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Female employment and Spousal abuse: A parallel cross-country analysis of developing countries

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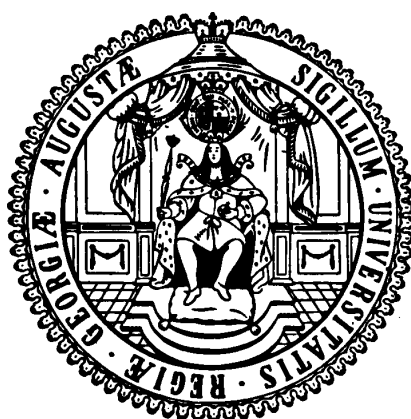
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A parallel cross-country analysis of developing
countries**

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July 2018

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Female employment and Spousal abuse:
A parallel cross-country analysis of developing countries.

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Abstract

This study explores how domestic violence and female employment interact and impact female economic empowerment in developing economies. Using micro data data from 35 countries (Central Africa, West Africa, East Africa, South Asia, Central Asia, and Southeast Asia, Middle East & North Africa, and Latin America), the effect of women's employment on reported domestic violence is estimated. An instrumental Variables technique is used to correct for the potential endogeneity of women's employment, which might bias the relationship between employment and domestic violence. The study also attempts to do an in-depth analyses on the linkage between types of domestic violence and break down results by region. Without taking endogeneity into account, the estimation suggests that woman's employment increases violence by her spouse. After controlling for endogeneity, these results turn out to be the opposite, which suggests that women's employment status has a negative influence on domestic violence. Breaking down the estimation by region shows that women's employment decreases domestic violence in all regions except Latin America and East Africa. Differentiating by employment type shows that women working in agricultural occupations experience more marital abuse.

Keywords: Domestic violence; Female Employment; Developing countries

JEL Codes: J16; J21

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I. Introduction

Economic empowerment of women is not only an important goal of development in itself, but has been found to be also an effective policy tool for promoting economic growth and development. Improved education, better employment outcomes, and more financial resources for women are expected to influence intra-household allocations, poverty reduction, and improved human capital for the next generation (Behrman et al. 1999; Duflo 2003; Pitt and Khandker 1998; Senauer et al. 1988; Rosenzweig and Schultz 1982; Qian 2008). Policies that promote gender equality implicitly assume that women with better social or economic standing can exercise higher bargaining power within the household and achieve allocations advantageous to themselves and children. However, it is questionable whether the improved economic status of females always enhances their bargaining power (Y. Chin, 2011). Moreover, it may be the case that improved bargaining power may not invariably lead to improved female well-being. One area of debate concern the role of female economic empowerment in affecting domestic violence.

In the empirical literature on domestic violence, there is no consensus on the relationship between women's employment and domestic violence. Both directions of causality are discussed in the literature but most of the literature consists of isolated case studies with endogeneity issues where causality is unclear. The evidence in developed countries mostly finds that increasing female economic empowerment leads to improved household bargaining and decreased domestic violence (Anderberg et al, 2013 ; Aizer, 2010). However, given that bargaining power materializes through better options outside of marriage, in a more traditional society where marriages are seldom terminated, improvements in the economic status of women may not translate into improved bargaining power. Evidence from developing countries tends to point towards a *positive* relationship – i.e. as women increase work outside of their homes, they are more likely to experience spousal abuse (Bloch and Rao, 2002; Bulte and Lensink, 2018). The reason behind this which has been proposed is that husbands use violence to counteract their wives' increasing economic contribution to the household in order to *keep them in line*, as it might challenge the socially prescribed male dominance and trigger male backlash. Hence, the husbands maintain their bargaining position in the marriage by threatening and using domestic violence against their wives (Aizer 2010; Luke and Munshi 2011, Y. Chin, 2011, Bedi et. al, 2011).

The interpretation of the empirical findings in the existing literature is made difficult by issues of endogeneity. Most models and policies assume household bargaining occurs independently of extra-household socio-economic institutions of the region of residence (Agarwal, 1997). For instance, the positive correlation between domestic violence and women's employment status may reflect the causal effect of domestic violence on the decision to work rather than the effect of work status on domestic violence i.e. women may respond to domestic violence by going out to work, also to escape the difficult domestic situation. Hence, women residing in areas where it is not common for women to engage in employment are more prone to violence. Moreover, the positive effect might be driven by omitted variables. For instance, women from poorer households seek employment more than women from affluent background, and simultaneously they are at greater risk of experiencing spousal abuse than their wealthier counterparts (Yoo Mi Chin, 2011).

This study attempts to explore the question of how domestic violence and female employment interact and impact female economic empowerment. Using micro data from 35 developing countries (South and Southeast Asia, MENA, Sub Saharan Africa, and Latin America), the effect of women's employment on reported domestic violence is estimated. To address the issues of endogeneity of employment, several linear probability models and instrumental variables regressions are implemented. For the full sample of 35 countries, the naive LPM results, without controlling for endogeneity, indeed show that employment increases domestic violence. After controlling for endogeneity, we find a statistically and economically negative effect of employment on spousal abuse in the IV specification. This suggests that endogeneity bias is indeed a problem and leads to a spurious positive relationship between employment and domestic violence. When the estimation is disaggregated by different forms of domestic violence, these results are replicated for physical, emotional and sexual abuse. However, these results do not hold for Latin America and East Africa, where a generally high prevalence of domestic violence makes male backlash to female employment more likely.

The paper proceeds as follows. Section 2 discusses the existing literature on domestic violence and its limitations; Section 3 describes datasets and empirical strategy used in this study; Section 4 reports the results of the estimation; and Section 5 provides a conclusion.

II. Theoretical background

Bargaining models

Noncooperative bargaining models of domestic violence, predict that an increase in women's economic empowerment through earned income or financial support from outside the marriage will decrease the level of violence within households. These models predict that an increase in women's financial opportunities, relative to men's, will allow favorable outside options for women and lower their threshold for tolerating abuse within the marriage, thereby reducing the incidence of violence. That is, the probability of leaving the abusive relationship increases, which may lead to the end of the partnership or a decrease in violence (Farmer & Tiefenthaler 1996, 1997; Lundberg & Pollak 1994).

Tauchen et al. (1991) developed a Nash-bargaining model of domestic violence to represent the effect of changes in income on domestic violence. In their model, every spouse has a specific level of the threat-point, which should provide the minimum level of welfare of each spouse within the relationship. The woman's threat-point determines the level of violence she is willing to accept without leaving the marriage given a specific amount of financial transfers from her husband. The model predicts that an increase in the man's income enables him to *buy* more violence by increasing the financial transfers to his wife. On the other hand, an increase in the woman's income constrains him to reduce violent behavior. Similarly, in resource theory, women's income leads to a higher household income. This resource effect decreases household economic stress and thereby reduces spousal violence (Richard J. Gelles 1997). All of these models predict a *protective effect* for women's employment.

Male-backlash models

In contrast, male backlash models, which focus on the symbolic nature of the economic status of women, predict the opposite effect. When the improved status of women challenges socially prescribed male dominance and female dependence, women may be subject to more spousal violence, as the challenged man might try to reinstate his authority over his wife by inflicting violence on her (Hornung et al. 1981; Molm 1989, Macmillan & Gartner 1999). As women's wages increase, violence against them also increases, since men feel their traditional gender roles are threatened.

As Aizer (2007) argues, male-backlash theories do not take into account women's rationality constraint and ignore the possibility that women can choose to end the relationship. However, in patriarchal cultures, women do not have attractive options outside of marriage, which makes divorces uncommon. The legal procedures impede divorces since the process can be costly and marriage termination is accompanied by significant social stigma and economic distress. Therefore, the threat of ending the marriage may not be credible, and a bargaining model may not be appropriate (Luke & Munshi 2011; Srinivasan & Bedi 2007). Empirical studies conducted in traditional societies find that greater financial independence of women, measured by income or membership in credit groups, elevates the risk of violence (Luke & Munshi 2011; Koenig et al. 2003).

On the other hand, the exposure reduction theory in criminology suggests that conditions that contribute to shortening the time that a woman in a violent relationship is in contact with the abusive partner decrease the risk of violence (Dugan et al. 1999, 2003). Thus, the exposure reduction effect may occur, to the extent that increased economic opportunities for the woman would decrease the time that the couple spends together.

Previous empirical findings

There is no general consensus in the existing empirical evidence on the effect of women's economic empowerment on domestic violence. Some find support for household bargaining models while others for the backlash model.

Existing economic research on spousal violence is largely based on marital bargaining models. Numerous empirical studies find that a better economic status of women, represented by higher income, more employment, or larger dowries, reduces marital violence (Aizer 2010; Farmer & Tiefenthaler 1997; Srinivasan & Bedi 2007; Tauchen et al. 1991).

In a developed country context, Macmillan & Gartner (1999) analyze the relationship between women's employment and spousal violence in Canada. Their results indicate that the effect of women's employment on marital violence depends on men's employment. If the husband is unemployed, the risk of violence decreases if the woman works, whereas it increases for working women when the husband is employed. Anderberg et al. (2013) test the theory that male and female unemployment have opposite-signed effects on domestic abuse: an increase in male unemployment decreases the incidence of intimate partner violence, while an increase in female unemployment increases domestic

abuse. Combining data on intimate partner violence from the British Crime Survey with locally disaggregated labour market data from the UK's Annual Population Survey, they find strong evidence in support of the theoretical prediction.

Bedi et al (2011) explore the link between women's employment status and property ownership and domestic violence in India. Taking into account the potential endogeneity of this relationship, they instrument women's employment status by membership in a specific caste. The estimation results show that women's participation in paid work is associated with a sharp reduction in spousal violence.

Klasen & Lenze (2016) explore the effect of women's employment on reported domestic violence in Jordan, controlling for the potential endogeneity of women's employment. Without taking endogeneity into account, the regression results suggest that a woman's participation in paid work enhances violence by her husband. After controlling for endogeneity, these results turn out to be insignificant, which suggests that women's work status has no causal influence on marital violence. Differentiating between various types of domestic violence provides weak evidence that women's employment lowers sexual violence.

A further qualitative study by Vyas et al. (2015) explores the link between women's paid work and intimate partner violence in the context of Tanzania. Focusing on semi-structured interviews of women engaged in informal-sector trading activities, they find no association between women's independent income and partner violence. Yet, the results suggest that women were able to spend their earned income according to their needs, which in turn reduced conflict due to negotiations over money.

Atkinson et al. (2005) find evidence in support of the male-backlash theory for minority groups in Wisconsin, USA. They analyze the incidence of violence under consideration of cultural variables and traditional gender roles. Using an index of traditionalism, the effect of the relative income on the incidence of violence is tested. The estimation results indicate that the share of women's income is only positively correlated with spousal violence if the husband has a traditional ideology. Bloch & Rao (2002) use survey data from three villages in India, finding that the risk of spousal violence is higher for women from rich households. The regression results suggest that dissatisfied men inflict violence to extract more money from their wives' families. A similar mechanism suggests that a husband may exercise greater violence on a woman with more financial resources, in

order to extract a monetary transfer from her (Bloch and Rao 2002; Goetz and Gupta 1996). Empirical evidence on the extraction effect is provided by Bloch and Rao (2002) in their study of three villages in India. They find that the risk of spousal violence is higher for a woman from a rich household, which confirms the extraction motive of the husband. Bulte and Lensink (2018) use data from an RCT in Vietnam and find that female empowerment interventions may backfire: women who participated in a gender and entrepreneurship training suffer more frequent abuse than women in the control group. Guided by theory, the authors claim that increased female income is the mechanism linking the training to domestic violence.

With the exception of Bedi et al. (2011) and Klasen & Lenze (2016), none of these studies control explicitly for the endogeneity of women’s employment, which may bias the results. The economic status of women, measured by employment status (Farmer & Tiefenthaler 1997; Macmillan & Gartner 1999), income (Bloch & Rao 2002; Farmer & Tiefenthaler 1997; Tauchen et al. 1991), education level (Hornung et al. 1981), dowry (Srinivasan & Bedi 2007), or participation in credit programs (Koenig et al. 2003) is typically endogenous, given that they are the choices made by a woman or the household. There might be unobservables that are correlated with both the economic status of a woman and her spousal violence experience. Also, a woman’s economic status might be a result of spousal violence rather than the cause of the violence. These shortcomings limit the interpretation of the results. Furthermore, some of these studies use non-random samples, such as victims of violence who choose to seek outside help (Farmer & Tiefenthaler 1997; Tauchen et al. 1991). This, again, limits generalization of the results.

III. Data & Empirical Specification

The analysis in this paper is based on the household and women-only questionnaire from the Demographic and Health Surveys (DHS) for a sample of 35 low and low-middle income countries in Asia, Sub-Saharan Africa, Latin America & the Caribbean, and Middle-east & North Africa (table 1). The DHS has information on demography, health, and nutrition for children and women in developing countries. A strength of the DHS is the use of an identical survey instrument which makes comparisons across countries feasible. The sample of 35 countries used in this study has 673,049 households, where the employment information for 645,280 women ages 15–49 is used. The

women-only questionnaire includes a special module regarding domestic violence and women's empowerment. The survey identifies three different kinds of domestic violence → physical abuse, emotional abuse, and sexual abuse. These measures of spousal violence represent the dependent variables in the regression analysis.

In order to identify if the respondent had experienced physical abuse, the following questions were asked:

“Did your husband ever: push you, shake you, or throw something at you, slap you or twist your arm, punch you, drag you or beat you up, strangle you, attack you with a knife, gun, or any other weapon?”

If any of these questions are responded with yes, the physical abuse variable gets a value of 1. To identify the extent of psychological violence, the survey asked:

“Did your husband ever say something to humiliate you in front of others, threaten or insult you?”

To identify if the women experienced any sexual abuse, the survey asked:

“Did your husband ever physically force you to have sexual intercourse with him even when you did not want to?”

The dependent variable, *domestic violence*, is a binary variable that takes the values 0 or 1. If any of the three questions are answered yes, the *DV* variable is coded as 1. As a robustness check, the three indicators are also used separately.

Descriptive statistics:

Tables 2, 3, and 4 present the descriptive statistics for the sample of women aged 15-49, by region, abuse type, and employment type respectively. According to the DHS descriptives by region in table 2, 30% of women in the sample reported that they ever experienced physical abuse of any type by their husband. 22% of the respondents experienced emotional abuse from their spouses, while 12% of the sample experienced sexual abuse. Overall, 38% of women reported ever having experienced emotional, physical

and/or sexual violence by their husbands. These are large shares of women, particularly if one allows for the possibility of underestimation of domestic violence in such a survey setting.

Turning to the independent variables, wife's employment is a binary variable taking the value of 1 if the woman is engaged in employment. If the variable takes the value 0, the woman is not working. In the full sample, about 48% of women are engaged in some form of employment, which varies by region. Employment can further be classified as formal work, agricultural work, manual work, and sales and services. *Formal work* includes professional/technical/managerial jobs, as well as clerical work. *Sales and services* include sales persons and those working in services. *Agricultural work* includes all individuals working on farms either as paid employees or self-employed farmers. *Manual work* is classified as skilled and unskilled manual work, which includes factory workers, crafts workers, and small jobs. Lastly, household and domestic workers include cleaners and household help.

The average age of the women surveyed is about 30 years, with about a 7 year age-gap with her spouse. Since age of men and women shows a high correlation, the variable age difference between the two spouses is included in the model, also to indicate differences in bargaining power. Levels of education are included as primary (29%), secondary (38%) and tertiary (11%). Husbands display similar levels of education as their wives. Generated with a principal components analysis, a country-specific wealth index places individual households on a continuous scale of relative wealth. The wealth index is a composite measure of a household's cumulative living standard. The wealth index is calculated using data on a household's ownership of selected assets, such as televisions and bicycles; materials used for housing construction; and types of water access and sanitation facilities. We generated three household wealth indicators from this index: low income, middle income and high income. Household size reports the number of persons living in the household (6 persons), along with children aged 5 or younger (1 child). Childhood exposure to domestic violence is experienced by about 14% of the women surveyed. About 18% reported that their husbands consumed alcohol. Location effects are measured by the variable *urban*, which is included in the regression in order to control for unobserved heterogeneity between urban and rural areas. About 23% of the sample comes from South Asia, while 21% comes to Latin America & the Caribbean.

East and West Africa make up about 19% and 17% of the sample respectively. Southeast Asia, Central Asia, and Central Africa each make about 5%-7% of the sample.

Table 3 shows the descriptives by types of domestic abuse. Out of those women who have not experienced domestic abuse, 49% are employed. Women who have been abused have higher rates of employment than those who have not reported abuse, by about 7% to 10% more. These numbers vary by employment type, with women working in agriculture facing the highest percentage of abuse. Abused women also seem to have less education than women who have not reported domestic abuse. The husband's education follows a similar pattern: less educated husbands are more abusive to their wives. Moreover, abused women have higher childhood exposure to violence and report higher rates of alcohol consumption from the husband, and also belong to poorer households.

Table 4 shows incidence of abuse by employment type. About 33% of women who are unemployed have faced some type of domestic abuse versus 39% of working women. This number varies by employment type, where 41-44% agricultural workers and manual workers have experienced domestic abuse. For types of abuse, women who are employed seem to experience slightly higher domestic abuse than those women who are unemployed. Again, agricultural work and manual work have highest percentages of incidence of domestic violence from all types of employment. This provides preliminary evidence that women in low paying occupations could be facing more spousal abuse, as the low pay does not buy them enough bargaining power within the relationship. Instead of an empowering effect, when the woman's ventures outside of the house, she could face a higher backlash effect from her husband.

Domestic violence and socio-economic correlates

This section provides a discussion of the expected effects of the main variables of interest in the domestic violence model.

Wealth of the household:

The literature on domestic violence finds that domestic violence is more widespread among poorer households, as impoverished families are subject to higher levels of stress than affluent households (Ellsberg et al., 1999; Heise, 1998; Jewkes, 2002; Martin et al., 1999). Carlson's (1984) structural theory of intrafamilial violence contends that

the inequitable distribution of societal resources causes stress and tension among people with insufficient material resources. When combined with other aggravating factors such as living conditions, overcrowding, and lack of employment opportunities, poverty can significantly increase the risk of domestic violence (Gonzales de Olarte & Gavilano Llosa, 1999; Heise, 1998). Expansion of household wealth in theory, should reduce economic stress and domestic violence, as the ownership of such assets probably plays a key role in determining welfare of the household members. An increase in assets owned by the household may unambiguously be expected to lead to a reduction in violence.

Occupation type:

While an increase in overall economic resources should relieve the stress experienced by a husband, the source of the increased resources can play a key role in determining the relative welfare of the members of the household. An improvement in the employment prospects of the husband would lead to an increase in the economic resources of the household. This might have an unambiguous negative effect on domestic violence, as it would reduce economic stress. In contrast, an increase in household economic resources attributable to the wife may be expected to have an ambiguous effect on violence. While an increase in earnings reduces economic stress, it may also introduce additional tension and struggle within the household. In an effort to extract and control the increased income and to counter the threat to the image of the male breadwinner, a man may resort to violence (Bedi et al, 2011). Based on the idea of economic stress causing domestic violence, it is likely that an improvement in husband's occupation types should ease economic stress and in turn reduce spousal violence. Since formal occupations are well paid, an increase in husband's income through better paying jobs should be associated with a decline in violence. Furthermore, if husbands are engaged in the non-agricultural sector, where work schedules are relatively tight and are away from home during the day, the wife is less exposure to abusive situations.

Education level:

The predicted effects of education on domestic violence are similar to the differential patterns expected due to improved employment prospects. According to Bedi et al (2011), while an increase in husband's education through its effect on income and reinforced through its effect on his social standing may be expected to reduce violence, the effect of women's education on violence may be ambiguous. To the extent that a woman's

education is associated with an increase in income, it should reduce violence. However, her education and awareness may also be a source of social stress for the man as it may challenge his traditional male role. In order to assert his authority, he may resort to violence. Thus, the effect of an increase in a woman's education level and an improvement in her employment prospects are likely to have an ambiguous effect on violence.

Household size:

Numerous studies have found a positive linear relationship between household size and domestic violence (Brinkerhoff & Lupri, 1988; Ellsberg et al., 2000; Farrington, 1977). The general perception among family violence researchers is that large families are more prone to violence, as they experience greater stress associated with the necessity to provide for several non-earning family member (Hoffman et al., 1994). Large household size may generate higher level of frustration, as there is low probability of resolution if household size is large. Due to high fertility rates in developing countries, household size might be a particularly important determinant of domestic violence.

Childhood exposure to violence:

Children who are exposed to domestic violence have higher levels of internalizing behaviours like anxiety and depression and externalizing behaviours as physical aggression and post-traumatic-stress-disorder symptoms (Evans et al., 2008; Graham-Bermann et al., 2012). Moreover, childhood exposure to spousal violence becomes a risk factor for being a victim or even a perpetrator of violence later in life, both in developed (Whitfield et al., 2003) and developing countries (Martin et al., 2002). In a cross-country analysis of Latin America, Bott et al (2012) find that exposure to violence in childhood may have long-term and intergenerational effects. After controlling for other factors, the most consistent risk factor for experiencing physical or sexual intimate partner violence against women across all countries was a history of spousal abuse experienced by the woman's mother. In this context, the DHS has a question addressing the woman's mother experiencing domestic abuse from the woman's father. This would help to capture the effect of childhood exposure to violence on her own relationship.

Husband's excessive alcohol consumption:

According to Bedi et al (2011), it is likely that the same observed and unobserved factors that create economic and social stress which in turn lead to higher spousal abuse,

could drive the husband's alcoholism. Previous research shows a strong correlation between excessive alcohol use and domestic violence, but alcohol typically triggers violent behaviour mainly in interaction with a number of other factors, ranging from socioeconomic, cultural to psychological and biochemical (The Amsterdam Group Report 2001).

To summarize, on the basis of the discussion presented here, it may be expected that women in households with larger economic resources experience less violence. An increase in employment, income and assets of a man are likely to reduce violence, while increases in the employment, income and assets of a woman may have an ambiguous effect on violence.

Econometric Model for the determinants of Spousal abuse:

A linear probability model is implemented to estimate the probability of a woman experiencing domestic violence. The linear probability model includes socioeconomic characteristics, household characteristics, and regional components. The presence of domestic violence is modeled as:

Linear probability model:

$$DV_i = \alpha_i + \beta_1(Employment\ status)_i + \gamma_1(Wife\ /Husband\ characteristics)_i + \gamma_2(HH\ controls)_i + \gamma_3(Country\ FE)_i + \varepsilon_i$$

Where:

- *DV* = Incidence of spousal abuse: Physical, emotional, and sexual abuse.
- *Employment status* = Whether woman is currently working.
- *Wife's and Husband's Characteristics* = Age, age difference, education level, occupation type, etc.
- *Household controls* = Size, number of young children, wealth index, locality, etc.
- *Country FE* = Country-specific fixed effects

The dependent variable domestic violence captures the incidence of physical, emotional, and sexual violence in the household. The key independent variable, woman's employment, indicates whether the woman is involved in any form of employment. In line with

he discussion above, we also add a range of control variables, including characteristics of the woman and her husband, such as education level for the wife and husband, occupation types of the wife and husband, age difference between the couple, and household characteristics, including the number of household members as well as economic status. We also add country fixed effects for the 35 sample countries.

A key concern in the LPM regression is the potential endogeneity between women's employment and domestic violence. Endogeneity can have several sources, two of which may be present in this model, namely simultaneous causality and omitted variables. The presence of violence may lead a woman to increase or decrease her willingness to work. Most studies suggest that violence reduces women's employment due to mental and physical health consequences (Staggs & Riger 2005; Tolman & Wang 2005), increasing tardiness and absenteeism (Lloyd 1997; Riger et al 2000). On the other hand, abused women might be more likely than non-abused women to seek employment (Narayan et al 2000). Studies from developing countries find mixed results as regards the probability that women experiencing domestic violence engage in employment, since they are both more likely and less likely to work (Morrison et al, 1999). In this case, causality would run both ways, leading to a biased coefficient on women's employment.

Employment status and domestic violence may also be driven by a third unobserved factor, such as traditionalism. These two possibilities of endogeneity suggest that in the DV equation, the observed relationship between women's employment and domestic violence may be biased or spurious. However, the direction of bias can be ambiguous. Although employment status and traditionalism is likely to be negatively correlated, the effect of traditionalism on violence could be ambiguous. Under the assumption that the incidence of violence is positively correlated with the degree of traditionalism (assuming that a more traditionally socialized spouse does not allow his wife to work), there may be a downward bias, finding a spurious negative correlation. Of course, if traditional husbands beat their wives less (and ensure that they work less), there could be a spurious positive correlation, leading to an overestimate of the coefficient on the employment status. In this case, the coefficient of women's employment status is underestimated. With respect to reverse causality, the bias is hard to quantify. If violence causes women to work less, it may lead to a downward bias of the coefficient (an underestimation); if it causes women to work more, it would lead to an upward bias.

Two-stage linear probability model:

To tackle the issue of endogeneity due to omitted variables and reverse causality, a two-stage linear probability model is implemented:

$$(Employment\ status)_i = \Pi_0 + \Pi_1(Z_1) + \Pi_2(Z_2) + v_i$$

where, in the first stage, employment is predicted by the exogenous instruments Z_1 and the control variables Z_2 from the DV equation. The error term captures the remaining variance of employment, which is not explained by the covariates (including the instrument). In the second stage, the outcome, domestic violence, is regressed on the predicted value of the endogenous variable, employment, from the first stage along with other exogenous variables.

A key issue in this estimation is the validity of the instruments. A valid instrument should fulfill two conditions of relevance and exogeneity. First, it should be strongly correlated with the endogenous variable, employment status. Second, it should be exogenous in the basic model. Following Klasen & Lenze (2016), we use *cluster average employment* as an instrument for employment of the woman. The instrument is constructed by taking mean of female employment in the cluster (which are usually census enumeration areas), excluding the woman being considered in each observation to avoid an in-built correlation. For employment measures by type of work, the cluster averages are calculated for the respective type of work. By using the cluster average of employment, we capture the effects of the average employment rate in the vicinity of the woman on her own employment performance. This proxies for employment opportunities for women in the area, unmeasured values and attitudes affecting women's employment, and network efforts enabling women to find employment (Klasen & Lenze, 2016). The cluster average of employment has a strong impact on women's own employment status, but is unlikely to be directly correlated with husband's violent behavior, other than through its impact on women's own employment. Hence, the conditions necessary to be a valid instrument should be satisfied for this instrument. In the empirical analysis, several specifications are estimated and the validity and strength of the cluster average instrument are tested.

IV. Empirical Estimation and Results

Estimation results - Linear probability model estimates:

Table 5 presents the estimation results of the domestic violence equation, measuring the probability of a woman experiencing any ¹ type of domestic abuse from her husband. The table reports the results of a linear probability model (LPM) of the domestic violence measure that does not consider the endogeneity of women's employment status, by type of domestic violence. Column 1 shows the LPM estimates for experiencing any type of violence. It shows that women's employment has a small, but significantly positive effect on the probability of spousal violence. If a woman is currently employed, the probability of domestic violence increases by 0.046, or 4.6% (statistically significant at the 1 percent level), holding everything else constant. This result would seem to support the male-backlash theory (Bedi et al. 2011).

Columns 2 to 5 replicate the employment regression for types of employment, where the women are employed in formal work, agricultural work, manual work, or sales and services. For overall employment, women face 4.6% more domestic violence. When broken down by types of work, the positive effect only stays for low-paying occupations in the agricultural sector and manual work, with women working as farmers and manual labourers experiencing about 3-4% more domestic abuse. Women in formal jobs seem to experience about 3% less violence. This is in line with the descriptive statistics in table 4, where women in low paying occupations are shown to have higher percentages of domestic abuse than other well-paying forms of employment.

Turning to the covariates, the estimates seem to be in line with the expectations discussed earlier. The estimated effect of the education level reflects the correlation between education and income which reduces economic stress and the status-conferring effect of education which reduces social stress. An increase in husband's education level has a nonlinear effect on domestic violence. At low levels of education, the incidence of violence increases, while at high levels, it decreases. As husband's education level increases from no education to higher education, domestic violence decreases by 3.5%. The woman's own education also displays intuitive outcomes: compared to uneducated women, those

¹An alternative definition of domestic abuse was also used for the estimation: *Abuse all* includes women who have face all three types of abuse. The overall results have the same sign but significance is reduced due to a smaller sample size of *Abuse all*. Results for *Abuse all* are available on request.

with some education experience between 5-11% less domestic abuse. Similarly, husband's occupation type has a significant negative but small impact on violent behavior, suggesting that better-paid employment decreases stress and frustration. Compared to husbands engaged in farm work, those who are in formal employment abuse their spouses about 2% less.

The age difference between the spouses is positively linked to violence, but the effect is not economically significant. Household size also displays a positive effect on violence, statistically significant at the 1 percent significance level, but the magnitude is too small to be economically significant. Consistent with expectations, wealth, reflecting the economic status of the household, reduces violence, as poor households are more prone to violence since the lack of financial resources might cause economic stress. Compared to middle income households, women from richer households face 4.2% less domestic violence, while women from poorer households are about 1% more likely to experience domestic abuse. Overall, the results support the idea that violence is less likely to occur in wealthier households with higher education levels and better employment prospects

Two interesting results observed were for the variables of husband's alcoholism and childhood exposure to violence. As expected from the descriptive statistics, there is a large and statistically significant effect of drinking on violence of about 17%. This finding corresponds with a large body of evidence that men's alcohol abuse increases women's risk of experiencing domestic violence, including an analysis of WHO Multi-country Study data (Hindin et al (2008), Kishor & Johnson (2004), Garcia-Moreno et al, (2011)). However, while alcohol consumption certainly appears to trigger violence, as argued earlier, it is likely that unobserved factors (work pressure, temperament) that lead to drunken behaviour are correlated with domestic violence, i.e. domestic violence and alcohol consumption are endogenous (Bedi et al 2011). Regardless of the inclusion of this variable, the magnitude of the coefficient on employment status remains in the same range. Childhood Exposure to violence leads to 20% higher likelihood of experiencing violence from your own spouse, supporting the theory that witnessing abuse as a child increases the risk of being a victim of violence later in life (Martin et al 2002).

In order to shed light on whether the coefficients differ significantly for different types of the dependent variable *domestic violence*, we further report in appendix table A1, the probability of a woman experiencing physical, emotional, and sexual violence. The

estimated regressions deliver similar results regarding the sign and magnitude of the variables of interest in table 5. If a woman is currently employed, the probability of experiencing physical abuse increases by 3.8%, while the probability of experiencing emotional abuse increases by 3%. The estimate for sexual abuse is significant but a lot smaller than physical and emotional abuse. Therefore, the coefficient of domestic violence in column (1) is likely driven by physical and emotional abuse. The covariates behave in a similar fashion to table 5.

Regional differences

The relationship between female empowerment and spousal abuse can vary by settings, as contextual factors, gender ideologies, and cultural expectations vary greatly by regions. For example, the influence of women's employment is likely to have a different effect in a society where female seclusion is practiced, compared to a setting where it is not (Hilary Standing 1991; Naila Kabeer 1997). Therefore, it is worthwhile to break down the estimation by region. A World Bank report, *The Voices of the Poor*, shows the regional differences in norms towards female empowerment in Africa, Asia, Latin America and the Caribbean, and Eastern and Central Asia. The report describes how many women felt under greater pressure to seek paid work because of male unemployment and greater economic stresses, and this new obligation was in addition to their domestic responsibilities. Often, the changing roles of men and women created turmoil within relationships and households, an outcome that had different effects on domestic violence in different regions. In some countries, women's increased earnings led to a reduction in domestic violence, while in others, respondents reported that levels of domestic conflict and violence increased as men voiced frustration and humiliation over not being able to maintain their role as the household's main or sole breadwinner (Narayan et al. 2000).

Table 6 presents the results of domestic violence (all types) by region. The regions of South Asia, MENA, Latin America, East Africa, and West Africa show estimates consistent with the results in table 5, where employment seems to have a positive and significant effect on domestic violence, in the range of 2-7%. Southeast Asia is the only region where employment seems to reduce domestic violence, with a coefficient of 1.5%, significant at only 10% level. We also replicate the region estimation by type of domestic violence. Appendix tables A2, A3, and A4 present the LPM regressions for physical, emotional, and sexual abuse by regions. The estimates seem to be consistent with the

full sample results in table 6, where employment seems to exacerbate domestic violence in the majority of the regions. Employment seems to reduce only emotional abuse in Southeast Asia (1.5%). The remaining regions are either positive or insignificant.

However, all of the LPM results have not considered the potential endogeneity of women's employment, as the regression results might be inconsistent in the presence of endogeneity bias. The next section focuses on the instrumental variable estimates for a more detailed discussion of the coefficients.

Estimation results - Instrumental variable estimation

As discussed previously, the variable women's employment is instrumented with the variable *cluster average of women's employment* in the baseline-IV regression model. Table 7 shows the results for the two-stage least square model for domestic violence by type of employment. The second stage estimates for the instrumented employment of women are presented in columns 1 to 5, by employment type. For overall employment, the IV estimates are the same sign as the LPM model, but more than double the magnitude. If women are engaged in any form of employment, the incidence of spousal abuse increases by 9.4%. However, when the sample is broken down by types of employment, the positive effect of work on domestic abuse only stays for low-paying work, where where women in agricultural work experience about 7% more violence. Comparing to the LPM model, the IV shows a 3% larger effect for women in agricultural occupations, which is highly significant. Sales and services, and manual work also seem to increase domestic violence in the IV estimation by 6-10%. However, for women employed in the formal sector, the IV second stage shows a 2.4% decrease in domestic violence. Participating in formal sector work or waged non-farm occupations can increase household bargaining power for women and therefore reduce the risk of spousal abuse. Conversely, employment in the low-paying sectors might not necessarily have the same empowering effects for women. Unlike paid work, which might enhances a woman's position in the household through their contribution to household income, low-paying farm and manual work might not decrease their dependency on the male head of the household.

Turning to other controls, the household and individual characteristics appear to behave similarly as in the LPM model. Education level is negatively related to the incidence of violence in the second stage of the IV estimation reported in table 7. More education

leads to a decrease in domestic violence of all types. Similarly, husband's education has an intuitive effect. The measure of differences in bargaining power between the spouses, *age difference*, shows the expected positive direction of the effect, but is again small in magnitude. A higher number of household members increases the incidence of violence. This estimation result is consistent with the idea that more people in the household cause more social stress, as is found in several other studies (Levin et al. 2002; Abdus Salam et al 2006). As the number of children under the age of 5 increases, the probability of domestic violence also increases. A likely explanation for this effect could be through the decrease in employment due to having young children. Decreased employment would lead to lower household bargaining for women, which in turn could translate into higher spousal abuse (Bedi et al 2011). The economic status of the household, proxied by the wealth indices of poor, middle, and rich income households, display the expected sign and significant association with husband's violent behavior. The indicator for urban region shows positive sign regarding the incidence of violence, going against the empirical literature that suggests a negative link between urban areas and domestic violence. This result may be driven by the fact that migration from rural areas leads to a higher population share of traditional and rural families in the urban regions. Urban living, especially for migrants, is stressful as compared to rural environments and the move from rural areas might trigger poor coping mechanisms. Hence, increased violence could also point to tensions and clashes of values and attitudes associated with urban living, often in cramped living quarters. (Klasen & Lenze, 2016).

Lastly, for the instrumental variable estimation, the instrument *cluster average of employment* is expected to have a significant impact on women's employment status but is independent of husband's violent behavior as it largely reflects local labour market conditions for women and attitudes toward women's employment that are unlikely to directly affect male violence. Thus, we consider the cluster average as a suitable instrument for women's employment. The first stage of the IV estimation at the bottom panel of table 7 in column 1 indicates that, as expected, the cluster average of employment increases the probability that the woman works in any form of employment. This effect is statistically significant at the 1 percent level. A 1-unit increase in the variable cluster average increases the probability of the women being employed by 0.74, or 74%, holding everything else constant. Breaking down the sample by employment type gives similar results in the first stage. For instance, the first stage IV for agricultural work shows

that the cluster average employment seems to increase the probability of working in the agricultural sector by 53%.

To support these estimation results, formal tests are implemented to analyse the validity and strength of the instrument. The predictive power or relevance of the instruments is tested via the F-statistics for joint significance of the instruments in the first stage regressions. According to Stock & Yogo (2002), the F -statistic should be higher than 10 for the instruments to be truly valid. The F-statistic records a value is significantly larger than the rule of thumb of 10 for all types of domestic violence, which indicates a strong correlation of the instrument with women's employment status. Moreover, the strength of the instrument is tested by the Weak identification test (Cragg-Donald Wald F statistic). The critical values of the weak-instrument test are significantly smaller than the value of the Wald test, indicating that the instrument is strongly correlated with the endogenous regressor. Also, various endogeneity test for the employment variable is also passed. Based on these tests and the theoretical justification, cluster average of employment appears to be a valid instrument.

Regional differences:

To determine if any particular region has an overpowering effect on the total regression, we further disaggregate the estimation by region, and estimates the incidence of each type of violence for subsamples of Central Asia, Southeast Asia, South Asia, Middle-East & North Africa, East Africa, Central Africa, West Africa, and lastly, Latin America & the Caribbean. Table 8 presents the results for domestic abuse (all types) by region and tables B1, B2, and B3 in the appendix present the results for types of abuse: physical abuse, emotional abuse, and sexual abuse respectively. The individuals and household controls in table 8 behave the same way as in the full sample IV model. For the regression with domestic abuse of all types, the coefficient of the effect of employment status on spousal abuse for every region turns out negative or insignificant, except for Latin America and East Africa. The effect seems to be largest in Middle East & North Africa, with a coefficient of -0.279, significant at 5% level. For Latin America, the effect is about 17%, significant at 1% level. For the Asian regions, Central Asia, Southeast Asia, and South Asia, the IV coefficients are insignificant. For Africa, the only outlier seems to be East Africa, where employment seems to have a positive effect on domestic violence, by 17%.

The first stage of the IV estimation at the bottom of table 8 indicates that, as expected, the cluster average of employment increases the probability that the woman works. This effect varies by region, for instance, in MENA, cluster average only increases the probability of the women being employed by 20%, holding everything else constant. While for the rest of the regions, the first stage IV coefficient is large and highly significant between 30% to 85%. The F-test is larger than 10 for all regions. Next, we replicated the regions IV regression by types of employment. Table 9 shows the IV second stage coefficient for different types of employment by region. The positive effect of work on domestic violence only stays for low-skill work, where the positive effect is strongest and most significant in LAC and East Africa.

When we rerun the model for abuse types physical, emotional, and sexual abuse in appendix tables B1, B2, and B3, all regions show a negative effect of a woman's employment, except for Latin America and East Africa. For example, women in Latin America are 15% more likely to face physical abuse, if they are employed. For East Africa, the coefficient is close to the size of Latin America. For the rest of the regions, the coefficient varies between a negative 5-20%. For Central Asia, even though the IV results are significant, some of the weak instrument tests used in the estimation did not pass. Therefore, the results for Central Asia should be interpreted with caution. Latin America and East Africa seem to be *outliers* when it comes to the effect of domestic violence and female employment, where the estimates are statistically and economically significant. This outlier result from Latin America and East Africa is in line with previous findings from these regions (Flake & Forste 2006 ; UNDESA, 2015). The IV regressions for employment type by abuse type give the same conclusion, where physical, emotional, and sexual abuse are only positive if the woman is employed in agricultural sector. (Full tables available on request.)

Why is Latin America an outlier?

Latin America has a higher incidence of domestic violence, as well as higher reporting by victims (Heise et. al, 2002). Bott et. al (2012), in a comparative analysis of population-based data from 12 countries from Latin America show that the proportion of women who reported intimate partner violence was significantly higher among women who were currently or recently employed. A characteristic of Latin American is

that gender-based norms reinforce male authority and superiority over females. According to cross-cultural literature, two of the most enduring factors that promote violence against women are rigidly defined gender roles and a cultural definition of manhood that is linked to dominance (Counts et al., 1992). The term *machismo* is often used to describe Latino masculinity, and refers to the cultural expectation that males must show they are masculine, strong, and sexually aggressive (Giraldo, 1972). This characteristic of male dominance is reinforced by women's role in Latin societies. The complimentary term for women is *Marianismo*, which refers to the expectation that women are capable of enduring any suffering inflicted upon them by males (Stevens, 1973). Another concept present in Latin societies is familism, which refers to placing one's family ahead of individual interests, and includes responsibilities and obligations to one's immediate family members and other kin (Ingoldsby, 1991). The combination of familism, Marianismo, and the Machismo mindset may make Latin women more susceptible to domestic violence, as they are expected to fulfill familial obligations unconditionally within a traditional male-dominated family system (Flake & Forste, 2006).

One of the key differences in marital gender roles involves power, as a major part of how gender roles are identified in families is through decision-making power. Rettig (1993) argues that decision-making processes are key to understanding the dynamics of couple relationships because they reveal interaction and agency within relationships, and can indicate where individuals are acting out or resisting social norms. Coleman and Straus (1990) in an American study, examined how four types of decision-making relationships influence spousal violence: egalitarian (couple makes decisions together), divided power (male makes some decisions, female makes others), female-dominant (female makes most decisions), and male-dominant (male makes most decisions). They found that spousal abuse was most prevalent among *non-egalitarian* couples, regardless of whether the man or woman dominated the decision making. Due to Machismoism and the rigidity of gender roles in the Latin American context, women's decisions to work outside of the house may have a particularly powerful effect on the likelihood of experiencing domestic violence. Because of the cultural expectation that men should lead the household decision-making, men whose partners decide to work outside might resort to domestic abuse to regain dominance.

V. Conclusion

Using a representative multi-national household surveys from 35 developing countries, this study explores the link between women's employment and spousal violence, and shows that women's employment has a significant effect on reducing violence. A notable feature of the empirical work presented in the study is that it controls for the potentially endogenous relationship between women's employment and spousal violence. Estimates that do not account for the possibility of both reverse causality and omitted variables are more likely to draw the conclusion that women's employment status is indeed associated with an increased incidence of domestic violence. After controlling for endogeneity, there is a negative significant impact of wife's employment status on domestic violence, except in Latin America and East Africa. Thus, the *protective effect hypothesis*, which states that women entering the labour market in regions where it is common for women to work are less prone to violence is upheld in most regions covered in the study. This effect of employment on spousal abuse gives support for theories that predict an increase in women's bargaining power through their engagement in the labour market. The effect of women's employment status reflects the tension between the reduction of violence which may be generated by the effect of her work on increasing the economic resources of the household and the increases in violence which may be generated due to challenges to a husband's authority and masculinity (Bedi et al, 2011). In this context, it seems clear that the enhanced economic resources generated by the work contribution of a woman works towards reducing intra-household violence. However, the *machismo* effect seems to hold for Latin America & the Caribbean.

Methodologically, this paper showed that it is important to treat female employment status and violence as simultaneously determined. Estimates that do not account for the possibility that employment could be affected by the level of female empowerment in the locality, are more likely to draw the misleading conclusion that women's employment status does not provide any protection but is indeed associated with an increased incidence of domestic violence. Beyond women's employment, across all specifications, there is a large effect of women's education level, occupation type, and wealth status on reducing violence. Overall, the results presented in this paper suggest that women's access to income-generating opportunities play a key role in reducing their risk of experiencing spousal violence. Policies which encourage income-generation and greater

involvement of women in regular work are necessary in order to increase their security in developing economies. As discussed in World Bank (2014), supportive policies , i.e. education and training programs and policies promoting safety and security, are needed to ensure that women's employment reduces domestic violence. The main protective factors against domestic violence in the sample countries are husband's education level and occupation type. Therefore, the World Bank policies mentioned above should also promote men's education.

While this study makes important contributions to the understanding the linkages between spousal abuse and women's work in developing countries, there are some caveats that need to be addressed. The DHS is not designed primarily for the study of domestic violence and the operationalization of domestic violence questions is not always uniform, making it difficult to conduct cross-country analysis. Also, several household determinants of domestic violence were not included in the DHS questionnaires for many sample countries. Asset ownership by gender, religiosity, and attitudes toward violence may be important risk markers for abuse, are not present in the full 35 countries sample of the DHS. To compare cross-country results more effectively, future research could benefit from standardized questionnaires and methodologies.

Tables & figures

FIGURE 1

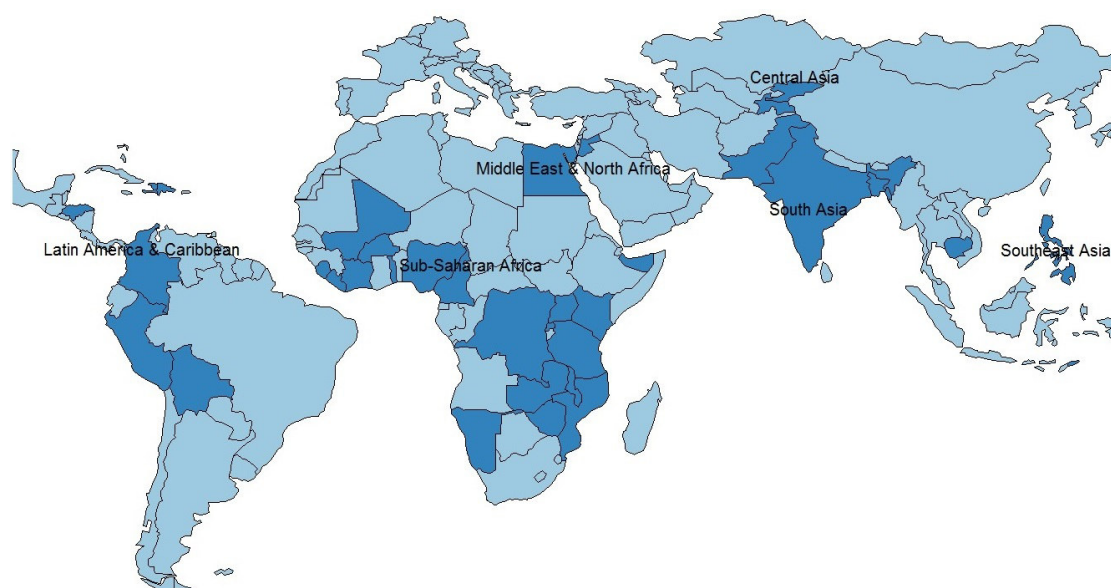


TABLE 1: DHS sample countries

LAC	MENA	South Asia	Central Asia	SE Asia	SubSaharan Africa
Bolivia Colombia Dominican Republic Honduras Haiti Peru	Jordan Egypt	India Pakistan Bangladesh	Kyrgyzstan Tajikistan	Cambodia Philippines Timor Leste	Burkina Faso, Cote d'Ivoire Congo, Cameroon Kenya, Tanzania Zambia, Zimbabwe Liberia, Mali Mozambique, Malawi Namibia, Nigeria Rwanda, Sierra Leone Togo, Uganda, ST Principe
140,764	33,114	148,939	17,864	46,870	246,313

TABLE 2: Descriptive Statistics by region - Sample of all women aged 15-49.

DESCRIPTIVE STATS	Full sample	SS Africa	Latin America	M.E.N.A	South Asia	SE. Asia	Central Asia
<i>Abuse types</i>							
Abuse Any	0.38	0.23	0.35	0.30	0.36	0.28	0.26
physical abuse	0.30	0.10	0.30	0.23	0.33	0.19	0.23
Emotional	0.22	0.20	0.24	0.20	0.15	0.20	0.11
Sexual Abuse	0.12	0.03	0.08	0.11	0.08	0.05	0.04
<i>Employment information</i>							
Employment status	0.48	0.50	0.51	0.16	0.33	0.55	0.25
Formal work	0.15	0.28	0.17	0.12	0.07	0.18	0.12
Sales and services	0.15	0.06	0.21	0.03	0.06	0.13	0.06
Manual work	0.11	0.13	0.16	0.01	0.08	0.11	0.08
Agricultural work	0.15	0.07	0.03	0.01	0.15	0.20	0.01
Husband Formal work	0.16	0.13	0.16	0.32	0.21	0.12	0.16
Husband Sales services	0.13	0.06	0.14	0.19	0.15	0.09	0.15
Husband manual work	0.52	0.64	0.60	0.43	0.55	0.50	0.62
Husband Agri work	0.22	0.17	0.16	0.09	0.17	0.31	0.07
<i>Individual characteristics</i>							
Age	29.36	29.63	29.29	33.50	29.59	29.67	29.75
Age diff with spouse	6.66	3.38	4.61	6.38	6.18	3.97	3.92
No education	0.22	0.01	0.04	0.16	0.34	0.14	0.01
Primary edu	0.29	0.15	0.34	0.10	0.15	0.29	0.02
Secondary Edu	0.38	0.47	0.44	0.54	0.40	0.43	0.68
Higher Edu	0.11	0.36	0.17	0.20	0.10	0.14	0.29
Husband no education	0.20	0.02	0.05	0.12	0.24	0.13	0.00
Husband Primary	0.28	0.26	0.40	0.13	0.16	0.34	0.01
Husband Secondary Edu	0.39	0.40	0.41	0.57	0.44	0.39	0.60
Husband Higher Edu	0.12	0.32	0.13	0.19	0.15	0.14	0.39
<i>Household characteristics</i>							
Urban residence	0.45	0.39	0.63	0.53	0.45	0.35	0.34
Children under 6	0.99	1.28	0.69	0.96	0.75	0.86	0.99
Low Income	0.37	0.37	0.44	0.41	0.27	0.37	0.37
High Income	0.44	0.44	0.35	0.39	0.54	0.44	0.44
Household size	6.05	6.47	5.18	5.38	6.25	6.08	6.44
Father beat mother	0.14	0.10	0.27	0.08	0.11	0.08	0.08
Husband alcohol	0.18	0.13	0.33	0.01	0.17	0.22	0.16
Observations	673,049	246,313	140,765	33,114	148,939	46,870	17,864

TABLE 3: Descriptive Statistics by abuse type - Sample of all women aged 15-49.

DESCRIPTIVE STATS	No abuse	Abuse any	Physical abuse	Emotional abuse	Sexual abuse
<i>Employment information</i>					
Employment status	0.49	0.56	0.56	0.59	0.58
Formal work	0.20	0.16	0.17	0.18	0.13
Sales and Services	0.21	0.23	0.24	0.19	0.25
Manual work	0.13	0.18	0.18	0.22	0.17
Agricultural work	0.16	0.21	0.21	0.22	0.23
Formal work	0.20	0.16	0.17	0.18	0.13
Sales and Services	0.21	0.23	0.24	0.19	0.25
Manual work	0.13	0.18	0.18	0.22	0.17
Agricultural work	0.16	0.21	0.21	0.22	0.23
<i>Individual characteristics</i>					
Age	32.13	31.80	32.37	32.43	30.28
Age diff with spouse	6.40	6.45	6.29	6.74	6.72
No education	0.25	0.27	0.28	0.28	0.23
Primary edu	0.28	0.35	0.34	0.36	0.41
Secondary Edu	0.35	0.32	0.31	0.29	0.31
Higher Edu	0.13	0.07	0.07	0.07	0.05
Husband no education	0.18	0.19	0.19	0.20	0.18
Husband Primary	0.26	0.32	0.31	0.32	0.35
Husband Secondary Edu	0.40	0.39	0.40	0.38	0.39
Husband Higher Edu	0.15	0.08	0.08	0.08	0.07
<i>Household characteristics</i>					
Urban residence	0.45	0.44	0.44	0.41	0.42
Children under 6	0.97	1.05	1.01	1.09	1.15
Low Income	0.39	0.43	0.45	0.44	0.42
High Income	0.42	0.36	0.33	0.35	0.37
Household size	5.28	5.56	5.34	5.42	6.09
Father beat mother	0.18	0.34	0.37	0.34	0.35
Husband alcohol	0.33	0.50	0.55	0.53	0.44
Observations	201,152	116,082	89,854	57,039	34,883

TABLE 4: Incidence of domestic abuse by employment type

Employment type	Not working	Employed -all types	Formal work	Agriculture	Manual work	Sales services
No Abuse	0.29 (0.46) 333,103	0.31 (0.46) 309,075	0.36 (0.48) 97,177	0.27 (0.44) 95,350	0.26 (0.44) 69,958	0.35 (0.48) 91, 559
Abuse any	0.33 (0.47) 145,830	0.39 (0.49) 157,633	0.32 (0.47) 52,057	0.41 (0.49) 44,151	0.44 (0.50) 33,022	0.38 (0.48) 50,907
Physical abuse	0.27 (0.44) 140,874	0.31 (0.46) 155,016	0.26 (0.44) 51,612	0.35 (0.48) 44,092	0.37 (0.48) 32,568	0.32 (0.46) 50,632
Emotional Abuse	0.18 (0.39) 121,539	0.24 (0.43) 127,213	0.22 (0.41) 42,009	0.24 (0.43) 42,051	0.29 (0.45) 31,574	0.25 (0.43) 37,216
Sexual Abuse	0.09 (0.28) 134,566	0.11 (0.31) 154,210	0.08 (0.27) 50,768	0.11 (0.31) 43,296	0.11 (0.31) 32,327	0.10 (0.30) 50,260

Notes: Table reports means, standard deviations, and observation for each type of domestic abuse by employment categories.

TABLE 5: Linear probability model: Full sample - by employment type

LPM - ABUSE ANY	All work	Formal work	Agriculture	Manual work	Sales
Employment	0.046*** (0.002)				
Formal work		-0.027*** (0.002)			
Agricultural work			0.042*** (0.003)		
Manual work				0.036*** (0.003)	
Sales and services					0.028*** (0.003)
Age	0.009*** (0.001)	0.012*** (0.001)	0.011*** (0.001)	0.011*** (0.001)	0.010*** (0.001)
Age-sq	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Age diff with spouse	-0.001*** (0.000)	-0.000 (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Primary edu	-0.006** (0.003)	-0.025*** (0.003)	-0.008** (0.003)	-0.009*** (0.003)	-0.009*** (0.003)
Secondary Edu	-0.046*** (0.003)	-0.077*** (0.003)	-0.047*** (0.003)	-0.049*** (0.003)	-0.050*** (0.003)
Higher Edu	-0.110*** (0.004)	-0.144*** (0.004)	-0.103*** (0.004)	-0.104*** (0.004)	-0.103*** (0.004)
Husband Primary	0.016*** (0.003)	0.015*** (0.003)	0.018*** (0.003)	0.018*** (0.003)	0.018*** (0.003)
Husband Secondary Edu	-0.005 (0.003)	0.010*** (0.003)	-0.004 (0.003)	-0.004 (0.003)	-0.004 (0.003)
Husband Higher Edu	-0.035*** (0.004)	-0.014*** (0.004)	-0.034*** (0.004)	-0.034*** (0.004)	-0.034*** (0.004)
Urban residence	0.042*** (0.002)	0.025*** (0.002)	0.043*** (0.002)	0.039*** (0.002)	0.038*** (0.002)
Children under 6	0.010*** (0.001)	0.010*** (0.001)	0.009*** (0.001)	0.009*** (0.001)	0.009*** (0.001)
Low Income	0.008*** (0.003)	-0.004 (0.003)	0.008*** (0.003)	0.008*** (0.003)	0.009*** (0.003)
High Income	-0.042*** (0.003)	-0.028*** (0.003)	-0.042*** (0.003)	-0.044*** (0.003)	-0.045*** (0.003)
Household size	0.002*** (0.000)	0.003*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Father beat mother	0.185*** (0.002)	0.195*** (0.002)	0.188*** (0.002)	0.188*** (0.002)	0.188*** (0.002)
Husband alcohol	0.162*** (0.002)	0.134*** (0.002)	0.166*** (0.002)	0.167*** (0.002)	0.167*** (0.002)
Husband Formal work	-0.016*** (0.003)	-0.010*** (0.003)	-0.011*** (0.003)	-0.016*** (0.003)	-0.016*** (0.003)
Husband Sales and services	0.008*** (0.003)	-0.001 (0.003)	0.011*** (0.003)	0.006** (0.003)	0.004 (0.003)
Husband Manuel work	0.020*** (0.003)	0.045*** (0.002)	0.026*** (0.003)	0.016*** (0.003)	0.017*** (0.003)
Constant	0.224*** (0.018)	0.058*** (0.013)	0.008 (0.019)	0.016 (0.019)	0.015 (0.019)
Country FE	YES	YES	YES	YES	YES
Observations	249,049	249,049	246,182	246,182	246,182
R-squared	0.105	0.076	0.103	0.103	0.103

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. LPM coefficients are shown in columns 1–4. However, probit regression models yield similar results. Full probit results are available on request.

TABLE 6: LPM regression for abuse all types, by region

LPM - ABUSE ANY	Central Asia	Southeast Asia	South Asia	M.E.N.A	L.A.C	East Africa	Central Africa	West Africa
Employment status								
Age	-0.016 (0.016)	-0.015* (0.008)	0.031*** (0.004)	0.045*** (0.011)	0.041*** (0.004)	0.067*** (0.006)	0.012 (0.013)	0.025*** (0.004)
Age-sq	0.028*** (0.006)	0.009** (0.004)	0.015*** (0.002)	0.015*** (0.004)	0.004** (0.002)	0.006** (0.003)	0.010* (0.006)	0.006*** (0.002)
Age diff with spouse	-0.000*** (0.000)	-0.000** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)	-0.000** (0.000)	-0.000*** (0.000)
Urban residence	-0.000 (0.002)	-0.001 (0.001)	-0.000 (0.000)	-0.001 (0.001)	0.000 (0.000)	-0.000 (0.000)	-0.001 (0.001)	-0.001*** (0.000)
Children under 6	0.015 (0.019)	0.028*** (0.009)	0.042*** (0.004)	0.050*** (0.009)	0.052*** (0.005)	0.018** (0.008)	0.069*** (0.016)	0.023*** (0.005)
Low Income	0.008 (0.008)	0.007 (0.005)	0.018*** (0.002)	0.010** (0.005)	-0.001 (0.003)	0.006* (0.004)	-0.002 (0.007)	0.012*** (0.002)
High Income	-0.026 (0.017)	0.020* (0.011)	0.060*** (0.005)	0.017 (0.011)	0.006 (0.006)	-0.016* (0.008)	0.022 (0.017)	-0.017*** (0.005)
Household size	-0.061*** (0.022)	-0.027** (0.012)	-0.061*** (0.005)	-0.024** (0.011)	-0.035*** (0.006)	-0.037*** (0.009)	0.005 (0.018)	-0.011* (0.006)
Father beat mother	0.008** (0.004)	0.002 (0.002)	-0.000 (0.001)	0.004** (0.002)	0.004*** (0.001)	0.005*** (0.002)	0.007*** (0.003)	0.005*** (0.001)
Husband alcohol	0.206*** (0.021)	0.182*** (0.010)	0.245*** (0.005)	0.232*** (0.011)	0.145*** (0.004)	0.144*** (0.006)	0.130*** (0.018)	0.187*** (0.007)
Wife & Husband characteristics	0.223*** (0.014)	0.125*** (0.008)	0.146*** (0.004)	0.579*** (0.035)	0.148*** (0.004)	0.196*** (0.006)	0.146*** (0.013)	0.152*** (0.005)
Household characteristics	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,348	12,890	72,964	13,388	59,358	28,265	5,860	51,319
R-squared	0.130	0.066	0.137	0.073	0.068	0.078	0.046	0.135

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. LPM coefficients are shown in columns 1-4. However, probit regression models yield similar results. Full probit results are available on request.

TABLE 7: IV regression Second stage - Domestic abuse by employment type

IV - ABUSE ANY	All work	Formal work	Agriculture	Manual work	Sales
Employment Status	0.094*** (0.006)				
Formal work		-0.024* (0.014)			
Agri work			0.071*** (0.006)		
Manual work				0.100*** (0.012)	
Sales and Services					0.063*** (0.013)
Age	0.007*** (0.001)	0.011*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)
Age-sq	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Age diff with spouse	-0.000*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Primary edu	-0.005* (0.003)	-0.007** (0.003)	-0.007** (0.003)	-0.009*** (0.003)	-0.009*** (0.003)
Secondary Edu	-0.045*** (0.003)	-0.047*** (0.003)	-0.046*** (0.003)	-0.049*** (0.003)	-0.050*** (0.003)
Higher Edu	-0.117*** (0.005)	-0.098*** (0.006)	-0.102*** (0.004)	-0.102*** (0.004)	-0.100*** (0.005)
Husband Primary	0.016*** (0.003)	0.017*** (0.003)	0.017*** (0.003)	0.018*** (0.003)	0.018*** (0.003)
Husband Secondary Edu	-0.005 (0.003)	-0.005 (0.003)	-0.004 (0.003)	-0.003 (0.003)	-0.004 (0.003)
Husband Higher Edu	-0.034*** (0.004)	-0.036*** (0.004)	-0.034*** (0.004)	-0.034*** (0.004)	-0.033*** (0.004)
Urban residence	0.044*** (0.002)	0.041*** (0.002)	0.045*** (0.002)	0.038*** (0.002)	0.036*** (0.002)
Children under 6	0.011*** (0.001)	0.009*** (0.001)	0.009*** (0.001)	0.009*** (0.001)	0.009*** (0.001)
Low Income	0.009*** (0.003)	0.006** (0.003)	0.008*** (0.003)	0.007*** (0.003)	0.010*** (0.003)
High Income	-0.041*** (0.003)	-0.043*** (0.003)	-0.040*** (0.003)	-0.044*** (0.003)	-0.045*** (0.003)
Household size	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Father beat mother	0.183*** (0.002)	0.187*** (0.002)	0.188*** (0.002)	0.188*** (0.002)	0.188*** (0.002)
Husband alcohol	0.160*** (0.002)	0.165*** (0.002)	0.165*** (0.002)	0.166*** (0.002)	0.167*** (0.002)
Husband Formal work	-0.015*** (0.003)	-0.014*** (0.003)	-0.008*** (0.003)	-0.017*** (0.003)	-0.017*** (0.003)
Husband Sales and services	0.009*** (0.003)	0.007** (0.003)	0.014*** (0.003)	0.006** (0.003)	0.000 (0.003)
Husband Manuel work	0.022*** (0.003)	0.019*** (0.003)	0.030*** (0.003)	0.011*** (0.003)	0.016*** (0.003)
Constant	0.140*** (0.015)	0.105*** (0.015)	0.097*** (0.015)	0.115*** (0.015)	0.121*** (0.016)
Country FE	YES	YES	YES	YES	YES
Observations	249,007	249,007	246,129	246,129	246,129
R-squared	0.103	0.102	0.103	0.101	0.102
<i>First-Stage</i>					
Cluster average IV	0.74*** (0.004)	0.53*** (0.007)	0.89*** (0.004)	0.69*** (0.008)	0.59*** (0.007)
F Test	31617.36	6047.83	45600.64	8174.15	6696.05

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The first stage additionally includes all covariates included in the second stage. Full first-stage results are available on request.

TABLE 8: IV regression for abuse all types, by region

IV - ABUSE ANY	Central Asia	Southeast Asia	South Asia	M.E.N.A	L.A.C	East Africa	Central Africa	West Africa
Employment status								
Age	0.208 (0.170)	0.052 (0.036)	-0.017 (0.010)	-0.279** (0.135)	0.171*** (0.022)	0.169*** (0.016)	-0.102 (0.082)	-0.096*** (0.011)
Age-sq	0.020** (0.008)	0.007* (0.004)	0.017*** (0.002)	0.024*** (0.006)	-0.002 (0.002)	0.002 (0.003)	0.017** (0.007)	0.013*** (0.002)
Age diff with spouse	-0.000** (0.000)	-0.000* (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000*** (0.000)
Urban residence	0.000 (0.002)	-0.001 (0.001)	-0.000 (0.000)	-0.001* (0.000)	0.001** (0.000)	-0.000 (0.000)	-0.001 (0.001)	-0.001*** (0.000)
Children under 6	-0.002 (0.023)	0.030*** (0.009)	0.040*** (0.004)	0.037*** (0.011)	0.056*** (0.005)	0.019** (0.008)	0.066*** (0.017)	0.021*** (0.006)
Low Income	0.021 (0.013)	0.012** (0.006)	0.016*** (0.002)	0.013** (0.005)	0.003 (0.003)	0.008** (0.004)	-0.002 (0.007)	0.010*** (0.002)
High Income	-0.062*** (0.022)	-0.029** (0.012)	-0.066*** (0.005)	-0.011 (0.013)	-0.039*** (0.006)	-0.036*** (0.009)	0.006 (0.018)	-0.020*** (0.006)
Household size	0.009** (0.004)	0.002 (0.002)	-0.000 (0.001)	0.000 (0.003)	0.004*** (0.001)	0.006*** (0.002)	0.007*** (0.003)	0.007*** (0.001)
Father beat mother	0.200*** (0.022)	0.181*** (0.010)	0.247*** (0.005)	0.235*** (0.011)	0.141*** (0.004)	0.142*** (0.006)	0.129*** (0.018)	0.234*** (0.006)
Husband alcohol	0.224*** (0.014)	0.122*** (0.009)	0.150*** (0.004)	0.592*** (0.039)	0.145*** (0.004)	0.191*** (0.006)	0.152*** (0.014)	0.133*** (0.005)
Wife & Husband characteristics	YES	YES	YES	YES	YES	YES	YES	YES
Household characteristics	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,348	12,889	72,964	13,374	59,333	28,263	5,860	51,319
R-squared	0.090	0.061	0.135	0.014	0.050	0.069	0.034	0.073
<i>First-Stage</i>								
Cluster avg employment	0.31*** (0.052)	0.61*** (.017)	0.80*** (0.006)	0.20*** (0.024)	0.46*** (0.009)	0.80*** (0.03)	0.522*** (0.03)	0.85*** (0.007)
F-test	35.95	762.62	12102.34	74.94	2071.54	5757.64	170.03	12433.55

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The first stage additionally includes all covariates included in the second stage. Full first-stage results are available on request.

TABLE 9: IV second stage coefficients for incidence of domestic abuse, by employment type

Abuse ANY	Central Asia	SE Asia	South Asia	M.E.N.A.	L.A.C.	East Africa	Central Africa	West Africa
Formal work	0.487 (0.391)	0.079 (0.097)	-0.514*** (0.062)	-0.716** (0.284)	0.025 (0.042)	0.167*** (0.045)	-0.003 (0.105)	-0.073*** (0.015)
Agricultural work	9.865 (7.640)	-0.007 (0.031)	-0.027** (0.011)	0.339* (0.183)	0.115*** (0.025)	0.120*** (0.015)	-0.047 (0.045)	0.064*** (0.010)
Manual work	-0.012 (0.290)	-0.045 (0.054)	0.085*** (0.021)	0.894 (1.064)	0.215*** (0.033)	0.175** (0.070)	0.304 (0.225)	0.065*** (0.019)
Sales and Services	-0.172 (0.524)	0.059 (-0.052)	0.154*** (0.037)	-0.518 (1.348)	0.127*** (0.043)	0.150*** (0.042)	-0.019 (0.089)	-0.070*** (0.016)
All covariates	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,348	12,889	72,964	13,374	59,333	28,263	5,860	51,319
R-squared	0.090	0.061	0.135	0.014	0.050	0.069	0.034	0.073

Notes: This table presents only second stage IV results for four separate regressions by employment type. Full regressions available on request.

Appendix

Table A1 - Linear probability model: Full sample - by abuse type

LPM ABUSE TYPE	Abuse - any	Physical abuse	Sexual abuse	Emotional abuse
Employment status	0.046*** (0.002)	0.038*** (0.002)	0.012*** (0.001)	0.030*** (0.002)
Age	0.009*** (0.001)	0.008*** (0.001)	-0.001* (0.000)	0.006*** (0.001)
Age-sq	-0.000*** (0.000)	-0.000*** (0.000)	0.000 (0.000)	-0.000*** (0.000)
Age diff with spouse	-0.001*** (0.000)	-0.001*** (0.000)	0.000 (0.000)	0.000 (0.000)
Primary edu	-0.006** (0.003)	-0.012*** (0.003)	0.004** (0.002)	0.011*** (0.003)
Secondary Edu	-0.046*** (0.003)	-0.056*** (0.003)	-0.012*** (0.002)	-0.007*** (0.003)
Higher Edu	-0.110*** (0.004)	-0.118*** (0.004)	-0.026*** (0.003)	-0.045*** (0.004)
Husband Primary	0.016*** (0.003)	0.012*** (0.003)	0.003 (0.002)	0.012*** (0.003)
Husband Secondary Edu	-0.005 (0.003)	-0.008** (0.003)	-0.006*** (0.002)	-0.004 (0.003)
Husband Higher Edu	-0.035*** (0.004)	-0.036*** (0.004)	-0.011*** (0.003)	-0.017*** (0.004)
Urban residence	0.042*** (0.002)	0.038*** (0.002)	0.006*** (0.001)	0.027*** (0.002)
Children under 6	0.010*** (0.001)	0.008*** (0.001)	0.001 (0.001)	0.005*** (0.001)
Low Income	0.008*** (0.003)	0.009*** (0.003)	0.002 (0.002)	0.003 (0.002)
High Income	-0.042*** (0.003)	-0.042*** (0.003)	-0.018*** (0.002)	-0.028*** (0.003)
Household size	0.002*** (0.000)	0.001** (0.000)	0.003*** (0.000)	0.001*** (0.000)
Father beat mother	0.185*** (0.002)	0.177*** (0.002)	0.049*** (0.002)	0.124*** (0.002)
Husband alcohol	0.162*** (0.002)	0.155*** (0.002)	0.040*** (0.001)	0.113*** (0.002)
Husband Formal work	-0.016*** (0.003)	-0.014*** (0.003)	0.002 (0.002)	-0.004* (0.003)
Husband Sales and services	0.008*** (0.003)	0.010*** (0.002)	0.002 (0.001)	0.002 (0.002)
Husband manual work	0.020*** (0.003)	0.023*** (0.002)	0.007*** (0.002)	0.006*** (0.002)
Constant	0.224*** (0.018)	0.187*** (0.018)	0.033*** (0.011)	-0.002 (0.017)
Country FE	YES	YES	YES	YES
Observations	249,049	248,036	235,306	217,109
R-squared	0.105	0.114	0.072	0.076

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. LPM coefficients are shown in columns 1–4. However, probit regression models yield similar results. Full probit results are available on request.

Table A2 - LPM regression for physical abuse, by region

LPM PHYSICAL ABUSE	Central Asia	Southeast Asia	South Asia	M.E.N.A	L.A.C	East Africa	Central Africa	West Africa
Employment status								
Age	-0.008 (0.016)	-0.007 (0.007)	0.026*** (0.004)	0.032*** (0.010)	0.034*** (0.004)	0.053*** (0.006)	-0.005 (0.013)	0.015*** (0.004)
Age-sq	0.025*** (0.006)	0.007** (0.003)	0.016*** (0.002)	0.013*** (0.004)	0.004** (0.002)	0.005* (0.003)	0.006 (0.005)	0.006*** (0.002)
Age diff with spouse	-0.000*** (0.000)	-0.000** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000* (0.000)	-0.000** (0.000)	-0.000 (0.000)	-0.000*** (0.000)
Urban residence	-0.001 (0.002)	-0.001 (0.001)	-0.000 (0.000)	-0.001 (0.001)	-0.000 (0.000)	-0.001* (0.000)	-0.002** (0.001)	-0.001*** (0.000)
Children under 6	0.008 (0.019)	0.029*** (0.008)	0.045*** (0.004)	0.044*** (0.008)	0.042*** (0.005)	0.019*** (0.007)	0.060*** (0.016)	0.010** (0.005)
Low Income	0.014* (0.008)	0.006 (0.004)	0.017*** (0.002)	0.011** (0.004)	-0.004* (0.003)	0.006* (0.004)	-0.001 (0.007)	0.008*** (0.002)
High Income	-0.015 (0.017)	0.011 (0.010)	0.054*** (0.005)	0.028*** (0.010)	0.010* (0.005)	-0.006 (0.008)	0.018 (0.016)	-0.012** (0.005)
Household size	-0.058*** (0.021)	-0.020** (0.010)	-0.066*** (0.005)	-0.022** (0.010)	-0.033*** (0.005)	-0.028*** (0.009)	0.001 (0.017)	-0.008 (0.006)
Father beat mother	0.006 (0.004)	0.001 (0.002)	0.000 (0.001)	0.003* (0.002)	0.004*** (0.001)	0.006*** (0.002)	0.007*** (0.002)	0.002** (0.001)
Husband alcohol	0.202*** (0.021)	0.147*** (0.009)	0.243*** (0.005)	0.207*** (0.011)	0.135*** (0.004)	0.135*** (0.006)	0.123*** (0.018)	0.187*** (0.006)
Wife & Husband characteristics	0.224*** (0.014)	0.096*** (0.007)	0.145*** (0.004)	0.583*** (0.046)	0.135*** (0.004)	0.191*** (0.006)	0.128*** (0.013)	0.144*** (0.005)
Country FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,346	12,889	72,962	13,388	59,357	28,260	5,860	50,333
R-squared	0.135	0.089	0.144	0.080	0.082	0.081	0.045	0.120

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. LPM coefficients are shown in columns 1–4. However, probit regression models yield similar results. Full probit results are available on request.

Table A3 - LPM regression for emotional abuse, by region

LPM EMOTIONAL ABUSE	Central Asia	Southeast Asia	South Asia	M.E.N.A	L.A.C	East Africa	Central Africa	West Africa
Employment status								
Age	-0.017 (0.010)	-0.015** (0.007)	0.022*** (0.003)	0.030*** (0.010)	0.037*** (0.005)	0.044*** (0.006)	0.019* (0.011)	0.021*** (0.004)
Age-sq	0.011** (0.004)	0.004 (0.003)	0.006*** (0.001)	0.013*** (0.004)	0.003 (0.002)	0.007*** (0.002)	0.011** (0.005)	0.007*** (0.002)
Age diff with spouse	-0.000** (0.000)	-0.000 (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	-0.000*** (0.000)	-0.000** (0.000)	-0.000*** (0.000)
Urban residence	-0.001 (0.001)	-0.000 (0.001)	0.001*** (0.000)	-0.000 (0.001)	0.001** (0.000)	0.001** (0.000)	0.000 (0.001)	-0.000 (0.000)
Children under 6	0.009 (0.014)	0.011 (0.008)	0.014*** (0.003)	0.046*** (0.008)	0.057*** (0.006)	0.018*** (0.007)	0.067*** (0.014)	0.026*** (0.005)
Low Income	-0.006 (0.006)	0.006 (0.005)	0.005*** (0.002)	0.001 (0.004)	0.001 (0.003)	0.001 (0.003)	-0.005 (0.006)	0.010*** (0.002)
High Income	-0.052*** (0.013)	0.010 (0.010)	0.031*** (0.004)	0.006 (0.009)	-0.003 (0.007)	-0.014* (0.007)	0.031** (0.014)	-0.007 (0.005)
Household size	-0.034** (0.017)	-0.033*** (0.010)	-0.028*** (0.004)	-0.017* (0.010)	-0.046*** (0.007)	-0.031*** (0.008)	-0.002 (0.016)	-0.018*** (0.006)
Father beat mother	0.007** (0.003)	0.003 (0.002)	0.000 (0.001)	0.004** (0.002)	0.003* (0.001)	0.003*** (0.001)	0.004* (0.002)	0.001 (0.001)
Husband alcohol	0.115*** (0.017)	0.109*** (0.009)	0.126*** (0.004)	0.167*** (0.010)	0.117*** (0.006)	0.102*** (0.006)	0.071*** (0.016)	0.145*** (0.006)
Wife & Husband characteristics	0.082*** (0.010)	0.087*** (0.007)	0.075*** (0.003)	0.501*** (0.070)	0.123*** (0.005)	0.144*** (0.006)	0.119*** (0.012)	0.145*** (0.005)
Household characteristics	YES YES	YES YES	YES YES	YES YES	YES YES	YES YES	YES YES	YES YES
Observations	4,347	12,889	69,007	13,388	32,377	28,260	5,858	50,327
R-squared	0.056	0.050	0.068	0.049	0.046	0.056	0.040	0.087

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. LPM coefficients are shown in columns 1-4. However, probit regression models yield similar results. Full probit results are available on request.

Table A4 - LPM regression for sexual abuse, by region

LPM SEXUAL ABUSE	Central Asia	Southeast Asia	South Asia	M.E.N.A	L.A.C	East Africa	Central Africa	West Africa
Employment status								
Age	-0.008 (0.016)	-0.007 (0.007)	0.026*** (0.004)	0.032*** (0.010)	0.034*** (0.004)	0.053*** (0.006)	-0.005 (0.013)	0.015*** (0.004)
Age-sq	0.025*** (0.006)	0.007** (0.003)	0.016*** (0.002)	0.013*** (0.004)	0.004** (0.002)	0.005* (0.003)	0.006 (0.005)	0.006*** (0.002)
Age diff with spouse	-0.000*** (0.000)	-0.000** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000* (0.000)	-0.000** (0.000)	-0.000 (0.000)	-0.000*** (0.000)
Urban residence	-0.001 (0.002)	-0.001 (0.001)	-0.000 (0.000)	-0.001 (0.001)	-0.000 (0.000)	-0.001* (0.000)	-0.002** (0.001)	-0.001*** (0.000)
Children under 6	0.008 (0.019)	0.029*** (0.008)	0.045*** (0.004)	0.044*** (0.008)	0.042*** (0.005)	0.019*** (0.007)	0.060*** (0.016)	0.010** (0.005)
Low Income	0.014* (0.008)	0.006 (0.004)	0.017*** (0.002)	0.011** (0.004)	-0.004* (0.003)	0.006* (0.004)	-0.001 (0.007)	0.008*** (0.002)
High Income	-0.015 (0.017)	0.011 (0.010)	0.054*** (0.005)	0.028*** (0.010)	0.010* (0.005)	-0.006 (0.008)	0.018 (0.016)	-0.012** (0.005)
Household size	-0.058*** (0.021)	-0.020** (0.010)	-0.066*** (0.005)	-0.022** (0.010)	-0.033*** (0.005)	-0.028*** (0.009)	0.001 (0.017)	-0.008 (0.006)
Father beat mother	0.006 (0.004)	0.001 (0.002)	0.000 (0.001)	0.003* (0.002)	0.004*** (0.001)	0.006*** (0.002)	0.007*** (0.002)	0.002** (0.001)
Husband alcohol	0.202*** (0.021)	0.147*** (0.009)	0.243*** (0.005)	0.207*** (0.011)	0.135*** (0.004)	0.135*** (0.006)	0.123*** (0.018)	0.187*** (0.006)
Wife & Husband characteristics	0.224*** (0.014)	0.096*** (0.007)	0.145*** (0.004)	0.583*** (0.046)	0.135*** (0.004)	0.191*** (0.006)	0.128*** (0.013)	0.144*** (0.005)
Household characteristics	YES YES	YES YES	YES YES	YES YES	YES YES	YES YES	YES YES	YES YES
Observations	4,346	12,889	72,962	13,388	59,357	28,260	5,860	50,333
R-squared	0.135	0.089	0.144	0.080	0.082	0.081	0.045	0.120

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. LPM coefficients are shown in columns 1-4. However, probit regression models yield similar results. Full probit results are available on request.

Table B1 - IV regression for physical abuse, by region

IV PHYSICAL ABUSE	Central Asia	Southeast Asia	South Asia	M.E.N.A	L.A.C	East Africa	Central Africa	West Africa
Employment status	0.370** (0.171)	0.026 (0.032)	-0.037*** (0.010)	-0.147 (0.121)	0.151*** (0.021)	0.135*** (0.015)	-0.178** (0.078)	-0.081*** (0.010)
Age	0.012 (0.008)	0.006* (0.003)	0.018*** (0.002)	0.018*** (0.005)	-0.001 (0.002)	0.001 (0.003)	0.015** (0.007)	0.012*** (0.002)
Age-sq	-0.000 (0.000)	-0.000** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000*** (0.000)
Age diff with spouse	0.000 (0.002)	-0.001 (0.001)	-0.001* (0.000)	-0.001 (0.001)	0.000 (0.000)	-0.001 (0.000)	-0.002*** (0.001)	-0.001*** (0.000)
Urban residence	-0.019 (0.023)	0.030*** (0.008)	0.042*** (0.004)	0.037*** (0.010)	0.046*** (0.005)	0.020*** (0.007)	0.055*** (0.016)	0.012** (0.005)
Children under 6	0.036*** (0.013)	0.009* (0.005)	0.015*** (0.002)	0.012*** (0.005)	0.000 (0.003)	0.008** (0.004)	-0.002 (0.007)	0.005** (0.002)
Low Income	-0.013 (0.018)	0.011 (0.010)	0.055*** (0.005)	0.025** (0.010)	0.011** (0.005)	-0.004 (0.008)	0.021 (0.017)	-0.012** (0.005)
High Income	-0.059*** (0.023)	-0.021** (0.010)	-0.072*** (0.005)	-0.015 (0.012)	-0.036*** (0.005)	-0.028*** (0.009)	0.003 (0.018)	-0.005 (0.006)
Household size	0.007 (0.004)	0.001 (0.002)	-0.000 (0.001)	0.001 (0.003)	0.004*** (0.001)	0.006*** (0.002)	0.007*** (0.002)	0.003*** (0.001)
Father beat mother	0.192*** (0.022)	0.146*** (0.009)	0.246*** (0.005)	0.208*** (0.011)	0.132*** (0.004)	0.133*** (0.006)	0.121*** (0.018)	0.227*** (0.006)
Husband alcohol	0.225*** (0.015)	0.094*** (0.007)	0.150*** (0.004)	0.590*** (0.047)	0.133*** (0.004)	0.187*** (0.006)	0.137*** (0.014)	0.125*** (0.005)
Wife & Husband characteristics	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,346	12,888	72,962	13,374	59,332	28,258	5,860	50,333
R-squared	0.014	0.087	0.140	0.058	0.067	0.074	0.015	0.069
<i>First-Stage</i>								
Cluster avg employment	0.31*** (0.28)	0.61*** (.017)	0.80*** (0.006)	0.20*** (0.014)	0.46*** (0.009)	0.80*** (0.03)	0.52*** (0.03)	0.84*** (0.007)
F-test	35.94	762.53	12101.17	74.94	2071.53	5754.98	170.03	12070.83

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The first stage additionally includes all covariates included in the second stage. Full first-stage results are available on request.

Table B2 - IV regression for emotional abuse, by region

IV EMOTIONAL ABUSE	Central Asia	Southeast Asia	South Asia	M.E.N.A	L.A.C	East Africa	Central Africa	West Africa
Employment status								
Age	-0.008 (0.123) 0.011* (0.006)	-0.025 (0.031) 0.005 (0.004)	-0.003 (0.008) 0.007*** (0.001)	-0.226* (0.118) 0.021*** (0.005)	0.160*** (0.025) -0.002 (0.002)	0.083*** (0.015) 0.005** (0.002)	0.062 (0.069) 0.009 (0.006)	-0.071*** (0.009) 0.012*** (0.002)
Age-sq	-0.000 (0.000)	-0.000 (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	0.000 (0.000)	-0.000** (0.000)	-0.000 (0.000)	-0.000*** (0.000)
Age diff with spouse	-0.001 (0.001)	-0.000 (0.001)	0.001*** (0.000)	-0.000 (0.001)	0.001*** (0.000)	0.001** (0.000)	0.000 (0.001)	-0.000 (0.000)
Urban residence	0.008 (0.017)	0.010 (0.008)	0.013*** (0.003)	0.035*** (0.010)	0.062*** (0.007)	0.019*** (0.007)	0.068*** (0.014)	0.023*** (0.005)
Children under 6	-0.005 (0.009)	0.006 (0.005)	0.004** (0.002)	0.003 (0.004)	0.006* (0.004)	0.002 (0.003)	-0.005 (0.006)	0.011*** (0.002)
Low Income	-0.052*** (0.013)	0.010 (0.010)	0.032*** (0.004)	0.002 (0.010)	-0.002 (0.007)	-0.014* (0.007)	0.031** (0.014)	0.002 (0.005)
High Income	-0.034** (0.016)	-0.032*** (0.010)	-0.030*** (0.004)	-0.006 (0.012)	-0.052*** (0.008)	-0.031*** (0.008)	-0.003 (0.016)	-0.026*** (0.006)
Household size	0.007** (0.003)	0.003 (0.002)	0.000 (0.001)	0.001 (0.002)	0.003** (0.001)	0.003** (0.001)	0.004* (0.002)	0.000 (0.001)
Father beat mother	0.115*** (0.017)	0.109*** (0.009)	0.127*** (0.004)	0.169*** (0.011)	0.115*** (0.006)	0.101*** (0.006)	0.071*** (0.016)	0.167*** (0.006)
Husband alcohol	0.082*** (0.010)	0.087*** (0.007)	0.077*** (0.003)	0.511*** (0.072)	0.120*** (0.005)	0.142*** (0.006)	0.117*** (0.013)	0.135*** (0.005)
Wife & Husband characteristics	YES YES	YES YES	YES YES	YES YES	YES YES	YES YES	YES YES	YES YES
Country FE								
Observations	4,347	12,888	69,007	13,374	32,376	28,258	5,858	50,327
R-squared	0.056	0.050	0.067	0.001	0.028	0.055	0.038	0.054
First-Stage								
Cluster avg employment	0.083** (0.28)	0.61*** (.017)	0.80*** (0.006)	0.20*** (0.014)	0.57*** (0.009)	0.80*** (0.03)	0.52*** (0.03)	0.84*** (0.007)
F-test	35.81	764.22	11559.41	74.94	1527.53	5758.27	169.18	12066.36

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The first stage additionally includes all covariates included in the second stage. Full first-stage results are available on request.

Table B3 - IV regression for sexual abuse, by region

IV SEXUAL ABUSE	Central Asia	Southeast Asia	South Asia	M.E.N.A	L.A.C	East Africa	Central Africa	West Africa
Employment status	-0.039 (0.084)	-0.004 (0.017)	-0.062*** (0.007)	-0.020 (0.063)	0.046*** (0.012)	0.075*** (0.011)	-0.013 (0.040)	-0.007 (0.007)
Age	0.006 (0.004)	0.001 (0.002)	0.002** (0.001)	0.004 (0.003)	-0.001 (0.001)	-0.000 (0.002)	0.002 (0.003)	-0.004*** (0.001)
Age-sq	-0.000 (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.000** (0.000)	0.000** (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)
Age diff with spouse	-0.001 (0.001)	-0.000* (0.000)	0.000** (0.000)	0.000 (0.000)	0.001*** (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Urban residence	0.011 (0.012)	0.002 (0.004)	-0.005** (0.003)	0.005 (0.006)	0.016*** (0.003)	0.005 (0.005)	0.032*** (0.008)	0.003 (0.003)
Children under 6	-0.004 (0.006)	0.002 (0.003)	-0.000 (0.001)	-0.005 (0.003)	-0.003* (0.002)	0.002 (0.003)	-0.000 (0.004)	0.001 (0.001)
Low Income	-0.010 (0.008)	0.004 (0.005)	0.027*** (0.004)	0.003 (0.006)	0.002 (0.003)	-0.008 (0.006)	0.020** (0.008)	-0.002 (0.003)
High Income	-0.024** (0.011)	-0.008 (0.005)	-0.031*** (0.002)	-0.003 (0.007)	-0.017*** (0.003)	-0.021*** (0.006)	-0.005 (0.009)	-0.010*** (0.004)
Household size	0.002 (0.002)	0.001 (0.001)	0.002*** (0.001)	0.001 (0.001)	0.003*** (0.001)	0.003** (0.001)	0.000 (0.001)	0.007*** (0.001)
Father beat mother	0.064*** (0.013)	0.027*** (0.005)	0.071*** (0.004)	0.050*** (0.008)	0.036*** (0.002)	0.064*** (0.005)	0.030*** (0.010)	0.034*** (0.004)
Husband alcohol	0.042*** (0.006)	0.024*** (0.004)	0.047*** (0.002)	0.440*** (0.077)	0.038*** (0.002)	0.066*** (0.004)	0.053*** (0.008)	0.015*** (0.003)
Constant	-0.169*** (0.064)	-0.009 (0.030)	0.051*** (0.018)	0.928*** (0.047)	-0.009 (0.016)	0.077** (0.031)	-0.016 (0.046)	0.100*** (0.016)
Wife & Husband characteristics	YES	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,346	12,887	65,469	7,179	59,331	28,248	5,860	51,290
R-squared	0.027	0.014	0.025	0.650	0.023	0.038	0.020	0.090
<i>First-Stage</i>								
Cluster avg employment	0.31*** (0.28)	0.61*** (0.17)	0.80*** (0.006)	0.24*** (0.014)	0.46*** (0.009)	0.80*** (0.03)	0.52*** (0.03)	0.84*** (0.007)
F-test	35.94	762.14	10930.70	55.90	2071.84	5750.21	170.03	10105.44

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The first stage additionally includes all covariates included in the second stage. Full first-stage results are available on request.

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