DOMESTIC VIOLENCE AND WOMEN LABOR MARKET ACCESSIBILITY: THE EMPIRICAL EVIDENCE OF CAMBODIA

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A Thesis Submitted in Partial
Fulfillment of the Requirements for the Degree of
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ABSTRACT

Title of Thesis	DOMESTIC VIOLENCE AND WOMEN LABOR MARKET ACCESSIBILITY: THE EMPIRICAL EVIDENCE OF CAMBODIA
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While there have been empirical support for women to join in labor force market in order to improve gender equality and social economic development, the empirical study of its spillover effect on the household conflict is still not so many observe and ambiguous. The negative effect of household conflict is strongly on the economic development as it pay with high cost of health care as well as future generation in both education and health care. In Cambodia, the rate of domestic violence is dramatically increasing.

Using cross sectional data from DHS of Cambodia 2014. Observation from the raw data is 4, 307, however, the valid data that can be analyze is only 2,723 observations. Firstly, the OLS and binary probit model are used to estimate. To grab the potential of edogeneity problem between DV and Women employment, 2SLS is applied. Test shows that these two variables are endogenous variable. Base on the data experimental testing women currently breast-feeding can be used as an instrumental variable for the women's employment status.

Because endogeneity issue ensue, OLS and Probit estimation is biased and inconsistency. The result of 2SLS is contrast to the previous methodology. That is the women employment in labor market has no effect on the domestic violence. Education's women play crucial role on reduce the incident of domestic violence. Poverty in both household and community level are positively effect on DV. Husband alcohol consumption is robust positive on DV. More additional number of children in household, DV increase by 1.6 % on average, given others variables constant. The evidence also found that the violence transmit from one generation to next generation.

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CHAPTER 1
INTRODUCTION

1.1 Introduction

It had been believed that a countries economic development is measured by income and the policies implemented by the economists had been focused on eliminating the poverty and advancing the share of prosperity. However, this measurement has been criticized by many scholars, for instance, Amartya Sen, a well-known welfare economist and the author of the book of development as freedom. He advocates that development is not only about the expansion of income but also the freedom for all people, particularly, women in which they could be presented in the new opportunities, voice, protection, and labor force participation as well as education attainment. Missing women in the development agenda and gender inequality in which they are discriminated has been significantly impinging on economic growth (Klasen & Lamanna, 2009; Seguino, 2000; Sen, 1999).

Women's accessibility to the labor market is commonly believed as pathway to improve their lives. For this reason, the policy maker has focused on facilitating for women, for instance, the fifth goal of the Sustainable Development Goal (SDGs) is to narrow the gender gap and empowering all women and girls. Indeed, there are a bunch of empirical support for women's employment and economic growth. For instance, Cavalcanti and Tavares, (2007) found that women's access to the labor force has a negative impact on early marriage and childbearing. Women who are employed can also increase their bargaining power within the family in which women are able to invest more on her children's health and education as well as increase capability in saving and credit repayment (Seguino, 2000; Sen, 1987; Stotsky, 2006). Because women play an important role on processing economic development, therefore, women should be treated equally to men and be protected.

Domestic violence is defined as the violence in the family in which the husband is a perpetrator of violence on his wife, and is commonly a phenomenon around the world in both developed and developing countries. It is a major violation of international law on human rights, and also a substantial amount of public health expenditure with sizable economic and social costs (Duvvury, Callan, Carney, & Raghavendra, 2013). Women

that experienced domestic abused suffer extreme depression or anxiety in both physical and psychological abuse. They may become isolated, deteriorated in labor productivity and have loss of income. Family violence also is a significant impact on children's development health and education (Rawlings & Siddique, 2014). According to the report of the World Health Organization in 2013, one third of the women in the world are affected by domestic violence committed by their husband or partner.

History of Cambodia's chronicles during its civil war inherits a country with a culture of violence particularly under the Khmer Rouge regime. Nowadays Cambodian people are still being affected by this violence especially women who are the most vulnerable and are affected in the form of domestic violence. The issue of domestic violence is becoming more serious in Cambodia. Although Cambodia has recognized the issue of violence against women and many policies were implemented to eliminate this violence such as drafting laws against domestic violence in 1992 and the Millennium Development Goal in 2000, the rate of criminal activity against women in Cambodia remains high. According the Demographic and Health Survey in the year 2000, more than one fifth of women who ever married has witnessed spousal violence since age 15 and over 15 percent of women have faced violence in the year before the survey (National Institute of Statistics, Directorate General for Health [Cambodia], & ORC Macro, Cambodia Demographic Health Survey 2000, 2001). Table 1 shows the summary data of Cambodia domestic violence from the year 2000 to 2014. From year 2000 to 2005, the rate of domestic violence has not decreased much with only 3 % for any kind of violence (See table 1: column 5). This means that the policies of the government have not significantly affected it. However, it might be because of its initial data collection was biased as it is not customary for women in Cambodia to report their household violence. By 2005, Cambodia law of preventing women and victims from violence has been looked at as well as The First National Action Plan to Prevent Violence against Women in 2009-2012 was approved. Yet, the percentage of women that are being abused by their own partners has seemingly not dropped in all kinds of violence. Instead, the physical violence has increased by 3 % approximately (see table 1). In addition, according to the report of Cambodia Demographic and Health Survey (CDHS) in 2014 stated that domestic abuse had become more hazardous in which

among those with sexual or physical violence, one in two women were reporting that they were injured.

Table 1 Summary data of Cambodia domestic violence

Survey	Sexual violence	Emotional violence	Physical violence	Sexual or emotional or Physical violence
CDHS 2000	4%	17.80%	16%	25%
CDHS 2005	3%	18.50%	13.70%	22.30%
CDHS 2014	6%	24.80%	16.20%	28%

Source: Cambodia Demographic and Health Survey

The research on this topic in the context of Cambodia, there are few empirical studies on the determinants of domestic violence. For instance, Yount and Carrera (2006) use the data from Demographic and Health Survey 2000, focusing on the marital resources; wealth, household's number of children, and women's education. Based on their result, domestic violence is more likely happening in households with lower marital resources. Another study of Eng, Li, Mulsow and Fischer (2010) employs Cambodian Demographic Health survey 2005 by concentrating on the marital relationship which is husband's control behavior, and frequency of spousal discussion. In their result, both factors are positive correlation to the physical and emotional violence.

There are few studies on domestic violence in the context of Cambodia. Instead, the research on the causality effect between women's participation in the labor market and domestic violence has not been studied yet. According to theory and empirical literature, the prediction of women's employment effects on domestic violence is mixed. Household bargaining model predicts that women with lower economic resources are more likely to be abused by their husband or partner (Farmer & Tiefenthaler, 1997; Lundberg & Pollak, 1994; McElroy, 1990; Tauchen, Witte, & Long, 1991). In contrast, Macmillan and Gartner (1999) found that women are more likely being abused if her status is higher than her partner. This is happening in the patriarchal society where the male has the highest role in the family and he would use violence to take his authority back if he felt that his role is harmed. Similarly, males might use violence as an instrument to extract the monetary benefits from his wife when she became more financially independent (Bloch & Rao, 2002).

In another context, domestic violence might affect the women's employment status to desire to work or not as the outcome of spousal violence. In this case women who report that they have experienced domestic violence might become less productive as her normal activities were interrupted by the perpetrator (Canavire-bacarreza & Avila, 2010; Tolman & Wang, 2005). In contrast, domestic violence might induce women to go out for jobs in the sense that she might need to stay far from her abusive husband (Bhattacharya, 2015).

Because there's a causality between women's employment status and domestic violence, the potential of endogeneity issue must be addressed. In this study, firstly, the estimation methodology is based on ordinary least square (OLS) and binary probit model, without taking account for the issue of endogeneity. Next, using the variable of women currently breast-feeding as an instrumental variable for women's employment status, the Hausman test for endogeneity confirms that these two variables are endogenous variables. It means that the result in previous methodology is biased and inconsistent. To grab this issue, the two stage least square estimation is used. The estimation with unbiased and consistency of instrumental variable found differ from the OLS and binary probit result.

1.2 Objective

- To identify the factors that associated to domestic violence.
- To investigate the link between women's labor force participation and domestic violence.

1.3 Significance of the Study

This research study on determinants of domestic violence can be used as a policy instruction for policy makers to tackle the household violence issue. Another contribution of this study is to provide the empirical evidence of domestic violence in the case of Cambodia in terms of economics ideology.

1.4 Scope of the Study

In this thesis, cross sectional data Cambodia Demographic and Health Survey (CDHS) 2014 is used to analyze which is the most recent and updated questionnaire in the series of CDHS.

CHAPTER 2
LITERATURES REVIEW

2.1 Domestic Violence and Status of Women's Employment

Existing research on domestic violence, in terms of economic ideology, is mostly grounded on the household bargaining model. For instance, Farmer and Tiefenthaler (1997), use a non-cooperative bargaining model to analyze the impact of women empowerment on domestic violence. The daily consumption of women, in this model, is assumed that she is depending on her partner for support. The level of violence is based on the monetary transfer from men to women as men might use this financial support to buy her with violence. The women who are empowered, whether by her own earning income or any funds supported from outside the marriage, spousal violence will be decreased. Tauchen, Witte, and Long (1991) developed Nash-bargaining model that explain the effect of income change on domestic violence. In their model, both partners have a level of the threat-point which is the minimum level of welfare that each spouse should provide to each other in the relationship. Given a specific amount of financial transfers from her partner, the level of threat-point of women determines the level of violence that is acceptable for her to maintain the relationship intact. The model predicts that the level of violence will be increased when men's income increases as he can transfer more money to his wife. However, the level of violence will be decreased when women's income increases as her level of her thread-point increase which constrains the male's violent behavior.

Although the game theoretical model suggests that there is unambiguous of the negative effect of women employment on the risk of household violence, the empirical research on this relationship of these two variables is unclear. Aizer (2010) examines the effect of the wage inequality between men and women on violence in the case of the United States. The result shows that when the relative wage of women and men is narrowing, the rate of intimate partner violence against women deteriorates. Similarly, Dugan, Nagin, & Rosenfeld (1999) found that when both spouses are employed, their time that they spent together reduced the risk of violence, causing it to decline. Chin (2011) provides the empirical result that support to the household bargaining model in

the case of India in which the result found that increasing women's employment is significantly reducing the incidence of family violence.

In contrast, women empowerment may induce the incidence of household violence in the patriarchal society. The patriarchy; where men are prominent in the relationship, men authorize over women and children as well as household property (Macmillan & Gartner, 1999). The cultural norm where it prescribes that the male is dominant and female dependence is challenged when women become higher role in the family as her empowerment increased through her employment. The male might inflict violence to restore his authority over his wife when he feels that his status is less predominant. The prediction of this patriarchal society is criticized as it ignores the rationality response to the violence of women. She may end her relationship with her abusive husband as her bargaining power is increased (Aizer, 2010). However, in the society where divorce is costly for women, divorce is not credible for her except in an extreme case of violence. For instance, women might have disapproved or been discriminated against by society(Luke & Munshi, 2011; Srinivasan & Bedi, 2007). In this case, the empirical evidence, women with higher financial independence, income or credit group membership, are much more likely a higher risk of domestic violence (Koenig, M, Ahmed, Hossain, M, & Khorshed, A, 2003; Luke & Munshi, 2011).

Similarly, but in another context, violence against women may increase, as the result of her financial resources increase. In this case, men may use violence as an instrument to extract a monetary benefit from the women. In India, Bloch and Rao (2002) provides the empirical evidence on the extractive effect. The study found that women from rich households have higher risk of domestic violence than women from poor households, as less extraction in the lower household resources. In addition, it is possible that working women would face more violence than non-working women do, because the male partner may become more aware as his wife goes to work outside the home as she would have contact with other men. Eswaran and Malhotra (2011) found the evidence from India that the women who work for family or self-employed have less probability of domestic violence when compared to women who work for others.

Heath's (2014) study of the female labor force participation and domestic violence in case of Bangladesh. The empirical result of this developing country where most of the women work in garment factory found that there is positive correlation between

women's employment and domestic violence which is opposite with the incorporative bargaining model. However, this result is confirmed only in the case of women with initially low status. By using the interactive term between women's education and work as well as income, this study found that the incidence of violence tends to increase for women who work in garment industry with low education and income.

Most of the studies on domestic violence and women's employment ignore the problem of endogeneity (Macmillan & Gartner, 1999; Farmer & Tiefenthaler, 1997). There might be unobservable variable that are correlated with both the economic status of women and domestic violence due to the women's employment is endogenous variable in which it is the choice that is made by a woman or the household as the result of abuse. There are only recently empirical studies that account for the issue of endogeneity between women's employment and domestic violence, they are from India Alonso-Borrego & Carrasco (2017) and Chin (2012) in Spain and India respectively. Removing the suffer from endogeneity, both use difference technique, Alonso-Borrego & Carrasco (2017) employ the multivariate probit model while Chin (2012) use Two Stage Least Square. However, these empirical results in both cases are the same in which they found that increased employment opportunities to women significantly reduce the incidence of domestic violence. However, the result of Alonso-Borrego & Carrasco (2017) further found that there is no evidence support for the negative effect of women's employment on the risk of domestic violence when she is employed alone in her family. It is significant only when both spouses are employed and domestic violence is become more likely to happen when there is only the husband working in the family. Similarly, Bhattacharyya, Bedi and Chhachhi (2009) found that women employment has a strongly negative effect on the household violence from North Indian village, when controlling for endogeneity problem. In contrast, another study of Lenze and Klasen (2017) found that there is no link between women working in labor market and physical violence or emotional violence, after controlling the endogeneity issue.

2.2 Individual and Household Characteristics

Education: this variable includes wife and husband education which are used as a control variable to study the determinants of domestic violence. Based on the empirical evidence of the association between domestic violence and both wife's and husband's

education attainment are mixed. Clark et al. (2008) found that both men and women education were not associated with both physical and sexual violence. In contrast, Eswaran & Malhotra (2011) and Alonso-Borrego & Carrasco (2017) found that both women and men education have a strongly significant negative effect on domestic violence for their research in India and Spain, respectively. Also, Heath (2014) found evidence from Bangladesh that women's education has a negative impact to domestic violence, but only for women whose level of education is high.

Intergenerational violence: violence may transmit from one generation to another generation through their parent's behavior. Children may act or become positive perception on domestic violence. Pollak (2004) introduce the game theoretical model that explains the probability of violence transfer from one generation to the next generation. There are 3 possibilities that draw from this model: (1) husband who grew up in a violent family will be a violent person, (2) wife who grew up in a violent family will remain with an abusive husband, and (3) person who grew up in a violent family are more likely to marry a person who grew up in a violent family. For the empirical study, Hindin, Kishor and Ansara (2008) study on the determinant of domestic violence by including the variable of a women's family violence history. Their study found that women whose father ever beat her mother are more likely being beaten by her current husband. This study also suggests that a woman who has a violent background are more likely accepting the violence. Bowlus and Seitz (2006) provide the empirical evidence of intergenerational intimate partner violence in Canada in which husbands who have a violent background are a strongly positive significance on domestic violence while females with background of violence are less likely statistical significance.

Wealth index: Wealth index is widely used to proxy for the income of the household in DHS data analysis. A recent study in Spain by Alonso-borrego and Carrasco (2017) found that income of household does not significantly decrease the incidence of violence. The analytical studies on domestic violence in 10 countries which published by DHS analytical report in 2008 found that households within the higher quintiles of wealth, the incidence of violence is less likely happened in 3 countries: Bolivia, Moldova and Zimbabwe. In contrast, for Haiti case, the violence tends to occur in the higher household quintile while the rest 6 countries are less likely significance (Hindin, Kishor, & Ansara, 2008).

2.3 Other Key Characteristics

There are many other factor variables that cause affect to domestic violence such as alcohol consumption, age of wife and husband, age of women at marriage, women beat husband first, religion, number of children, urban, and husband occupation, acceptance of domestic violence (Heath, 2014; Eswaran & Malhotra, 2011; Hindin, Kishor, & Ansara, 2008). From the study of Hindin et al. (2008) found that alcohol consumption of husband or partner is positively significant predictor of domestic violence. Another important variable is attitudes toward violence justification (Canavire-bacarreza & Avila, 2010). In developing countries, even the law of domestic violence is booked; the enforcement might not be applicable where violence is culturally accepted. Likewise, the incidence of domestic violence is also spread according to the residential location as well as regional poverty status(Alonso-borrego & Carrasco, 2017; Eswaran & Malhotra, 2011; Hindin et al., 2008; Sherman et al., 1991).

2.4 Conceptual Framework

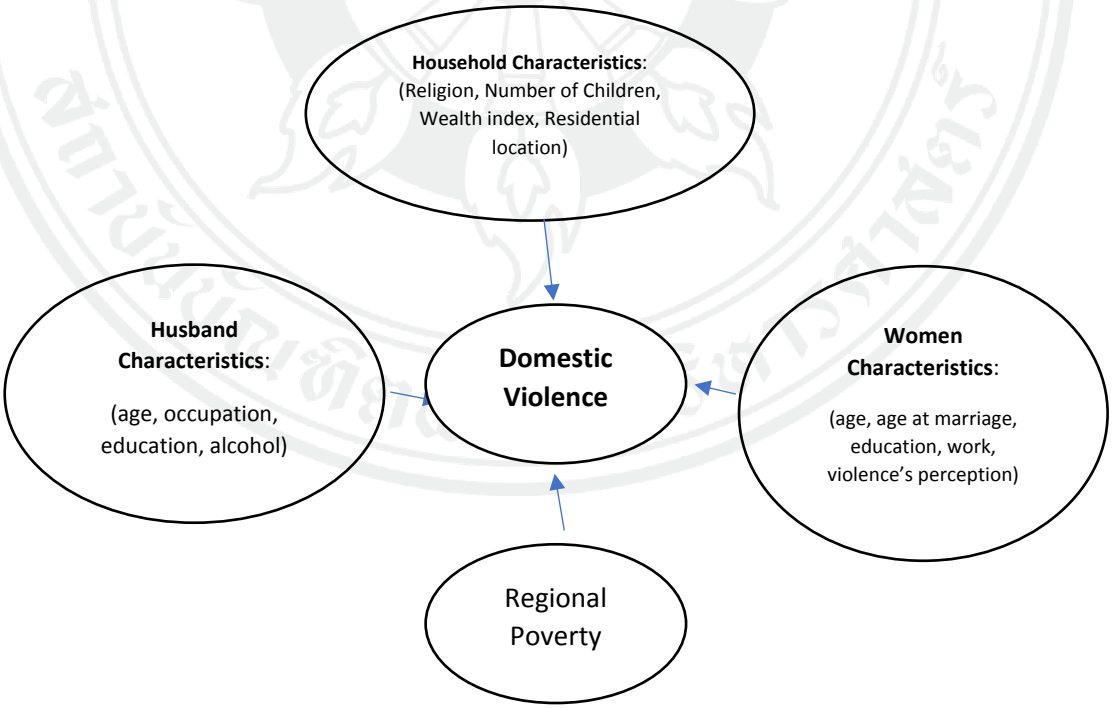

Figure 1 conceptual framework

Source: Author

CHAPTER 3
METHODOLOGY

3.1 Data

This study draws from the latest data series of Cambodia Demographic and Health Survey (CDHS) 2014. This cross-sectional data is divided into a 4 group questionnaire; household, men, women and micronutrient questionnaire. These questionnaires are based on the worldwide Demographic and Health Survey (DHS). CDHS 2014 is nationally representative data in which the sample was selected from 19 out of 24 provinces and cities of Cambodia. This survey is specifically on women whose ages range from 15 to 49-years-old. It is also included the module of crucial used for this analysis such as domestic violence. The sample size of women's response on domestic violence is 4,307. However, there are only 2,723 of women that have full information on the variable of domestic violence for the model of determinants of domestic violence.

In section of the women's questionnaire, domestic violence in which the male is the perpetrator is divided into 3 kinds of violence; physical violence (severe violence and less severe violence), emotional violence, and sexual violence. The definition of these kinds of violence is provided in the appendix. They are dummy variable which are assigned as 1 for women who reported they ever experienced a violent act and 0 for otherwise. Based on these kinds of violence, the variable of overall domestic violence is constructed. The aggregate of domestic violence consists of two variables: any violence which is dummy variable, assigned as 1 for whom reported they ever experienced in any form of violence; and violence index which is continuous variable constructed by the average of violence. Because variable of violence index is continuous dependent variables, thus two-stage least square (2SLS) is applicable to do the regression analysis.

3.2 Model Specification

From the literature review, the variables that determine domestic violence were grouped as women's characteristics, husband's characteristics, household's characteristics as well as controlled by regions. Thus, the model of Domestic violence can be built as:

$$DV = \beta_0 + \beta_1 Women's\ employment\ status + \beta_2 Wife's\ characteristics + \beta_3 Husband's\ characterstics + \beta_4 HH's\ Characteristics + \beta_5 Regions + \varepsilon_i \quad (1)$$

Where the dependent variable,DV, is the domestic violence. Dependence variable is violence index for the case of 2SLS and OLS. However, domestic violence in this equation (1) can be dummy variable of domestic violence which is analyzed by Binary Probit model. The key important is independent variable of women's employment status. This model also includes other control variables such as wife characteristic (age, education, age at marriage, her perceptions on domestic violence, and intergenerational violence), husband's characteristics (age, education, occupation, and alcohol consumption), household characteristic (wealth index, resident's rural, number of children, religion) and the regions. Because different provinces have different socio-economics characteristics, law of domestic violence may have differences applicable through poverty characteristic of each regions. The variable of region is constructed based on the report of Asian Development Bank (2014) on the community poverty rate of each province (see the appendix). The province that has similar percentage of community poverty was grouped in one region. It divided into 4 regions. The first region is Phnom Penh, the capital city which is the lowest rate of poverty and serves as the reference.

Because there are two types of dependent variable: discrete and continuous dependent variable, ordinary least square (OLS) and binary probit model are used to estimate. However, the key concerned here in this regression, women's employment status might be the endogenous independent variable. Thus, the method of ordinary least square (OLS) and binary probit model leads to bias and inconsistency estimation as a consequence of correlation between the error term ε_i and explanatory variable *women's employment status*. In this case, two stages least square (2SLS) can be used for tackling this problem.

The sources of endogeneity can be happened in three cased; measurement error, simultaneity and omitted variable (Wooldridge, 2015). In this model, simultaneous causality and omitted variable are the sources of endogeneity problem. For instance,

women's working status, whether they work or not, might be the affected by health concerned as a result of husband beating. The empirical study of the effect of domestic violence on her currently working status is a mismatch. One empirical evidence of the impact of family violence on women's working status in India by Bhattacharya (2015) found that working status of women who ever experienced husband beating are more likely being employed in the whole year, given control for endogeneity problem. In contrast, Canavire Bacarreza & Avila (2010), given control for endogeneity problem, for Bolivia case, found that women currently working are strongly and significantly affected negatively by domestic violence. Similarly, Farmer & Tiefendthaler (2004) found that domestic violence has a significant effect on women's employment in case of America. In addition, Tolman & Wang (2005) also found that spousal violence affected women's annual work hours in Michigan State.

An omitted variable that leads to endogenous for both women's employment status and family violence is social norm. For instance, women might traditionally believe that they should work only in domestic work. Domestic violence is an action that society accepted where men commit violence without any feelings of guilt. Thus, both variables may be determined by the omitted variable, traditionalism.

To account for the endogeneity issue through simultaneous effect and omitted variable, two stage least square methods are implemented. The first stage of this method is defined by:

$$women's\ employment\ status = \Pi_0 + \Pi_1 Z_1 + \Pi_0 Z_2 + \nu_i \qquad (2)$$

This first stage is the regression between the women's employment and the instrumental variable Z_1 and control variable Z_2 which is overlapped in the equation (1). This first stage is estimated by using ordinary least square (OLS). The second stage estimate the interesting dependent variable of domestic violence on the instrumental variable of women's accessibility to labor market, and other exogenous variables same as the first stage. The reduced form of this equation can be written as:

$$\begin{aligned} DV = \beta_0 + \beta_1 Women's\ employment\ status^* + \beta_2 Wife's\ characteristics \\ + \beta_3 Husband's\ characterstics + \beta_4 HH's\ Characteristics \\ + \beta_5 Regions + \beta_1 \nu_i + \varepsilon_i \qquad (3) \end{aligned}$$

The procedure of two stage least square needs to find out the instrumental variable (IV) Z_1 that appropriate for the endogenous variable women's employment status. The instrumental variable estimator must be fulfilled with two conditions. First, it must be highly correlated with the endogenous variable. Second, it must be uncorrelated with the error term. Under these two conditions, the estimation of IV will be unbiased and consistency (Wooldridge, 2015). Many previous literatures in the context of domestic violence and women's working status, the instrumental variable like the cluster average of women's working status, number of household members or type of family were used as an instrumental variable for women's employment status (Jana & Klasen, 2017; Bhattacharyya, Chhachhi, & Bedi, 2009). However, based on the data experimental testing, the validation of instrumental variable in case of Cambodia is women that are currently breast-feeding.

3.3 Descriptive Statistic

Domestic violence divided into three groups: physical, sexual and emotional violence. Violence was measured by asking among women who ever married whether she ever experienced any violent act from her husband/ partner or not. It is assigned as 1 if she response yes and 0 if she answers no. Violence index is another variable that constructed by the average of all kind of violence. For physical violence, it is divided to two kinds of violence: less severe violence and severe violence (see the appendix).

Table 2 Summary of domestic violence as dependent variables

Variable	Mean	Std. Dev.
Severe violence	0.047	0.211
Less severe violence	0.111	0.344
Sexual violence	0.037	0.189
Emotional violence	0.189	0.391
Any violence	0.222	0.416
Violence index	0.096	0.209

Number of observations: Domestic violence: 2,723
Source: Own calculation from CDSH, 2014

Table 2 shows the summary data of domestic violence: severe violence, less severe violence, emotional violence, sexual violence, any violence and violence index. According to the table 2, among all kinds of violence in Cambodia, the incidence of emotional violence is highest compare to other kinds of violence with 18.9 % of women

who reported that they ever experienced with this kind of abused by her husband. Less severe violence is the second highest of the prevalence of violence in Cambodia which is 11.1 % of women who has been reported as a victim of violence. The incident of severe violence and sexual violence is not much difference with only 4.7% and 3.7%, respectively. However, the data of sexual violence might be imprecise with lower estimation as Cambodia culture is not familiarly open with this problem (National Institute of Statistics, Directorate General for Health, & ICF Internationa, 2015). Overall, the rate of violence in any kind is 22.2 % in which women in Cambodia reported that they were being abused whether in form of sexual violence, physical violence, or emotional violence.

3.3.1 Women's Employment Status and Domestic Violence

Table 3 the prevalence of domestic violence by women's employment status

	Women employed =1	Otherwise = 0
Severe violence	4.51 %	5.46 %
Less severe violence	11.63 %	13.03 %
Emotional violence	15.91 %	21.42 %
Sexual violence	3.33 %	4.19 %
Any violence	19.00%	25.20%

Number of observations: Domestic violence: 2,723
Source: Own calculation from CDSH, 2014

Table 3 shows the prevalence of domestic violence by the employment status. The women who join the labor market is defined as working outside home, income in cash, and whole year working. It is assigned as 1 for women who join the labor market and 0 for women who working as domestic work or self-employed. The variation of violence by status of women working is not much difference except the emotional violence which is only 15.91% of total women who join the labor market compare with 21.42% of women who do not join the labor market. In aggregate of domestic violence, the women who do not participate in the labor market are more likely being abused as its rate of violence is higher than women who participate in the labor market.

3.3.2 Independent Variables

Table 4 describes the independent variables which are divided into four main groups of variables: women characteristic, husband characteristic, household characteristics and regional characteristic. For women characteristic, the age gap between husband and wife is a continuous variable. For women's education, there are

13.8% of total women sample size is uneducated and there are only 2.9 % of women who have a high school or higher education. Among all women in this sample, women with primary education are account for half of the sample size follow by women with secondary education with 30.3 %. For women's employment, only 14.7 % of total women are employed in the labor market which shows that the employment rate for women is quite low in the formal sector. The perception of women on violence in the home is constructed as the means of which women were asked how she would react if her husband committed any act of violence. This perception is measured by the attitude of women toward violence whether she accepted the husband's violence or not, if she went out without telling, neglects the children, argues with him or refuses to have sex with him (see appendix A).

The women's perception in which they accepted domestic violence is quite high 28.2%. This model also includes age of women at her marriage. The variable of intergenerational violence which is the family background of women's domestic violence is whether her father had ever beaten her mother or not. This variable is capture the long runs of domestic violence as it may be transmitted from one generation to the next generation. Among all women in this sample state that 1 in 5 women approximately, were reported that her father had ever beaten her mother.

For husband's characteristics which include husband's years of education which vary from 0 to 20 years of education with means 6.31 years, husband occupation which half of husbands are working at agricultural site, and husband's alcohol consumption which is about 86% of total men consume alcohol. This shows that Cambodia is very high level of alcohol consumption. For household characteristics, Cambodian people believe in Buddhist for almost 95 %, the number of children in the family which is on average each household has about 2.4 children, the quintile of wealth of each household which divided to 5 quintiles and the variation of these data is approximately 20 % in each quintile, the rural which is account for 77 % are living in rural area, and the regional poverty which is Phnom Penh capital city is the reference as its lowest level of poverty rate.

Table 4 Summary of Independent Variables and Instrumental variable

Variables	Mean	Std. Dev.	Min	Max
Women Characteristics				
Women's education				
No education (reference)	0.1369	0.3414	0	1
Primary	0.5388	0.4991	0	1
secondary	0.3059	0.4587	0	1
higher	0.0282	0.1690	0	1
Women employed	0.1465	0.354	0	1
Women's perception	0.2796	0.3225	0	1
Women's age at marriage	19.97	4.2818	10	45
Integrational violence	0.1744	0.3856	0	1
Spouse's age difference	4.0777	5.004	-19	33
Husband Characteristics				
Husband's years of schooling	6.364	4.2539	0	20
Husband agriculture = 1	0.4987	0.5000	0	1
Alcohol	0.8604	0.3485	0	1
Household characteristics				
Religion	0.9474	0.2273	0	1
Number of Children	2.3925	1.6102	0	9
Poorest (reference)	0.1876	0.4015	0	1
poor	0.1976	0.4037	0	1
middle	0.1773	0.3779	0	1
rich	0.1905	0.3949	0	1
richest	0.2464	0.4220	0	1
Rural	0.7477	0.4272	0	1
Regions				
Phnom Penh (reference)	0.0576	0.2321	0	1
Region 1	0.2533	0.4342	0	1
Region 2	0.4652	0.4988	0	1
Region 3	0.1759	0.3805	0	1
Instrumental variable				
Women currently breast-feeding	0.1939	0.3951	0	1

Number of observation: 2,723.

Source: Own calculation from CDSH, 2014

3.3.3 Instrumental Variables

Base on table 4, about 20% of total sample of women are currently breast-feeding. It may have strong correlation with women currently working outside home as she might need time to stay at home to take care of her newborn. The thing that we must consider is women who are experiencing domestic violence may be affected by the

women currently breast-feeding which lead to model mispecification (Gujarati, 2014). However, in term of data validity testing, *F-test* of first stage regression is used for testing the strength of instrumental variable. According to Gujarati (2014), when the value of *F-statistic* is greater than 10, that means reject the null-hypothesis of weak instrumental variable. The result of testing found that the value of the *F-statistics* of jointly significance in the first stage is greater than the critical value. It shows that the null-hypothesis testing of week instrumental variable is rejected (see table: 5). Hence, the instrumental variable is fulfilled with data empirical testing.

CHAPTER 4
RESULT

4.1 Ordinary Least Square (OLS) and Marginal Effect of Probit Model

Table 5 presents the regression result of equation (1) by using ordinary least square and the marginal effect of probit model. The regressions estimate for the probability of the aggregate domestic violence in different kind of violence such violence index and any violence. Following the earlier sections of literature reviews, the influencing of women's working status on the incidence of domestic violence is the main point of discussion issue. For the other variables, the test of their validity of model specification have been done in the previously studies on domestic violence (Flake, 2005; Jejeebhoy, 1998; Panda & Agarwal, 2005; Rao, 1997).

The result of estimation in table 5 shows the effect of women who work in labor market on the aggregated domestic violence without considering the issue of endogeneity. Base on the OLS result from regression 1, on average, women who joint labor market has lower incident of being abused by 1.01 compare to women who do not working in labor market, given the other variables constant. However, the result does not have statistical significance. The second column which estimated by using the marginal effect of probit model, the coefficient of women's working status reports that the probability of women who work outside home being abused by her husband is less than women who working inside household, statistically significant at the 5 percent significance level, holding other variable unchanged. This result supports the models of household bargaining and other empirical studies in which increasing women bargaining power will negative impact on the level of household conflict (Alonso-Borrego & Carrasco, 2017; Tauchen, Witte, & Long, 1991; Jana & Klasen, 2017; Lundberg & Pollak, 1994).

For women's characteristics, the coefficient of women and husband age gap variable has negative sign in both regression 1 and 2, meaning that when the variable of age difference between spouses increases, the prevalent of household violence decrease. However, it is not statistically significant. Positive association on domestic violence but all of husband's age coefficients are insignificant in statistical meaning.

Table 5 Result of OLS and marginal effect of aggregate domestic violence

Dep: Domestic violence	(1)	(2)
	Violence index	Any violence
Women's employed	-0.011	-0.039**
	(0.263)	*(0.03)*
spouse age difference	-0.001	-0.003
	(0.137)	*(0.110)*
Women Education (reference: no education)		
Primary	-0.034**	-0.025
	(0.027)	*(0.280)*
Secondary	-0.058***	-0.087***
	(0.000)	*(0.001)*
Higher	-0.037	-0.085
	(0.140)	*(0.100)*
Women perception	0.019	0.057**
	(0.132)	*(0.020)*
Women age at marriage	-0.001	-0.002
	(0.485)	*(0.430)*
Women violence background	0.085***	0.170***
	(0.000)	*(0.000)*
Husband years of schooling	-0.004***	-0.010***
	(0.001)	*(0.000)*
Husband occupation: agriculture = 1	-0.022**	-0.015
	(0.027)	*(0.426)*
Husband Alcohol consumption	0.051***	0.102***
	(0.000)	*(0.000)*
Religion: Budish =1	0.038**	0.080***
	(0.030)	*(0.006)*
Number of Children	0.016***	0.027***
	(0.000)	*(0.000)*
Wealth index (reference: poorest)		
Poor	-0.015	-0.001
	(0.291)	*(0.976)*
Middle	-0.025	-0.017
	(0.080)	*(0.506)*
Rich	-0.023	0.000
	(0.135)	*(0.996)*
Richest	-0.045***	-0.025
	(0.006)	*(0.431)*
Rural	-0.012	-0.021
	(0.268)	*(0.416)*

Regions (reference: Phnom Penh)		
Province 1	0.023	0.040
	(0.084)	*(0.221)*
Province 2	0.001	-0.004
	(0.940)	*(0.896)*
Province 3	0.018	0.044
	(0.211)	*(0.217)*
Constant	0.075	
	(0.063)	
R^2	*0.093*	

Number of observation: 2723,

*The parenthesis is P-value. **, *** denote for statistical significance at the 5% and 1% level, respectively,*

Source: Author

Based on the regression 1 and 2, for women, age at marriage seems to have positive relationship with family violence, however, there is no evidence to support this in term of statistical significance. In contrast, the intergenerational violence is a strongly positive significant on domestic violence and it is robust with all regressions. This means that in Cambodia, the behavior of violence continues to affect each new generation. The link of this may be the result of women perspective in domestic violence acceptable in the society (Hindin, Kishor, & Ansara, 2008). Wife and husband education are negatively statistically significant on domestic violence. Husbands whose education increases by one year can reduce the violence by 0.04%, holding everything else constant (regression 1). Husband occupation in agriculture, however, seems to use less violence on his wife compare to men who work in other fields in both regressions is significant at 5 percent significance level. For the variable of husband alcohol consumption, it is strongly positive on domestic violence with statistical significant. The men who drink alcohol are more likely to be violent than men who do not.

For household characteristics, number of children is a robust positive in the relationship to domestic violence, according both regression 1 and 2. Furthermore, households that believe in Buddhist religion tends to have higher incident of domestic violence than other religions. The coefficients of wealth index are negative and statistically significant while the households located in rural areas is less likely to have incidents of domestic violence compare to the urban. For the control variable of regions

with higher poverty rate has positive correlation with domestic violence but less evidence supports in term of statistical significant.

To analyze in depth whether the significance of coefficients change across to the type of domestic violence, the regression in table 5 of the appendix B shows the probability of women who ever experience domestic violence in severe violence, less severe violence, emotional violence, and sexual violence. Likewise, the aggregate domestic violence result, the results in these various kinds of violence are found similar regarding the sign and the magnitude of coefficients to the regression 1 and 2 of the aggregate domestic violence. For instance, the perception of women on domestic violence is positively significance effect on domestic violence, specifically emotional violence. However, there is lack of statistically significant of women joining labor market for all kinds of domestic violence. The coefficient of husband's agricultural occupation is negatively significance in the severe and less severe violence which is contrast with the overall regression in model 1 and 2. However, all results here have not accounted for the possibility of endogeneity issue of women's working status which lead the result to be biased and inconsistent. Thus, the result of two stages least square is discuss in the next section.

4.2 Instrumental Variable Estimation

To test for whether the endogeneity issue exists between domestic violence and women's working status, Durbin-Wu-Hausman is applied. As expected, the result is found that the null-hypothesis of exogenous variable is rejected in both model specifications (see the appendix for the result of Huasman test for exogenous variable). It implies that domestic violence and women's working status in labor market are endogenous variables. Thus, in this case, the result of econometric analysis by using two stages least square is applicable with unbiased and consistency. Table 5 shows the result of instrumental variable (IV) or two stage least square estimation. This table provides 2 model specifications. Women's perception on domestic violence is excluded in model 2 because this indicator is based on the attitudes towards domestic violence which may not consistence in data collection according to CDHS 2014. This table also includes the first stage result with the *F-test* of weak instrumental variable hypothesis.

The instrumental variable “currently breast-feeding” is expected to have an impact on women accessibility to labor market with statistical significant as well as it must be a strong instrumental variable but it is not affect to the domestic violence directly. Women who are currently breast-feeding, they may need some time off to take care of her infant, thus the effect to the labor market participation directly. At the bottom of table 5 shows the result of the first stage of the instrumental variable estimation. As the expected result, the instrumental variable currently breast-feeding is strongly negative significant at 1 percent statistical significance. The *F-test* of first stage of jointly significant hypothesis equal to 16, approximately, which is greater than the threshold of accepting the null-hypothesis of weak instrumental variable. Thus, the variable of currently breast-feeding is valid for instrumental use for the women’s accessibility to labor market.

The result of second stage found that the coefficient of women who are employed in the labor market is positive. It means that the incident of household violence of women who work outside home is higher than women who work in domestic work. However, it is less statistical significance in both model specifications which contrast to the previous result. This result is inconsistence with the bargaining model (Farmer & Tiefenthaler, 1997; Lundberg & Pollak, 1994; McElroy, 1990). This result is similar to the study of Heath (2014) in the case of Banglasdesh. According to Heath (2014), women who participate in labor force are more likely being abused than women who working at home when her initial bargaining is too low. In the context of Cambodia where most of women who work in paid work are in unskill labor for instance garment factory. Their bargaining within the household would be too low as they work based on low skill labor as well as low wage (International Labour Organization, 2016). Another support idea of this result may because of the partrichy society in Cambodia where people perception is women will always be in a lower position than men (The Cambodian Committee of Women, 2007). When women financially increase their capability of their role in the family, men might use violence as an instrumental to take his authority back (Macmillan & Gartner, 1999). This result is consistent with the study of Lenze and Klasen (2017) which the employment of women is inconclusive on the domestic violence.

Wife education has a strongly negative significant effect on domestic violence. For women with primary education, the sign of coefficient is negative and significant at 1 percent statistical significance. That is, the women who finish primary school have experienced less violence by 5.2%, on average, holding other variables constant, than women who are uneducated. According to the magnitude of coefficients of level women's education, the incidence of domestic violence is becoming lower when her education is higher. This result contradicts to the previous study of Eng et al., (2010) in case of Cambodia which state that women's education has no effect on the domestic violence. In contrast, both models find there is no evident support for men's education effect on domestic violence.

The age of women at marriage seems to be negative effect to domestic violence which increasing age of women at marriage will lead to decrease the violence family. This is, however, not statistical significant in both model specifications. For the variable of spouse age difference, more narrowing age gap between spouses, the incidence of household violence is more likely to occur, but these variables are not significant.

For women's perception on domestic violence which is included in the model of specification 1, its coefficient is positive sign in which one percentage increase of women tolerance toward domestic violence will increase family violence by 1.7 percentage on average, ceteris paribus, but less statistical significant in this case. For the variable of intergenerational violence which women with violent family background is strongly positive significant at 1 percent statistical significance. Meaning that for women whose father ever beat her mother tend be experienced violence in her current relationship. This result is support for one of prediction of game theoretical of intergenerational violence of Pollak (2004).

Comparing among men who work in agriculture and other occupation, men's agricultural occupation is more likely use violence in family than men's working in other fields, however, there is no evidence in term of statistical significance which is inconsistency with the previous method. In contrast, the alcohol consumption of men is strongly positive significant at 1 percent statistical significance, that is the probability of beating wife of husband who consumes alcohol is higher than men who do not consume alcohol by 2.7%, holding other variables constant. It shows that men who do consume alcohol, their behavior might change and are easier to use violence than men

who do not consume alcohol. This evidence is confirmed with many previous studies such as (Hindin et al., 2008).

Table 6 Instrumental Variable (IV) Estimation for index of domestic violence

Dep: *Violence index*	Model 1		Model 2	
Independent Variable	Coef.	*P-value*	Coef.	*P-value*
Women's employed	0.445	*0.064*	0.457	*0.059*
spouse age difference	0.000	*0.790*	0.000	*0.778*
Women Education (no education)				
Primary	-0.052***	*0.004*	-0.052***	*0.004*
Secondary	-0.084***	*0.000*	-0.086***	*0.000*
Higher	-0.227**	*0.033*	-0.235**	*0.028*
Women perception on DV	0.017	*0.273*		
Women age at marriage	-0.001	*0.546*	-0.001	*0.569*
Women violence background	0.081***	*0.000*	0.082***	*0.000*
Husband years of schooling	-0.003	*0.059*	-0.003	*0.057*
Husband occupation: agriculture = 1	0.017	*0.480*	0.018	*0.456*
Husband Alcohol consumption	0.027	*0.154*	0.027	*0.166*
Religion Budish =1	0.057**	*0.021*	0.058**	*0.022*
Number of Children	0.025***	*0.000*	0.026***	*0.000*
Wealth index (Poorest)				
Poor	-0.023	*0.150*	-0.024	*0.145*
Middle	-0.042**	*0.026*	-0.043**	*0.025*
Rich	-0.050**	*0.026*	-0.051**	*0.025*
Richest	-0.040	*0.052*	-0.041	*0.050*
Rural	0.006	*0.730*	0.007	*0.709*
Regions (Phnom Penh)				
Province 1	0.020	*0.279*	0.021	*0.252*
Province 2	0.018	*0.348*	0.019	*0.334*
Province 3	0.073**	*0.037*	0.076**	*0.031*
Constant	-0.042	*0.580*	-0.042	*0.590*
IV result of the first stage				
Women employed				
Women currently breast-feeding	-0.051***	*0.002*	-0.051***	*0.002*
F-test of Jointly Significant	16.01	*0.000*	16.84	*0.000*

*Number of observation: 2723, **, *** denote for statistical significance at the 5% and 1% level, respectively. For the full first stage result provided on the appendix table 5 and table 6. Source: Author*

For household characteristics, among households who are believe in Buddhism and other religions, the incidence of domestic violence tends to happen in Buddhist believers more than the other religions. Base on the coefficient of both models, the statistic shows that the prevalence of domestic violence of Buddhist religions is 5.8 % higher than other religions at 5 percent statistical significance, given other variables constant. Another important variable of household characteristic such as number of children in family is statistically significance at 1 percent statistical significance. This can be interpreted that family with one additional child, on average, holding other variable constant, will increase the rate of violence in family about 2.6 %. Without family planning, household may bear the cost of living and it can lead to household poor status and finally increasing the probability of violence.

For the wealth index, which stands for the family standard of living, found that the better standard of living of the family, the less frequency of violence that would be happened. The result shows that the coefficient of the variable wealth quintiles have negative sign and the magnitude coefficients of wealth quintiles become double from poor to the richest quintile in both model specifications with strongly statistical significant. This result can be interpreted as the better household standard of living will reduce the incidence of domestic violence significantly. For the regional poverty status, the regions with a higher poor community also has higher rate of domestic violence as its coefficient is positive and 5% of statistically significance.

CHAPTER 5
CONCLUSION

5.1 Conclusion

The study of domestic violence has been concerned with its negative impact is credible to the economics growth. While adopting women in labor market is believed as a policy instrument to improve women, household and children well-being, few empirical researches have been done on the effect of women working status on domestic violence. Using data from Demographic and Health Survey of Cambodia 2014, this study aims to investigate the determinants of domestic violence, specifically women's labor force participation.

The estimation result of ordinary least square (OLS) and binary probit is biased and inconsistent due that these methodologies do not account for the endogeneity while domestic violence and women employment status are endogenous variables. Based on the result of two-stage least square draws an opposite result from the previous methodologies, specifically, increasing jobs for women in labor force market has not had significant effect on reducing domestic violence. The result also draws other crucial variables of determinants of domestic violence from women, men and household characteristics. For instance, women's education is robust negative affect on domestic violence as well as the household living condition in which a better standard of living of household, the less prevalent of domestic violence. In contrast, husband alcohol consumption and number of children in the family are positively correlated to the incident of domestic violence as well as the regions where poverty rate is high. Thus, the conclusion that policy implications suggest that it will take more than an improvement in women's employment options to address the problem of domestic violence.

5.2 Policies Discussion and Limitation of the Study

From the study result, there are many policies which can be implemented in order to reduce the spousal violence in Cambodia. The policy of empowering women by enhancing women in labor force participation has an inconclusive effect on domestic violence. This status improvement may not be sufficient for women to release themselves from violence as Cambodia formal jobs is specifically hire women with

low-skilled labor. The policies option should be focus on increasing the threshold of her bargaining power such as education and family planning. Comparing with women working status, balancing education for both genders should be implemented while improving for men only is not guarantee impact on violence. When the initial status of women's bargaining power increases, they may able to work with high skill labor with higher income and finally free themselves from domestic violence. The policy also should focus on the negative externality of consuming alcohol for men as well as his education. The further policy should stress on poverty both in community level and household level. Finally, the result of this study also shows that any policy that reduces the domestic violence today can also affect long term generation also.

Because of limitation of the appropriate instrumental variable, more accuracy of IV is needed for next study on the link between women's employment and household violence. While the data of this study is unable to focus on more detail of the interaction term between variables of employment and educational level of women, this study cannot distinguish the determinant of domestic violence by level of women bargaining power. Women employment data that varies enough between high and low skill labor is needed for future study.

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APPENDICES

Appendix A Data Summary

Table1: Variable definition 1

Variable	Definition
Less severe violence	Women were asked whether her husband ever: 1. Push her, shake her, or throw something at her? 2. Slap her? 3. Twist her arm or pull her hair? 4. Punch her with his/her fist or with something that could hurt her? 5. Kick her, drag her, or beat her up?
Severe violence	Women were asked whether her husband ever: 1. Try to choke her or burn her on purpose? 2. Threaten or attack her with a knife, gun, or any other weapon?
Sexual Violence	Women were asked whether her husband ever: 1. Physical force her to have sexual intercourse with him even she did not want to? 2. Physically force her to perform any other sexual acts she did not want to? 3. Force her with threats or in any other way to perform sexual acts she did not want to?
Emotional violence	Women were asked whether her husband ever: 1. Say or do something to humiliate her in front of others? 2. Threaten to hurt or harm her or someone close to her? 3. Insult her or make her feel bad about herself?
Perception on domestic violence	women were asked would she accept her husband beating on her in case: 1. she went out without tell him 2. neglects the children 3. argues with him 4. refuses to have sex with him, 5. burns the food or asking him to use condom

Table 2: Variable definition 2

Independent Variables	Definition
Women's characteristics	
Women's age at marriage	Years of women age at her first marriage
Women education	1 = No education (based), 2 = primary, 3 = secondary, 4 = higher
Women labor market	1 = women work for other with cash only with whole year, 0 = for otherwise
Women's perception	Justification index
Intergenerational violence	1 = Women's family background, father beat her mother as she young
Husband's characteristics	
Husband school	Husband years of schooling
Husband agriculture	1 = Husband occupation agriculture, 0 = Non agriculture
Alcohol	1 = Husband's alcohol consumption yes, 0 = No
Household Characteristic	
Religion	1 = Buddhist, 0 = others
Number of children	Number of children in family
Wealth index	1 = poorest (based), 2 = poor, 3 = middle, 4 = rich, 5 = richest
Rural	1 = living in Rural, 0 = urban
Dependent Variable	
Severe violence	1 = severe violence, 0 = not severe violence
Less severe violence	1 = less severe violence, 0 = not less severe violence
Emotional violence	1 = Emotional violence, 0 = not emotional violence
Sexual violence	1 = sexual violence, 0 = not sexual violence
Any violence	1 = any kind of violence, 0 = not any violence
Violence index	The average of domestic violence

Table 3: Variable definition 3

Variable	Definition
Phnom Penh	The capital city of Cambodia with lowest community poverty report
Region 1	This region include provinces: Kandal, Preah Sihanouk, Kep, Svay Rieng, Takeo, Koh Kong, Kom Pot which the rate of community under poverty from 15% to 20%
Region 2	Kompong Cham, Prey Veng, Pailin, Batttambang, Banteay Meanchey, Kompong Spue, Kompong Chnang, Pursat, Siem Riep, Kompong Thom. These provinces is 20 % to 30% of communities under poverty
Region 3	Kratie, Mondolkiri, Ratnankir, Steung Streng, Preah Vihea. These provinces is more than 30% of communities that under poverty

Table 4: The observation by province

Province	**Freq.**	**Percent**
Banteay Mean Chey	121	4.44
Kampong Cham	134	4.92
Kampong Chhnang	134	4.92
Kampong Speu	168	6.17
Kampong Thom	154	5.66
Kandal	137	5.03
Kratie	167	6.13
Phnom Penh	157	5.77
Prey Veng	160	5.88
Pursat	131	4.81
Siem Reap	125	4.59
Svay Rieng	147	5.4
Takeo	115	4.22
Otdar Mean Chey	130	4.77
Battambang & Pailin	140	5.14
Kampot & Kep	157	5.77
Preah Sihanouk & Koh Kong	134	4.92
Preah Vihear & Steung Treng	139	5.1
Mondol Kiri & Rattanak Kiri	173	6.35
Total	2,723	100

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Appendix B Result of Estimation

Table 5: Marginal effect estimation by kind of violence

Dependent variable	Severe violence	Less severe violence	emotional violence	sexual violence
Women's employed	-0.008	-0.013	-0.028	-0.007
	(0.424)	*(0.433)*	*(0.181)*	*(0.409)*
Spouse age difference	0.001	-0.002	-0.002	0.000
	(0.076)	*(0.052)*	*(0.260)*	*(0.983)*
Women Education (no education)				
Primary	0.008	-0.051***	0.014	-0.028***
	(0.113)	*(0.001)*	*(0.522)*	*(0.001)*
Secondary	0.008***	-0.073***	-0.054**	-0.020**
	(0.000)	*(0.000)*	*(0.029)*	*(0.013)*
Higher	0.025	-0.080***	-0.059	0.016
	(0.920)	*(0.000)*	*(0.263)*	*(0.609)*
Women perception	0.009	0.013	0.054**	0.000
	(0.617)	*(0.432)*	*(0.018)*	*(0.991)*
Women age at marriage	0.001	-0.002	-0.002	0.000
	(0.716)	*(0.208)*	*(0.268)*	*(0.608)*
Women violence background	0.012***	0.111***	0.141***	0.024**
	(0.000)	*(0.000)*	*(0.000)*	*(0.021)*
Husband years of schooling	0.001	-0.004**	-0.008***	-0.002**
	(0.285)	*(0.013)*	*(0.001)*	*(0.028)*
Husband occupation: (agriculture = 1)	0.007**	-0.033**	-0.014	0.000
	(0.010)	*(0.012)*	*(0.440)*	*(0.975)*
Husband Alcohol consumption	0.006***	0.053***	0.095***	0.020***
	(0.001)	*(0.000)*	*(0.000)*	*(0.001)*
Religion (Buddhist =1)	0.012	0.042**	0.064**	0.017**
	(0.672)	*(0.019)*	*(0.020)*	*(0.048)*
Number of Children	0.002***	0.015***	0.020***	0.006***
	(0.000)	*(0.000)*	*(0.000)*	*(0.001)*
Wealth index (poorest)				
Poor	0.007	-0.006	0.003	-0.009
	(0.182)	*(0.702)*	*(0.879)*	*(0.223)*

Middle	0.007	-0.012	-0.016	-0.017**
	(0.095)	*(0.465)*	*(0.482)*	*(0.011)*
Rich	0.007	-0.015	-0.001	-0.010
	(0.073)	*(0.362)*	*(0.959)*	*(0.223)*
Richest	0.008***	-0.049***	-0.022	-0.019**
	(0.000)	*(0.007)*	*(0.453)*	*(0.045)*
Rural	0.011	-0.030	-0.005	-0.010
	(0.397)	*(0.110)*	*(0.814)*	*(0.387)*
Regions (Phnom Penh)				
Province 1	0.023	0.003	0.053	0.004
	(0.096)	*(0.889)*	*(0.094)*	*(0.717)*
Province 2	0.015	-0.034	0.019	-0.006
	(0.131)	*(0.074)*	*(0.498)*	*(0.606)*
Province 3	0.024	-0.004	0.047	-0.002
	(0.202)	*(0.861)*	*(0.174)*	*(0.841)*

Number of observation: 2723.

*The parenthesis is P-value. **, *** denote for statistical significance at the 5% and 1% level, respectively. Source: Author*

Table 6: First stage estimation of two stage least square model

	Model 1		Model 2	
Dep: Women's employed	Coef.	*P-value*	Coef.	*P-value*
Spouse age difference	-0.004***	*0.009*	-0.004***	*0.009*
Women Education (no education)				
Primary	0.040**	*0.047*	0.040**	*0.047*
Secondary	0.059**	*0.014*	0.059**	*0.014*
Higher	0.417***	*0.000*	0.417***	*0.000*
Women perception on DV	0.002	*0.921*		
Women age at marriage	0.000	*0.975*	0.000	*0.973*
Women violence background	0.008	*0.629*	0.008	*0.625*
Husband years of schooling	-0.002	*0.336*	-0.002	*0.334*
Husband occupation: agriculture = 1	-0.087***	*0.000*	-0.087***	*0.000*
Husband Alcohol consumption	0.054***	*0.004*	0.054***	*0.004*
Religion: Buddhist =1	-0.045	*0.139*	-0.045	*0.139*
Number of Children	-0.022***	*0.000*	-0.022***	*0.000*
Wealth index (Poorest)				
Poor	0.015	*0.464*	0.015	*0.465*
Middle	0.035	*0.117*	0.035	*0.117*
Rich	0.055**	*0.017*	0.055**	*0.017*
Richest	-0.018	*0.507*	-0.018	*0.504*
Rural	-0.040**	*0.039*	-0.040**	*0.039*
Regions (Phnom Penh)				
Province 1	0.007	*0.779*	0.007	*0.773*
Province 2	-0.036	*0.110*	-0.036	*0.110*
Province 3	-0.118***	*0.000*	-0.118***	*0.000*
Women currently breast-feeding	-0.051***	*0.002*	-0.051***	*0.002*
Constant	0.270***	*0.000*	0.271***	*0.000*

Number of observation: 2723.

***, *** denote for statistical significance at the 5% and 1% level, respectively.*

Source: Author

Hausman Test for Endogeneity

Tests of endogeneity model 1

Ho: variables are exogenous

Durbin (score) chi2(1)	=	3.58587(p	=	0.0583)
Wu-Hausman F(1,2696)=		3.55499(p	=	0.0595)

Tests of endogeneity model 2

Ho: variables are exogenous

Durbin (score) chi2(1)	=	3.75946(p	=	0.0525)
Wu-Hausman F(1,2697)=		3.72871(p	=	0.0536)

BIOGRAPHY

NAME	Bunthoeurn SEN
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