Domestic Violence: an economist perspective

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Abstract

This paper aims at shedding light on the relationship between domestic violence and female empowerment. Using data from Peru, collected by the DHS program in 2009, 2010, and 2011, and a multivariate approach, we compare the association between female empowerment proxies –as women's education, labor force participation, contribution to household income and decision-making– and intimate partner violence. Given the rich-quality of the data, we were able to disaggregate three different types of abuse: physical, emotional, and sexual violence. We also took into account variables that could signal identity issues as we reckoned that, besides the commonly-known instrumental use of violence, a large part of the abuse in developing countries is driven by the role that community-level gender expectations play on intra-household interactions. As identity factors, we considered previous female experience to violence and couple's relative measures of education and income. Our evidence suggests that empowerment could be both a protective and a risk factor as there seems to be a non-linear relationship between it and spousal violence. We found that identity issues could act as risks factors for the prevalence of domestic violence in Peru. After presenting our observational empirical evidence, we extensively reviewed highly accepted theories of domestic violence: Household Bargaining Models and Male-Backlash Models, and discussed our findings using both theoretical approaches. To conclude, we proposed the use of bargaining models that include motivated beliefs as a theoretical tool to better explain the nature of intimate partner violence in developing countries setups, as these take into account identity roles in negotiations.

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PART ONE: INTRODUCTION

Low female value enforces hierarchy and punishment transgression, which consolidates male superiority. The later has been identified as one of the main forces that have allowed carrying out domestic violence for long. Theories and evidence have tried to explain and proved how in some cases women empowerment within the households could act as a reducer, and in some cases an antidote, to female domestic violence[1]. Women with no bargaining power and no outside option have no other choice but to stay in abusive relationships and be victims of violence. Evidence from a number of studies in developed countries suggests that the causal relationship between female socioeconomic opportunities and spousal violence is negative (AIZER, 2010; FARMER AND TIEFENTHALER, 1996; TAUCHEN, WITTE AND LONG, 1991).

This evidence has been in line with economic theory. Household bargaining models (HBM) have predicted that when women have more resources or greater potential opportunities for income-generating activities, they can bargain for better outcomes in the household; hence, they experience less violence (AIZER, 2010; FARMER AND TIEFENTHALER, 1996; TAUCHEN, WITTE AND LONG, 1991).

Recently, researchers have discovered some puzzling evidence suggesting that female empowerment does not always translate into a reduction in the risks of being abused, especially in less developed countries (FLAKE, 2005; FULU AND HEISE, 2014; MACMILLAN AND GARTNER, 1999). These arguments have made the relationship between violence and female empowerment complex, and not as linear as economist used to believe.

Latin America and the Caribbean (LAC) are one of the regions in the world that receive a lot of attention from policymakers around the world due to their high levels of intimate partner violence (IPV) (DURYEA, 2017). Estimations show that between 16 and 38 percent of women in the LAC countries have experienced physical abuse perpetrated by an intimate partner (BOTT *ET AL.*, 2012). This is of particular importance since it is estimated that 1.5 to 4 percent of the region's GDP is lost due to productivity losses originated by domestic violence (Morrison and Orlando 1999; Ribero and Sánchez 2005 as cited in

[1] The term domestic violence is often used to refer to intimate partner violence. Yet, this term also encompasses child or elder abuse, or abuse by any member within the household. Along the paper, we will refer to violence against women by their male counterpart as Intimate Partner Violence (IPV), Domestic Violence (DV), Spousal Violence, or Marital Violence indifferently.

DURYEA, 2017). Within the region, one of the countries with the highest prevalence of this intimate partner violence is Peru[2].

In Peru, a puzzling pattern has been discovered in the literature evidence. Women who belong to the middle-income quintile (third and fourth) are the most affected ones, with the highest prevalence of domestic violence (UN WOMEN, 2017). As opposed to evidence shown before, in Peru, women who are more prone to experience violence are not the ones in the lowest quintiles. Studies have found that increasing women's educational level or income –especially if it is their own income– more than their partners', would be associated with higher levels of domestic violence (HEISE, 2012). Women whose status is equal to, or lower than, their husbands' status are less likely to be abused.

It is said that, sometimes, when female empowerment collides with male superiority causing relationship conflicts, the consequences could be worse off than the initial state. When women are perceived by their partners to have too much bargaining power and a relatively higher status than their husbands' might create conflict as well.

DURYEA (2017) study suggests that while improving women's socioeconomic status reduces the probability of experiencing physical intimate partner violence, those broad social improvements are not likely to be sufficient to reduce the persistence of domestic violence in Peru. Whereas in developed countries, research suggests that empowered women[3] are less likely to experience violence, this evidence found the exact opposite to be the case in Peru: empowered women are significantly more likely to be abused than women with lower socioeconomic statuses.

The relationship between empowerment and exposure to domestic violence is not as linear as we thought. Empowerment seems to symbolize a woman's autonomy and resources in some contexts, probably the more industrialized ones, while perhaps a higher woman's status in Peru represents a threat to the cultural expectation on gender roles. Our goal is to understand to what extent women empowerment reduces domestic violence. Is there a gap for which an improvement in female empowerment could actually reduce violence?

There are currently two strands of conceptual arguments advanced in the literature to explain the mixed evidence and they differ in the way they model

[2] According to BOTT *ET AL.* (2012, p.22) Peru had the highest physical intimate partner violence prevalence rates in Latin America. They showed that 38.6 percent of women in Peru reported ever experiencing physical violence by a partner, while 25.5 percent of women ever experienced any act of *severe* physical violence (followed by Colombia –38.6 and 18.4– and Ecuador –31.0 and 21.3— respectively). This study used DHS data for 10 countries in Latin America, from 2005 to 2009, and only accounted for ever-married women or women in a union, aged 15-49.

[3] Women empowerment is usually measured in papers alike by socioeconomic variables such as level of education, employment status, income, and wealth.

violence. Household bargaining models (HBM) insist on the *instrumental use of violence*, while the male-backlash model (MBM) focuses instead on *expressive use of violence*[4]. Instrumental theories model the use of violence as a vehicle for enhancing male bargaining power to ensure an allocation of household resources that is aligned with the husband desired preferences. These are usually non-cooperative bargaining models that incorporate domestic violence as a tool used by men to control household resources or the behavior of its members.

On the other hand, sociological models of "male-backlash" predict that men would use violence as they feel their traditional gender role, as the most powerful member of the household, threatened, in light of newly economically empowered women. In the end, both models justify men's use of violence as a mean to (re)gain control over households (and/or its resources), however, what *expressive arguments* proposed that *instrumental* ones do not, is the incorporation of identity issues to the study of IPV and female empowerment. These identity issues would largely affect the difference between the predictions of both models.

As mentioned above, HBMs had explained the most expected results: a reduction in domestic violence as women become more empowered[5]. On the contrary, the MBM predicts the opposite (JEWKES, 2002; MACMILLAN AND GARTNER, 1999). This theory assumes that men employ violence when they perceive that the gender hierarchy in the household is being challenged or destabilized. Thus, the MBM supposes that better economic opportunities for women relative to men always increase the likelihood of violence[6]. Previous Peruvian evidence lends credence to this theory of domestic violence. In patriarchal societies such as Peru's, socially constructed gender roles dictate male dominance over female. Women are going to be more prone to be victims of violence when they leave "traditional scripts", as men use physical aggression to reinforce their dominance, and reestablish control (FULU AND HEISE, 2014).

MBM has been highly criticized by economists for ignoring women's rationality. Economic theory in HBM says that rational women will not accept to stay in abusive relationships if they have an outside option they could use as a threat to bargain in intra-household negotiations, and look out for their desired

[4] It is worth noting that the male-backlash model is not a formalized economic model but more of an argument sustained by other social sciences. Nevertheless, it is relevant for the purpose of this research given the puzzling evidence highly related to traditional gender roles. Even though this theory was initially proposed by other fields of study, this is not the first time it is introduced in an economic paper. Thus, to continue to be in the same line as previous economic literature, we will keep referring to the male-backlash model as a "model" along the research paper.

[5] Further on, we will explain that this is sustained only for the case of women that already have a high baseline bargaining power. The HBM actually predicts an increase in violence if women try to bargain for better outcomes when they are more empowered but started with a low baseline bargaining level initially.

[6] Not only when they do not have some initial bargaining power, but also when they do.

outcome. On the contrary, the MBM would still predict that empowered women would face more violence in the light of other opportunities.

In this research paper, using data from Peru, we describe the current state of intimate partner violence and the victims' profile in the country. Exploring the distribution of women victims across categories, we assess the non-linear relationship between intimate partner violence incidence and female empowerment, measured by education, employment status and female contribution to household decision-making and income. With a logit regression, we reveal if these categories of empowerment proxies represent risk or protective factors in the case of Peruvian women.

Later on, we review theory and empirical evidence for which MBM and HBM have better explained the use of violence, and identify the characteristics of women in the different scenarios of each conceptual argument, as well as showing the limitations to each theoretical approach. We discuss these theories and evidence and compare it to our results.

Additionally, we introduce a possible explanatory tool that has not been used in previous domestic violence economic literature. BÉNABOU AND TIROLE (2009) worked in a new model which could tackle some of the limitations of both the MB and HB models. In standard economic models, the focus on the outcome of a negotiation is usually economic or motivated by the maximization of utility. In HBMs with domestic violence, the latter is used as an instrument in negotiations to obtain the desired outcome that will maximize the husband utility. This preferred result could be presented in the form of money, woman's time spent in household chores, or even a woman's behavior within and outside the home. Instrumental theory models do not allow for any other explanation to use violence but this.

BÉNABOU AND TIROLE (2009) bargaining model with distorted beliefs recognizes that negotiations also affect identity, and the other way around, identity changes the way we negotiate. This opens a door to any other reasons to use violence other than the economically-sustained instrumental ones. Expressive arguments might have finally found economic support as BÉNABOU AND TIROLE (2009) provide a formalized tool that explains why some outcomes might be subjective and more about the changes in the self-image after the negotiation, and also, about the expectations about the future of both agents. Standard instrumental theories have ignored this.

Motivated beliefs could explain both men and women irrational decisions in intra-households negotiations. On one side, a man would be using violence as a signal for him and his future-self that one is in control. An additional interesting tool from these models is that they treat signaling processes to external audiences as utility generating sources. Men would not only be signaling to themselves and their wives that they are the strong, masculine and sole

decision-maker figure in the household, but also to another public that might be judging based on expectations from community beliefs.

These models could also extend the theoretical predictions by arguing why some rational women with the possibility to leave abusive relationships, would stay, even when this might seem irrational. The disutility caused by being beaten can be "cancel out" or minimized at the moment of the negotiation due to distorted beliefs about a better future, for example. This changes completely how a woman behaves in an intra-household negotiation where the intensity of violence is at stake. If she truly believes that she will be better in the future, and expects that violence will diminish if the husband promises so, for instance, she might not abandon him even if she could.

Motivated beliefs incorporated in bargaining models could be the future of the study of the use of violence in intra-household decision making. This is because they incorporate classic HBM structures with the possibility of having – what has been considered– "irrational" agents negotiating over household resources allocations. Motivated beliefs models could economically explain the predictions of expressive theories, at the same time taking into account economically-sustained assumptions that help hold the so-trusted instrumental models.

We expect that the three presented theoretical tools[7] would allow us to add up theoretic support to our Peruvian spousal violence evidence, and help define under which conditions (internal and external to the household) women empowerment would be more likely to decrease the incidence of domestic violence against women in the household.

The research paper is structured as follows. Part 2 presents the case study of Peru and explains how the descriptive statistical analysis was carried out. In this section, the chosen data is described, as well as the variable definition process. We show the results from the data analysis, and also discuss the limitations of the data and the type of analysis performed. Part 3 goes through empirical evidence from the literature on intimate partner violence and compares it with our observational evidence from Peru. In Part 4, theories of HBM, MBM, and motivated beliefs are extensively reviewed as possible explanatory tools to our case study. Finally, in Part 5 and 6, we conclude.

[7] Household bargaining model, male-backlash model, and bargaining models that incorporate motivated beliefs distortions.

PART TWO: CASE STUDY OF PERU

1 Background

As mentioned in the introduction, Peru is one of the Latin American countries with the highest rates of intimate partner violence. This might not come as a surprise given the long history of political and social violence of the country. Since the Spanish Conquest in 1532, and its most recent conflict with the Shining Path guerrilla, one common denominator of Peruvians has been their exposure to conflict. Studies have reported that domestic violence is one of the consequences of large-scale violence, as those carried out in civil wars (FEARON AND HOEFFLER, 2014). Although in the last fifteen years, the widespread trend of civil war violence has been declining in the country, in general, their cost has not. The vulnerability of societies to outbreaks of social violence after war times prevails from generations to generations as people become desensitized to aggression and see it as normal behavior to obtain what they want (FLAKE, 2005).

Besides the community-level acceptance of violence coming from the country's history, rigid gender roles have also enforced intimate partner violence in Peru. A commonly known word in Latin America is *machismo*. This term describes the cultural expectations that men must be masculine, strong, sexually aggressive, and the sole dominant member of the family. In some way, the popularity of this term, and the common belief of what it entails, also conditions the expectations on Latina women, who are taught to accept and tolerate this type of behavior.

Studies in industrialized countries suggest that empowering women undermines spousal violence incidence. They consider empowerment a long-term investment that not only improves women's and their children's well-being by providing them with more resources, but also severs tolerating attitudes towards violence against them. As women exploit new opportunities, they realize that abusive relationships should not be the norm, and with new resources, they could escape the violent fate. Given this belief, policymakers, researchers, and stakeholders have focused their efforts on looking for ways to empower women, and thus reduce domestic violence.

Evidence has proved that this might not always be the case, as spousal violence is not always decreasing in female empowerment. Using data from the 2009, 2010 and 2011 Demographic and Health Survey (DHS) from Peru, we descriptively analyze the linearity of this relationship in the context of a developing country.

2 Data Analysis

Initially, to get to know our sample we describe socio-demographic characteristics of interviewed women in Peru and compare those that have never been married to women that have been partnered at least once.

Secondly, in order to describe the risk factors of intimate partner violence in Peru, we define potential covariates and test bivariate Chi-square distributions among women who had, and had not, experienced physical, emotional, and sexual intimate partner violence in the last 12 months. This step allowed us to verify if the prevalence rates were significantly different between categories.

Since there is not only one level of female empowerment, we develop a framework that conceptualizes violence as a multifaceted phenomenon. This approach enables the interaction of individual, household, and relationship factors. We take into account individual factors that could be associated with partner violence, such as women's age, education, employment status, and previous experiences of domestic violence. These are factors brought by the individual to the couple's relationship. At a family, or household level, we consider the living conditions of women in the study. We take into account the household wealth and residence type. Lastly, relationship interactions factors are also considered: relative income and relative education of women with respect to their partner, and decision-making power within the household.

Clearly, not all of these variables are female empowerment proxies, some covariates also try to account for factors that either represent couples' agents' identity, or impact it. Our analytical focus lies on the impact of women's socioeconomic empowerment, as measured by her education, labor market participation and her contribution to household income and decision-making process. Yet, we also pay close attention to the association of intimate partner violence when including subjects' identity proxies.

To analyze the data, we use a multivariate logit regression with robust standard errors and study the marginal effects of the variables in the likelihood of being abused (versus not). The models' coefficients represent the increase or decrease in the likelihood of abuse associated with a category change in an independent variable.

We estimate three different models to account for the different factors' levels mentioned. Model 1 expresses the likelihood of abuse based only on all individual factors named above. Model 2 adds up the two household covariates to the base analysis performed in Model 1. Lastly, in Model 3, we incorporate the variables from diverse levels to the analysis of the likelihood of different types of

abuse[8]. Model 3 takes into account women's age, employment status, and previous experience of violence, as individual characteristics; household wealth and type of residence, as family characteristics; relative income, relative education, and decision-making power, as relationship features.

Our approach does not try to create a model of intimate partner violence, nor explain causality between it and female empowerment proxies. This perspective provides a strong heuristic tool for understanding violence as women move up the ladder of empowerment.

This research offers several contributions to the current violence literature as it clarifies the recent profile of abused women in Peru. Since it uses the latest survey data on domestic violence in this country, it offers a relatively recent picture of the status of this phenomenon, and the victims' profile. The study also distinguishes between the different types of spousal violence, and accounts for physical, emotional, and sexual abuse, which previous literature has not been able to do due to unavailable disaggregated survey data. Another advantage of using DHS data from Peru is that this is consistently collected over time, supporting high-quality information. Lastly, our approach enables the comparison of previously evidenced covariates from industrialized countries' studies with evidence from a developing country setup.

3 Data

For the analysis we use data from the Demographic and Health Survey carried out in Peru during the years: 2009, 2010, and 2011[9]. This is a cross-sectional survey collected by the DHS program, funded by USAID, and carried out by the INE (*Instituto Nacional de Estadística* or Statistics National Institute) of Peru.

In Peru, the DHS face-to-face continuous survey collects information about health status, the use of healthcare and socio-demographic characteristics of women of reproductive age (between 15 and 49) and their children. It also includes a module on domestic violence which is fielded only to women.

The DHS is a two-stage stratified and randomized cluster sample that covers the 24 districts in Peru. The sampling methodology was defined for the 2009, 2010 and 2011 surveys. The sample for the 3 years is constituted by 2 264

[8] The analysis was carried out in Stata version 13 using survey commands to apply sampling probability weights, account for clustering and stratification in the sample design.

[9] (ICF, 2009-2011)
In Peru, the DHS became a continuous survey since the 2000s. The most recent released survey dataset corresponds to 2012. We have decided not to take it into account in this analysis because the sampling methods used between the chosen surveys and the one performed in 2012 were different.

clusters distributed randomly in 4 sub-groups to be carried out along the three years[10]. In each year, the samples had more than 26 thousand households, of which around 24 thousand women were interviewed. The resulting sample for the 3-year analysis is 69 676 women.

The DHS module specific to domestic violence is a shortened and modified version of the Conflict Tactics Scales (CTS) pioneered by Straus (1979, 1990) (as cited in DURYEA, 2017). Measuring exposure to domestic violence has been always questioned due to several issues. First, it is prone to underreporting as victims tend to minimize or avoid talking about these matters. Secondly, answers might be subject to different perceptions of one same question. The CTS are widely accepted methods to measure exposures to violence by an intimate partner as they try to deal with this reporting issues.

DHS module contains information about lifetime events of domestic violence. Here, women are directly asked if in their current or most recent relationship, their partner ever perpetrated a series of behaviorally specific acts, including physical, emotional (psychological) and sexual abuse. These questions allow to estimate the prevalence of any form of violence.

DHS has protocols for the application of the domestic violence module. In an interviewed household, only one woman between 15 and 49 who has been in a union (including currently divorced/separated women) can be selected to respond to the domestic violence module. This ensures confidentiality of questions asked to look after her safety, and minimize the total number of women asked to describe traumatic events. Also, all the interviewers are women, who received the same standardized training.

For the data analysis, we only considered the 39 559 ever-married women that responded to the intimate partner violence module. Women with missing values for covariates were excluded in the regression analysis.

4 Variables definition

In this study, violence is defined as a dichotomous variable. The construction of a binary indicator of IPV has been highly used by authors studying female domestic violence and empowerment variables (ALONSO-BORREGO AND CARRASCO, 2016; DURYEA, 2017; FAJARDO-GONZALEZ, 2017; FLAKE, 2005). An IPV binary variable indicates whether the woman experienced spousal abuse in the past 12 months. Given the large battery of questions in the DHS domestic violence module, we can construct three binary indicators of IPV (Intimate Partner Violence) –Physical, Emotional, and Sexual– which take on

[10] There are 44 clusters per districts approximately, except for Lima which is covered by 156. There are around 120 households per each cluster.

value one (1) if the respondent's partner "usually" or "sometimes" committed any of these types of abuse, otherwise zero (0)[11]. We also created an IPV variable which takes value one (1) if women experienced any of the above-mentioned types of abuse.

The WHO defines physical abuse as if "a woman has ever been slapped or had something thrown at her; pushed, shoved, or had her hair pulled; hit with a fist or something else that could hurt; choked or burnt; threatened with or had a weapon used against her". Specifically, this indicator takes the value of 1 if the woman's current or most recent partner has ever perpetrated one of the following actions: (i) pushed, shaken, or had something thrown at her, (ii) slapped her, (iii) punched her with the fist or hit her with something harmful, (iv) kicked or dragged her, (v) choked or burnt her, and (vi) threatened or attacked her with a knife/gun or other weapon, and 0 otherwise (DURYEA, 2017).

Woman experiencing emotional violence answered positively to any of these questions: Does/did your partner ever: (i) say something to humiliate you in front of others, (ii) threaten to hurt or harm you or someone close to you, (iii) threaten to leave, take the kids, or stop helping you economically?

To identify if the women experienced any sexual violence, they asked: Does/did your partner ever: (i) physically force you to have sexual intercourse with him even when you did not want to, (ii) force you to undertake sexual practices that you do not approve?

As for measuring female empowerment, this has been always considered a difficult and multidimensional task. There are many scopes to women empowerment, but in general economic terms, any domain that improves women bargaining power has been considered female empowerment. Usually, aspects such as education, labor market opportunities, access to resources, and decision making power over household decisions, are considered to constitute an important element of women's well-being and empowerment. All variable in this study were previously tested, and empirically linked to IPV in the literature.

We structured our set of independent variables –female empowerment proxies– in three different levels: individual, household, and relationship. To this levels, we also added husband's and wife's identity proxies. All these variables were computed using the data provided by the surveys' answers. Although the DHS is not a comprehensive socio-demographic survey, in the three years, women were asked about their own demographic, education, and employment

[11] Unfortunately, this measures cannot tell anything about the intensity of the abuse. As ALONSO-BORREGO AND CARRASCO (2016, p. 8) say "the fact that among two women for which the IPV indicator takes on value one but the first woman declares to have experienced a higher number of listed behaviors than the second one does not imply that the first woman faces a more serious situation of abuse".

characteristics, as well as their perceptions of violence against them, and who makes decisions about their own health care and earnings.

For our individual set of variables, we consider women's age, which is an interval variable that can take the values 15-19, 20-29, 30-39, or 40-49, according to the age of the respondent at the moment of the interview. Women's education level is measured as a categorical variable that shows the respondent's highest education level. Answers are standardized by the DHS to the following criteria: no education, primary, secondary, higher. Within the individual variables, women employment status was measured as a binary variable that takes value 1 if the respondent was employed at the moment of the interview or in the last 12 months. In the women labor status category, we also considered if women work at home or away.

We also contemplated previous exposure to family violence as wives' identity with two variables. One variable measures if a woman was ever hurt by other but her partner, then they were asked as well whether they ever saw their father beat their mother. These covariates are likely to represent an important part of the female identity formation process and shape women's attitudes toward violent behaviors against them. This also allows us to observe intergenerational transmission of violence.

As household-level variables, household residence and wealth are reported as categorical variables. The first considers if women live in an urban or rural area, while the second one states to which wealth index quintile their household belongs to.

Respondents-partners statuses are measured with four variables: women's partners' education level, woman-partner relative education, woman-partner relative income, and decision-making power in the household. The last three variables are proxies of female status in the family. Women that are able to express their opinions in family decisions as much as their partners could be considered empowered female figures, as well as women that can economically contribute to the household income.

Consequently, to define these variables we took the following steps. Partner's education takes the same coding as women's education level. Nearly every respondent reported that her husband was employed, therefore it is not necessary to compare woman-partner employment status. Nevertheless, to account for relative income we use a dummy variable created from a DHS question that asks women whether both, them and their partners, earn about the same, or if they earn less or more than the partner.

The relative education status variable was created by subtracting the male highest educational level from female highest educational level. Scores were broken down into a series of dummy variables: both have the same level of

education, a woman has reached a lower educational level than her partner, and lastly, she is more educated than him.

Decision-making power is determined by a sequence of questions that ask whether the woman, man, or someone else has the final say in: (i) woman's own health care, (ii) making large, (iii) household purchases, and (iv) making purchases for daily needs. As in FLAKE (2005), each woman is classified into one of three relationship power types based on their answers to the "final say" questions: egalitarian (male and female have an equal say in most issues), woman-dominant (female makes most decisions), and partner-dominant (partner makes most decisions). Different from their approach, an additional category for "other-dominant" was added as participation of "others" in household decision-making was highly significant for Peru.

Even though, our intention was to use "attitude towards violence" measures, this was not possible as there were no diverse responses to questions that gauge women tolerance towards violent behavior in certain scenarios[12]. In 2009, 2010 and 2011, about 98 percent of the interviewed women did not think it was justified to use violence under any of the conditions asked. Given these results, we decided to not proceed with the further analysis of this variable.

The three-way categorization used in this framework does not attempt to either theoretically, nor empirically, assume that there is no interrelation along categories. Since our approach intends to examine as many dimensions of empowerment as possible, this disaggregation comes handy for reference purposes. We acknowledge that many of the variables considered as individual could be highly related to those grouped as relationship-related.

5 Results

In this section, we present the results from our descriptive data analysis and our logit regression. We will briefly show the results found in the Peruvian data, to therefore discuss the insights with a more profound theoretical detail in Part 4.

In Table 1, we present percentages and Chi-square tests ($p < 0.05$) to compare socio-demographic characteristics of women in this study by marital status. As expected, it is more frequent to find ever-married women among the older, poorer and less educated categories. As Peruvian women grow up they start to engage in couples' relationship. By the age of 40 to 49 years old, only a small percentage of women remain single. It is also more common to find ever-

[12] Women were asked if they thought it was justified that a husband would use violence if: (i) she goes out without telling him, (ii) she neglects the child, (iii) they argue, (iv) she refuses to have sex, and (v) she burns the food.

married women in rural areas than urban districts. Non-educated women are also more prone to be in a relationship. 9 out 10 women that have never been enrolled to school are (or have been) married, versus 6 out of 10 women with at least secondary education.

It is interesting to see that in Peru, almost three-quarters of the women population are, or have been, employed between 2009 and 2011. Additionally, almost half of the sample has reached secondary education. At a glance, it seems like most Peruvian women, with respect to other developing countries, live in highly urbanized areas, benefit from relatively high labor market participation, and literacy.

Table 1 Women socio-demographic characteristics by marital status

	Total	Never married	Ever married	*p-value*
Woman age				p<0.001
15-19	18.56	87.48	12.52	
20-29	29.87	38.86	61.14	
30-39	28.44	12.44	87.56	
40-49	23.12	7.17	92.83	
Household residence				p<0.001
Urban	74.31	35.79	64.21	
Rural	25.69	25.10	74.90	
Woman's highest education level				p<0.001
No education	2.61	8.48	91.52	
Primary	23.06	13.07	86.93	
Secondary	46.37	39.85	60.15	
Higher	27.96	40.51	59.49	
Household Wealth				p<0.001
Poorest	15.51	24.67	75.33	
Poorer	18.82	26.49	73.51	
Middle	21.80	30.87	69.13	
Richer	21.92	36.61	63.39	
Richest	21.95	43.16	56.84	
Woman's employment status				p<0.001
Currently or employed in the last 12 months	74.85	30.75	69.25	
Unemployed in the last 12 months	25.15	39.88	60.12	
Total		33.04	66.96	
N	69 676			

Notes: By marital status, results are shown as row percentages. Totals are percentages for the category. Source: Own calculations using Peru DHS data (2009, 2010, and 2011).

After our introduction to the Peruvian case study, it might not seem surprising how widespread violence is, and the stability of their prevalence. Along the three studied years, there has not been much variation in the frequency rates. Around 20 percent of women reported experiencing any type of intimate partner violence. The less common, or at least less reported, type of abuse is sexual violence. While the most reported ones are emotional and physical violence with 16.6 and 13.0 percent over the three years, respectively.

Table 2 Intimate Partner Violence by year and type

	IPV	Physical Violence	Emotional Violence	Sexual Violence	N
2009	21.7	13.5	16.9	3.2	13 781
2010	20.7	13.0	16.1	3.4	12 880
2011	21.2	12.6	16.7	3.3	12 898
All	21.2	13.0	16.6	3.3	39 559

Notes: Results are shown as row percentages.
Source: Own calculations using Peru DHS data (2009, 2010, and 2011).

When doing a regional comparison in the 24 districts of Peru, the prevalence variation is evident. Violence is heterogeneously distributed among the regions of the country. The districts with the lowest rates of all types of IPV are La Libertad, Cajamarca and Lambayeque, while the highest reported rates are in Cusco, Apurimac and Junín. The latest are relatively neighbor regions in the highlands adjacencies. It is not striking to see these rates in the highlands region as it is much more rural. The area struggles with high rates of illiteracy, unemployment, and poverty. Access to healthcare, law enforcement, and other community networks is limited in the highlands (FLAKE, 2005). On the contrary, the coastal area is highly urbanized and accommodates more than half of the country's population. As seen in Table 1, almost three-quarters of the sample are located in urban areas which mostly belong to the cost of Peru. Coastal residents enjoy relatively low levels of illiteracy, poverty, and unemployment, and high levels of education and healthcare.

Table 3 Intimate Partner Violence by region

	IPV	Physical Violence	Emotional Violence	Sexual Violence	N
Amazonas	23.6	14.4	17.6	4.7	1 738
Áncash	20.4	12.6	15.0	3.8	1 676
Apurimac	29.4	18.3	24.9	6.8	1 428
Arequipa	22.1	13.1	17.1	3.6	1 415
Ayacucho	25.3	14.3	20.7	5.1	1 658
Cajamarca	14.6	9.8	9.8	2.4	1 601
Callao	24.6	13.9	19.6	2.7	349
Cusco	31.0	20.1	24.6	6.8	1 461
Huancavelica	19.2	11.1	15.3	4.3	1 308
Huanuco	16.4	10.0	13.3	2.3	1 456
Ica	24.3	15.9	18.3	3.3	1 578
Junín	27.0	18.4	20.6	4.3	1 598
La Libertad	10.0	5.8	7.8	0.8	1 618
Lambayeque	18.5	10.9	15.1	2.6	1 266
Lima	20.5	11.8	16.5	2.6	3 194
Loreto	26.4	17.1	19.8	3.5	1 546
Madre de Dios	26.2	17.5	20.7	3.6	1 895
Moquegua	24.4	15.7	18.9	3.8	1 460
Pasco	22.8	15.2	16.5	4.4	1 723
Piura	20.0	12.3	14.8	3.7	1 734
Puno	22.0	14.9	16.7	3.2	1 756
San Martín	22.5	13.8	18.8	4.3	1 662
Tacna	24.3	15.2	18.9	2.8	1 249
Tumbes	23.2	13.9	17.4	3.5	1 583
Ucayali	20.0	13.1	15.5	2.6	1 607
Total	21.2	13.0	16.6	3.3	39 559

Notes: Results are shown as row percentages.
Source: Own calculations using Peru DHS data (2009, 2010, and 2011).

Table 4 summarizes the descriptive statistic of the distribution of abused women across categories, also making the distinction by IPV type. Defined covariates were tested using a bivariate Chi-square distribution among women who had, and had not, experienced physical, emotional and sexual IPV in the last 12 months. We verified that prevalence rates of violence are significantly different between categories of women, household, and relationship

characteristics. These differences just express marginal correlations, so causal effects cannot necessarily be inferred.

All variables were found significant at 1 percent level, except for woman's age, which was not significant for sexual violence analysis. Woman-Partner relative education was not either statistically significant for any type of violence except for sexual violence at a 5 percent level.

Results for the bivariate test show that the prevalence of any type of violence is higher among young women and decreases with age. The same linear relationship cannot be seen on the case of emotional violence, as 18.1 percent of ever-married women aged 20-29 declared having been subject to emotional violence by their partners in the last 12 months, against 16.6 percent of women that belong to the youngest age group (15-19).

Opposite to what one might expect, the prevalence of spousal violence is somewhat higher among women that live in urban areas in comparison to those that live in rural ones. The contrary is found for sexual violence although the difference is low.

What stands out is the non-linear relationship between education and violence prevalence rates. For all types of abuse, women with no education report lower rates than women with primary education. Except for sexual violence, abuse prevalence rates are higher for women with secondary education in comparison to those with primary education. It is interesting to see that in Peru, there is also less reported emotional violence among women with no education than women with higher education, and the same can be said for women reporting any kind of IPV. When comparing women that have never been to school with those that have succeeded higher education, reported rates of violence decrease among these groups.

At a glance, this evidence suggests that incidence of spousal violence is lower among uneducated women, in comparison to those with a first level education (those that have been to primary school). However, these frequency rates should be cautiously interpreted as women with lower education are less likely to report violence than educated women. Women with education are typically more autonomous and have the resources necessary to better recognize and terminate a potentially abusive relationship (FLAKE, 2005).

Interestingly, a similar relationship is found when comparing prevalence rates among the different wealth quintiles. Almost 20 percent of women that live in the poorest households report experiencing any type of spousal violence, against 14.7 percent of women that belong to the richest quintile. When comparing the poorest versus the richest quintiles, reported prevalence rates of violence seem to decrease for all kinds of violence, nevertheless the relationship does not seem to be linear either. Women that belong to the second and third

quintile report violence more than those in the lowest wealth quintile (except for sexual abuse). This shows a similar relationship that the one found for education.

The descriptive analysis also indicates that women that are currently working, or have worked in the previous 12 months to the interview, have a higher prevalence of violence than those that were not working at that time, nor during the previous year. In addition, the same can be said for those that work away from home.

When evaluating partners' characteristics categories, such as partner's highest education level, wife-husband relative income, and relative education level, some interesting insights were found. Reported prevalence rates trends among the different subcategories of partner's education level were similar to those discovered in women's education level. At a glance, violence reported rates decrease with partners' education, when one compares women with husbands that have succeeded in higher education against those that have never been to school. However, the relationship does not seem to be linear. More women with educated partners (primary and secondary education reached) report violence than those women with a partner that have not been to school. Sexual violence frequency seems to be the only one to decrease with the partner's education level.

As for wife-husband relative income measures, egalitarian categories seem to present highly distinctive low rates of prevalence of IPV. On the contrary, along with the relative education categories, differences are negligible. Similarly to relative income insights, when observing household decision-making dynamics, those women that report making decisions jointly with their husbands are the ones to express the lowest rates of abuse by their partners. Any unbalance, either on the man's or woman's favor would show higher prevalence rates of violence.

Lastly, the prevalence of domestic violence differs much depending on women's previous experience of violence. Both women that have seen their mother being beaten by their father, and those that have been abused before by other but their partner show surprisingly high rates of prevalence of all kinds of IPV.

Table 4 Summary statistics for individual, household and relationship characteristics by IPV status

	IPV	Physical	Emotional	Sexual
Woman's age				
15-19	25.2	17.9	16.6	2.8
20-29	25.1	17.6	18.1	3.2
30-39	21.0	12.4	17.0	3.4
40-49	17.4	8.9	14.5	3.3
Household residence				
Urban	22.0	13.3	17.4	3.2
Rural	19.5	12.4	14.8	3.6
Woman's highest education level				
No education	16.28	11.1	11.3	3.2
Primary	20.6	12.5	16.5	4.1
Secondary	24.4	15.5	18.6	3.6
Higher	17.4	10.0	14.0	1.8
Household Wealth				
Poorest	19.2	12.6	14.5	3.7
Poorer	24.3	15.6	18.6	4.4
Middle	24.4	15.1	19.0	3.6
Richer	21.9	12.5	17.5	3.0
Richest	14.7	8.2	12.1	1.4
Woman's employment status				
Unemployed in the last 12 months	17.1	10.4	12.9	2.1
Currently or employed in the last 12 months	22.4	13.8	17.7	3.7
Partner's education level				
No education	18.6	10.3	13.6	4.1
Primary	20.6	12.8	16.3	4.1
Secondary	22.8	14.2	17.6	3.3
Higher	15.5	8.7	12.8	1.7
Woman works at home or away				
Home	20.8	12.2	16.2	3.3
Away	22.8	14.2	18.0	3.7
Woman-Partner relative income				
Both earn about the same	20.0	12.1	15.2	2.8
Woman earns less than partner	23.3	14.4	18.3	3.6
Woman earns more than partner	28.1	17.5	22.8	5.6
Partner has no income	33.7	28.3	24.9	4.6
Father ever beat woman's mother				
No	16.7	9.9	13.2	2.4
Yes	26.4	16.7	20.5	4.2
Woman was ever hurt by other				
No	19.1	11.7	14.8	2.9
Yes	31.1	19.2	24.8	5.3
Woman-Partner relative education				
Same level	21.3	13.4	16.4	3.2
Less than him	21.0	12.6	16.7	3.9
More than him	21.2	12.5	17.0	2.9
Decision-making power				
Egalitarian	15.6	9.6	11.3	2.0
Woman-dominant	24.7	15.2	19.5	3.9
Partner-dominant	22.0	14.9	16.0	3.0
Other makes decisions	24.4	15.9	19.2	5.4
Total	21.2	13.0	16.6	3.3

Notes: Results are shown as row percentages. All variables were significant at 1 percent level, except for woman's age, which wasn't found significant for sexual violence. Woman-Partner relative education was not significant for any type of violence except for sexual violence at a 5 percent level. The association between women working at home vs away with violence was only significant at a 5 percent level for any type of IPV and emotional, at 10 percent for physical, and not significant for sexual abuse. Source: Own calculations using Peru DHS data (2009, 2010, and 2011).

Table 5 shows the marginal effect coefficients obtained in the multivariate logit regression. These explain the change in the probability of being a victim of violence with respect to the base category (shown without any coefficient) given a 1 unit change in the independent variable. Since all of our covariates are categorical, a one unit change represents an escalation from one category to the next. Model 1 tests variables at an individual status: women's age, education, employment status and previous experience of violence. Model 2 tests women's individual status in addition to household living conditions, such as wealth and residence type. Finally, Model 3 combines individual measures, such as women's previous experience of violence, both household conditions tested in Model 2 plus relationship measures, like relative education and income, and decision-making dynamics. Women's and their partner's education were not included, nor labor market participation in order to avoid excessive multicollinearity[13]. As relationship interactions measures were included, we consider that these reflect in some way individual characteristics for the couple's members.

All models, for all the different types of dependent variables (physical, emotional, sexual, and any kind of IPV), generated similar results. Almost, the same significant coefficients are found across all models when applied to our four outcome variables.

Results confirm a significantly increasing likelihood of experiencing spousal violence if women were ever hurt before by other but their partner. Women abused in the past are as much as 10 percent more likely to experience any type of IPV than women that have not been victims of violence before. Only for physical and any IPV, Model 1 and 2 confirm a significantly decreasing likelihood of experiencing domestic violence with women's age. Women's age was not found significant for emotional, nor sexual abuse likelihood.

Even if women participation in the labor market was not found significant, measures for women working location relative to home show interesting insights. Women working away from home are also more likely to

[13] For all the models, Fisher's exact tests were p=0.000, indicating that the hypothesis of independence must be rejected. Goodness of fit (GOF) tests were carried out to check if models were a good fit for our data. IPV and physical violence were better fitted by Model 2, with a GOF p-value of 0.92. Model 1 showed the highest p-value (0.92 and 0.88) when regressing on emotional and sexual violence. Model 3 was a good fit for sexual violence with a 0.92 p-value. For all models in all regressions, GOF p-values were larger than 0.05, only Model 3 lacked fit explaining physical violence.

experience any type of abuse (except sexual abuse which was not found significant). For all models and all types of violence, likelihood increase varies between 1.7 and 2.5 percent if they would be working away instead of close, or at home.

Model 1 and 2 predicted a significantly higher risk of experiencing any type of IPV in women with secondary education in comparison to women with primary education. The risk of suffering emotional violence should be expected for women with primary and secondary education, with respect to those non-educated and with primary education, respectively. On the contrary, suffering physical and sexual abuse was found statistically less likely for women higher education.

When looking at household characteristics, both wealth and residence type showed significant results. Models 2 and 3 found a protective effect in belonging to the richest quantile as well as living in a rural area (except for sexual violence). Nevertheless, it stands out that women living in a household from the second quintile wealth index increases the likelihood of being a victim of emotional and sexual by about 1 percent, with respect to women from the poorest homes.

Finally, for the study of the relationship measures, our results suggest that any unbalance in the decision-making power will increase the likelihood of suffering from any type of violence in comparison to those that evenly participate in the deciding over household matters. Another factor that was associated with being a victim of any kind of violence was having a higher income than the husband by about 5 percent for physical and emotional violence and 1.9 percent for sexual violence.

Table 5 Marginal effect of factors on likelihood estimates of experiencing IPV

	IPV			Physical Violence			Emotional Violence			Sexual Violence		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Woman age												
15-19												
20-29	-.0029	-.0053		-.0050	-.0056		.0170	.0142		.0031	.0035	
30-39	-.0473*	-.0475*		-.0604***	-.0581***		.0038	.0017		.0045	.0059	
40-49	-.0850***	-.0818***		-.0978***	-.0931***		-.0218	-.0215		.0001	.0027	
Woman's highest education level												
No education												
Primary	.0287	.0212		-.0096	-.0134		.0465***	.0399**		.0042	.0039	
Secondary	.0476**	.0338*		.0049	-.0004		.0556***	.0405**		-.0021	.0009	
Higher	-.0139	-.0112		-.0415**	-.0352*		.0113	.0079		-.0223***	-.0145*	
Woman's employment status												
Unemployed in the last 12 months												
Currently or employed in the last 12 months	-.0081	-.0015		-.0044	-.0001		-.0075	-.0019		-.0002	.0005	
Women works at home or away												
Home												
Away	.0173*	.0212**	.0221*	.0165**	.0180**	.0177*	.0172*	.0211**	.0252**	.0037	.0033	.0040
Woman was ever hurt by other												
No												
Yes	.1036***	.0969***	.0938***	.0591***	.0549***	.0505***	.0896***	.0831***	.0795***	.0213***	.0202***	.0199***
Father ever beat woman's mother												
No												
Yes	.0773	.0727	.0800	.0581	.0549	.0588	.0543	.0505	.0542	.0125	.0114	.0076
Household residence												
Urban												
Rural		-.0429***	-.0461***		-.0275***	-.0310***		-.0367***	-.0303***		-.0047	-.0062

Household Wealth												
Poorest												
Poorer		.0202*	.0075		.0105	.0032		.0181*	.0182		.0056	.0150*
Middle		.0062	-.0266		-.0015	-.0330*		.0095	-.0032		-.0056	-.0081
Richer		-.0071	-.0756***		-.0149	-.0680***		.0030	-.0415*		-.0052	-.0118*
Richest		-.0634***	-.1361***		-.0477***	-.1125***		-.0440***	-.0872***		-.0201***	-.0278***
Woman-Partner relative income												
Both earn about the same												
Woman earns less than partner			.0086			.0084			.0101			.0005
Woman earns more than partner			.0562***			.0417**			.0525***			.0194**
Woman-Partner relative education												
Same level												
Less than him			-.0172			-.0230			-.0053			-.0004
More than him			-.0033			-.0117			.0001			-.0033
Decision-making power												
Egalitarian												
Woman-dominant			.1059***			.0589***			.0944***			.0195***
Partner-dominant			.1088***			.0805***			.0988***			.0331***
Other makes decisions			.0732			-.0086			.0782			.0158
Design df	2214	2214	2153	2214	2214	2153	2214	2214	2153	2214	2214	2153
Goodness of fit	0.53	0.92	0.41	0.55	0.93	0.02	0.92	0.45	0.50	0.88	0.59	0.92
N	29 343	29 343	15 805	29 343	29 343	15 805	29 343	29 343	15 805	29 343	29 343	15 805

Notes: *p < .05. **p < .01. ***p < .001. Statistics are weighted to represent population parameters. Sample size reduced by missing responses among covariates.

Source: Own calculations using Peru DHS data (2009, 2010, and 2011).

6 Limitations

When using intimate partner violence self-reported data, one should consider that measures are usually underestimated. The percentage of abused women is probably higher and the degree of misreporting is non-random (AIZER, 2010), as some women deny, minimize, and underreport abuse (FLAKE, 2005).

Unfortunately, a limitation of this analysis is that results are subject to the interpretation of violence prevalence but not violence intensity. For instance, in this case, a woman that has reported to be a victim of all perpetrated behaviors asked in the domestic violence model, would be the same as a woman that has only reported being pushed by her husbands.

An additional limitation of our research is its inability to establish causal relationships. Although our framework is useful to identify risk and protective markers of IPV, it cannot determine causality. Further analysis to uncover the causes of abuse is needed to reduce the magnitude of domestic violence. Endogeneity issues must be overcome to obtain successful predictions in causal inference analysis of this topic, as unobserved characteristics could be driving the relationship between female socio-economic standing and IPV. Additionally, reverse causality between these variables may impinge the relationship of the causal analysis.

PART THREE: EMPIRICAL REVIEW

7 Domestic Violence

By now, one is probably very well familiarized with the concept of violence against women, however, this was formally defined in the "Declaration on the Elimination of Violence against Women" by the United Nations as "any act of gender-based violence that results in, or is likely to result in, physical, sexual or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life" (ASSEMBLY, 1993, p. 3). Intimate Partner Violence (IPV) is the most common form of aggression experienced by women (UN WOMEN, 2017; WORLD HEALTH ORGANIZATION, 2013). Around the world, about 30 per cent of all women experience some form of intimate partner violence during their lifetime (STÖCKL *ET AL.*, 2013)[14].

Most authors try to disaggregate different types of domestic violence in order to reach empirical goals but this is one of the most challenging tasks because violence is a highly complex and multifaceted phenomenon. The most commonly used categories are: physical, emotional and sexual violence (ASCENCIO, 1999; JEWKES, 2002; LENZE AND KLASEN, 2017), as we use in our empirical analysis, or just physical and non-physical violence which does not disaggregate sexual violence (ALONSO-BORREGO AND CARRASCO, 2016). Some authors decide to use the latest as they believe sexual violence usually entails physical violence. In our case, we disaggregated the three types of violence as the DHS in Peru specifically asks women if sexual violence was perpetrated by the means of physical violence.

Intimate partner violence against women has countless consequences, sometimes even the victim's death. Many women that experience this type of violence suffer physical and mental pain. In surveys women who suffered IPV report significantly poorer health when compared to non-abused women. They have difficulty walking, struggle with daily activities, have memory loss, and dizziness. They also report significantly higher levels of emotional distress, suicidal thoughts,

[14] It is true that men can be victims of violence perpetrated by their female counterparts, nevertheless, research worldwide has focused on women since women are more likely to suffer physical violence and injuries from partners (BOTT *ET AL.*, 2012).
For the purpose of this research, the focus is mainly on heterosexual couples that have lived in the same household. Although we do not deny the existence of violence inflicted by women on men, but deplore these actions and the harm they cause, we concentrate on the opposite in order to reach our major research goal.

and even sometimes suicidal attempts (ELLSBERG *ET AL.*, 2008; FEARON AND HOEFFLER, 2014).

There are also socio-economic externalities for the wider society. Violence undermines development throughout the restricted economic growth caused by the unfulfilled potential of female victims. There are long-term consequences for the next generation that witnessed violence. Researchers in the genes' engineering field have even suggested that emotional stress and aggression perceived during childhood can be pass through genes, not only to the first following generation of descendants but also the second one (THE ECONOMIST, 2018). This means that daughters are more likely to be abused by their partners in the future, and sons are more likely to become abusers themselves (FEARON AND HOEFFLER, 2014). Our empirical evidence supports these arguments, as women that have experienced abused during their childhood were significantly more likely to be victims of violence.

Intimate partner violence does not distinguish between social statuses. This type of violence can be found among the richest and most educated quintiles, but also among the poorest and least educated ones. One may think that only women in poor households can be victims of violence by their spouses, but evidence has proved that this is not always the case.

7.1 The Incidence of IPV: Who are the victims and where are they?

The incidence of intimate partner violence might depend on multiple factors, these being internal –related to individual, households and relationship characteristics, but also external and more linked to the cultural weight. Evidence regarding the study of the relationship between spousal violence and female empowerment have been in line with our observational analysis results from Peru.

Within the community-level factors, literature has suggested that social norms and the influence of culture play a main role in determining the incidence of violence against women. Experiencing violence at home during childhood teaches children that violence is normal in certain settings. In this way, men learn to use violence and women learn to tolerate it or at least tolerate aggressive behavior. Many cultures condone the use of physical violence against women in certain circumstances and within certain boundaries of severity. In these settings, as long as boundaries are not crossed, the social cost of physical violence is low. But even in settings where there is legal punishment of domestic violence, the laws will not be enforced if society finds such violence culturally acceptable. This type of framework is easier to be found in developing countries. However, developed countries might

experience some frustration as well when enforcing the laws. Even if there is less reluctance to carry out the punitive sanctions against aggressors, law enforcement is hampered by victims that often drop charges (ESWARAN AND MALHOTRA, 2011).

All in all, it is more likely to find more women that are victims of domestic violence in countries, regions, or areas, where this behavior is tolerated by the society, community, and/or families. As said before this tolerance surges from its cultural acceptance combined with a lack of legislation –or its enforcement in some cases. Many academics have agreed with all of these community-level conditions that end up affecting intra-households interactions.

In Peru, there are laws to punish aggressors, nevertheless, rates of women that look for help in State institutions are low. Our evidence revealed that only one out of four beaten women would seek help from the police or other institution that looks after women's rights after aggression[15]. These are relatively low reporting rates, especially when considering that about 98 percent of ever-married Peruvian women said that violence was not justified under any conditions.

In our case, inter-generational transmission of violent behavior seems to be deeply rooted in the culture, as Peruvian women with previous experience of violence are more likely to be victims of violence with respect to those that did not have any. Childhood exposure to family violence is an important determinant of spouse abuse. Studies from a wide range of industrial and developing country settings have found that children who witness violence between their parents or who are physically abused themselves are more likely to use violence in their relationships as adults (ELLSBERG *ET AL.*, 2008; FLAKE, 2005; HINDIN, KISHOR AND ANSARA, 2008; JEWKES, 2002). Similar to our findings, the risk of spousal violence increases for women who witnessed their mothers being abused (FLAKE, 2005). Children exposed to violence learn that abuse is normal and to be expected. As adults, such individuals are likely to both engage in aggression and have a high tolerance for such acts when committed against them.

Researchers have also tried to identify what are the common internal characteristics of the households where most female victims live in. In order to accomplish this, they have looked into the socio-demographic features of households of beaten women.

GREULICH, DASRE AND INAN (2017) confirm a significantly decreasing likelihood of experiencing domestic violence with women's age.

[15] Source: own calculations using data from the 2009, 2010 and 2011 Peru DHS. Women were asked in the interview if they ever sought help in a list of institutions after being abused.

As opposed to what we have found in Peru, much of the previous evidence suggests that living in a rural area is positively correlated with experiencing aggressive situations of domestic violence (LOPEZ-AVILA, 2016; UN WOMEN, 2017). Although violence occurs in all socioeconomic groups, it is always associated with poor households. Theory says that this is most likely because the stress related to poverty is a key contributor to intimate partner violence (JEWKES, 2002). This means that violence might be particularly prevalent in households in difficult economic situations. For instance low-income households, low educated households, and households in which both partners are unemployed (MURRAY A., GELLES AND STEINMETZ, 2017).

Our evidence does not prove that difficult conditions enhance the use of violence. Besides the complex relationship for education and income level of couples within households, we also found that living in rural areas could be a protective factor. Although we saw in the region breakdown that those districts with the highest prevalence were the most rural ones, in the appended study of the three surveys for all variables, some mechanism might be driving the fact that incidence of IPV, in general, is higher in urban areas. As suggested by (FLAKE, 2005) socioeconomic status does not necessarily have to be a risk marker for abuse in Peru. He mentions "perhaps because poverty is so commonplace in Peru, couples are better able to manage the stress that comes from deprivation and are therefore no more likely to engage in violence than are wealthy couples".

When observing the relation of households' wealth and IPV, at least in developed –and few developing– countries, women that belong to groups of medium and higher standard of living face significantly lower incidence of domestic violence, compared with the ones with the lowest standards of living (LOPEZ-AVILA, 2016). AIZER (2010), says that women in the United States with an annual income below $10.000 report rates of domestic violence five times greater than those with annual income above $30.000. In some developing countries, the story seems to be different. In the latest UN WOMEN (2017) publication for Latin America, they reported the association between violence and income quantile. This was studied by Hernández (2016) who carried out an extensive research on twelve Latin American countries. In half of its sample, the risk of suffering from violence was higher in women that belonged to the poorest households, compared to women in richer households, in line with the previous evidence from developed countries. Nevertheless, the puzzling result refers to the fact that in the other half of the sample, countries showed that women in the middle income quintile (third and fourth quintile) were the most

affected ones, with the highest prevalence of domestic violence[16]. The latest is consistent with our descriptive analysis in Peru, for which lower incidence rates of IPV were found in the lowest wealth quintile in comparison to the second and third.

In a similar trend, the educational level of couples as an indicator of the incidence of domestic violence is not so straightforward. One may think that education (both for men and women) significantly decreases the incidence of domestic violence. A reason for this could be that higher education might enable women to marry at an older age and choose more wisely a non-violent partner themselves (GREULICH, DASRE AND INAN, 2017). As point out by many studies, most of the time, women with the lowest education levels show the highest prevalence of physical or sexual violence. This tends to decrease in the same way education increases (UN WOMEN, 2017). This relation, however, is seen to be non-linear (ESWARAN AND MALHOTRA, 2011; GREULICH, DASRE AND INAN, 2017; JEWKES, 2002; UN WOMEN, 2017).

With our Peruvian descriptive evidence, we have not been the only ones to find an inverted U shaped relationship between schooling and violence. While it is true that higher education is likely to protect married women from domestic violence as high educational attainment is associated with lower levels of both perpetration and victimization of partner violence (GREULICH, DASRE AND INAN, 2017), women with minimal schooling generally have a lower risk of violence than women with slightly more schooling (JEWKES, 2002). As said before, this might just be a reporting issue caused by the fact that less educated women are less likely to recognize they are being abused with respect to women with higher school attendance. However, as Jewkes (2002) found similar results in the case of Nicaragua, she argues that a likely reason for this relationship is that women with the least exposure to schooling probably challenge their partners less and therefore trigger less abuse. As we did already, she also found that the protective effect of education does not appear to take hold until women complete secondary school.

Hernandez (2016) also study this complex relationship for the Latin American case. In more than half of his sample[17], girls between seven and eleven years old with higher education than women between four and six years old suffer from more violence. ESWARAN AND MALHOTRA (2011) reported similar results. They found that a literate woman with less than primary schooling is as likely to be beaten by her husband as an illiterate woman. It may be that at this level, women's

[16] Hernandez (2016) tested this for eleven Latin American countries, being: Bolivia, El Salvador, Guatemala, Haiti, Nicaragua and Peru, the ones that showed this evidence (as cited in UN WOMEN, 2017).

[17] Seven out of the twelve Latin American countries studied. These countries were: Bolivia, Ecuador, El Salvador, Guatemala, Nicaragua, Paraguay, and Peru.

exposure to new ideas, broader social networks, and new skills are sufficient to shift the balance of power in the relationship to reduce the risk of violence (JEWKES, 2002). Likewise, a literate husband who has completed less than primary schooling is likely to be as abusive as an illiterate husband.

When studying women employment status and spousal violence, literature more abundant. In line with our research, FLAKE (2005) also discovered a positive correlation between employment and violence in Peru, in 2000 using DHS data. The correlation between work and domestic violence was also positive and significant in Iran in Kishor and Johnson (2004) study (as cited by FLAKE, 2005). HEATH (2012) cites Hjort and Villanger (2011) who study randomize job offers from a flower firm in Ethiopia and found that getting a job increased the amount of physical violence a woman suffers by 13 percent. FULU AND HEISE (2014) argument that a reason for this might be that women are victims of violence when they leave "traditional roles" to join the labor market. MACMILLAN AND GARTNER (1999) analyze the relationship between women's employment and spousal violence in Canada. They found women's employment to be significantly related to marital violence, by strictly dependent on men's working status. The risk of violence increases for working women when the husband is employed, nevertheless if he is unemployed it decreases if the woman works.

We have not been the first to test the association between female abuse by their partners and their working conditions. Women who work away from home or for someone else are more likely to face domestic violence than those who work at home or for a family member. ESWARAN AND MALHOTRA (2011) have used female autonomy as a measure to explain spousal abuse caused by jealousy of paternity uncertainty, in their South Asian context. They found that women who work away from home are seen to confront more spousal violence, and this is consistent with the evolutionary theory of domestic violence.

Variables that compare female versus their partners' status have been also associated with domestic violence. For instance, women with partners who have education secondary or higher were found less likely to experience domestic violence by LOPEZ-AVILA (2016), in countries such as Egypt and India, but more likely in countries like Peru. Additionally, when women's educational level or income is higher than their partners' the risk of being victims of violence increments, as found by FLAKE (2005) and HEISE (2012). In our research, we only found this to be true in the case of relative income, since our relative education variable was not significant. Other evidence from Colombia, Nicaragua, Peru, Brazil and Dominican Republic also supports that the risk of violence in women with own income is higher (UN WOMEN, 2017). In Turkey, GREULICH, DASRE AND INAN (2017) found that an egalitarian share of economic resources between spouses is likely to protect women

against domestic violence. In their framework, any kind of unequal distribution of economic power between spouses – either in favor of the man or the woman – might create tensions to result in domestic violence. Not only in developing countries setups, smaller wage gap between men and women was significantly associated with marital violence, AIZER (2010) attributed the 9 percent reduction in violence against women, witnessed over the past thirteen years, to the wage gap decline in the United States.

When studying women participation in household decision-making, studies have found similar results to ours. ESWARAN AND MALHOTRA (2011), showed that women who faced greater domestic violence had less control over resource allocation within the household (as captured by children's nutrition levels). LUKE AND MUNSHI (2011) also reported that the success of women in asserting their preferences comes at the cost of greater marital violence. They consider that as women gain bargaining power within the household with relative income increases, they challenge the norm of male decision-making. LOPEZ-AVILA (2016) study as well women's participation in household decisions but did not find it to be correlated with domestic violence. Reciprocal systems require balance so mutually beneficial exchanges are sustained, in scenarios of power disparity these are diminished and spousal conflict is more likely.

Besides the ones studied in the empirical analysis, other common factors that are observed in women that are victims of violence regard age of marriage, number of children born in a marriage, husband alcohol consumption, and whether the couple shares the household with the wife's or husband's family. The odds of violence decrease with the woman's age at first marriage (ESWARAN AND MALHOTRA, 2011; HEISE, 2012). Wife's marriage age is negatively correlated with domestic violence. Furthermore, the larger the number of children in the household, the higher the women's risk of domestic violence (ESWARAN AND MALHOTRA, 2011; HEISE, 2012; UN WOMEN, 2017).

Apparently, according to whom the couples share the environment with, and the interpersonal relations of the spouses, the incidence of violence could increase or decrease. The incidence of domestic violence is significantly lower for couples that reside in joint families, both with wife's natal family and with husband's parents' family (ESWARAN AND MALHOTRA, 2011). Another characteristic found by ESWARAN AND MALHOTRA (2011) is that women who have a close relationship with their mothers are more prone to be victims of violence[18]. They could not tell if either men

[18] The authors collected information on how close the wife was from her mother by asking specific questions about their relationship in the survey. Some examples of the types of questions asked are if family-planning decisions were discussed with the mother, and if women would resort to their mothers for giving birth. Using this information they built an indicator of mother's support.

are more likely to be violent with wives who are close to their mothers or wives who are abused tend to seek more support from their mothers.

One more interesting fact observed is that living with a partner without formal marriage also appears to increase women's risk of domestic violence (FLAKE, 2005). This would not come as a surprise since outside options for women in a de facto union are not the same as for married women (FLAKE, 2005). Lastly, partner's alcohol consumption also appears to increase the likelihood of experiencing domestic violence as an adult (BLOCH AND RAO, 2002; FLAKE, 2005; JEWKES, 2002).

PART FOUR: LITERATURE REVIEW

In this part, we extensively review theories of household bargaining models (HBM), male-backlash models (MBM), and motivated beliefs, as tools that would add up theoretical value to our case study observational evidence.

8 Intra-Households Dynamics

Couple relationships are an interesting subject to study in economics. For long, it has been the core in other social sciences, as sociology and psychology, but the same cannot be said for economics. This is worth studying, economically speaking, because the better our understanding of households' dynamics and their agents, the better the design of the policies to target certain individuals, and therefore the easier and more accurate it is to measure the impact of these.

It is interesting about relationships how two people stay together as partners when sometimes they share different values, personalities, cultures, contexts and interests. These types of partnership are no news to what has been studied in the economics sciences field before, since what was previously described happens to corporations and governments at a macro level. In the beginning, for all partnerships to start there should be some common ground, long-term interests shared between the two parties, and some gain for both. As time goes by, contexts, interests, and incentives evolve, and the initial conditions of the agreement might not be suitable anymore. It does not matter if we are taking about governments, corporations, or simply a marriage between a man and a woman, there are few solutions to this when it happens. Whether the agreement conditions adjust to the parties' new preferences, or the partnership is broken.

Researchers have considered that couple relationships interactions can fit within the framework of decision-making models. In a marriage[19], both man and women individually count with their preferences and resources, but when these are pooled in the household, choices over collective resources to satisfy family members' preferences are more complex[20]. These models are useful to study how households maximize a set of preferences subject to some restrictions. Maximization of agents' utilities depends on the distribution and allocation of the pooled resources among the family members.

[19] For simplification, we use the word marriage to refer to actually married couples, but also couples that have not been engaged in a legal but in a *de facto* union.

[20] Family could refer to households with only a husband and a wife.

There are different approaches to explain the distribution of welfare within families.

There is the unitary approach (BECKER, 1965; SAMUELSON, 1956) which assumes that households maximize a common set of preferences subject to the pooled income, or resources in general[21]. In this setup, the identity of the recipient does not matter because the agent(s) making decisions over resources would look after everyone's preferences, in an altruist trend.

In the collective approach, the preferences maximized are a weighted sum of the individual ones, therefore the identity of the individual controlling the resources affects decisions and final allocations (FIALA AND HE, 2017). Final outcomes would highly depend on the bargaining power had by the individual that controls allocations. This is particularly relevant for couples' relationships because individuals rarely have the same preferences and incentives, and it is uncommon that they control allocations equally. Therefore they will rely on bargaining power to allocate household resources on their own preferences favor, as evidence suggests (FIALA AND HE, 2017; LUKE AND MUNSHI, 2011).

The common ground of the unitary and the collective approach is that both can reach a Pareto optimum, which states that there is no other reallocation option where one of the members of the household could be better off without making at least one of the other worse off. The unitary approach is often rejected because the assumptions that help this model hold are weak when studying couples, or family dynamics. For this purpose, the most commonly used methodology is the collective model, since most bargaining models tend to assume that bargaining is a cooperative attempt with Pareto efficient outcomes (BOURGUIGNON, BROWNING AND CHIAPPORI, 2009). Yet, this is a complex, and hard to sustain, assumption in the context of domestic violence.

As it is tough for cooperative models to accommodate domestic violence and reconcile efficiency at the same time, recently, non-cooperative models have taken the lead to study intra-household decision-making processes in the context of spousal violence (BLOCH AND RAO, 2002; ESWARAN AND MALHOTRA, 2011; FARMER AND TIEFENTHALER, 1996; TAUCHEN, WITTE AND LONG, 1991).

Decision-making processes will likely depend on the power dynamics happening within the households. Theory suggests that the one who holds the power on the resources will influence its allocation[22]. It is said that among most low-income

[21] Household considers those that are composed by only a husband and a wife as well.

[22] Please note that one might think of resources as the household income, but the limits of this definition can be expanded. The time devoted to chores could be also considered an important

households, male partners control the income earned by themselves and other household members (BOBONIS, GONZÁLEZ-BRENES AND CASTRO, 2013; SALIA *ET AL.*, 2018). This is mostly because men are the ones who hold larger bargaining power in the relationships. Reasons for this could be the fact that they earn bigger shares of the income, or because of gender roles playing a fundamental part in this dynamic, where men have traditionally made all important decisions (BOBONIS, GONZÁLEZ-BRENES AND CASTRO, 2013).

8.1 Intra-Household Bargaining Models and Domestic Violence

Economic theories on household bargaining models tend to incorporate individual rationality constraints but usually, they do not account for violence (AIZER, 2010). However, when they do, under complete information, they predict that the outcome of the bargaining process is going to be efficient and without the exercise of domestic violence in equilibrium (BLOCH AND RAO, 2002). In reality, it is unlikely that it works like that, since domestic violence continues to be an echoing issue in societies around the world.

There is a wide range of literature that has helped us understand the use of violence as a vehicle for enhancing male bargaining power, undermining wives' autonomy, to ensure an allocation of household resources that is aligned with the husband desired preferences. This literature has called these arguments: *instrumental theories*. These are usually non-cooperative bargaining models that incorporate domestic violence as a tool used by men to control household resources or the behavior of its members.

When it comes to instrumental models, there can be found many different setups, which often lead to inconclusive results. The way violence is modeled within agents' utility functions highly influences the model predictions. Most of the economic research on instrumental theory establishes that men do not benefit from the use of violence itself, in fact, to resort to violence represents a cost for them sometimes. Nevertheless, there are studies where authors propose violence, not only as a way to influence negotiations in household decision-making, but also as a source of gratification.

In ESWARAN AND MALHOTRA (2011) model, men receive disutility from violence, but they may resort to inflicting violence in order to influence the decision of the wife, who is assumed to make the decisions about household resource

resource to be distributed, especially for the purpose of this research since it is extremely tight to traditional gender roles.

allocation. A husband imposes violence on a wife whose allocation differs from his preferred allocation.

In BLOCH AND RAO (2002) case study of domestic violence in rural India, for instance, a husband may use violence to try to extract transfers from his wife's parents. They introduce asymmetric information into a model of household bargaining where domestic violence has a cost, but it is still used as a signal of the husband's satisfaction with the marriage. In this case, a satisfied husband would never beat his wife (in equilibrium), but an unsatisfied husband would decide to use, or not, violence according to the cost it represents for him. Dissatisfied husbands with low costs of violence exercise domestic violence, obtain additional transfers from the wife's family, and keep the marriage intact. On the contrary, dissatisfied husbands with high costs of violence do not beat their wives but choose to sever links with the wife's families. In this scenario, the wife becomes a hostage of the groom's family.

Other models, as in AIZER (2010) and TAUCHEN, WITTE AND LONG (1991), place violence as a positive factor within men's utility function. Aizer (2010) presents a Nash bargaining model in which utility is a function of consumption and violence, with the man's utility increasing in violence, and the woman's decreasing in violence. In Tauchen, Witte and Long (1991) work, physical violence is viewed as both a source of direct gratification (could be direct relish from the pain of another, or simply release of frustration) and as an instrument for controlling the victim's behavior.

8.2 Why women stay?

Psychologist, sociologist, and philosophers probably have a thousand explanations for this question. There is a lot of material to read on this matter. However, economists might have some interesting approach on why women stay in abusive relationships. The truth is that despite the violence, women must find it advantageous to stay in these relationships (TAUCHEN, WITTE AND LONG, 1991). Staying with a violent partner must provide each individual with a certain level of utility that is at least as great as that the individual could obtain if the relationship were to dissolve. In economic models, this is called reservation utility constraints. Tauchen, Witte and Long (1991) indicate that models of family violence should allow for equilibria in which there are surpluses, for instance, both individuals gain, as well as equilibria in which reservation utility constraints are binding.

In instrumental violence models, as in household bargaining models, a woman's outside option (the utility she would get if she left the marriage) is a key

determinant of her bargaining power, and thus the final outcome of the negotiation in the household bargaining context. Women's threat-point increases when they have more alternatives outside their marriage. For instance, external options could come in the form of improved economic opportunities, like education, income and labor market participation. Also, family support and better quality of services for battered women –as welfare payments, shelters, and higher odds of generous divorce settlements– are likely to improve their threat-point.

FARMER AND TIEFENTHALER (1996) propose an interesting approach towards women's outside options role in negotiations that include violence. While there are some women that definitly take advantage of their external opportunities, and improved status, to facilitate leaving the relationship, other women that are not in the position to leave use the services to bluff to misrepresent their threat-points in order to decrease the violence[23].

Consequently, if a husband wants his wife to remain in the marriage, he must ensure that her utility within the marriage is at least equal to her outside option utility. One may think, how is this possible? A man beats his wife but makes her happy enough so she stays in the relationship?

Up to now, we have seen women's outside option as the main determinant in the decision of women to stay with their husbands, nevertheless, there is no much husbands can do to influence wives' external opportunities. Yet, there is a mechanism that allows men to ensure women are better off inside than outside the marriage; these are intra-household transfers a husband makes to his wife in order to please her enough to make her stay[24]. Both women outside options and men intra-household transfers interact in couples negotiations. For example, standard theory suggests that if a woman outside option utility improves with respect to the current utility obtained from the relationship, a man would have to increase transfers to equal the outside option utility. In short, if a woman is better able to leave when she is treated poorly, her husband must strive to please her by reducing violence. In a setting when men can "buy" domestic violence through the transfers they make to women, an increase in women's economic opportunities, is going to decrease the real value of the current transfer; hence, the level of domestic violence in the future (FARMER AND TIEFENTHALER, 1996). This asserts how the fewer resources a woman

[23] FARMER AND TIEFENTHALER (1996) propose a model under incomplete information, where women's threat-point is unknown and services may offer an additional strategic signaling benefit. Women bluff strategically to reduce violence. The latter will depend on the credibility of the threat. If not credible, the model predicts that women who bluff will face more violence once they return back home.

[24] There can be different forms of transfers. The most popular, and easiest to quantify are monetary transfers. Nevertheless, a husband could as well make future promises about stopping this behavior and show some sort of commitment to his wife that could convince her to stay.

has, the less power she holds, and the less likely she is to leave an abusive relationship (HEISE, 2012).

Women who face very low baseline bargaining power may not be realistically able to leave a marriage. According to the previously established theory, one may think that to free underpowered women from abusive relationships, one should increase their economic opportunities. In fact, instrumental theory and evidence have drawn that the extent of domestic violence faced by women is not necessarily declining in their reservation utilities. ESWARAN AND MALHOTRA (2011) model reports that a woman can actually face a higher risk of domestic violence after her bargaining power increases, as her husband seeks to prevent her from exercising control over household resource allocation. Better outside options for women, may invite more spousal violence – especially when their husbands have low reservation utilities, since violence is their last resort (ESWARAN AND MALHOTRA, 2011)[25].

8.3 Female Empowerment. Bliss or hell?

Theoretical HBMs show how a woman's improved status can either decrease or increase violence, and even sometimes have a zero effect, depending on her initial level of bargaining power (HEATH, 2012). In the previous section, we were able to study the different components of an economic bargaining model that play a role in intra-household negotiations and thus the outcomes. The following segment will explain the different conditions and setups authors have used in order to explain the diverse results found in the literature.

Besides the fact that empowering women can be very helpful in terms of improving their well-being or balance, as said before, raising women's bargaining power could be seen as an exit to violent marriages. Women that have more and better options outside their marriage would likely leave if these may offer them better conditions than their current state, nevertheless, this is not always possible. Increased bargaining power among women who have low baseline bargaining power may be accompanied by more wife battering. Sometimes, the baseline bargaining power is so low that women do not even face violence since they have to make decisions in accordance with a husband's preferences (HEATH, 2012).

[25] There is mixed evidence regarding male income effect on IPV. While, Tauchen, Witte and Long (1991) predict that a rise in the husband's income leads to an increase in violence, Eswaran and Malhotra (2011) state that the extent of domestic violence faced by women is not necessarily increasing in their spouses' income.

On the contrary, the same theory says that if the baseline bargaining power of the wife is high enough, a slight increase in it would reduce violence. The channel behind this is the simple idea that a husband must now ensure that her happiness is above her outside option level so she remains in the marriage. Increasing female outside options (therefore increasing her bargaining power) would allow women to leave the marriage in response to domestic violence. So under these conditions, a man would be less likely to continue exercising violence.

Literature that supports the latter has been usually tested in developed countries, where female baseline bargaining power is higher than women's in developing countries. In developed countries, the threat-point that determine women's bargaining power are most likely higher. They have better opportunities outside the marriage because of better victims-targeted services—as single-women employment programs, and better security services to protect former victims of violence that still receive threats from their husbands. All of these allow signaling sufficient economic independence or credible threat for women to discourage violence or leave abusive situations (PETERMAN *ET AL.*, 2017).

Authors have proposed many different ways to increase bargaining power of women within the household in their models. AIZER (2010), FARMER AND TIEFENTHALER (1996) and TAUCHEN, WITTE AND LONG (1991) say that it is the potential wage the one that determines one's outside option, not the actual absolute wage. Improving a woman's outside option by increasing her relative wage with respect to her husband will lower levels of violence in her model applied to the U.S market.

PETERMAN *ET AL.*, (2017) presented the relationship between women's asset ownership and intimate partner violence. He stated that women's asset ownership may be protective against violence, particularly when women have legal documentation of asset ownership and separation laws support women's inheritance of assets. Losses to men increase if women were to leave relationships, discouraging violence perpetration.

POLLAK (2005) even said that a possibility to increase all women's bargaining power in a society is to improve labor market conditions. He mentioned that this will decrease violence even in households where women do not work. As in AIZER'S (2010) model, the focus is on relative labor market conditions for women, not women's actual absolute wages as one might expect. The logic behind this is that a married woman who does not work and counts with zero wage at the marriage cooperative equilibrium, would likely work in the event of the dissolution of the marriage. Better conditions in the labor market for women incentivize abused women to look for themselves in a more welcoming labor market.

Whatever the channel to empower women (raising female partners' incomes or improving their financial resources outside the marriage), sometimes influencing women's threat-point might not always reduce the level of violence in equilibrium (BOBONIS, GONZÁLEZ-BRENES AND CASTRO, 2013)[26]. The instrumental theory has also supported arguments that establish that the use of violence can increase in light of improved women's status, but only when there is a low baseline female bargaining power and low cost of wife battering.

According to the extraction theory, household bargaining models could also predict that if marginal increases in women's socioeconomic conditions lead to an increase in the amount of rents that husbands are willing to extract, this will lead to an increase in physical violence, or the threat of it. BLOCH AND RAO'S (2002) model suggest that violence could be also used by men to show discontent with the marriage, and extract some preferred transfer from her in exchange[27]. Discontent with the marriage is his private information, thus the wife does not know if he is actually unhappy with the marriage or he is pretending to be to get the transfer.

In a similar line, other researchers say that increasing bargaining power sufficiently gives women ability to influence household decisions and thus may face domestic violence as her husband responds to this potential (BLOCH AND RAO, 2002; HEATH, 2012; PETERMAN *ET AL.*, 2017).

In the model of BLOCH AND RAO (2002), violence has a cost for men. This may vary with the degree to which women are economically and socially empowered at a societal or community-level across different settings (BLOCH AND RAO, 2002; PETERMAN *ET AL.*, 2017). A husband could use violence at the same time he demands a transfer if the cost of violence is low[28]. On the contrary, dissatisfied husbands with high costs of violence would be forced to end the marriage.

Bloch and Rao (2002) paper offers a valuable contribution to the literature by taking into account how community-level variables —as gender roles and violence acceptance— influence the cost of men to use violence. Their contribution reasserts that whatever the reason for a change in women bargaining power within the household, it would hardly be smooth and free of conflict in a setup of historically

[26] Some authors who have tried to test the positive relationship between violence and female empowerment in intra-household bargaining models have used variables such as: women's property ownership, conditional cash transfers, and wives' family wealth support.

[27] In Bloch and Rao's model, this transfer is a monetary transfer from the wife's family. Their results suggest that the wealthier they are, the more money the husband is willing to extract from them by making the wife a hostage of the groom's family. Even though the authors only consider this type of transfer in this specific setup, we believe it is realistic to think that transfers could take the form of preferred behavior as well.

[28] In this scenario, the wife accepts any type of demand. In BLOCH AND RAO (2002) particular setup, the ways to decrease violence would be to increase the costs of using it for the husband.

strong and rigid gender norms, where the costs of female violence are low. In this setups, it is easier for male partners to restate their control through violence perpetration when men's dominance is questioned.

8.4 Gender Roles Transgression

Traditional gender roles seem to be an important factor in the context of domestic violence economic theory models. The correlation between female empowerment and domestic violence is linked with the development of gender norms and values in the society (FLAKE, 2005). In a highly patriarchal society, where women empowerment is a rather recent and uncommon phenomenon, the risk of domestic violence increasing with female empowerment is high (GREULICH, DASRE AND INAN, 2017). Unfavorable gender norms for women act as low women baseline bargaining power, as well as low cost for men to batter their partners, as seen before in the intra-household bargaining models.

A lot of authors (GREULICH, DASRE AND INAN, 2017; JEWKES, 2002; MACMILLAN AND GARTNER, 1999) argue that empowerment programs increase domestic violence in the short run as the household adjusts to the newly empowered women. However, the more women's empowerment is accepted and spread in the society, the more able they will be to use their newly improved economic status to demand less violence within the household. Thus, in the long-run there will be a decrease in domestic violence. This intertemporal argument is also supported by feminist researchers who point out the risk of a temporary backlash in times of female economic empowerment, as men try to regain control over their wives by using violence (UN WOMEN, 2017). Academics in other fields have documented the latter reasoning as "Male-Backlash Models" (MBM).

8.5 Male-Backlash Models

Sociological models of "male-backlash" –also called "expressive" models, predict that newly economically empowered women would experience increases in violence as men feel their traditional gender role, as the most powerful member of the household, threatened (JEWKES, 2002; MACMILLAN AND GARTNER, 1999). What these sociological arguments proposed that economic ones do not, is the incorporation of identity issues to the study of IPV and female empowerment.

Introduced by other social sciences, the male-backlash argument has been gaining relevance in the study of domestic violence in economics as its predictions go in line with recently found evidence. Unlike in instrumental theories, violence is

not serving a well-defined, and economically formalized, strategic purpose (HEATH, 2012). Sometimes, violence is modeled as if men seem to derive direct benefits from exercising it. This may be, but do not need to, sadistic. Expressive violence is also said to allow the person to release frustration or vent stress (TAUCHEN, WITTE AND LONG, 1991). In addition to this, authors justify violence as a way to leverage the bargaining power within the household (BLOCH AND RAO, 2002; ESWARAN AND MALHOTRA, 2011), which is in line with instrumental theories. Where a man lacks this sign of dominance, violence may be a mean of reinstating his authority over his wife (AIZER, 2010).

According to the male-backlash argument, greater domestic violence may be a rational male response to the greater autonomy of women, since men could think that more independent women will have more sexual contact with other men (LOPEZ-AVILA, 2016). These approaches go in line with the evolutionary theory, which states that domestic violence originates from paternity uncertainty (HEISE, 2012). ESWARAN AND MALHOTRA (2011) explain about evolutionary theory, which predictions are closely tight to MBM's, that improvements in women's outside options may incite more spousal violence. They say "working women face greater spousal violence and those working away from home even more. In this, it is because they think women are going to cheat" (ESWARAN AND MALHOTRA, 2011, p. 1226).

As opposed to instrumental models, expressive theories introduce a male identity component as the sole factor to influence male's decisions on violence use. Whichever the chosen way to model domestic violence perpetrated by men, in expressive theories, it is only justified by the feeling of threat in current male authority. At a glance, it seems hard to gauche when exactly a man could feel his identity is being threatened and thus resort to violence. Some academics say that this is more likely when a husband feels less economically empowered than his wife. Men facing an economic crisis or unemployment, may be more vulnerable to perpetrate abuse. Basically, when economic or social conditions make men feel powerless, they exert power where they still can: the family (JEWKES, 2002).

Most certainly, not all men would feel threatened and belittled if their female partners were more empowered than them. As part of the literature indicates, poverty, and its associated stress, are key contributors to intimate partner violence. An improvement in the woman's economic conditions would constrain the husband to reduce violent behavior, as household conditions improve at the same time. For example, assuming a hypothetical scenario where women's income is higher, the absolute resource theory would predict a whole household economic stress decrease as a woman's new wage leads to a higher household income, thus reducing spousal violence (JEWKES, 2002; MURRAY A., GELLES AND STEINMETZ, 2017). The same theory

predicts the opposite, a female victimization, when there are diminished household resources (MURRAY A., GELLES AND STEINMETZ, 2017).

From the resource theory, it must be noted that violence use will be extremely linked to the household income effect being larger with respect to the identity effect on men. There is evidence that suggests that this is not always the case, therefore resource theory predictions are not fulfilled in all setups. FLAKE (2005) argued that in Peru, couples' relative socioeconomic status were not found to be a risk marker for female abuse, suggesting that men identity effect might be larger than the household income effect. The author argues that in developing countries contexts, as poverty is more commonplace than in industrialized setups, couples manage the stress that comes from deprivation better, and are no more likely to engage in violence than wealthy couples (FLAKE, 2005).

Ultimately, whether a man feels threated or not with his newly empowered wife, it is hard to be globally defined in a model due to its high association to individual household characteristics (LOPEZ-AVILA, 2016). Consequently, to enable the deployment of MBM, authors choose a simplified way to quantify men unhappiness in the marriage. Most of these models use relative measures, and assume that women with higher status than their partners will be at a higher risk of abuse since this creates disutility to their partners.

What is interesting about these model predictions with respect to the instrumental model, is that the latter states that after a certain level of female empowerment is reached, more empowerment would translate into less violence, as seen before. In MBM, however, theory suggests that even empowered women with possibilities to leave their abusive marriages still would not do so. This is not too far from reality. BOBONIS, GONZÁLEZ-BRENES AND CASTRO (2013) work presented two national surveys in Mexico on domestic violence which show that female wage earners faced a 30 percent higher risk of suffering any form of intimate partner violence (physical, sexual, or emotional abuse), as compared to women not working for pay. The fact that women are employed might constitute a threat to many men, either because they have an income of their own, or because having a job requires devoting time and attention outside the household (BOBONIS, GONZÁLEZ-BRENES AND CASTRO, 2013).

From an economic point of view, the male-backlash argument is far from being perfect. AIZER (2010) proposes an avid discussion to its predictions. She argues that a theory predicting an increase in violence as a result to an increase in women's empowerment is problematic because it ignores the individual rationality constraints faced by women in abusive relationships. LENZE AND KLASEN (2017) sustain this by saying that as women income increases, women are more likely to

end the partnership if transfers decline and abuse continues, forgetting to take into account the possibility that women can choose to end the relationship.

9 Is there a right model?

Intra-household bargaining models have been successful at introducing domestic violence within the context of family negotiations. Academics have been adapting these models to improve their predictions and the way they represent human behavior in these setups. Theory behind them is well-researched, predictions are economically-sustained, and evidence, so far, has been in line with them. Nevertheless, as research evolves, new evidence appears as well. Emerging findings challenge current theories and invite innovating approaches to tackle academic gaps.

Even with its extensive path, one limitation HBM have respects the fact that they do not account for the effect of negotiations on identity, and vice versa. As MBM and evidence suggest, it seems like male identity plays a key role in defining men's choices over violence use, and thus should be considered in the analysis.

Fortunately, with the emergence of behavioral economics and the attempt to explain why human behavior often diverges from neoclassical predictions, social sciences are starting to pay more attention to the role and formation of preferences (DURYEA, 2017). Economics have started to introduce some psychological theories to enrich models and account for the irrationality of human beings when making decisions about resources, one of these are Motivated Beliefs.

10 Violence, Bargaining Models, and Motivated Beliefs

The basic, and most used, utility function is based on consumption and leisure. This was always recognized as a simplification to understand economic behavior. With the introduction of motivated cognition in bargaining models by BÉNABOU AND TIROLE (2016), the simple utility function is enriched and now accounts for identity issues. They proposed how people also receive utility from having a positive self-image, feeling accepted, and from thinking of themselves as belonging to groups.

Motivated beliefs are an automatic, undirected, and *goal-oriented* individual behavior, which make us perceive strong facts inaccurately. They have an effect at an individual level (overconfidence, wishful thinking, willful blindness) as well as at

a social one (groupthink, team morale, market exuberance and crises) BÉNABOU (2015).

The rationale behind the negotiation process and outcomes of an intra-household bargaining situation highly changes under these new conditions. It allows us to understand why a "rational" man would decide to exercise violence on his wife even when this represents costs for him, but also why a "rational" woman would decide to stay in an abusive relationship when she has proper outside options to leave and husband's transfers are not enough to make her stay.

It is interesting to know that evidence has proved that those who are more prone to make distorted inferences (to rationalize away evidence to protect valued beliefs) are the more analytically sophisticated and educated ones (BÉNABOU, 2015). This argument is valuable to explain why women that are already empowered, educated and belonging to high-income households experience violence in the same way poor women. In societies with strong-marriage values and divorce stigma, both men and women would be more stubborn to stay in unsatisfactory relationships.

A remarkable immediate outcome of incorporating identity in utility functions is that as people manipulate their collection and processing of information in strategic interactions in ways that depart from strict Bayesian inference (or standard rationality). They trade off the affective, or functional value of belief distortions against the costly mistakes they also induce. This is due to the strong emotional component of motivated cognition.

For instance, subjective beliefs as confidence in one's abilities and chances of success are a powerful motivator to pursue difficult long-term goals and persevere through adversity, as domestic violence for women in this case. BÉNABOU (2015) proposes as an example religion, since it both makes us more disciplined and gives us consolation feelings.

Incorporating motivated beliefs in economic theory also help us understand social beliefs. What is optimal for each agent to think depends on what others think, and *vice versa* (BÉNABOU, 2015). This is called "harmful group delusions" and what it does is to enhance individual distortions with social pressure. People would not recognize the reality of a poor state (societies with high-incidence of domestic violence) and continue doing "business as usual", making things worse, not just for themselves but also for everyone else. The over-optimism of others thus makes the poor state more tolerable, and therefore each individual more willing to accept its reality. Group dynamics powerfully amplify these tendencies. This process highly influences gender roles schemes and what is expected from men.

Motivated beliefs could explain both men and women irrational decisions in intra-households negotiations. A man would be using violence as a signal for him

and his future-self that one is in control. Additionally, as these models treat signaling processes to external audiences as utility generating sources, men would not only be signaling to themselves and their wives that they are the strong, masculine and sole decision-maker figure in the household, but also to another public that might be judging based on expectations from popular community beliefs. Distorted beliefs could have an approach to when men feel their identity is being threatened and explain why they would incur in the costs of violence to restate it.

With the introduction of motivated beliefs in economic models, the gap that was separating MBM from HBM predictions could be filled. These tools would formalize the importance of identity issues within the economic framework. We hope that the future of HBM to explain violent couple relationships would include cognitive beliefs in the analysis to successfully understand for which contexts female empowerment is perceived as a threat more than a benefit in certain societies.

PART FIVE: DISCUSSION

As seen in the theory, in couples' relationships it is rare that individuals have the same preferences and incentives, and even more uncommon that they control allocations equally. Non-cooperative household bargaining models argument that family members rely on bargaining power to allocate household resources on their own preferences favor. These models that include domestic violence say that men use violence as a bargaining instrument to enhance their influence and power over allocations distributions. HBM predict that in light of female empowerment, women bargaining power increases and this reduces violence. If a woman outside option utility improves with respect to the utility currently obtained from the relationship, her husband would have to increase transfers to equal the outside option utility, and therefore reduce violence. As she is better able to leave now, the man will have no other choice but to decrease the amount of violence he uses, or she will no longer stay. This asserts how the fewer resources a woman has, the less power she holds, and the less likely she is to leave an abusive relationship.

Because of this theoretical assumptions, one would have expected that as a woman is more educated, wealthier, and participates in the labor market, she would be better able to distinguish a violent relationship and terminate it. Nevertheless, in Peru, we found that having higher education, versus not, was actually a risk factor. If women have higher education, they are more likely to be a victim of emotional violence. In the same line, emotional violence and sexual violence are more likely to happen when women belong to the second quintile, versus being part of a household from the poorest quintile.

There might be a couple of explanations for these factors. As household bargaining models argue, women who face very low baseline bargaining power may not be realistically able to leave a marriage, and when they face improved opportunities, these might do more harm than good. This could be the case for the poorest and uneducated women in Peru. Because they have an initial low bargaining power baseline, an increase in this power may be accompanied by more wife battering, as husbands seek to prevent them from exercising control over household resource allocation. The economic empowerment for these women is not sufficient enough to prevent them from experiencing domestic violence. Let's also remember that sometimes, the base bargaining power is so low that women do not even face violence since they have to make decisions in accordance with the husband's preferences.

Studying education and wealth, our evidence also suggested that having the highest level of education (against none) could act as a protective factor. It is less likely for a woman to be a victim of sexual and physical violence if she has approved more than secondary education. In the same way, women that belong to the richer or richest quintile (instead of the poorest) are less likely to be victims of any type of intimate partner violence. This goes in line with the theory as the threat-point of these women that determines bargaining power are most likely higher. They initially have better opportunities, because they are more educated and wealthier, allowing them to signal sufficient economic independence or credible threat to discourage violence or leave abusive situations. This supports HBM predictions and reinforces our thoughts of a non-linear relationship between female economic empowerment and domestic violence in Peru.

It is interesting that working away from home was a risk factor for women in Peru. This could be reflecting on two things. Maybe women who suffer from more violence decide to run away from home and avoid their husbands by choosing a workplace that would give them some distance from the violent environment at home. Or, women who work far from home are more abused as men try to use violence due to instrumental or expressive reasons. In both ways, men may be showing that they want to restate control over the household and exercise their bargaining strength to settle their desired set of preferences, which in this case are having his wife at home as accepted gender roles establish. According to the male-backlash argument and the evolutionary theory, men could think that more independent women will have more sexual contact with other men. Domestic violence originates from paternity uncertainty, in this case. This is another case for which one should be careful when thinking of the relationship between female autonomy and spousal violence.

Other important risk factors found in the Peruvian case that go in line with the theory were: earning more than the husband, and having non-egalitarian decision-making structures in the households. This evidence is consistent with two different arguments. Allocations could not be aligned with male preferences and husbands exercise violence as a tool to bargain and get their preferred allocation. Or, husbands could feel their gender roles threated because they lack signs of dominance, thus violence may be a mean of reinstating authority over his wife.

We do not know what the mechanism behind this is. Economic reasoning could be behind the fact that there are more chances of experiencing intimate partner violence when there is a non-egalitarian household decision-making. Nevertheless, identity issues could be playing an important role in explaining male attitudes. Greater domestic violence may be just a rational male response to the

greater autonomy of women who make decisions at home, or bring more money than them, making husbands feel less economically empowered than wives.

Especially, in scenarios where relative measures are at stake, it is useful knowing what is driving the male's incentives to use violence. For policy-making purposes, reasons behind this are extremely relevant for policy design, and therefore cannot be left to randomness. We strongly believe that more importance should be given to identity issues and their influence on male utility functions at the moment of deciding whether to use violence or not. Although there is no perfect model to domestic violence as it highly depends on intra-household conditions, economic research should move forward to the incorporation of new tools to classical HBMs, as it has been doing.

In the end, whatever the reason for a change in women bargaining power within the household, it is hardly smooth and free of conflict in a setup of historically strong and rigid gender norms as Peru, where the costs of female violence are low.

PART SIX: CONCLUSION

In this paper, we studied the relationship between intimate partner violence and female empowerment proxies' variables in a Peruvian setup. Using data from Peru, collected by the DHS program in 2009, 2010, and 2011, we described the most recent status of spousal violence in this Latin American country, along with the victims' profile. In the context of a –believed– *machista* country, we were surprised to find out how almost all interviewed women consider that violence is not justified under any conditions. However, not as surprising we found that frequency rates of all types of violence were high during the studied years. One out of five women reported being a victim of either physical, emotional or sexual abuse in the previous 12 months to the interview.

With our multivariate empirical analysis, we evaluated empowerment proxies as possible risk or protective factors for Peruvian women. Education, labor force participation, contribution to household income and decision-making, were the variables used to formalize factors that influence women bargaining power in the household. We also took into account variables that could signal identity issues as we reckoned that, besides the commonly-known instrumental use of violence, a large part of the abuse in developing countries is driven by the role that community-level gender expectations play on intra-household interactions. As identity factors, we considered previous female experience to violence, and couples relative measures of education and income.

Our evidence suggests that empowerment could be both a protective and risk factor depending on the baseline bargaining power of women, as theory suggests. There seems to be a non-linear relationship between education and wealth, and spousal violence. Other risk factors found were: having experienced violence by other but the partner before, working away from home, earning more than the partner, and having non-egalitarian decision-making structures in the household. All of these increased the likelihood of being a victim of abuse for Peruvian women, in comparison to the baseline categories of these variables.

Our measure for identity issues acted as a risk factor for the prevalence of domestic violence in Peru. Greater spousal abuse may be just a rational male response to the greater autonomy of women who make decisions at home, or bring more money than them, making husbands feel less economically empowered than wives.

After extensively reviewing the highly accepted theories of domestic violence: Household Bargaining Models and Male-Backlash Models, we considered appropriate to propose the use of bargaining models that include motivated beliefs

as a theoretical tool to better explain the nature of intimate partner violence in developing countries setups, as these take into account identity roles in negotiations.

Findings from this study should be interpreted as foundational rather than definitive given that:

- Since domestic violence data are self-reported measures, these are usually underestimated. Although the DHS program attempts to minimize the underreporting and measurement error, it is hard to say that all underreporting issues are solved with these measures.

- Secondly, one should be cautious about making comparisons across countries where cultural norms may differ. As Kishor and Johnson (2004) say, "for valid cross-national comparisons, it is important that the questions have the same meaning in all cultural contexts"

- Lastly, as social norms change over time, propensity to respond to domestic violence survey questions does as well. Therefore, intimate partner violence studies should be interpreted cautiously in over-time analysis.

As a last note, we want to point out that to fully understand the nature of domestic violence in Peru, extensive research is needed. In the future, violence specific surveys must include measures for female autonomy, attitudes toward violence, and gender scripts. Ways to gauge community expectations on men and women, as *machismo* in Latin America, are important to have a better understanding of this phenomenon.

A final recommendation would be to extend future research to men. As most theoretical models try to predict reasons for men to engage in violence, this is hard to test as there is no data to explore their motivation. Understanding the risk markers for abuse for women is critical, nevertheless, it is equally essential to understand the reasons why men hit their wives. Lowering rates of intimate violence requires the creation of a comprehensive profile of the abuser, not just the victim.

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