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Female employment and Spousal abuse: A parallel cross-country analysis of 35 developing countries

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Female employment and Spousal abuse: A parallel cross-country analysis of 35 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 model using the 2SRI 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 a breakdown of results by country regions. Taking endogeneity into account, the estimation suggests that employment in most types of occupations increases violence by the sampled women's spouses, while formal sector employment reduces it. Breaking down the estimation by region and controlling for endogeneity shows similar results as the full sample. Differentiating by employment type shows that women working in formal paid occupations experience less marital abuse. Paid works seems to have a protective effect against domestic violence.

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 (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 their 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 concerns 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, 2016 ; 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 backgrounds, and simultaneously they are at greater risk of experiencing spousal abuse than their wealthier counterparts (Y. 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 instrumental variable models are implemented. For the full sample of 35 countries, the 2SRI results indeed show that most employment increases domestic violence while formal sector work decreases it. We find a statistically and economically negative effect of employment in formal paid occupations on spousal abuse. When the estimation is disaggregated by different forms of domestic violence and by regions, these results are replicated for physical, emotional and sexual abuse.

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

Non-cooperative 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 (Gelles, R. 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 from developing countries 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).

There is also evidence showing support for the the exposure reduction theory in criminology, which suggests that reduced contact with abusive partner also reduces the risk of spousal abuse (Dugan et al. 1999). Thus, an increase in women's employment opportunities can lead to a reduction in the time they spent with their partners.

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 studies find support for household bargaining models while others find evidence for the backlash model.

The 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 el. (2016) 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. 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.

Turning to developing countries, 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. Lenze & Klasen (2017) 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.

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. A further qualitative

study by Heise 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.

With the exception of Bedi et al (2011) and Lenze & Klasen (2017), 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 latest rounds of the Demographic and Health Surveys (DHS) which contains a domestic violence module, 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 and figure 3 in the appendix show the breakdown of sample countries by region. 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 642,178 women ages 15–49 is used. The women-only questionnaire includes a special module regarding domestic violence and women's empowerment. This module has

questions on different forms of abuse, from which we categorise 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 in the DHS:

"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 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* DV, 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 1 and 2 provide some basic descriptives of our dataset, while tables 6 and 7 the appendix present more detailed 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 6 in the appendix, 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 variable of interest, 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 generate three household wealth indicators from this index: poor, middle, rich households. 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 7 in the appendix shows the descriptives for the sample of women from the domestic violence module. Out of those women who have not experienced domestic abuse, 50% are employed. Women who have been abused have higher rates of employment than those who have not reported abuse, by about 6 to 9 percentage points. These numbers vary by employment type, with women working in services and agriculture facing the highest percentage of abuse. Women who experience more abuse are also less educated than women who have not reported domestic abuse. The husband's educations follows a similar pattern: less educated husbands are more abusive to their wives. Moreover, women who have experienced abuse have higher childhood exposure to violence, report higher rates of alcohol consumption from the husband, and also belong to poorer households. Table 2 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 higher physical 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. Women engaged in formal occupations experience the least amount of domestic abuse of all types. 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 women ventures outside of the house, they could face a higher backlash effect from the spouse.

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). According to Carlson's (1984) structural theory of intra-familial violence, lower income households are more likely to experience stress and tension. Stress levels can be further aggravated by living conditions, overcrowding, and lack of employment

opportunities, which can significantly increase the risk of domestic violence (Gonzales de Olarte & Gavilano Llosa, 1999; Heise, 1998). Intuitively, higher household wealth should reduce economic stress and domestic violence, as the ownership of such assets plays a key role in determining welfare of the household members. An increase in household assets ownership may unambiguously be expected to lead to a reduction in violence.

Occupation type: Occupation type of the husband and wife could have effects in different directions. Husbands employed in well-paying occupations should unambiguously have lower incidence of spousal conflicts. An increase in income for the male spouse should reduced stress levels and conflict within the household. In contrast, an improvement in the wife's occupation type might have an ambiguous effect on spousal conflicts. In an effort to extract and control the increased income and to counter the threat to the image of the male breadwinner, men may resort to violence (Bedi et al, 2011). As economic stress is linked to the incidence of 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 exposed to abusive situations.

Education level:

The direction of the effects of education on domestic violence are more likely similar to the differential patterns expected due to improved employment prospects. According to Bedi et al (2011), an increase in husband's education is expected to reduce violence, through it's effect on income. However, the effect of women's education on violence may not be that clear. An increase in the wife's income through higher education should reduce violence. However, in a household that practices traditional gender norms, the wife's higher social standing might be a source of conflict. 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:

The consensus in the domestic violence literature is that large families are more prone to violence (Brinkerhoff & Lupri, 1988; Ellsberg et al., 2000; Farrington, 1977). The pressure of providing for several economically inactive household members is associated with higher stress levels, as there is low chance of resolution if household size is large (Hoffman et al., 1994). Due to high fertility rates in developing countries, household size might be a particularly important determinant of domestic violence, as it can influence stress within the household.

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 (PTSD) 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 context (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 across all countries, the history of spousal abuse experienced by the woman's mother was the most consistent risk factor for experiencing physical or sexual intimate partner violence. 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 (Bedi et al, 2011).

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:

This section describes the econometric methodology used to empirically estimate the effect of employment on domestic violence. A generalised linear model (GLM) is implemented to estimate the probability of a woman experiencing domestic violence. The generalised linear model includes socioeconomic characteristics, household characteristics, and regional components. Since our main outcome variable, incidence of domestic violence, is binary, we first estimate the following probit in a generalized linear model:

Generalised Linear model for binary endogenous variable:

$$DV_i = \alpha_i + \beta_1(Employment\ status)_i + \beta_2(Wife\ /Husband\ characteristics)_i + \beta_3(HH\ controls)_i + \beta_4(Country\ FE)_i + \varepsilon_i \quad (1)$$

Where:

- DV = Incidence of spousal abuse: Physical, emotional, and sexual abuse.
- *Employment status* = Whether woman is currently working in any occupation.
- *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 the literature, 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 that captures the time-invariant

differences across countries. Finally, ε_i is the error term that captures the impact of all other unobserved variables.

Under the assumption that employment is purely exogenous, the probit estimates in equation (1) provides the causal estimate of employment on domestic violence. However, this assumption is unlikely to be true. A potential concern in the domestic violence equation that could bias the estimates of the effect of women's employment and domestic violence is the endogeneity of women's employment. There are two sources of endogeniety that could bias our results: violence could simultaneously effect women's employment and the direction of the effect is likely ambiguous, i.e. the presence of violence may lead women to increase or decrease her willingness to work (Lenze & Klasen, 2017). 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, women experiencing spousal abuse might be more likely to seek employment, as work outside the house would reduce her exposure to an abusive relative (Narayan et. al., 2000). Studies from developing countries find mixed results on the probability that women experiencing domestic violence engage in employment (Morrison et. al., 1999).

The estimates for the relationship between Employment status and domestic violence can further be biased by the presence of unobserved factors, e.g. traditionalism of the spouse or the locality. Even though the effect of traditionalism on women's employment would be unambiguously negative, the effect of traditionalism on domestic violence is not so clear. Assuming that the incidence of domestic violence is positively correlated with the degree of traditionalism, there may be a downward bias, which would present itself as a spurious negative correlation. Conversely, if women with more traditional spouses experience less domestic abuse, there could be a spurious positive correlation, leading to an over-estimation of the coefficient on the employment status. In the presence of reverse causality, the direction of the bias can not be easily determined. If violence causes women to work less, it may lead to a downward bias of the coefficient (underestimation); if it causes women to work more, it would lead to an upward bias (Lenze & Klasen, 2017).

This discussion suggests that the assumption of exogeneity of employment in the domestic violence estimation might be too strong. Therefore, we attempt to deal with these concerns by employing instrumental variable estimation to consistently estimate

the impact of employment on spousal abuse. Instrumental variables are variables which (i) are correlated with the endogenous variable (employment) and (ii) are not correlated with the error term in the outcome equation. If these two conditions are satisfied, then one can identify and estimate a consistent estimate of unbiased effect of employment on domestic violence.

Two-stage Residual Inclusion (2SRI) model:

Regarding the choice of estimator for the IV model, many variants of the instrumental variable estimation for binary dependent variable have been used in the literature, including the classic IV-LPM, IV-Probit, the full information maximum likelihood (FIML) bivariate probit, and more recently, the two-stage residual inclusion (2SRI) by Terza et al. (2008). Bhattacharya et al. (2006) test the various IV estimators on simulated data, They show that, even in the presence of misspecification of the distribution of the error terms, the IV-Probit and IV-LPM estimators exhibited greater bias than the 2SRI and FIML estimators. As wife's working status is a binary endogenous regressor, the 2SRI estimator provides consistent estimates in nonlinear models (Wooldridge 2010). Therefore, to tackle the issue of endogeneity due to omitted variables and reverse causality, the 2SRI model as suggested by Terza et al. (2008) is implemented. For 2SRI, the endogenous employment variable and the predicted residuals from the first-stage estimations are included in the second stage. The basic empirical model for our analysis is:

$$(Employment\ status)_i = \Pi_0 + \Pi_1(Z_1) + +\Pi_2(Z_2) + \upsilon_i \ (2)$$

Where:

- *Employment status* = Whether woman is currently working
- Z_1 = Exogenous instrument that predicts employment status
- Z_2 = Control variables which overlap with equation (1).

Following Lenze & Klasen (2017), we estimate the auxiliary equation (2) in the first stage as a probit model, where the endogenous variable, employment, is regressed on the exogenous instrument Z_1 and other exogenous variables Z_2. The error term υ_i captures the remaining variance of employment, which is not explained by the covariates or the instrument. In the second stage regression, the endogenous variable wife's working

status is not replaced. Instead, the residual term (υ_i) of equation (2) is included as an additional regressor in equation (1), which is estimated by a probit model as follows:

$$DV_i = \alpha_i + \beta_1(Employment\ status)_i + \beta_2(Wife\ /Husband\ characteristics)_i + \beta_3(HH\ controls)_i + \beta_4(Country\ FE)_i + \gamma\hat{\upsilon}_i + \varepsilon_i \quad (3)$$

The endogeneity of employment status can be evaluated by testing the coefficient γ of $\hat{\upsilon}_i$ in equation (3). The parameters in equation (3) are identified uniquely by the assumption that the instrument Z_1 does not belong in equation (3) i.e. the exclusion restriction. The excludability of the instrument Z from equation (3) is an assumption that is inherently untestable since the error term can not be observed. Therefore, we rely on a priori reasoning to justify the assumption. Moreover, we do not require an overidentification test, as our IV model is exactly identified with has one endogenous variable and one instrument (Kumar et al, 2014).

Choice of Instrument:

The choice of an instrument for probability of being employed for women is pivotal to our estimation strategy. A valid instrument should affect women's employment significantly, but only indirectly affect domestic violence through its direct effect on women's employment. We chose instruments based on the prior studies in which employment is an endogenous variable. Following Lenze Klasen (2017), we use average employment of women in her region of residence, minus her own employment as the main instrument. The instrument is constructed by taking mean of female employment in the region of residence (which are usually census enumeration areas/districts which are representative of the population), excluding the woman being considered in each observation to avoid an in-built correlation. For employment measures by type of work, the region averages are calculated for the respective type of work. By using the region 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 (Lenze & Klasen, 2017). The region 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[1]. We estimate several specifications and conduct validity and strength tests for the region average employment instrument.

IV. Empirical Estimation and Results

Estimation results - 2SRI - Generalised linear model estimates:

Table 3 shows the results for the two-stage residual inclusion model for domestic violence, by type of employment. The regression measures the probability of a woman experiencing any[2] type of domestic abuse from her husband. The second stage estimates of a generalised linear model (GLM) of the domestic violence that consider the endogeneity of women's employment status, are presented in columns 1 to 5, by employment type. As discussed in section 3, the variable women's employment is instrumented with the variable *region average of women's employment* in the baseline-IV regression model.

Column 1 shows the 2SRI estimates for experiencing domestic violence for women employed in any type of work. It shows that women's employment has a small, but significantly positive effect on the probability of domestic violence. If a woman is currently employed, the probability of domestic violence increases by 7 percentage points (statistically significant at the 1 percent level), holding everything else constant. This result would seem to support the male-backlash theory (Bedi et el. 2011). Columns 2 to 5 replicate the domestic violence regression for types of employment, where the women are employed in formal work, agricultural work, manual work, or sales & services. When broken down by types of work, the positive effect of work on domestic violence only stays for low-paying occupations in the agricultural sector, sales & services, and manual work, with women working as farmers and manual labourers experiencing about 1-5 percentage points more domestic abuse. For women working in formal paid occupations, there is negative effect on domestic violence of 1.6 percentage points, which is highly significant at 1 percent level. This is in line with the descriptive statistics in table 2,

[1] We also estimate the instrument of average employment using alternate lower levels of geographical average, cluster average of employment and by urban/rural region, which gives similar outcomes (Output available on request).

[2] An 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.

where women in low paying occupations are shown to have higher percentages of domestic abuse than other well-paying forms of employment. That is, formal paid occupations have a protective effect against domestic violence.

Next, for the instrumental variable estimation, the instrument *regional average of employment*[3] is expected to have a significant impact on women's employment status. It is also independent of husband's violent behaviour 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 regional average of employment as a suitable instruments for women's employment. The first stage of the IV estimation at the bottom panel of table 3 in column 1 indicates that, as expected, the region 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 region average of employment increases the probability of the women being employed by 1.03, or 103 percentage points, 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 region average employment seems to increase the probability of working in the agricultural sector by 61 percentage points. The full regressions for the first stage of the 2SRI model are presented in appendix table A1.

To support these instrumental variable 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 Wald test for the instrument in the first stage regressions. The Wald test records a significantly large value for all types of domestic violence, which indicates a strong correlation of the instrument with women's employment status. Moreover, the coefficients of the first-stage residuals, which capture the remaining variance in employment status not explained by the instrument considered, are statistically significant in all specifications on domestic abuse. Thus, the null hypothesis of exogeneity of employment status in equation (1) can be rejected in all cases, implying that a standard Probit is not consistent. For comparison, the naive Probit estimates are presented in Appendix table A2. The coefficients are in line with the 2SRI estimates, although twice as small in magnitude. Ignoring endogeneity would therefore give lower estimates of the

[3]We also use an alternative instrument *"cluster average of employment"*, which gives similar results. Results available on request.

effects of employment on domestic violence. Based on these tests and the theoretical justification, region average of employment appears to be a valid instrument.

Turning to the covariates, the estimates seem to be in line with the expectations discussed earlier. 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 3.8 percentage points. The woman's own education also displays intuitive outcomes: compared to uneducated women, those with some education experience between 1-12 percentage points less domestic abuse; compared to women with no education, those with primary schooling experience 1 percentage points less domestic violence. Women with secondary and tertiary education experience about 4 percentage points and 12 percentage points less domestic abuse, respectively. Similarly, husband's occupation type has a significant negative but small impact on violent behavior, suggesting that better-paid employment of husbands decreases stress and frustration. Compared to husbands engaged in farm work, those who are in formal employment abuse their spouses about 2 percentage points less.

The age difference between the spouses is negatively linked to violence, but the effect is not economically significant. A higher number of household members increases the incidence of violence, statistically significant at the 1 percent significance level. This result is consistent with the idea that more people in the household cause more social stress, as is found in several other studies (Jewkes et al. 2002; Salam, A. et al 2006). Next, 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 at al 2011). However, the coefficients on household size and number of children are too small in magnitude to be economically significant. 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 (Lenze & Klasen, 2017). The economic status of the household, proxied by the wealth indices of poor, middle, and rich households, display the expected sign and significant association with husband's violent behaviour. 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 households in the middle wealth index, women from richer wealth index households face 4 percentage points less domestic violence, while women from poorer wealth index households are about 1 percentage points 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 are observed 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 percentage points. 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, Bedi et al (2011) believe that domestic violence and alcohol consumption are endogenous. While alcohol consumption certainly appears to trigger violence, it is likely that unobserved factors, for example stress and temperament, that lead to drunken behaviour are correlated with domestic violence (Bedi et al 2011). Next, childhood exposure to violence leads to 17 percentage points 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 determine whether the coefficients differ significantly for types of the dependent variable *domestic violence*, we further report the 2SRI estimates for the probability of a woman experiencing physical, emotional, and sexual violence for each type of employment. Figure 1 shows the coefficient plots for each type of domestic abuse - physical abuse, emotional abuse, and, sexual abuse by employment type of all occupations - formal work, agricultural work, sales & services, and, manual work. The full regressions corresponding to figure 1 are presented in appendix tables A3, A4, and A5. Replicating the estimates by type of abuse and type of work gives similar conclusions regarding the

sign and magnitude of the variables of interest as in table 3, where paid formal occupations do not seem to have a positive effect on domestic violence. Of all the employment types, formal work is the only form of employment that gives a negative or insignificant effect of employment on domestic violence. Sales and services also seem to give small or insignificant coefficients. Agricultural and manual show the largest and most significant effects on domestic violence. The full regressions in appendix tables A3, A4, and A5 conclude that if a woman is currently employed, the probability of experiencing physical abuse increases by 6 percentage points, while the probability of experiencing emotional abuse increases by 3.7 percentage points. The estimate for sexual abuse is significant but a lot smaller than physical and emotional abuse (0.6 percentage points, significant at 5 percent level). 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 3[4].

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 region. For example, the influence of women's employment is likely to have a different effect in a more traditional setting that practices female seclusion (Standing, H. 1991; Kabeer, N. 1997, Heise et. al 2014). Therefore, it is worthwhile to break down the estimation by country regions. Table 4 presents the results of domestic violence (all types) by region. All regions except M.E.N.A. and Central Africa show estimates consistent with the results in table 3, where employment seems to have a positive and significant effect on domestic violence, in the range of 3-18 percentage points. Latin America and East Africa show the highest coefficients with 18 and 15 percentage points respectively, which is in line with previous work on these regions (Heise et. al, 2002; Flake Forste 2006; UNDESA, 2015). When we replicate the region estimation by type of domestic violence, we observe a similar pattern in all regions, where female employment seems to exacerbate domestic violence, except for women engaged in formal paid work. The first stage of the IV estimation at the bottom of table 4 indicates that, as expected, the region average of employment increases the probability that the woman engages in work. This effect

[4]These results are replicated for the region samples, which give 96 regressions for the 8 regions for the four types of employment and 3 abuse types. The results are in line with the full-regression results, though the significance is further reduced due to the smaller samples. Low paying occupations again seem to give significant effects on domestic violence

varies by region, for instance, in MENA, cluster average only increases the probability of the women being employed by 33%, holding everything else constant. For the rest of the regions, the first stage IV coefficient is large and highly significant. The Walt-test is large and significant for all regions.

Next, we replicate the regions IV regression by types of employment. Figure 2 shows the coefficient for each type of employment, for the eight region samples. The coefficient for formal work (panel a) is negative or close to zero in all regions, but loses significance due to the smaller samples in some regions. For the other types of work, agricultural work (panel b) and manual work (panel d) seem to increase domestic violence in most regions. The effects are larger in South Asia, MENA, Latin America and East Africa. Sales & services (panel c) shows mixed results by region. This is likely due to the loose definition of occupations that fall into this category e.g. a hairdresser falls into the sales & services category, who could have variable income in this occupation.[5]

V. Discussion

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 reduces violence in most developing regions, only if they are employment in well-paying occupations. However, this effect is not significant in all regions. 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 make biased conclusion about women's employment status and the incidence of domestic violence. After controlling for endogeneity, there is a negative significant impact of wife's employment status on domestic violence, only for well-paying formal occupations. Low paying agricultural work or manual work does not seem to provide the protective effect of paid work. 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 only upheld for women engaged in well-paying paid occupations. Participating in formal sector work or waged non-farm occupations can increase household bargaining power for women and therefore reduce

[5]Full regressions available on request.

the risk of spousal abuse. Conversely, employment in the low-paying sectors might not necessarily have the same empowering effects for women and may trigger backlash. 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. We can thus conclude that employment of women in the formal sector, where income-generating opportunities are higher, lead to a reduction in intra-household violence.

Beyond women's employment, across all specifications, there is a large effect of women's education level, occupation type, and household wealth status on reducing violence. Overall, the results presented in this paper suggest that women's access to formal sector employment, which provides higher income-generating opportunities, plays a pivotal role in reducing their risk of experiencing spousal violence. Policies which encourage women's involvement in the formal sector 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. 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 more standardized questionnaires and methodologies in these areas.

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Tables & figures

TABLE 1: Descriptive Statistics by region - Sample of all women aged 15-49.

DESCRIPTIVES	Full sample	SS Africa	Central Asia	South Asia	SE. Asia	M.E.N.A	L.A.C.
Employment status	0.48	0.50	0.51	0.16	0.33	0.55	0.25
	(0.49)	(0.49)	(0.43)	(0.47)	(0.49)	(0.37)	(0.49)
Agricultural work	0.32	0.40	0.04	0.44	0.37	0.09	0.07
	(0.47)	(0.49)	(0.19)	(0.50)	(0.48)	(0.29)	(0.25)
Formal work	0.11	0.06	0.40	0.14	0.17	0.66	0.13
	(0.32)	(0.23)	(0.49)	(0.35)	(0.38)	(0.47)	(0.34)
Sales and Services	0.31	0.32	0.26	0.17	0.24	0.17	0.44
	(0.46)	(0.46)	(0.44)	(0.37)	(0.43)	(0.37)	(0.50)
manual work	0.24	0.20	0.30	0.25	0.20	0.08	0.33
	(0.43)	(0.40)	(0.46)	(0.43)	(0.40)	(0.27)	(0.47)
Observations	642,178	255,170	17,842	148,634	46,797	33,086	140,649

TABLE 2: Incidence of domestic abuse by employment type

Employment type	No work	Employed-all	Formal	Agriculture	Manual	Sales services
No Abuse	0.29	0.31	0.36	0.27	0.26	0.35
	(0.46)	(0.46)	(0.48)	(0.44)	(0.44)	(0.48)
	333,103	309,075	35,335	95,350	69,958	91,559
Abuse Any	0.33	0.39	0.26	0.41	0.44	0.38
	(0.47)	(0.49)	(0.44)	(0.49)	(0.50)	(0.48)
	145,830	157,633	17,385	44,151	33,022	50,907
Physical Abuse	0.27	0.32	0.20	0.35	0.37	0.32
	(0.45)	(0.47)	(0.40)	(0.48)	(0.48)	(0.46)
	144,058	156,226	17,385	44,150	33,007	50,901
Emotional Abuse	0.18	0.24	0.18	0.24	0.29	0.25
	(0.38)	(0.43)	(0.38)	(0.43)	(0.45)	(0.43)
	126,083	135,070	13,445	42,051	31,574	37,216
Sexual Abuse	0.09	0.11	0.06	0.11	0.11	0.10
	(0.28)	(0.31)	(0.23)	(0.31)	(0.31)	(0.30)
	134,566	154,210	16,167	43,296	32,327	50,260

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

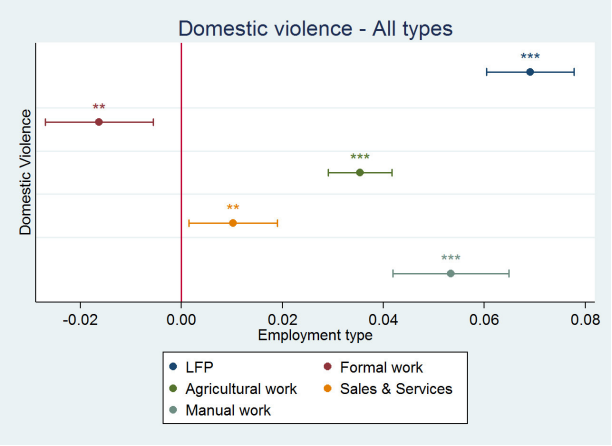
Sample countries: Central Asia includes Kyrgyzstan and Tajikistan, South East Asia includes Cambodia, Philippines, and Timor Leste, Sub-Saharan Africa includes Burkino Faso, Cote d'Ivoire, Congo, Cameroon, Kenya, Tanzania, Zambia, Zimbabwe, Liberia, Mali, Mozambique, Malawi, Namibia, Nigeria, Rwanda, Sierra Leone, Togo, Uganda, and, São Tomé Principe, M.E.N.A. includes Jordan and Egypt; South Asia includes India, Pakistan, and, Bangladesh; and finally Latin America and the Caribbean includes Bolivia, Colombia, Dominican Republic, Honduras, Haiti, and, Peru.

Table 3: 2SRI - Domestic violence: Full sample - separated by type of employment

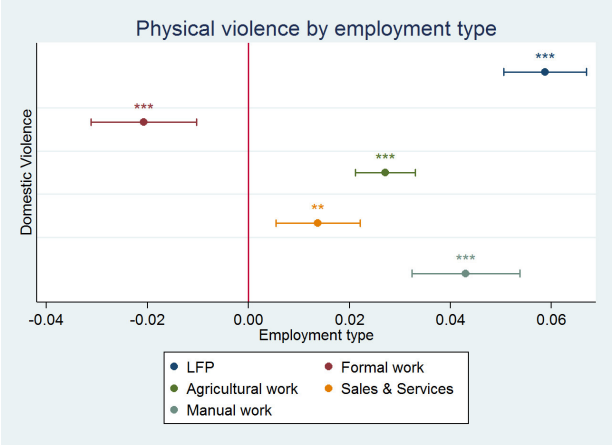
2SRI - ABUSE ANY	All work	Formal work	Agriculture	Manual work	Sales
Employment	0.069***				
	(0.004)				
Formal work		-0.016***			
		(0.005)			
Agricultural work			0.035***		
			(0.003)		
Sales and Services				0.010**	
				(0.004)	
Manual work					0.053***
					(0.006)
Residual	0.022***	-0.022***	-0.002	-0.011***	0.008***
	(0.004)	(0.001)	(0.001)	(0.002)	(0.002)
Age	0.006***	0.010***	0.010***	0.011***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(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***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Primary edu	-0.008***	-0.009***	-0.008***	-0.009***	-0.009***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Secondary Edu	-0.040***	-0.042***	-0.043***	-0.045***	-0.044***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Higher Edu	-0.118***	-0.100***	-0.108***	-0.110***	-0.107***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Husband Primary	0.012***	0.013***	0.016***	0.016***	0.016***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Secondary Edu	-0.005	-0.004	-0.003	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Higher Edu	-0.038***	-0.039***	-0.037***	-0.038***	-0.037***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Urban residence	0.045***	0.041***	0.043***	0.039***	0.039***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Children under 6	0.011***	0.009***	0.009***	0.009***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Wealth index - Poor	0.008***	0.006**	0.007***	0.007***	0.007***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Wealth index - Rich	-0.039***	-0.042***	-0.041***	-0.043***	-0.043***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Household size	0.003***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Father beat mother	0.161***	0.164***	0.169***	0.170***	0.169***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband alcohol	0.170***	0.174***	0.165***	0.166***	0.166***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband Formal work	-0.016***	-0.018***	-0.015***	-0.019***	-0.020***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Sales and services	0.010***	0.006**	0.011***	0.008***	0.007***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband manual work	0.021***	0.018***	0.024***	0.018***	0.013***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
Country FE	x	x	x	x	x
Observations	264,229	264,254	254,848	254,848	254,848
First-Stage					
Region averageg employment	1.029***	0.112***	0.607***	0.567***	0.619***
	(0.008)	(0.012)	(0.006)	(0.012)	(0.008)
Wald-test of exogeneity	17246.56	86.02	11101.06	2592.15	5459.00
Prob >Chi^2	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

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 presented in appendix table A1.

FIGURE 1: Probability of Domestic Violence, by abuse type and employment type - 2SRI estimates

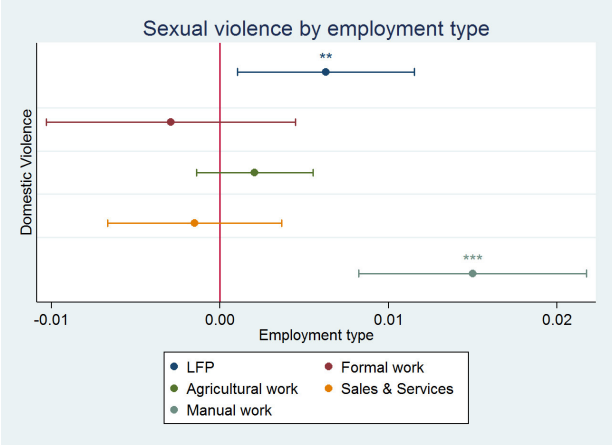


(a) Probit-AME for DV - all types



(b) Probit-AME coefficients for DV- physical abuse

(c) Probit-AME coefficients for DV - emotional abuse



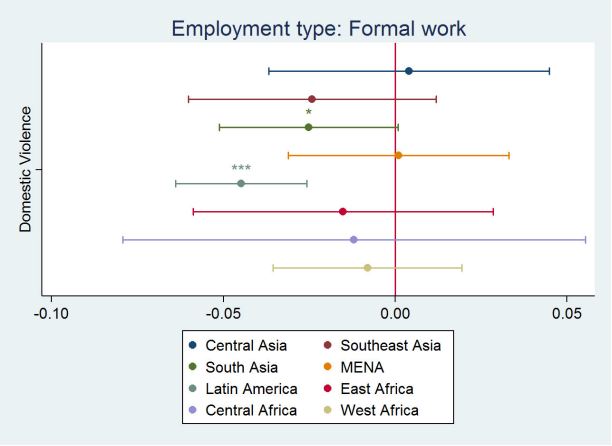
(d) Probit-AME coefficients for DV - sexual abuse

Table 4: 2SRI – Domestic violence - All types, separated by each region

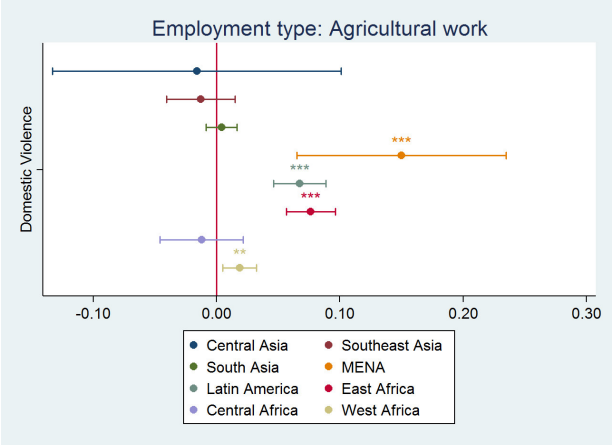
2SRI - Abuse any	Central Asia	Southeast Asia	South Asia	M.E.N.A.	L.A.C.	Eastern Africa	Central Africa	Western Africa
Employment	0.040*	0.050***	0.042***	-0.020	0.184***	0.155***	0.040	0.029***
	(0.024)	(0.017)	(0.008)	(0.022)	(0.011)	(0.011)	(0.033)	(0.010)
Age	0.023	0.047***	-0.003	-0.039***	0.108***	0.070***	0.018	-0.005
	(0.017)	(0.014)	(0.006)	(0.011)	(0.010)	(0.009)	(0.024)	(0.007)
Age-sq	0.027***	0.005	0.017***	0.018***	-0.009***	0.005*	0.013***	0.011***
	(0.005)	(0.004)	(0.002)	(0.004)	(0.002)	(0.003)	(0.004)	(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	0.018	0.039***	0.047***	0.050***	0.066***	0.034***	0.059***	0.021***
	(0.013)	(0.009)	(0.004)	(0.009)	(0.005)	(0.007)	(0.012)	(0.005)
Children under 6	0.008	0.013**	0.017***	0.009*	0.009***	0.002	0.011**	0.010***
	(0.006)	(0.005)	(0.002)	(0.005)	(0.002)	(0.004)	(0.005)	(0.002)
Low Income	-0.018	0.018*	0.054***	0.016	0.004	-0.001	0.023**	-0.013**
	(0.013)	(0.011)	(0.005)	(0.010)	(0.005)	(0.008)	(0.012)	(0.005)
High Income	-0.033**	-0.027**	-0.065***	-0.024**	-0.040***	-0.041***	0.001	-0.013**
	(0.015)	(0.011)	(0.005)	(0.012)	(0.005)	(0.008)	(0.014)	(0.006)
Household size	0.000	0.001	-0.001	0.003	0.002**	0.004***	0.002	0.004***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Father beat mother	0.208***	0.170***	0.239***	0.207***	0.125***	0.145***	0.146***	0.183***
	(0.012)	(0.009)	(0.004)	(0.009)	(0.003)	(0.006)	(0.010)	(0.005)
Husband alcohol	-0.081***	-0.029**	-0.013**	-0.006	-0.024***	-0.014	-0.053***	-0.043***
	(0.015)	(0.012)	(0.005)	(0.012)	(0.005)	(0.010)	(0.012)	(0.006)
Wife & Husband characteristics	x	x	x	x	x	x	x	x
Household characteristics	x	x	x	x	x	x	x	x
Country FE	x	x	x	x	x	x	x	x
Observations	9,215	13,793	77,201	13,709	83,676	33,107	12,367	55,072
First-Stage								
Region avg employment	0.905***	1.020***	0.970***	0.330***	1.058***	1.024***	0.912***	0.999***
	(0.041)	(0.022)	(0.014)	(0.064)	(0.026)	(0.015)	(0.045)	(0.016)
Wald-test	476.95	2229.82	4994.51	26.36	1640.66	4665.74	408.99	3647.95
Prob >Chi^2	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

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 presented in appendix table A1.

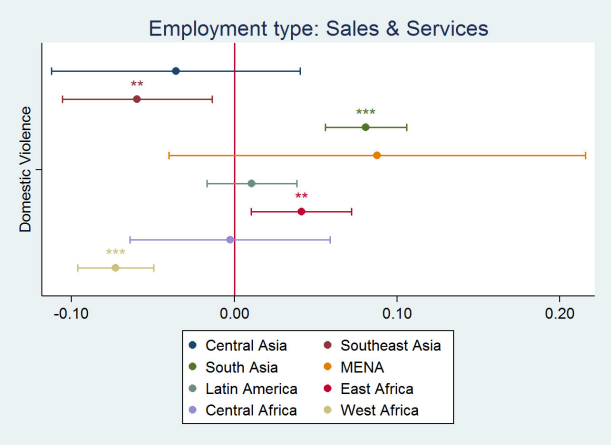
FIGURE 2: Probability of Domestic Violence, by Country-regions - 2SRI estimates



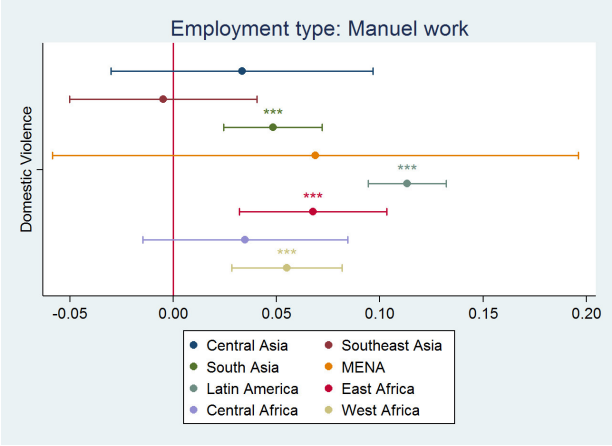
(a) Probit-AME for formal employment



(b) Probit-AME coefficients for agricultural employment



(c) Probit-AME coefficients for sales services employment



(d) Probit-AME coefficients for manual work employment

APPENDIX

Figure 3

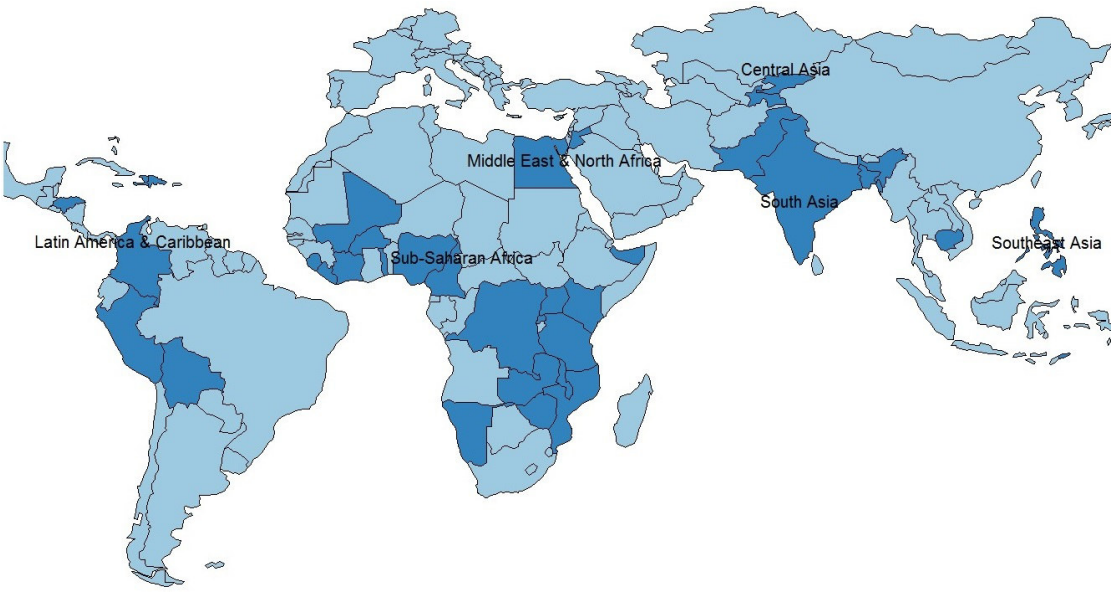


Table 5: DHS sample countries

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	Burkino 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 6: 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
Abuse types							
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
Employment information							
Employment status	0.48	0.50	0.51	0.16	0.33	0.55	0.25
Formal work	0.06	0.04	0.07	0.11	0.05	0.10	0.10
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
Individual characteristics							
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
Household characteristics							
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

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

TABLE 7: Descriptive Statistics by abuse type - Sample of all women aged 15-49.

DESCRIPTIVE STATS	No abuse	Abuse any	Physical abuse	Emotional abuse	Sexual abuse
Employment information					
Employment status	0.50	0.56	0.56	0.59	0.58
	(0.50)	(0.50)	(0.50)	(0.49)	(0.49)
Formal work	0.13	0.07	0.07	0.07	0.06
	(0.34)	(0.26)	(0.26)	(0.26)	(0.23)
Agricultural work	0.29	0.32	0.33	0.33	0.33
	(0.45)	(0.47)	(0.47)	(0.47)	(0.47)
manual work	0.21	0.26	0.26	0.30	0.24
	(0.41)	(0.44)	(0.44)	(0.46)	(0.43)
Sales and Services	0.36	0.34	0.34	0.30	0.35
	(0.48)	(0.47)	(0.47)	(0.46)	(0.48)
Individual characteristics					
Age	32.13	31.80	32.37	32.43	30.28
	(8.56)	(8.72)	(8.36)	(8.30)	(9.40)
Age diff with spouse	6.44	6.38	6.21	6.67	6.72
	(7.27)	(7.29)	(7.03)	(7.55)	(8.01)
No education	0.25	0.26	0.28	0.28	0.23
	(0.43)	(0.44)	(0.45)	(0.45)	(0.42)
Primary edu	0.28	0.35	0.34	0.37	0.41
	(0.45)	(0.48)	(0.47)	(0.48)	(0.49)
Secondary Edu	0.35	0.32	0.31	0.29	0.31
	(0.48)	(0.47)	(0.46)	(0.45)	(0.46)
Higher Edu	0.13	0.07	0.07	0.07	0.05
	(0.33)	(0.25)	(0.25)	(0.26)	(0.21)
Husband no education	0.19	0.19	0.19	0.19	0.18
	(0.39)	(0.39)	(0.39)	(0.40)	(0.38)
Husband Primary	0.26	0.32	0.31	0.33	0.35
	(0.44)	(0.46)	(0.46)	(0.47)	(0.48)
Husband Secondary Edu	0.40	0.39	0.40	0.38	0.39
	(0.49)	(0.49)	(0.49)	(0.49)	(0.49)
Husband Higher Edu	0.15	0.09	0.08	0.08	0.07
	(0.36)	(0.28)	(0.27)	(0.28)	(0.25)
Household characteristics					
Urban residence	0.45	0.44	0.45	0.41	0.42
	(0.50)	(0.50)	(0.50)	(0.49)	(0.49)
Children under 6	0.97	1.05	1.01	1.08	1.15
	(1.00)	(1.08)	(1.02)	(1.05)	(1.21)
Low Income	0.39	0.43	0.45	0.43	0.42
	(0.49)	(0.49)	(0.50)	(0.50)	(0.49)
High Income	0.42	0.36	0.33	0.35	0.37
	(0.49)	(0.48)	(0.47)	(0.48)	(0.48)
Household size	5.28	5.56	5.34	5.42	6.09
	(2.51)	(2.76)	(2.48)	(2.58)	(3.29)
Father beat mother	0.18	0.34	0.37	0.35	0.35
	(0.38)	(0.48)	(0.48)	(0.48)	(0.48)
Husband alcohol	0.33	0.49	0.55	0.53	0.44
	(0.47)	(0.50)	(0.50)	(0.50)	(0.50)
Observations	198,155	119,079	92,758	58,119	34,883

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

Table A1: 2SRI – First stage : Domestic violence separated by each type of employment

2SRI - First stage	**All work**	**Formal work**	**Agriculture**	**Manual work**	**Sales**
Region average employment	1.029***				
	(0.008)				
Region avg employment - Formal		0.107***			
		(0.012)			
Region avg employment - Agri			0.623***		
			(0.006)		
Region avg employment - Sales				0.576***	
				(0.011)	
Region avg employment - manual					0.600***
					(0.008)
Age	0.035***	0.009***	0.006***	0.018***	0.009***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
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***	-0.001***	-0.000	0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Primary edu	-0.019***	0.009***	-0.002	0.007***	0.004***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)
Secondary Edu	-0.031***	0.068***	-0.046***	0.005**	-0.007***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
Higher Edu	0.139***	0.151***	-0.145***	-0.081***	-0.037***
	(0.004)	(0.002)	(0.005)	(0.003)	(0.002)
Husband Primary	0.003	0.003*	0.016***	-0.005***	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
Husband Secondary Edu	-0.005**	0.015***	0.003	-0.006***	-0.004***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
Husband Higher Edu	-0.021***	0.020***	-0.025***	-0.021***	-0.012***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)
Urban residence	-0.038***	-0.005***	-0.125***	0.052***	0.010***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
Children under 6	-0.015***	-0.003***	-0.002***	-0.008***	-0.004***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
Low Income	-0.016***	-0.010***	0.004***	-0.023***	0.002*
	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
High Income	-0.025***	0.009***	-0.051***	0.016***	-0.001
	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Household size	-0.001**	-0.001***	0.001***	0.000	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Father beat mother	0.016***	-0.000	0.003**	0.012***	0.005***
	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Husband alcohol	0.032***	-0.000	0.018***	0.008***	0.009***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Husband Formal work	-0.017***	0.023***	-0.078***	0.021***	0.011***
	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Husband Sales and services	-0.027***	-0.017***	-0.081***	0.078***	0.009***
	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Husband manual work	-0.031***	-0.003***	-0.111***	0.044***	0.066***
	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Country FE	x	x	x	x	x
Observations	415,181	376,751	376,719	376,719	395,221
Pseudo R^2	0.183	0.3745	0.3543	0.2890	0.2021

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A1: PROBIT Marginal effects: Domestic violence separated by employment type

Naive PROBIT	**All work**	**Formal work**	**Agriculture**	**Manual work**	**Sales**
Employment	0.044***				
	(0.002)				
Formal work		-0.012***			
		(0.005)			
Agricultural work			0.038***		
			(0.003)		
Sales and Services				0.028***	
				(0.003)	
Manual work					0.035***
					(0.003)
Age	0.008***	0.010***	0.010***	0.010***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(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***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Primary edu	-0.008***	-0.009***	-0.008***	-0.009***	-0.009***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Secondary Edu	-0.041***	-0.042***	-0.043***	-0.045***	-0.044***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Higher Edu	-0.111***	-0.101***	-0.107***	-0.107***	-0.108***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Husband Primary	0.012***	0.013***	0.016***	0.016***	0.016***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Secondary Edu	-0.004	-0.004	-0.003	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Higher Edu	-0.039***	-0.039***	-0.037***	-0.037***	-0.037***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Urban residence	0.043***	0.041***	0.043***	0.038***	0.039***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Children under 6	0.010***	0.009***	0.009***	0.009***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Low Income	0.007***	0.006**	0.007***	0.008***	0.007***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
High Income	-0.041***	-0.042***	-0.040***	-0.043***	-0.043***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Household size	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Father beat mother	0.162***	0.164***	0.169***	0.169***	0.169***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband alcohol	0.172***	0.174***	0.165***	0.166***	0.166***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband Formal work	-0.017***	-0.018***	-0.015***	-0.019***	-0.019***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Sales and services	0.008***	0.007**	0.012***	0.005*	0.007***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband manual work	0.019***	0.018***	0.024***	0.017***	0.015***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Country FE	x	x	x	x	x
Observations	264,229	264,254	254,848	254,848	254,848
Pseudo R^2	0.0877	0.0861	0.0854	0.0852	0.0852

Notes: Robust standard errors in parentheses. ***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A3: 2SRI – Physical violence separated by each type of employment

2SRI - PHYSICAL ABUSE	All work	Formal work	Agriculture	Manual work	Sales
Employment	0.059***				
	(0.004)				
Formal work		-0.021***			
		(0.005)			
Agricultural work			0.027***		
			(0.003)		
Sales and Services				0.014***	
				(0.004)	
Manual work					0.043***
					(0.005)
Residual	0.020***	-0.002**	-0.002	-0.006***	0.005***
	(0.003)	(0.001)	(0.001)	(0.002)	(0.002)
Age	0.006***	0.009***	0.009***	0.009***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(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***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Primary edu	-0.012***	-0.013***	-0.011***	-0.012***	-0.012***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Secondary Edu	-0.047***	-0.048***	-0.049***	-0.051***	-0.050***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Higher Edu	-0.126***	-0.108***	-0.117***	-0.118***	-0.117***
	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)
Husband Primary	0.009***	0.010***	0.012***	0.012***	0.012***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Secondary Edu	-0.005*	-0.005*	-0.004	-0.003	-0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Higher Edu	-0.039***	-0.040***	-0.038***	-0.038***	-0.038***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Urban residence	0.041***	0.038***	0.039***	0.036***	0.036***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Children under 6	0.008***	0.007***	0.007***	0.007***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Wealth index - Poor	0.009***	0.007***	0.008***	0.009***	0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Wealth index - Rich	-0.039***	-0.041***	-0.041***	-0.042***	-0.042***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Household size	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Father beat mother	0.148***	0.150***	0.154***	0.154***	0.154***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband alcohol	0.160***	0.164***	0.153***	0.154***	0.154***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband Formal work	-0.015***	-0.016***	-0.015***	-0.018***	-0.019***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Sales and services	0.013***	0.009***	0.014***	0.010***	0.010***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband manual work	0.024***	0.021***	0.025***	0.021***	0.017***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Country FE	x	x	x	x	x
Observations	263,216	263,241	254,443	254,443	254,443
First-Stage					
Region avg employment	1.029***	0.107***	0.623***	0.576***	0.600***
	(0.008)	(0.012)	(0.006)	(0.011)	(0.008)
Wald-test of exogeneity	17246.56	86.02	11101.06	2592.15	5459.00
Prob >Chi^2	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

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 are available on request.

Table A4: 2SRI – Emotional violence separated by each type of employment

2SRI - EMOTIONAL ABUSE	All work	Formal work	Agriculture	Manual work	Sales
Employment	0.037***				
	(0.004)				
Formal work		-0.007			
		(0.005)			
Agricultural work			0.021***		
			(0.003)		
Sales and Services				-0.007*	
				(0.004)	
Manual work					0.039***
					(0.005)
Residual	0.005	-0.002*	-0.001	-0.014***	0.008***
	(0.003)	(0.001)	(0.001)	(0.002)	(0.002)
Age	0.006***	0.008***	0.007***	0.008***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(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	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Primary edu	0.006**	0.006**	0.007***	0.006**	0.006**
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Secondary Edu	-0.010***	-0.011***	-0.011***	-0.012***	-0.012***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Higher Edu	-0.053***	-0.044***	-0.048***	-0.051***	-0.048***
	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)
Husband Primary	0.008***	0.009***	0.010***	0.011***	0.011***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Secondary Edu	-0.004	-0.004	-0.003	-0.003	-0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Higher Edu	-0.022***	-0.022***	-0.020***	-0.021***	-0.020***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Urban residence	0.029***	0.027***	0.028***	0.027***	0.026***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Children under 6	0.006***	0.005***	0.005***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Low Income	0.002	0.001	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
High Income	-0.028***	-0.029***	-0.028***	-0.028***	-0.029***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Household size	0.001***	0.001**	0.001**	0.001**	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Father beat mother	0.103***	0.104***	0.107***	0.108***	0.107***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband alcohol	0.114***	0.116***	0.113***	0.113***	0.113***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband Formal work	-0.006**	-0.007***	-0.006**	-0.007***	-0.009***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Sales and services	0.003	0.001	0.004	0.003	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband manual work	0.008***	0.006***	0.009***	0.007***	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Country FE	x	x	x	x	x
Observations	232,294	232,319	223,515	223,515	223,515
First-Stage					
Region avg employment	1.029***	0.107***	0.623***	0.567***	0.600***
	(0.008)	(0.012)	(0.006)	(0.011)	(0.008)
Wald-test of exogeneity	17246.56	86.02	11101.06	2592.15	5459.00
Prob >Chi^2	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

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 are available on request.

Table A5: 2SRI – Sexual violence separated by each type of employment

2SRI - SEXUAL ABUSE	All work	Formal work	Agriculture	Manual work	Sales
Employment	0.006**				
	(0.003)				
Formal work		-0.003			
		(0.004)			
Agricultural work			0.002		
			(0.002)		
Sales and Services				-0.002	
				(0.003)	
Manual work					0.015***
					(0.003)
Residual	-0.005**	-0.001	-0.000	-0.006***	0.001
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Age	-0.000	-0.000	0.000	0.000	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
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*	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Primary edu	0.003**	0.003**	0.003*	0.003*	0.003*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Secondary Edu	-0.011***	-0.011***	-0.012***	-0.012***	-0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Higher Edu	-0.034***	-0.033***	-0.036***	-0.037***	-0.036***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Husband Primary	0.003	0.002	0.003*	0.003*	0.003**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband Secondary Edu	-0.005**	-0.005**	-0.004**	-0.004**	-0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband Higher Edu	-0.014***	-0.014***	-0.012***	-0.012***	-0.012***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Urban residence	0.007***	0.007***	0.006***	0.006***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Children under 6	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Low Income	0.002	0.002	0.003*	0.002	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
High Income	-0.020***	-0.020***	-0.019***	-0.019***	-0.019***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Household size	0.003***	0.003***	0.003***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Father beat mother	0.042***	0.042***	0.045***	0.045***	0.045***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Husband alcohol	0.045***	0.045***	0.044***	0.044***	0.044***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Husband Formal work	-0.000	-0.000	0.000	0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband Sales and services	0.003	0.003	0.003**	0.004**	0.003*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Husband manual work	0.007***	0.007***	0.007***	0.007***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Country FE	x	x	x	x	x
Observations	249,967	249,992	240,589	240,589	240,589
First-Stage					
Region avg employment	1.029***	0.107***	0.623***	0.576***	0.600***
	(0.008)	(0.012)	(0.006)	(0.011)	(0.008)
Wald-test of exogeneity	17246.56	86.02	11101.06	2592.15	5459.00
Prob >Chi^2	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

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 are available on request.