalence of 47% in the sample), is 7.3 percentage points on the probability of any type of violence ever against the woman from her partner, and 3.9 percentage points on the probability of occurrence in the last 12 months.

The small average effect of the conflict on domestic violence masks the large heterogeneity in the total exposure to conflict-related violence. To investigate how the conflict affected the incidence of domestic violence for those who were more exposed to conflict violent

events, we recode the early exposure variable CVE into several binary variables $CVED^k$, which equal one if the level of exposure belongs to the k^{th} decile category in the distribution of CVE , and equal zero otherwise. We then estimated the linear probability model in equation (2) below, where the rest of the terms are defined as in equation (1).

$$y_{i,j,t} = \alpha + \sum_{k=1}^{10} \beta_k CVED_{i,j,t}^k + \gamma X_i + \delta_j + \phi_t + \lambda_w + \epsilon_i \quad (2)$$

The estimation results are shown in Table 3. It also presents the average exposure to conflict violent events in each decile category. The exposure in the first two decile categories is zero events, so they form the omitted group. As expected, most of the statistically significant effects are positive. The only exception is the effect for the 4th decile category in the regression of ever occurring physical violence against the partner. More importantly, the effects of exposure increase substantially at higher decile categories. For instance, we find that a level of exposure corresponding to the highest decile category (and average of 186 violent events) increased the probability of physical violence against the woman from her partner in the last 12 months by 7 percentage points. Given that the sample mean is 14% (Table 1), this is a substantial effect. We observe similar large effects in the probability of psychological violence (ever and in the last 12 months) and in the probability of any type of violence (ever and in the last 12 months). Moreover, we also find important effects for the probability of sexual violence. Women exposed to the highest decile of violence are 5.1 percentage points more likely to have ever been a victim of sexual violence from their partners. Given that the sample mean is 9% (Table 1), this is also a substantial effect.

Table 3: Effect of Early Exposure to Conflict Violent Events on Domestic Violence Outcomes, By Decile of Exposure

Decile of CVE Exposure	Average exposure (# events in hundreds)	Physical violence from woman to partner (0=No; 1=Yes)		Physical violence from partner to woman (0=No; 1=Yes)		Sexual violence from partner to woman (0=No; 1=Yes)		Psychological violence from partner to woman (0=No; 1=Yes)		Any type of violence from partner to woman (0=No; 1=Yes)	
		Ever	Last 12 months	Ever	Last 12 months	Ever	Last 12 months	Ever	Last 12 months	Ever	Last 12 months
3rd decile	0.010	0.003 (0.010)	0.009 (0.007)	0.027 (0.017)	0.022* (0.012)	0.024** (0.009)	0.004 (0.007)	0.033** (0.015)	0.011 (0.014)	0.028* (0.016)	0.031** (0.014)
4th decile	0.020	-0.027*** (0.009)	-0.004 (0.006)	0.045*** (0.016)	0.012 (0.015)	0.031*** (0.011)	0.005 (0.006)	0.065*** (0.015)	0.027* (0.016)	0.057*** (0.015)	0.029 (0.020)
5th decile	0.030	-0.008 (0.011)	-0.003 (0.007)	0.021 (0.023)	0.008 (0.018)	0.029*** (0.011)	-0.003 (0.007)	0.058** (0.026)	0.040** (0.019)	0.032 (0.026)	0.030 (0.021)
6th decile	0.048	-0.020 (0.013)	-0.002 (0.007)	0.030 (0.027)	0.032* (0.018)	0.019 (0.013)	-0.006 (0.009)	0.040 (0.029)	0.019 (0.020)	0.041 (0.027)	0.033 (0.020)
7th decile	0.114	-0.016 (0.014)	-0.008 (0.006)	0.026 (0.020)	0.026* (0.015)	0.025** (0.012)	0.004 (0.007)	0.016 (0.019)	0.028* (0.015)	0.018 (0.019)	0.037** (0.018)
8th decile	0.216	-0.012 (0.016)	-0.002 (0.010)	0.043* (0.024)	0.039** (0.018)	0.015 (0.014)	0.008 (0.008)	0.050* (0.026)	0.030 (0.021)	0.053** (0.022)	0.058** (0.022)
9th decile	0.592	-0.005 (0.016)	0.002 (0.013)	0.019 (0.039)	0.039 (0.026)	0.027 (0.017)	-0.002 (0.010)	0.055* (0.031)	0.056** (0.027)	0.040 (0.029)	0.070** (0.029)
Highest decile	1.86	0.012 (0.018)	0.010 (0.011)	0.058 (0.036)	0.070*** (0.023)	0.051** (0.020)	0.012 (0.012)	0.087*** (0.032)	0.081*** (0.029)	0.082*** (0.029)	0.111*** (0.029)
# of Observations		17,270	17,261	17,270	17,269	17,269	17,269	17,270	17,267	17,270	17,270

Notes: Standard errors are clustered at the province level. Includes only non-migrant women from provinces affected by the internal conflict, born in 1965-1990. Each regression includes controls for province effects, year of birth effects, and interview year effects. We also control for the following characteristics: i) violence observed at home as a child (whether women were battered by their fathers or by their mothers or whether their fathers used to batter their mothers); ii) education attainment (women's education level, their husband or partners' education level, and whether the education level of the woman is lower than her husband's) iii) labor force status and labor income (whether the women works for pay and whether woman's income is lower than her husband's income); iv) women's BMI; v) age at which the women got married or started the union; vi) women's ethnicity; vii) household's wealth index; and, viii) the number of children five years old or younger in the household. *** denotes statistical significance at 1% level; ** denotes statistical significance at 5% level; * denotes statistical significance at 10% level.

We also investigate whether the timing of exposure to conflict violence during a woman's childhood and teenage years has differential effects on the probability of domestic violence in their later life. To study this issue, we use again the empirical specification in equation (1) but we divide the total exposure to conflict violent events in two segments: exposure between 0 and 8 years of age (*CVE8*) and exposure between 9 and 16 years of age (*CVE16*), as shown in equation (3) below. Table 1 shows that the average exposure to 28 conflict violent events between the ages of 0 and 16 is divided in 12 violent events between the ages 0 and 8, and 16 violent events between the ages of 9 and 16.⁴ Besides the exposure to conflict violent events between the ages of 0-8 and 9-16, we also include two additional regressors in equation (3). First, an interaction term between the demeaned values of *CVE8* and *CVE16*, to allow for the effect of exposure to conflict violence between ages 9 and 16 on domestic violence to be moderated by the effect of exposure at earlier ages (0 to 8), and vice versa. Second, an additional regressor, *CVE_Prior8*, which measures the total number of conflict violent events in the province of birth during the 8 years prior to the birth of the woman. This term is included to act as a placebo to test the validity of the causal interpretation of our estimates. If we are identifying the effect of exposure to conflict violence, then conflict violent events that occurred prior to birth of the woman should not affect the incidence of domestic violence later in life. If, on the contrary, we find an effect of this placebo variable on the probability of domestic violence, it would cast doubt on the interpretation of our findings as the effects of exposure to conflict violence.

⁴ The average increase in exposure to violent event at later ages seems to be at odds with the fact that the conflict died down after 1992. However, this is just an artifact of the age composition in the sample. The average birth year in the sample is 1976, which means that the average woman was in her teenage years when the conflict violence peaked by the end of the 80s

$$y_{i,j,t} = \alpha + \beta_1 CVE8_{i,j,t} + \beta_2 CVE16_{i,j,t} + \beta_3 [(CVE8_{i,j,t} - \overline{CVE8_{i,j,t}}) \times (CVE16_{i,j,t} - \overline{CVE16_{i,j,t}})] + \beta_4 CVE_Prior8_{i,j,t} + \gamma X_i + \delta_j + \phi_t + \lambda_w + \epsilon_i \quad (3)$$

Table 4 shows the estimation results of equation (3). Although the majority of the coefficients for *CVE8* are larger than the coefficients for *CVE16*, the differences are not large enough to be statistically significant. Moreover, the estimates for the summary measures of any type of violence (ever and in the last 12 months) are very similar for *CVE8* and for *CVE16*. Thus, there is no evidence that exposure to conflict violence at an earlier (or later) age has a differential impact on the incidence of domestic violence in later life. Table 4 also shows that the estimated coefficients for *CVE_Prior8* are much smaller (in many cases by an order of magnitude) than the coefficients for *CVE8* and *CVE16*. Also, none of the coefficients for *CVE_Prior8* are statistically significant. As explained above, this result lends more credence to the interpretation of our findings as the causal effect of exposure to conflict-related violence.

Table 4: Effect of Early Exposure to Conflict Violent Events on Domestic Violence Outcomes, By Age of Exposure

	Physical violence from woman to partner (0=No; 1=Yes)		Physical violence from partner to woman (0=No; 1=Yes)		Sexual violence from partner to woman (0=No; 1=Yes)		Psychological violence from partner to woman (0=No; 1=Yes)		Any type of violence from partner to woman (0=No; 1=Yes)	
	Ever	Last 12 months	Ever	Last 12 months	Ever	Last 12 months	Ever	Last 12 months	Ever	Last 12 months
Total CVE between 0 and 8 years old	0.016* (0.008)	0.016** (0.007)	0.003 (0.013)	0.019** (0.008)	-0.002 (0.013)	0.007 (0.006)	0.022 (0.017)	0.040*** (0.015)	0.021 (0.018)	0.038** (0.015)
Total CVE between 9 and 16 years old	0.020** (0.008)	0.010* (0.006)	0.010 (0.017)	0.013 (0.012)	0.008 (0.012)	0.001 (0.005)	0.015 (0.013)	0.026** (0.013)	0.020 (0.012)	0.034*** (0.013)
Interaction term	-0.009 (0.006)	-0.009 (0.006)	0.017** (0.008)	-0.012 (0.010)	0.002 (0.008)	-0.004 (0.003)	-0.009 (0.010)	-0.022** (0.011)	-0.000 (0.014)	-0.025** (0.011)
Placebo: Total CVE between minus 8 and 0 years old	0.007 (0.010)	-0.011 (0.006)	-0.006 (0.029)	-0.014 (0.016)	0.003 (0.012)	0.008 (0.009)	-0.023 (0.021)	0.006 (0.014)	-0.028 (0.028)	-0.008 (0.018)
# of Observations	17,270	17,261	17,270	17,269	17,269	17,269	17,270	17,267	17,270	17,270

Notes: Standard errors are clustered at the province level. Includes only non-migrant women from provinces affected by the internal conflict, born in 1965-1990. Each regression includes controls for province effects, year of birth effects, and interview year effects. We also control for the following characteristics: i) violence observed at home as a child (whether women were battered by their fathers or by their mothers or whether their fathers used to batter their mothers); ii) education attainment (women's education level, their husband or partners' education level, and whether the education level of the woman is lower than her husband's) iii) labor force status and labor income (whether the women works for pay and whether woman's income is lower than her husband's income); iv) women's BMI; v) age at which the women got married or started the union; vi) women's ethnicity; vii) household's wealth index; and, viii) the number of children five years old or younger in the household. *** denotes statistical significance at 1% level; ** denotes statistical significance at 5% level; * denotes statistical significance at 10% level.

Besides exposure to conflict violence and to violence at home as a child, we find statistical associations between domestic violence and some of the other covariates included in the regressions (not shown). We find that women who got married at younger ages are more likely to be a victim of domestic violence. We also find that women who work, earn more income than their partners, and are more educated than their partners are more likely to be victims of domestic violence. This suggests that in cases where women are in a relatively advantageous position in the relationship, their partners may rely on the use of violence as a means to exert control over the woman and her resources. Heath (2014) has found also a positive correlation between work and domestic violence for women with low education or young at age, suggesting that husbands use violence to counteract working women increased bargaining power. Interestingly, in our data we also find a positive association between women working and earning more than their partners and the probability of women committing physical violence against their partners.

5. Potential mechanisms

The psychology literature has found that women who grew up in violent homes are more likely to be involved in domestic violence (Stith et al., 2000). Our evidence indicates that women exposed to civil conflict violence are also more likely to become victims of domestic violence. However, the mechanisms are not clear. One potential mechanism can be that women more exposed to the conflict might regard the use of violence a normal way to resolve problems. Our finding of an effect of exposure on the probability of physical violence from women against their partners can be an indication on that. Following the same logic, if violence is a learned

social norm, women that grew up in a more violent environment may become more tolerant towards violence from men. The DHS asks women under what circumstances they believe it is justified for a husband to beat his wife. They were asked this hypothetical question (i.e. not about their own husbands) before the domestic violence interview module had started. Possible reasons for justifying beating were: “she goes out without telling the husband”; “she neglects the children”; “she argues with husband”; “She refuses to have sex with husband; and “she burns the food”. In total, 4.8% of our sample said that beating was justified for any of these reasons. We construct a variable that takes the value of 1 if the woman answered that beating is justified for any of the previous reasons (and 0 otherwise) and estimated linear probability models similar to equations (1), (2) and (3), but using this variable as the dependent variable. Column 1 in Table 5 shows the estimation results. We found a positive effect of early exposure to conflict violence on the probability that women report that it is justified (for at least one reason) for husbands to beat their wives. We also found that this effect is larger at higher levels of exposure (i.e. in the top deciles of exposure). For instance, women in the highest decile category are 2 percentage points more likely to justify the use of violence by men, which is a substantive effect. As a benchmark, women who saw their fathers battered their mothers are 1.2 percentage points more likely to justify violence against women (not shown). However, these effects are imprecisely estimated and not statistically significant. But when we allow the effects to vary depending on the age at the moment of exposure (Panel C, equation 3 in Table 5), we find a statistically significant positive effect of the exposure between the ages of 9 and 16. In other words, we find statistical evidence that women more exposed to conflict violence in their late childhood and early teenage years are more likely to report that violence against women can be justified.

Further evidence in favor of the hypothesis that the use of violence can be regarded as normal is shown in column 2 in Table 5. We estimate linear probability models similar to equations (1), (2) and (3), but using as dependent variable the probability that a woman that reported having been victim of domestic violence (ever) is separated from her husband (or partner). We found that early exposure to conflict violence diminishes the probability of leaving a violent relationship. In other words, exposure to the conflict violence increases the probability that women who reported being a victim (ever) of domestic violence remain married (or in cohabitation) to their partners. The effect for the average women exposed to the conflict violence is small but, as with the other outcomes, the effects are large for women with high levels of exposure. For example, the linear effect from equation (1) (panel A, second column of Table 5) indicates that women exposed to 100 violent events (which corresponds to the top decile in the distribution of exposure) are 1.8 percentage points less likely to separate from a violent relationship. The estimates by the deciles categories of exposure in equation (2) (panel B, second column of Table 5) are noisy and not statistically significant. Nevertheless, only exposure levels in the top two highest deciles have a negative effect on the probability of separating from a violent relationship, and their mean value is -1.2 percentage points. As a comparison, women whose fathers used to beat their mothers are 1.4 percentage points less likely to leave a violent relationship (not shown). Thus, exposure to high levels of conflict violence has an effect as large as observing domestic violence at home while growing up. We also find larger effects of exposure in early childhood than in teenage years on the probability of remaining in a violent relationship (Panel C, second column of Table 5).

Table 5: Effects of Early Exposure to Conflict Violent Events on Justification of Violence Against Women, on Separating from a Violent Relationship, on Marriage, and on Local Gender Ratios.

	Beating of women can be justified (0=No; 1=Yes)	Separated (if ever married and victim of domestic abuse) (0=No; 1=Yes)	Ever Married (0=No; 1=Yes)	Male/ Female Ratio
<u>A. Equation (1)</u>				
Total CVE between 0 and 16 years old (in hundreds)	0.008 (0.006)	-0.018** (0.008)	-0.028 (0.022)	0.012* (0.006)
<u>B. Equation (2)</u>				
3rd decile	0.006 (0.008)	0.001 (0.013)	-0.022 (0.020)	0.007 (0.010)
4th decile	0.012 (0.009)	0.006 (0.014)	0.015 (0.016)	0.003 (0.011)
5th decile	0.017 (0.012)	0.018 (0.016)	-0.007 (0.013)	0.020** (0.009)
6th decile	0.007 (0.014)	0.008 (0.011)	-0.009 (0.016)	0.008 (0.010)
7th decile	0.010 (0.016)	0.004 (0.015)	0.006 (0.016)	0.013 (0.010)
8th decile	0.020 (0.013)	0.016 (0.023)	-0.020 (0.021)	0.013 (0.019)
9th decile	0.020 (0.016)	-0.017 (0.023)	-0.073** (0.033)	0.025 (0.019)
Highest decile	0.020 (0.015)	-0.006 (0.021)	-0.093*** (0.028)	0.043** (0.017)
<u>C. Equation (3)</u>				
Number of events (in hundreds) between 0 and 8 years old	0.004 (0.006)	-0.027** (0.011)	-0.054* (0.031)	0.023** (0.010)
Number of events (in hundreds) between 9 and 16 years old	0.015** (0.007)	-0.004 (0.010)	-0.037 (0.032)	0.021** (0.010)
Interaction term	-0.007 (0.008)	0.007 (0.010)	0.033** (0.016)	-0.007* (0.004)
Placebo: Number of events (in hundreds) between minus 8 and 0 years old	-0.017 (0.011)	0.022 (0.034)	0.004 (0.023)	0.020** (0.008)
# Observations	16,395	8,051	23,485	23,485

Notes: Standard errors are clustered at the province level. Includes only non-migrant women from provinces affected by the internal conflict, born in 1965-1990. Each regression includes controls for province effects, year of birth effects, and interview year effects. See notes in Table 2 for more details on other controls included. *** denotes statistical significance at 1% level; ** denotes statistical significance at 5% level; * denotes statistical significance at 10% level.

Column 3 in Table 5 shows an additional interesting finding. Women that were more exposed to the conflict violence are less likely to get married (or cohabitate).⁵ Table 5 indicates that especially women in the higher decile categories for exposure (panel B, third column) show an important reduction in their probability of marriage. A potential explanation is that, as in the case of the Rwandan genocide (La-Mattina, 2015) the conflict might have affected the local marriage markets by altering gender ratios, which could have a detrimental effect in the intra-household bargaining power of women and therefore in the incidence of domestic violence. In the last column of Table 5 we fitted models similar to equations (1), (2) and (3) but placing in the left-hand side the male-to-female ratio in the same age category and province.⁶ We observe that there is a positive association between higher exposure to conflict violence and the local male-to-female ratio, contrary to the findings in the Rwandan genocide case. We posit that this finding can be interpreted as conflict-related events being more likely to have occurred in areas with a relative higher share of males relative to females rather than the conflict affecting the local marriage markets. We argue this because in the case of Peru the conflict lasted for over a decade rather than a short period of time, and the total related deaths and disappearances were not nearly as large as in the Rwandan genocide. Moreover, our sample is comprised of women that were 15 years old or younger when the conflict started, and the fatal casualties were mostly adults. Thus, it is unlikely that the conflict had a long-run effect on the marriage market.

Nevertheless, to test whether the impact of exposure to conflict violence runs through the marriage market, we re-estimated a linear probability model as in equation (1) for our main

⁵ For these estimations we included all non-migrant women born between 1965 and 1990, not only those who are married (or cohabitate) or were married (cohabitated) in the past.

⁶ Age categories were defined by intervals of 5 years, starting at 15-19 years old (then 20-24 years, etc.). The data comes from the 2007 Peru National Census.

outcomes (physical violence from women to partners, any type of violence against women from partners, probability of women justifying violence against women, separation from a violent relationship, and marriage) but controlling for the gender ratio in the same age category and province. The results are shown in Table 6. We find similar effects of early exposure to conflict violence after including the local gender ratio as an additional control. In fact, with the exception of the marriage probability, the local gender ratios are not statistically significant predictors of the outcomes. Thus, two conclusions can be derived. First, the long-term effects of early exposure to conflict violence on domestic violence are not explained by changes in local gender ratios. Second, if anything, it appears that women more affected by the conflict never got married. Thus, they are less likely to be part of our analysis sample for domestic violence (i.e. violence from and towards the spouse or partner).

Another potential mechanism worth mentioning is that women who were more exposed to the conflict may marry men who were also more exposed (and probably more likely see the use of violence as normal). Unfortunately, the Peruvian DHS do not contain a male questionnaire and therefore there is not enough information about husbands or partners to test this hypothesis.

Table 6: Robustness of Estimates to Controlling for Local Gender Ratio in Same Age Group

	Physical violence from woman to partner (0=No; 1=Yes)		Any type of violence from partner to woman (0=No; 1=Yes)		Beating of women can be justified (0=No; 1=Yes)	Separated (if ever married and victim of domestic abuse) (0=No; 1=Yes)	Ever Married (0=No; 1=Yes)
	Ever	Last 12 months	Ever	Last 12 months			
Total CVE between 0 and 16 years old (in hundreds)	0.010* (0.006)	0.010** (0.004)	0.027*** (0.008)	0.022* (0.012)	0.008 (0.006)	-0.018** (0.008)	-0.021 (0.020)
Male/ Female ration in age group	0.055 (0.048)	0.027 (0.038)	0.000 (0.125)	-0.007 (0.084)	0.012 (0.039)	0.014 (0.068)	- 0.637*** (0.152)
Observations	17,270	17,261	17,270	17,270	16,395	8,051	23,485

Notes: Standard errors are clustered at the province level. Includes only non-migrant women from provinces affected by the internal conflict, born in 1965-1990. Each regression includes controls for province effects, year of birth effects, and interview year effects. See notes in Table 2 for more details on other controls included. *** denotes statistical significance at 1% level; ** denotes statistical significance at 5% level; * denotes statistical significance at 10% level.

6. Robustness to model specification

Table 7 shows that after including the basic set of fixed effects to control for province, birth cohort and interview year effects, the estimated impacts of exposure to conflict violent events are robust to the inclusion of the other observed characteristics, including education, labor earnings, age and age at marriage, among others. The impacts are also robust to controlling for violence at home while growing up, which are important determinants of domestic violence. Thus, to the extent that our findings are similar in models without with and without controls, we are less concerned that potentially omitted confounders are significantly biasing the results.

Table 7: Robustness of Results to Several Model Specifications

Outcomes		Model Specification					# of observations
		I	II	III	IV	V	
Physical violence from woman to partner (0=No; 1=Yes)	Ever	-0.004 (0.007)	0.010* (0.006)	0.009* (0.005)	0.010* (0.006)	0.010* (0.006)	17,270
	Last 12 months	0.003 (0.004)	0.010** (0.004)	0.010** (0.004)	0.010** (0.004)	0.010** (0.004)	17,261
Physical violence from partner to woman (0=No; 1=Yes)	Ever	0.005 (0.011)	0.022** (0.010)	0.018* (0.010)	0.018* (0.010)	0.017* (0.010)	17,270
	Last 12 months	0.003 (0.007)	0.014** (0.006)	0.013** (0.006)	0.012** (0.006)	0.013** (0.006)	17,270
Sexual violence from partner to woman (0=No; 1=Yes)	Ever	0.004 (0.004)	0.003 (0.008)	0.002 (0.008)	0.003 (0.009)	0.004 (0.009)	17,269
	Last 12 months	0.001 (0.003)	0.001 (0.004)	0.001 (0.004)	0.000 (0.004)	0.001 (0.004)	17,269
Psychological violence from partner to woman (0=No; 1=Yes)	Ever	0.020** (0.008)	0.020 (0.012)	0.018 (0.011)	0.019* (0.010)	0.019* (0.010)	17,270
	Last 12 months	0.012* (0.006)	0.021* (0.011)	0.019* (0.011)	0.019* (0.011)	0.019* (0.011)	17,267
Any type of violence from partner to woman (0=No; 1=Yes)	Ever	0.013 (0.009)	0.031*** (0.012)	0.027** (0.011)	0.027*** (0.009)	0.027*** (0.008)	17,270
	Last 12 months	0.009 (0.008)	0.025** (0.013)	0.023* (0.012)	0.022* (0.012)	0.022* (0.012)	17,270
<i>Controls</i>							
FE for birth cohort, province and interview year		No	Yes	Yes	Yes	Yes	
Exposure to Violence at Home as a child		No	No	Yes	Yes	Yes	
Other women and partner characteristics		No	No	No	Yes	Yes	
Local gender ratio in same age group		No	No	No	No	Yes	

Notes: Standard errors are clustered at the province level. Includes only non-migrant women from provinces affected by the internal conflict, born in 1965-1990. See notes in Table 2 for more details on the list of controls available. *** denotes statistical significance at 1% level; ** denotes statistical significance at 5% level; * denotes statistical significance at 10% level.

7. Data Limitations

There are two data limitations that are worth discussing. The first one is regarding the sample selection criteria discussed in Section 3. In particular, women in the sample must have lived in the same town or city all their life because we cannot identify in the DHS the place of residence during childhood and teenage years of women that migrated from somewhere else. Information on the place of residence is crucial for matching the person with the appropriate data on exposure to conflict violent events. Thus, for our estimation sample, we selected only those women who reported living all their lives in the towns where they reside (i.e. non-migrant women). By doing this, we reduced our sample size by half. This selection can introduce biases in our estimates, and it is not clear a priori what direction the bias would take. In order to investigate this issue further, Table 8 provides a comparison of means between migrant and non-migrant women. Non-migrant women have on average a *lower* probability of being a victim of any type of violence from their partners (although they report on average a higher incidence of committing physical violence towards their partners). Non-migrant women have also been less exposed on average to violence at home while growing up. Non-migrant women also got married on average at an older age and are less likely to earn more than their partners (although they are more likely than migrant women to be more educated than their partners). Thus, the majority of characteristics seem to indicate that non-migrant women are less at risk of being victims of domestic violence than migrant women. On the other hand, although it cannot be tested, it is plausible that exposure to civil conflicts is likely to be positively related with migration (for example, families that were displaced by the conflict). Thus, because migration is likely to be positively correlated with the incidence of domestic violence and with the intensity of the conflict, using only the sample of non-migrant women might introduce a downward bias in our

estimates.⁷ However, there is reason to believe that the potential bias is not severe. According to information in the DHS, the most important reasons for migrating (among migrant women) were family (48%), employment (27%), and education (11%). Being displaced by insecurity or violence was only mentioned in 0.5% of the cases. Taken at face value, this suggests that at least our selection process is not correlated with the treatment of interest (i.e. exposure to the civil conflict), and thus our results are not likely to suffer much from this source of selection bias.

⁷ To see this, let's work with the following sample selection model, where M is the propensity to migrate, CVE is our measure of exposure to conflict violence, and (for facilitating the argument) DV is a continuous measure of domestic violence. Let's assume that ϵ_1 and ϵ_2 are jointly normally distributed with mean zero. From evidence provided in Table 8, the covariance between ϵ_1 and ϵ_2 is likely positive ($\sigma_{12} > 0$). Also, let's assume that $\theta > 0$ (conflict-induced displacement effect).

$$M = \theta CVE + \epsilon_1$$

$$DV = \beta CVE + \epsilon_2$$

We also assume that a woman migrates if $M > 0$, or equivalently if $\epsilon_1 > -\theta CVE$. Thus, the estimation sample of non-migrant women would consist of women for whom $\epsilon_1 \leq -\theta CVE$. It can be shown that $E[DV|CVE, \epsilon_1 \leq -\theta CVE] = \beta CVE - \frac{\sigma_{12}}{\sigma_1^2} \frac{\phi(-\theta CVE/\sigma_1)}{\Phi(-\theta CVE/\sigma_1)}$, where $\phi(\cdot)$ and $\Phi(\cdot)$ denotes the probability density function and the cumulative density function of the standard normal distribution, respectively. Since $\frac{\phi(-\theta CVE/\sigma_1)}{\Phi(-\theta CVE/\sigma_1)}$ is positively correlated with CVE , ignoring this correction term in the regression would result in a downward bias in the estimate of β .

Table 8: Comparison of Means by Migration Status

	Migrants	Non - Migrants	P-value of T-test
Incidence of domestic violence - Ever			
Physical violence from woman to partner (0=No; 1=Yes)	0.077	0.084	0.000
Any type of violence from partner to woman (0=No; 1=Yes)	0.493	0.451	0.000
Incidence of domestic violence - Last 12 months			
Physical violence from woman to partner (0=No; 1=Yes)	0.030	0.035	0.000
Any type of violence from partner to woman (0=No; 1=Yes)	0.232	0.203	0.000
Women socio-demographic characteristics			
Age	34.017	33.634	0.000
Spanish speaker	0.903	0.823	0.000
No education	0.045	0.045	0.967
Incomplete primary	0.248	0.214	0.000
Complete primary	0.128	0.114	0.000
Incomplete secondary	0.176	0.154	0.000
Complete secondary	0.208	0.229	0.000
Higher Education	0.195	0.245	0.000
Worked last 12 months	0.769	0.783	0.000
No earnings from work	0.487	0.502	0.000
Woman earns more than husband	0.050	0.047	0.027
Woman earns less than husband	0.749	0.741	0.026
Woman earns about the same as husband	0.075	0.070	0.019
Other relative income category	0.004	0.003	0.003
Missing information on woman's income	0.122	0.139	0.000
Woman less educated than him	0.361	0.301	0.000
Woman more educated than him	0.235	0.264	0.000
Relative education missing	0.000	0.000	0.182
Years of marriage	13.589	13.043	0.000
Age at marriage	20.000	20.162	0.000
Exposure to Violence at Home as Child			
Battered by mother	0.040	0.040	0.988
Battered by father	0.049	0.046	0.109
Father used to batter mother	0.501	0.452	0.000

Source: DHS (2004-2012)

The second data limitation worth discussing is measurement error in the exposure to conflict violent events. Measuring exposure is a complicated task. We define exposure as the number of recorded events that occurred at the woman's province of residence. However, not all women were affected equally by all events that occurred in their province of residence. Unfortunately, we cannot capture that heterogeneity. Moreover, the recorded information on conflict related events may be incomplete in a systematic way, since it relies on testimonies gathered by the TRC. Leon (2012) argues that there may be underreporting coming from the groups that was more affected by violence. Leon also points that since testimonies were collected in relatively bigger cities, it may systematically undercount conflict-related events for vulnerable populations who live in distant rural areas. This potential selective underreporting is likely to bias our estimates, although is unclear in what direction.

8. Conclusions

We find that exposure in childhood and early teenage years to conflict violence increases a woman's probability of being a victim of domestic violence as an adult. The sizes of the effects are small for the average woman affected by the conflict. However, the average effects mask important heterogeneities as some provinces were affected by the conflict more severely than others. We find that the effects of exposure to the conflict violence are large for women in the highest categories of exposure. We also find evidence that a potential mechanism through which exposure to the conflict affects domestic violence in the long-term is normalization of the use of violence. Women more exposed to conflict violent events are also more likely to be perpetrator of violence, more likely to report that violence toward women can be justified, and more likely to stay in a violent relationship.

Thus, our study indicates that civil conflicts may have long-term effects, not only on educational attainment, health status and earnings, as it has been documented in other studies (Galdo, 2013, Grimard and Laszlo, 2014, Leon, 2009), but also on increasing the level of domestic violence in the society. Moreover, our findings and previous research in psychology (Barnett, Miller-Perrin and Perrin, 2005, Caesar, 1988, Cappell and Heiner, 1990, Mihalic and Elliott, 1997, Simons et al., 1993, Stith et al., 2000) have found that individuals that witness domestic violence at home when growing up are more likely to experience it in their own marriages. This would imply that civil conflicts can increase the level of domestic violence not only for the generation that was directly exposed to it but also for future generations as well. Potential avenues for further research should include studying the impact of civil conflicts on other forms of violence and aggressive behavior in society, and evaluating policy alternatives to prevent the intergenerational transmission of the violent patterns that this paper suggests can occur.

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Appendix: Domestic Violence Questions in the Peru Demographic and Health Surveys

A. Physical violence from woman to partner.

- Have you ever hit, slapped, kicked, or done anything else to physically hurt your (last) (husband/partner) at times when he was not already beating or physically hurting you? (0=no; 1=yes)
- In the last 12 months, how often have you done this to your (last) (husband/partner): (0=not at all; 1=often or only sometimes)

B. Psychological violence from partner to woman

If the woman responded “Yes” to any of the questions below we code her as having been victim of psychological violence at some point (ever).

If she responded “Often” or “Only sometimes” to any of the questions below regarding the last 12 months, we code her as having been victim of psychological violence in the last 12 months.

Did your (last) (husband/partner):	Ever	How often did this happen during the last 12 months:
Say or do something to humiliate you in front of others?	Yes/No	Often/ only sometimes/ not at all?
Threaten to hurt or harm you or someone you care about?	Yes/No	Often/ only sometimes/r not at all?
Insult you or make you feel bad about yourself?	Yes/No	Often/ only sometimes/r not at all?

C. Physical violence from partner to woman

If the woman responded “Yes” to any of the questions below we code her as having been victim of physical violence at some point (ever).

If she responded “Often” or “Only sometimes” to any of the questions below regarding the last 12 months, we code her as having been victim of physical violence in the last 12 months.

Did your (last) (husband/partner) do any of the following things to you:	Ever	How often did this happen during the last 12 months:
Push you, shake you, or throw something at you?	Yes/No	Often/ only sometimes/not at all?
Slap you or twist your arm?	Yes/No	Often/ only sometimes/not at all?
Punch you with his fist or with something that could hurt you?	Yes/No	Often/ only sometimes/not at all?
Kick you, drag you, or beat you up?	Yes/No	Often/ only sometimes/not at all?
Try to choke you or burn you on purpose?	Yes/No	Often/ only sometimes/not at all?
Attack you with a knife, gun, or other weapon?	Yes/No	Often/ only sometimes/not at all?
Threaten you with a knife, gun, or other weapon?	Yes/No	Often/ only sometimes/not at all?

D. Sexual violence from partner to woman

If the woman responded “Yes” to any of the questions below we code her as having been victim of sexual violence at some point (ever).

If she responded “Often” or “Only sometimes” to any of the questions below regarding the last 12 months, we code her as having been victim of sexual violence in the last 12 months.

Did your (last) (husband/partner) do any of the following things to you:	Ever	How often did this happen during the last 12 months:
Physically force you to have sexual intercourse with him when you did not want to?	Yes/No	Often/ only sometimes/not at all?
Force you to perform any other sexual acts you did not want to?	Yes/No	Often/ only sometimes/not at all?