# Trade-offs? The Impact of WTO Accession on Intimate Partner Violence in Cambodia*

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**Abstract**

We study the impact of trade-induced changes in labor market conditions on violence within the household. We exploit the local labor demand shocks generated by Cambodia's WTO accession to assess how changes in the employment of women relative to men affected the risk of intimate partner violence. We document that men in districts facing larger tariff reductions experienced a significant decline in employment, whereas women in harder-hit districts increased their entry into the labor force. These changes in employment patterns triggered backlash effects by increasing intimate partner violence, without changes in marriage, fertility, or psychological distress.

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*Keywords:* trade liberalization, gender, empowerment, intimate partner violence

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Many developing countries have experienced episodes of rapid trade liberalization over the past two decades. A growing body of empirical work has shown that greater exposure to import competition adversely affects local labor market outcomes, particularly for workers initially employed in sectors with larger tariff reductions (Kovak 2013; Dix-Carneiro and Kovak 2019; Erten et al. 2019).[1] Recent evidence also indicates that these trade-induced job losses increase the incidence of violent crime by lowering the opportunity cost of criminal employment (Dell et al. 2019), reducing public goods provision, and increasing income inequality (Dix-Carneiro et al. 2018). Despite this work on generalized violence, as measured by homicide rates, and the evidence that trade-induced job losses vary by gender (Gaddis and Pieters 2017), no research has examined the violent consequences of trade liberalization within the household, the burden of which falls disproportionately on women.

This paper examines how trade-induced employment changes in Cambodia impact intimate partner violence.[2] Following Topalova (2010), Dix-Carneiro and Kovak (2017, 2019), and Erten et al. (2019), we exploit regional variation in import competition stemming from large-scale import tariff reductions to identify labor-demand shocks with heterogeneous effects on local economies across the country. In examining gender-specific effects of trade-induced labor demand shocks, our work is close in spirit to Gaddis and Pieters (2017), who document a narrowing of the gender gap in employment and participation rates in regions of Brazil that experienced larger tariff reductions, and Juhn et al. (2014), who observe that the new firms entering the export market in Mexico after NAFTA replaced male blue-collar workers with female ones as new technologies reduced the need for physically demanding skills. Our study complements the evidence from these episodes of trade liberalization in different contexts by assessing whether regional differences in exposure to import competition across a large set of industries and districts in Cambodia differentially affected men's and women's employment and earnings outcomes. Distinct from much prior work, we analyze how these trade-induced employment changes affect the prevalence of intimate partner violence.

The effects of trade-induced employment changes on the risk of experiencing intimate partner violence are *a priori* ambiguous. On one hand, narrowing the gender employment gap could increase the bargaining power of women, increase their outside options, and reduce their exposure to domestic violence (Aizer 2010; Anderberg et al. 2016). On the other hand, reducing the gender employment gap may increase male partners' incentives to use

[1]For comprehensive literature reviews on the effects of trade on labor market adjustment and inequality in developing countries, please see Goldberg and Pavcnik (2007), Harrison et al. (2011), and Pavcnik (2017).

[2]The Cambodian context is particularly appealing because it is characterized by a high incidence of intimate partner violence: one out of four women experience such violence in their lifetimes.

violence or threats of violence as an instrument to regain control over household decision making, to extract financial resources from women whose relative earnings might have improved, or to force women to work longer hours (Eswaran and Malhotra 2011; Bobonis et al. 2013; Erten and Keskin 2018, 2019). However, trade shocks may also widen the gender employment gap, which would result in the opposite effects through the same channels.

In this paper, we shed light on the effects of trade-induced employment changes on multiple dimensions of intimate partner violence by exploiting local labor demand shocks brought about by the Cambodian trade liberalization episode. In 2004, Cambodia became a member of the World Trade Organization (WTO), and in doing so, it implemented large-scale unilateral trade liberalization that had heterogeneous effects on districts across the country. Using detailed industrial employment data from the 1998 Census, which are representative at the district level, we construct a measure of exposure to tariff reductions at the level of the local economy. In particular, we use the 1998 industry employment shares as weights to construct a time-varying weighted average of industry-level tariffs at the district level. This measure exploits a combination of variation in the industrial mix across districts together with variation in cross-industry tariff changes. We report two main results.

First, male workers initially employed in districts facing larger tariff reductions experienced a significant decline in employment and a corresponding increase in nonparticipation relative to those in districts facing smaller tariff reductions. In contrast, women employed in harder-hit districts increased their entry into the labor force relative to those in less exposed districts. More specifically, women who were previously outside the labor force began to contribute to family income by working additional hours in family-owned enterprises, particularly within the agricultural sector.

Second, we link trade-induced employment changes to the prevalence of intimate partner violence. We find no evidence that this trade-induced increase in female economic empowerment translates into overall empowerment within the household. Our results show that women in districts more exposed to trade liberalization experienced an increase in intimate partner violence along several dimensions. Exploring alternative mechanisms, we find no evidence of differential changes in marriage rates, fertility, psychological distress, husbands' behavioral indicators, or women's educational attainment in these districts. These findings are consistent with instrumental theories of violence, which predict the use of violence by men as an instrument for controlling household decision making and/or appropriating resources from women in the form of money or time.

Our finding of increased labor force participation of women differs from many previous studies that have found either no significant differences by gender (McCaig and Pavcnik 2018; Erten et al. 2019; Dix-Carneiro and Kovak 2019) or greater employment losses among

men than among women without evidence of an increase in employment of women (Gaddis and Pieters 2017; Autor et al. 2019). Since trade-induced labor demand shocks generate both an absolute increase in the employment of women and a rise in women's employment relative to men's employment, our empirical setting does not allow us to independently differentiate between women's relative empowerment and their absolute empowerment.

Apart from providing support for the view that trade-induced job losses among men coincide with an increase in female labor force participation, our analysis indicates that these trade shocks do not necessarily translate into empowerment within the household. In fact, neglecting such potentially large backlash effects from increased intimate partner violence may yield upward-biased estimates of the societal benefits accruing from trade liberalization.

# 1 The Context

## 1.1 The Details of Cambodia's WTO Accession

After Cambodia gained its independence from France in 1953, the new government focused on building an industrial base by investing in infrastructure projects and building factories (Delvert 1963). These early attempts proved fruitful, increasing the number of small and medium-sized factories from 650 in 1965 to 3,700 in 1968 while increasing state-owned enterprises (SOEs) from 0 to 57 (Ear 1995). In 1969, Cambodia experimented with a brief period of sharp tariff cuts, which had detrimental effects on the survival of small and some medium-sized firms, and this policy was reversed completely by the Khmer Rouge regime that came to power in 1975. This period witnessed one of the most devastating civil wars in world history.[3] The Khmer Rouge regime, which defined itself by a Maoist ideology, prohibited all international trade flows, with the exception of those with a few allied communist countries. After the liberation of Cambodia from the Khmer Rouge regime, the new government pursued the goal of eradicating hunger because the civil conflict had taken a large toll on the economy. The SOEs were subsidized to provide basic subsistence goods, and Cambodia received immediate food relief from Vietnam and Soviet-bloc countries. The state monopoly on foreign trade was abolished in 1987, allowing for active engagement of private firms in trade.

[3]The Cambodian civil war began in 1970, with one side supported by China and the other by the U.S., and it was part of the larger Cold War context in which Cambodia was initially somewhat divided between those supporting the Soviet-bloc/Chinese side and those supporting the U.S. side (Chhair and Ung 2016).

However, the important turning point in trade relations began in the post-conflict reconstruction period. Following the fall of the Soviet Union and the subsequent signing of the Paris Peace Accords in 1991, Cambodia began implementing economic reforms for rehabilitation and reconstruction (Thayer 1998). In 1993, the Kingdom of Cambodia was established, and the newly elected government sought to promote industrial development by engaging in international trade.

The major trade policy change took place with the accession of Cambodia to WTO on October 13, 2004. Cambodia became the first least developed country to join the WTO, along with Nepal (Siphana 2005). During this period, Cambodia reduced its import tariff bands from 12 to 4 and limited the tariffs on the majority of imports to 0, 7, 15, or 35 percent. In the final accession package, Cambodia applied an overall average 16.5 percent bound tariff rate (Siphana 2005). The average nominal tariffs fell from almost 18 percent in 2001 to 8 percent in 2014 (Appendix Fig. A1). The Customs Reform and Modernization Program, implemented during the accession process, targeted the share of bound zero-rated tariff lines and was intended to harmonize tariff schedules by reducing the average tariff rates and the number of tariff categories.

We measure trade protection by the import tariff rates (including *ad valorem* equivalents) imposed by Cambodia. The tariff data are provided by the World Integrated Trade Solution – Trade Analysis Information System (WITS–TRAINS) database. We use the tariff rates reported at the 3-digit International Standard Industrial Classification (ISIC) level. We match these detailed tariff data to the industry classification in the 1998 Cambodian Census by constructing a simple average of tariffs within industries using the concordance available in the industry documentation of the 1998 Census.

## 1.2 Exogeneity of Tariff Changes to Industry Performance

Our empirical analysis utilizes variation in tariff rates across industries and over time to estimate the causal effects of trade liberalization. This estimation strategy relies on the assumption that tariff changes are exogenous to the performance of industries subject to tariff cuts, as well as the districts of Cambodia where those industries were concentrated. If political economy considerations dominate such that policymakers were to impose smaller tariff cuts for better performing industries that lobby for such policies, these endogenous responses would render the exogeneity assumptions invalid.

In the context of Cambodian trade liberalization, the threats to identification due to the potential endogeneity of tariff cuts are limited for a number of reasons. First, the private sector played a limited role in affecting relative tariff declines since the main driver of lib-

eralization policies was the post-conflict government, which was eager to demonstrate its willingness to open up and access world markets (Siphana 2005). Second, the differential tariff reductions across industries were primarily the outcome of Cambodia's WTO negotiations, during which the government committed to 4 categories of tariffs (0, 7, 15, and 35 percent), excluding the possibility of discretionary changes to the tariff structure. Following previous studies (Goldberg and Pavcnik 2005; Kovak 2013; Erten et al. 2019), we examine the relationship between initial tariff levels and subsequent tariff liberalizations at the industry level. Figure 1 shows that the industries with the highest tariff levels prior to liberalization experienced the greatest tariff reductions. The correlation between the preliberalization tariff rate and the change in the tariff rate is very high (–0.91). Moreover, in subsequent sections, we also provide evidence that districts exposed to different levels of tariff reduction during this time period do not demonstrate any differential trends in employment outcomes observed prior to the trade liberalization episode.

# 2 Methods

## 2.1 Data

To capture labor market outcomes, we use the Cambodian Censuses conducted in 1998 and 2008 by the Cambodian National Institute of Statistics.[4] Throughout the analysis, local labor markets are defined as districts. Each district consists of a number of economically integrated contiguous neighborhoods with fairly similar productive and geographic features. We use the census data for two main purposes. First, by using the 1998 Census, we use information on employment status and industry of employment to calculate the industrial distribution of labor in each district. Because Cambodia began its trade liberalization as it joined the WTO in 2004, the 1998 Census data allow us to capture the preliberalization industrial composition at the district level. We restrict the sample to individuals aged 15–64 to focus on the working-age population. The industry classification in the census consists of 40 industries. Second, we use the 2008 Census to represent the post-liberalization period and combine it with the preliberalization 1998 Census to estimate the effects of trade liberalization on local labor market outcomes.

Since the census does not report wage information, we use four rounds of an annual household survey, the Cambodian Socioeconomic Survey (CSES), conducted in 1999, 2003, 2009, and 2014, to examine the effects of the WTO accession on wage changes and to conduct a placebo test for the employment effects.

[4]The Cambodian Census datasets are available for only these two years.

Finally, we use three rounds of Cambodia's Demographic and Health Survey (DHS) conducted in 2000, 2005, and 2014. These are nationally representative household surveys that contain information on women's employment outcomes, their experience of domestic violence, demographics, marriage market outcomes, and other indicators. The surveys targeted women between 15 and 59 years old, and an additional domestic violence module was administered to one-third of the households. One woman per household was randomly selected for the interviews. No one else was present in the room during the interviews, and the respondents were informed that their answers would be kept confidential to minimize reporting bias.

The DHS data include several binary variables on whether a woman experienced various forms of physical, sexual, or psychological violence from her intimate partner. To capture each dimension of domestic violence, we follow Kling et al. (2007) and Erten and Keskin (2018) and construct five indices by averaging the z-scores of the underlying domestic violence indicators over the past 12 months.[5]

## 2.2 Identification

Following Cambodia's WTO accession, the level of import tariffs varied significantly across industries and over time. There was also substantial heterogeneity in the industrial composition of Cambodian districts prior to trade liberalization. Consequently, based on their initial industrial composition of employment at the time of the reform, some districts were more exposed to tariff declines than others. Building on a large body of empirical work (Topalova 2010; Dix-Carneiro and Kovak 2019; Erten et al. 2019), our identification strategy relies on this relative exposure to isolate the causal effect of trade liberalization.

In particular, our measure of regional exposure to trade liberalization for district $d$ in year $t$, $Tariff_{dt}$, is constructed by interacting the national ad valorem tariff rate faced by industry $i$ in year $t$, $Tariff_{it}$, with the share of tradable employment in industry $i$ and district $d$ in 1998, $Empshare_{id}^{1998}$, as reported in the 1998 Census data. This includes 40

[5]We standardize each indicator and then take the simple average of these z-scores to create indices. The physical violence index is constructed by averaging the z-scores of five indicators for the male partner: slapping or throwing an object that would hurt; pushing, shoving, or pulling hair; hitting with the partner's fist or in a way that hurts; kicking, pushing on the ground, or beating; and choking or burning. The injury index is the average of the z-scores from the following indicators: bruises, light injuries, and severe injuries due to violent acts by one's partner. The sexual violence index is the average of z-scores from the following indicators: forced sexual acts, forced sexual relations because of a fear of what the partner would do otherwise, and humiliating sexual acts. The psychological violence index is the average of the z-scores from the following indicators: insulting, humiliating, and scaring or threatening. The decision-making index is the average of the z-scores from the following indicators: having decision-making power to decide her own healthcare, her own friends, or whether to make large household purchases.

traded industries represented in the dataset.

$$Tariff_{dt} = \sum_{i} Empshare_{id}^{1998} \times Tariff_{it} \tag{1}$$

We use the following reduced-form specification to compare outcomes of interest for workers located in districts exposed to larger versus smaller tariff reductions:

$$y_{jdt} = \alpha + \beta Tariff_{dt} + \chi_{jdt} + \mu_t + \gamma_d + \delta_d t + \epsilon_{jdt} \tag{2}$$

where $y_{jdt}$ denotes outcomes for individual $j$ in district $d$ in year $t$, $Tariff_{dt}$ is the district tariff in district $d$ in year $t$, $\chi_{jdt}$ is a vector of worker characteristics, including age, indicator variables for four educational categories (completed less than primary school, completed primary school, completed secondary school, and completed university), years of schooling, an indicator variable for being married, and an indicator for whether an individual lives in a rural area. The specification also includes year fixed effects ($\mu_t$), district fixed effects ($\gamma_d$), and district-specific linear time trends ($\delta_d t$). We cluster standard errors at the district level to account for serial correlation in outcomes within districts. The main parameter of interest is the coefficient on district tariffs, with a positive coefficient implying that a decrease in district tariffs is associated with a decline in the probability of the outcome tested.

The inclusion of year fixed effects in equation (2) controls for any macroeconomic shocks at the national level that coincide with trade liberalization. District fixed effects control for any time-invariant heterogeneity across districts. District-level linear trends account for changes in time trends specific to each district across years. Individual-level worker demographic characteristics control for differences in demographic composition across districts and over time that could influence outcomes and correlate spuriously with district tariffs. Hence, this specification compares outcomes for individuals with the same observable characteristics who are exposed to different local trade shocks due to their initial regions of residence.

# 3 Effects of Cambodia's WTO Accession

## 3.1 Labor Market Outcomes

We begin by examining the effects of Cambodia's trade liberalization during its WTO accession on labor market outcomes. Table 1 provides summary statistics for the key variables. In Table 2, we report the results of estimating equation (2) for employment status outcomes

(Panel A) and employment outcomes by type and sector (Panel B). In each panel, we divide the sample by gender to examine gender-specific responses to the trade shock. The positive and significant coefficient estimate in the first row of column (1) in Panel A indicates that male workers located in districts that faced greater reductions in import tariffs experienced larger declines in the probability of employment relative to those in districts exposed to smaller tariff reductions. The magnitude of the coefficient (0.030) implies that workers in a district exposed to the average decline in tariff rates—9.9 percentage points—experienced a 0.3 percentage point decrease in the probability of being employed relative to workers in districts not exposed to any declines in tariffs. Columns (2) and (3) of Panel A reveal that men located in regions more exposed to import competition experienced a small but insignificant increase in the probability of being unemployed and a significant increase in the probability of not being in the labor force.

In the middle section of Panel A of Table 2, we examine the impact of trade liberalization on women's labor market outcomes. In column (1), we observe that female workers located in districts that experienced larger declines in import tariffs experienced an increase in their probability of employment relative to those in districts exposed to smaller tariff reductions. The magnitude suggests an increase in the probability of employment of 1.1 percentage points in an average district. Moreover, the estimates in columns (2) and (3) indicate that women in regions more exposed to import competition experienced an increase in their probability of looking for a job and a decline in their probability of not participating in the labor market. The bottom section of Table 2 shows that the differences between men and women are highly statistically significant across all outcomes.

These findings could suggest an added worker effect—a well-established pattern observed in studies of labor market adjustment (Lundberg 1985; Cullen and Gruber 2000; Stephens 2002; Gong 2010)—in which a reduction in the employment probability of men induces more women to participate in the labor market by actively seeking work and taking up new employment opportunities to compensate for the income loss experienced by their husbands.

In Panel B of Table 2, we further examine the sectoral shifts for different types of employment that took place in response to trade liberalization. We observe that male workers suffered a greater loss in paid employment, which was not fully compensated for by the shift in employment towards unpaid and self-employment. Most of the employment losses were seen in manufacturing, mining, and services, while there was an overall increase in agricultural employment, as some of the displaced workers in harder-hit districts shifted towards self-employment and unpaid employment in agriculture. In the bottom section of Panel B, we also observe that women also suffered from a loss in paid employment.

However, the likelihood of vulnerable employment, as defined by the International Labor Organization, in unpaid jobs and own-account work increased significantly. The estimates indicate that the bulk of this increase in unpaid and self-employment occurred within the agricultural sector. This implies that women who were previously outside the labor force have begun to contribute to family income by working additional hours in family-owned enterprises.

The identification assumption for the main specification requires that the reduction in district tariffs in this period is orthogonal to other trends observed at the district level. This assumption would be violated if the reduction in tariffs were designed to protect districts with relatively weaker local economies ex ante. We previously mentioned that tariff liberalization during WTO accession was intended to harmonize tariffs such that industries with the highest tariff levels ex ante faced the largest declines in tariffs. In Appendix Table A1, we provide further evidence on pretrends using data from the 1999, 2003, 2009, and 2014 rounds of the CSES. In Panel A, focusing on the pre-accession period preceding the WTO accession in 2004, we find no evidence of a significant change in the probability of male or female employment. In contrast, in the post-accession period, the estimates in Panel B reveal a significant decline in the probability of male workers' employment and a significant increase in the probability of female workers' employment for districts that were more exposed to tariff declines, consistent with our results from Table 2.

In Appendix Table A2, we examine whether exposure to tariff reductions had a significant impact on the monthly earnings of men and women. In Panel A, relying on the sample of individuals who reported earning a monthly income, we find a larger decline in the monthly earnings of men than in those of women in percentage-point terms. In Panel B, we impute wages using observed predetermined characteristics of workers, such as age, educational categories, marriage status, rural indicator, and gender (Rubin 1987; Schenker and Taylor 1996). We again observe larger effects for men. [6]

Altogether, these findings indicate that male workers initially employed in districts that faced greater tariff reductions experienced a greater loss in paid employment, which was not fully compensated by increases in other types of employment. The overall employment loss among men motivated women to enter the labor market by predominantly working in the agricultural sector as unpaid or self-employed workers.

[6]This change in earnings could be partly explained by the effects of increased international competition on taste-based discrimination; in particular, increased competition with foreign firms may put pressure on domestic firms to decrease gender pay differentials by reducing taste-based discrimination (Black and Brainerd 2004).

## 3.2 Intimate Partner Violence Outcomes

The differential labor market effects of trade liberalization by gender that we documented in the previous section have *a priori* ambiguous effects on women's empowerment within the household. On the one hand, an increase in women's employment probability relative to her husband could improve her bargaining power within the household by increasing her access to resources and improving her outside options. As a result, women's economic empowerment may result in a decline in their exposure to intimate partner violence (Aizer 2010; Hidrobo and Fernald 2013; Anderberg et al. 2016). On the other hand, the greater probability of a woman's employment relative to her partner may also increase the partner's incentives to use violence or threats of violence as an instrument to regain control over household decision making and/or to extract rents from women (Bloch and Rao 2002; Bobonis et al. 2013; Erten and Keskin 2018, 2019). Moreover, an increase in the bargaining power of women through better employment opportunities may trigger backlash from their partners, who may have a preference against their wives' working (Field et al. 2016).

In columns (1) and (2) of Table 3, we estimate the effects of tariff reductions on women's probability of employment using the full DHS sample and the sample to which the domestic violence module was administered. The coefficient estimates are similar in magnitude (slightly larger for women who were randomly selected for the domestic violence module), and they corroborate the results from the census in that women in harder-hit districts experienced an increase in their probability of employment relative to those in less affected districts.[7]

In the remaining columns of Table 3, we examine the effects of trade liberalization on the risk of experiencing intimate partner violence. In column (3), we find that women in more exposed districts faced an increase in their experience of physical violence from their partners. The estimate in column (4) also indicates that these women experienced increases in the physical injuries they suffer as a consequence of such violence—including bruises, broken bones, and other physical injuries—which is plausibly a more objective measure of physical violence. The remaining estimates show that women in harder-hit regions experienced an increase in sexual violence and a decline in their decision-making power; there is no evidence of a significant change in their risk of experiencing psychological violence.

To summarize, this evidence is consistent with instrumental theories of violence, which predict that an increase in the relative employment opportunities of women creates incentives for men to use violence or other controlling behavior as an instrument for regaining control over household decision making and/or appropriating women's income. In this

[7]We cannot examine the labor market outcomes for men since the DHS does not contain the corresponding employment questions for men.

particular case, such extraction could take the form of female working hours given the increase we observe in unpaid work of women, especially in the agricultural sector. Since we estimate a very similar impact on more objective measures of violence that reflect violence-related injuries, reporting bias is unlikely to explain our results in this context.

Finally, certain individuals who were initially living in districts that experienced larger tariff reductions may have relocated to less affected districts. Such interregional migration could potentially affect our results, especially if men and women are now physically separated while seeking new employment opportunities. In Appendix Table A3, we assess whether trade liberalization induced interregional migration by increasing incentives to migrate from more affected to less affected regions. In Panel A, we use two rounds of census data to examine whether there was a significant change in district population. In Panel B, we determine whether the probability of a husband living away from the home changed in response to the tariff shock at the district level. In both cases, we find very small and statistically insignificant effects on these indicators of interregional migration.

## 3.3 Alternative Channels

Although our findings indicate a change in the risk of experiencing intimate partner violence that is largely driven by a trade-induced exogenous shock to labor markets, in this section, we explore other potential channels through which import competition could generate changes in the domestic violence experienced by women. First, as reported in a recent study by Autor et al. (2019), labor demand shocks driven by international competition may reduce the probability of marriage for young adults and change their fertility profiles, which can in turn affect intrahousehold dynamics. In Panel A of Table 4, we examine whether exposure to import competition had any significant impacts on women's marital status. The estimates reported in columns (1) and (2) show no evidence of a significant effect on the probability of being married or on the probability of being divorced, widowed, or separated. Similarly, in Panel B, we find no evidence that trade liberalization had a significant impact on the number of children in total or the number of children under the age of five.

Another plausible mechanism through which trade-induced employment changes could increase intimate partner violence is the deterioration of the psychological wellbeing of individuals. For instance, losing a job can lead to significant distress in men, and such psychological problems may trigger angry outbursts, resulting in violent episodes. Using data from the 2003, 2009, and 2014 CSES, we investigate whether exposure to larger tariff reductions had a significant impact on the prevalence of psychological problems. Our findings

presented in Panel C indicate no evidence of a significant change in psychological problems experienced by men or women.[8]

Another concern is that the increased employment of women could give rise to more interactions with men outside the home, which may in turn make their husbands upset and jealous. In Panel D, we examine whether exposure to import competition had a significant effect on husbands' behavioral indicators. The estimates in columns (1) and (2) in the second row of Table 4 show no evidence of a significant impact on the probability that the husband would become jealous when the respondent talked to other men or on the probability that the husband would accuse the respondent of unfaithfulness.

Finally, import competition may also increase the relative poverty of households and reduce the educational attainment of children for families that cannot afford the costs of schooling (Edmonds et al. 2010). Lower levels of education can affect the probability of experiencing domestic violence in a multitude of ways (Erten and Keskin 2018). However, in Panel E, we find no evidence that the trade reform had a significant impact on women's years of schooling or their completion of a particular degree.

## 3.4 Robustness

We estimate a number of alternative specifications to examine the robustness of our results. In Appendix Tables A4, A8, and A12, we use the log of the district tariff instead of the level as the explanatory variable. We find that the estimates are consistent in sign and magnitude. In the next set of results, we explore whether the estimates are robust to excluding industries that were outliers in terms of the tariff declines they experienced. In particular, in Appendix Tables A5, A9, and A13, we reconstruct an alternative measure of district tariffs excluding industries that experienced the highest tariff declines; these industries include apparel, beverages, wood products, and other textiles. Similarly, in Appendix Tables A6, A10, and A14, we reconstruct another alternative measure of district tariffs excluding industries that experienced the lowest tariff declines, which include the printing, paper, publishing, and iron and steel industries. The results in both cases are consistent. Finally, we calculate the district tariff measure excluding the five sectors that appear to deviate from the linear relationship between the initial tariff level and the size of the tariff reduction. These off-diagonal industries include petroleum products, furniture, other textiles, wood products, and radio transmitters. The results reported in Appendix Tables A7, A11, and A15 are consistent with our main findings.

[8]To capture the incidence of psychological problems, we construct a dummy variable that takes the value of one if the respondent reported that he/she experienced psychological or emotional difficulties or had become extremely upset within the last month.

# 4 Conclusion

In this paper, we study the effects of Cambodia's WTO accession on the risk of intimate partner violence. Our findings indicate that men in districts more exposed to tariff reductions experienced a decline in their employment probability, whereas women in such districts experienced an increase in their entry into the labor force. Although previous studies have shown that trade-induced changes in labor market conditions in disproportionately affected regions give rise to more violent crime in the streets, they did not examine whether these trade shocks can also increase the prevalence of violence at home. Indeed, our analysis shows that women suffer from an increased risk of intimate partner violence in response to such trade shocks.

Our findings have broader implications for the distributional consequences of trade policy. To the extent that exposure to trade shocks brings about changes in male-female employment gaps, these trade-induced employment changes are likely to have significant effects on intrahousehold bargaining dynamics. In many contexts where exposure to import competition resulted in greater job losses for men than women, such increases in the relative employment of women are likely to generate important changes in the prevalence of intimate partner violence.

# References


**Aizer, Anna**, "The Gender Wage Gap and Domestic Violence," *American Economic Review*, 2010, *100* (4), 1847–1859.

**Anderberg, Dan, Helmut Rainer, Jonathan Wadsworth, and Tanya Wilson**, "Unemployment and domestic violence: Theory and evidence," *The Economic Journal*, 2016, *126* (597), 1947–1979.

**Autor, David, David Dorn, Gordon Hanson et al.**, "When work disappears: Manufacturing decline and the falling marriage-market value of young men," *American Economic Review: Insights*, 2019.

**Black, Sandra E and Elizabeth Brainerd**, "Importing equality? The impact of globalization on gender discrimination," *ILR Review*, 2004, *57* (4), 540–559.

**Bloch, Francis and Vijayendra Rao**, "Terror as a Bargaining Instrument: A Case Study of Dowry Violence in Rural India," *American Economic Review*, 2002, *92* (4), 1029–1043.

**Bobonis, Gustavo J., Melissa Gonzalez-Brenes, and Roberto Castro**, "Public Transfers and Domestic Violence: The Roles of Private Information and Spousal Control," *American Economic Journal: Economic Policy*, 2013, *5* (1), 179–205.

**Chhair, Sokty and Luyna Ung**, "Cambodia's Path to Industrial Development," *Manufacturing Transformation*, 2016, pp. 213–234.

**Cullen, Julie Berry and Jonathan Gruber**, "Does unemployment insurance crowd out spousal labor supply?," *Journal of labor Economics*, 2000, *18* (3), 546–572.

**Dell, Melissa, Benjamin Feigenberg, and Kensuke Teshima**, "The violent consequences of trade-induced worker displacement in mexico," *American Economic Review: Insights*, 2019, *1* (1), 43–58.

**Delvert, Jean**, "L'économie cambodgienne et son évolution actuelle," *Revue Tiers Monde*, 1963, pp. 193–212.

**Dix-Carneiro, Rafael and Brian K Kovak**, "Margins of labor market adjustment to trade," *Journal of International Economics*, 2019, *117*, 125–142.

**__ and Brian Kovak**, "Trade liberalization and regional dynamics," *American Economic Review*, 2017, *107* (10), 2908–46.

**__, Rodrigo R Soares, and Gabriel Ulyssea**, "Economic shocks and crime: Evidence from the brazilian trade liberalization," *American Economic Journal: Applied Economics*, 2018, *10* (4), 158–95.

**Ear, Sophal**, *Cambodia's economic development in historical perspective: A contribution to the study of Cambodia's economy*, S. Ear, 1995.

**Edmonds, Eric V, Nina Pavcnik, and Petia Topalova**, "Trade adjustment and human capital investments: Evidence from Indian tariff reform," *American Economic Journal: Applied Economics*, 2010, *2* (4), 42–75.

**Erten, Bilge and Pinar Keskin**, "For Better or for Worse?: Education and the Prevalence of Domestic Violence in Turkey," *American Economic Journal: Applied Economics*, 2018, *10* (1), 64–105.

**__ and __**, "Female Employment and Intimate Partner Violence: Evidence from Syrian Refugee Inflows to Turkey," *Working Paper*, 2019.

**__, Jessica Leight, and Fiona Tregenna**, "Trade liberalization and local labor market adjustment in South Africa," *Journal of International Economics*, 2019, *118*, 448–467.

**Eswaran, Mukesh and Nisha Malhotra**, "Domestic Violence and Women's Autonomy in Developing Countries: Theory and Evidence," *Canadian Journal of Economics*, 2011, *44* (4), 1222–1263.

**Field, Erica, Rohini Pande, Natalia Rigol, Simone Schaner, and Charity Troyer Moore**, "On Her Account: Can Strengthening Women's Financial Control Boost Female Labor Supply?," Working Paper 2016.

**Gaddis, Isis and Janneke Pieters**, "The gendered labor market impacts of trade liberalization evidence from Brazil," *Journal of Human Resources*, 2017, *52* (2), 457–490.

**Goldberg, Pinelopi Koujianou and Nina Pavcnik**, "Trade, wages, and the political economy of trade protection: evidence from the Colombian trade reforms," *Journal of International Economics*, 2005, *66* (1), 75–105.

**__ and __**, "Distributional effects of globalization in developing countries," *Journal of Economic Literature*, 2007, *45* (1), 39–82.

**Gong, Xiaodong**, "The added worker effect and the discouraged worker effect for married women in Australia," *IZA Discussion Paper*, 2010.

**Harrison, Ann, John McLaren, and Margaret McMillan**, "Recent perspectives on trade and inequality," *Annu. Rev. Econ.*, 2011, *3* (1), 261–289.

**Hidrobo, Melissa and Lia Fernald**, "Cash Transfers and Domestic Violence," *Journal of Health Economics*, 2013, *32*, 304–319.

**Juhn, Chinhui, Gergely Ujhelyi, and Carolina Villegas-Sanchez**, "Men, women, and machines: How trade impacts gender inequality," *Journal of Development Economics*, 2014, *106*, 179–193.

**Kling, Jeffrey R., Jeffrey B. Liebman, and Lawrence F. Katz**, "Experimental Analysis of Neighborhood Effects," *Econometrica*, 2007, *75* (1), 83–119.

**Kovak, Brian K**, "Regional effects of trade reform: What is the correct measure of liberalization?," *American Economic Review*, 2013, *103* (5), 1960–76.

**Lundberg, Shelly**, "The added worker effect," *Journal of Labor Economics*, 1985, *3* (1, Part 1), 11–37.

**McCaig, Brian and Nina Pavcnik**, "Export markets and labor allocation in a low-income country," *American Economic Review*, 2018, *108* (7), 1899–1941.

**Pavcnik, Nina**, "The impact of trade on inequality in developing countries," Technical Report, National Bureau of Economic Research 2017.

**Rubin, DB**, "Multiple imputation for nonresponse in surveys. 1987 New York," *NY Wiley*, 1987.

**Schenker, Nathaniel and Jeremy MG Taylor**, "Partially parametric techniques for multiple imputation," *Computational statistics & data analysis*, 1996, *22* (4), 425–446.

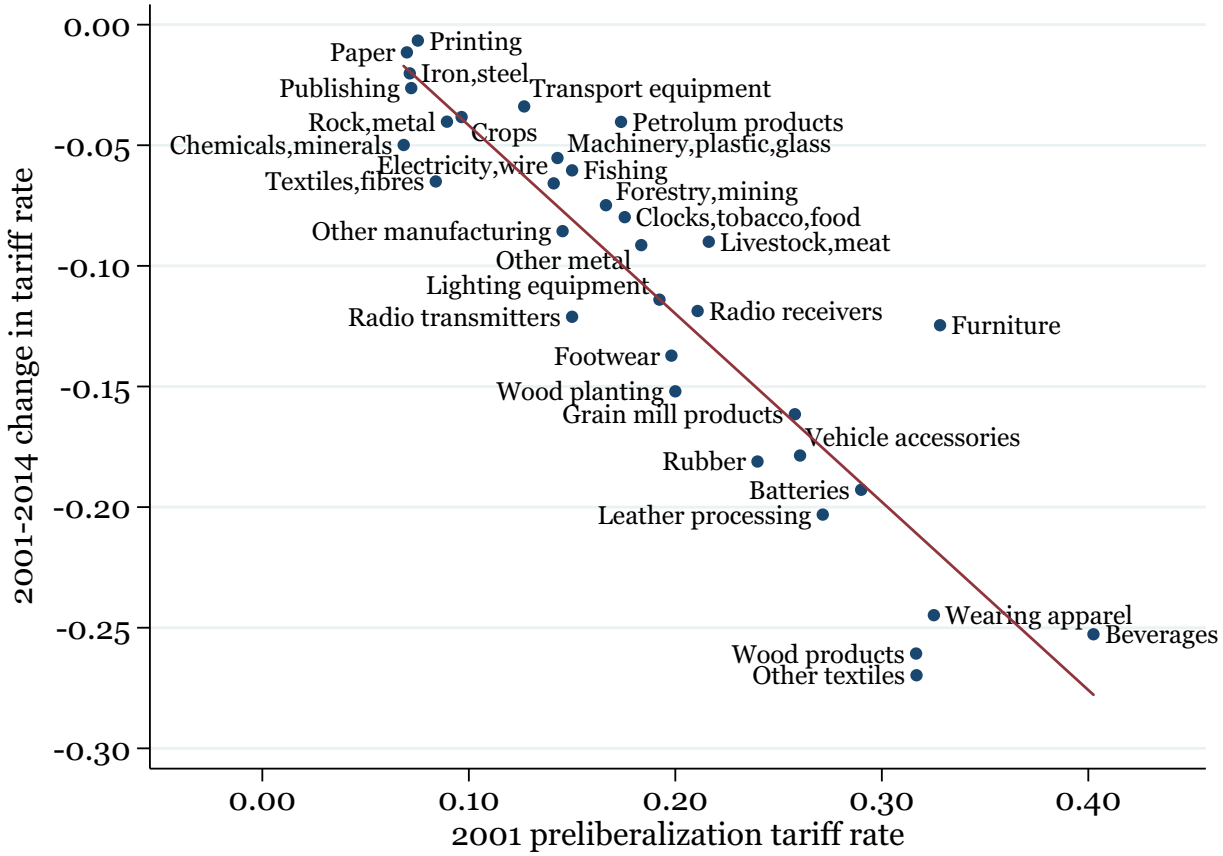
**Siphana, Sok**, "Cambodia enters the WTO: Lessons learned for least developed countries," *Asian Development Bank Research Policy Brief*, 2005, (16), 1–13.

**Stephens, Melvin**, "Worker displacement and the added worker effect," *Journal of Labor Economics*, 2002, *20* (3), 504–537.

**Thayer, Carlyle A**, "The United Nations Transitional Authority in Cambodia: The Restoration of Sovereignty," in "Peacekeeping and Peacemaking," Springer, 1998, pp. 145–165.

**Topalova, Petia**, "Factor immobility and regional impacts of trade liberalization: Evidence on poverty from India," *American Economic Journal: Applied Economics*, 2010, *2* (4), 1–41.

Figure 1: Tariff Reductions and Pre-Liberalization Tariff Rates by Sector




*Note:* This graph shows the total reduction in tariffs between 2001 and 2014 observed by subsector relative to the pre-liberalization tariff rate observed in 2001. Correlation: –0.912; regression coefficient: –0.780; standard error: 0.063; *t*: –12.35. Tariff data are obtained from the WITS–TRAINS database.

TABLE 1: SUMMARY STATISTICS

**Panel A: Census data, individuals 15–64 years old**

| | Men (1) Mean (S.D.) | Women (2) Mean (S.D.) | Difference (3) Est. (S.E.) |
|---|---|---|---|
| Years of schooling | 5.40 (3.69) | 3.80 (3.54) | 1.60*** (3.54) |
| Completed less than primary school | 0.52 (0.50) | 0.69 (0.46) | -0.18*** (0.00) |
| Completed primary school | 0.41 (0.49) | 0.27 (0.44) | 0.14*** (0.00) |
| Completed secondary school | 0.06 (0.24) | 0.03 (0.16) | 0.03*** (0.00) |
| Completed university | 0.02 (0.12) | 0.01 (0.08) | 0.01*** (0.00) |
| Rural | 0.80 (0.40) | 0.81 (0.39) | 0.00*** (0.00) |
| Married | 0.62 (0.49) | 0.60 (0.49) | 0.01*** (0.00) |
| Employment | 0.80 (0.40) | 0.75 (0.43) | 0.05*** (0.00) |
| Unemployment | 0.02 (0.15) | 0.03 (0.16) | 0.00*** (0.00) |
| Not in labor force (NILF) | 0.18 (0.38) | 0.23 (0.42) | -0.04*** (0.00) |
| Paid employment | 0.16 (0.37) | 0.08 (0.27) | 0.08*** (0.00) |
| Unpaid employment | 0.18 (0.38) | 0.46 (0.50) | -0.28*** (0.00) |
| Self-employment | 0.45 (0.50) | 0.20 (0.40) | 0.25*** (0.00) |
| Observations | 657,737 | 738,756 | 1,396,493 |

**Panel B: DHS ever-married sample, women 15–59 years old**

| | Mean | S.D. | Obs. |
|---|---|---|---|
| Women's employment | 0.80 | 0.40 | 34,536 |
| Physical violence index | -0.00 | 0.70 | 8,033 |
| Injury index | 0.00 | 0.81 | 8,032 |
| Sexual violence index | 0.01 | 0.85 | 8,032 |
| Psychological violence index | 0.00 | .81 | 8,033 |
| Decision making index | 0.01 | 0.72 | 16,860 |
| Married | 0.88 | 0.32 | 34,624 |
| Divorced, widowed, or separated | 0.12 | 0.32 | 34,624 |
| Number of children | 3.21 | 2.35 | 34,624 |
| Number of young children | 0.84 | 0.85 | 34,624 |
| Husband is jealous when respondent talks to other men | 0.21 | 0.40 | 7,985 |
| Husband accuses respondent of unfaithfulness | 0.12 | 0.33 | 7,995 |

*Notes:* The table presents the means, standard deviations, and the number of observations for demographics, labor market outcomes, female empowerment, and husband's indicators. The sample in Panel A includes the working-age population of 15- to 64-year-old individuals from the 1998 and 2008 Cambodian Census. The sample in Panel B includes ever-married women from the 2000, 2005, and 2014 Demographic and Health Surveys of Cambodia.

Table 2: Trade Liberalization and Labor Market Outcomes

| **Panel A: Employment Status Outcomes** | | | |
|---|---|---|---|
| | Employment (1) | Unemployment (2) | NILF (3) |
| *I. Men* | | | |
| District tariff | 0.030*** | -0.003 | -0.027*** |
| | (0.005) | (0.003) | (0.004) |
| N | 657,737 | 657,737 | 657,737 |
| *II. Women* | | | |
| District tariff | -0.110*** | -0.028*** | 0.138*** |
| | (0.007) | (0.001) | (0.007) |
| N | 738,756 | 738,756 | 738,756 |
| *III. Test of coefficient equality between women and men* | | | |
| *p*-value | 0.000 | 0.000 | 0.000 |

| **Panel B: Employment Outcomes by Type and Sector** | | | | | |
|---|---|---|---|---|---|
| | All (1) | Manufacturing (2) | Mining (3) | Agriculture (4) | Services (5) |
| *I. Men* | | | | | |
| **Paid Employment** | | | | | |
| District tariff | 0.183*** | 0.020*** | 0.035*** | 0.047*** | 0.080*** |
| | (0.006) | (0.001) | (0.003) | (0.003) | (0.004) |
| **Unpaid Employment** | | | | | |
| District tariff | -0.084*** | -0.006*** | -0.007*** | -0.071*** | 0.000 |
| | (0.004) | (0.000) | (0.000) | (0.004) | (0.001) |
| **Self-employment** | | | | | |
| District tariff | -0.059*** | 0.009*** | -0.003*** | -0.121*** | 0.056*** |
| | (0.004) | (0.001) | (0.000) | (0.004) | (0.004) |
| N | 657,737 | 657,737 | 657,737 | 657,737 | 657,737 |
| *II. Women* | | | | | |
| **Paid Employment** | | | | | |
| District tariff | 0.118*** | 0.002*** | 0.020** | 0.029*** | 0.066*** |
| | (0.008) | (0.000) | (0.009) | (0.002) | (0.003) |
| **Unpaid Employment** | | | | | |
| District tariff | -0.204*** | 0.000* | -0.020*** | -0.183*** | -0.001 |
| | (0.006) | (0.000) | (0.000) | (0.007) | (0.003) |
| **Self-employment** | | | | | |
| District tariff | -0.024*** | 0.011*** | 0.010*** | -0.071*** | 0.025*** |
| | (0.004) | (0.000) | (0.001) | (0.003) | (0.004) |
| N | 738,756 | 738,756 | 738,756 | 738,756 | 738,756 |

*Notes:* Data are from the 1998 and 2008 Cambodian Census. Dependent variables in Panel A are indicator variables for being employed, unemployed, and not in the labor force (NILF). Dependent variables in Panel B are indicator variables for being employed in any sector and for being employed in specific subsectors within different types of employment, including paid, unpaid, and self-employment. In all specifications, the independent variable is the district tariff variable constructed using employment subsector weights as measured in 1998 and industry-specific tariffs over time. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for four educational categories (completed less than primary school, completed primary school, completed secondary school, and completed university), years of schooling, an indicator variable for being married, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table 3: Trade Liberalization and Intimate Partner Violence

| | Women's employment (1) | Women's employment (2) | Physical violence index (3) | Injury index (4) | Sexual violence index (5) | Psychological violence index (6) | Decision making index (7) |
|---|---|---|---|---|---|---|---|
| District tariff | -0.098*** | -0.114*** | -0.116** | -0.109* | -0.088** | -0.100 | 0.151*** |
| | (0.026) | (0.031) | (0.056) | (0.063) | (0.040) | (0.112) | (0.058) |
| N | 34,503 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 16,852 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS. Dependent variables include an indicator variable for whether the respondent is employed and z-score indices constructed by simple averages of indicator variables representing physical violence, physical injury, sexual violence, psychological violence, and decision making. In all specifications, the independent variable is the district tariff variable constructed using employment subsector weights as measured in 1998 and industry-specific tariffs over time. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

## Table 4: Alternative Channels

| | Panel A: Women's marital status | | Panel B: Fertility outcomes | | Panel C: Psychological problems | |
|---|---|---|---|---|---|---|
| | Married (1) | Divorced widowed separated (2) | Number of children (3) | Number of young children (4) | Men (5) | Women (6) |
| District tariff | 0.005 | 0.008 | 0.170 | 0.005 | -0.000 | -0.002 |
| | (0.014) | (0.009) | (0.121) | (0.048) | (0.002) | (0.001) |
| N | 48,797 | 48,797 | 34,591 | 34,591 | 50,101 | 56,135 |

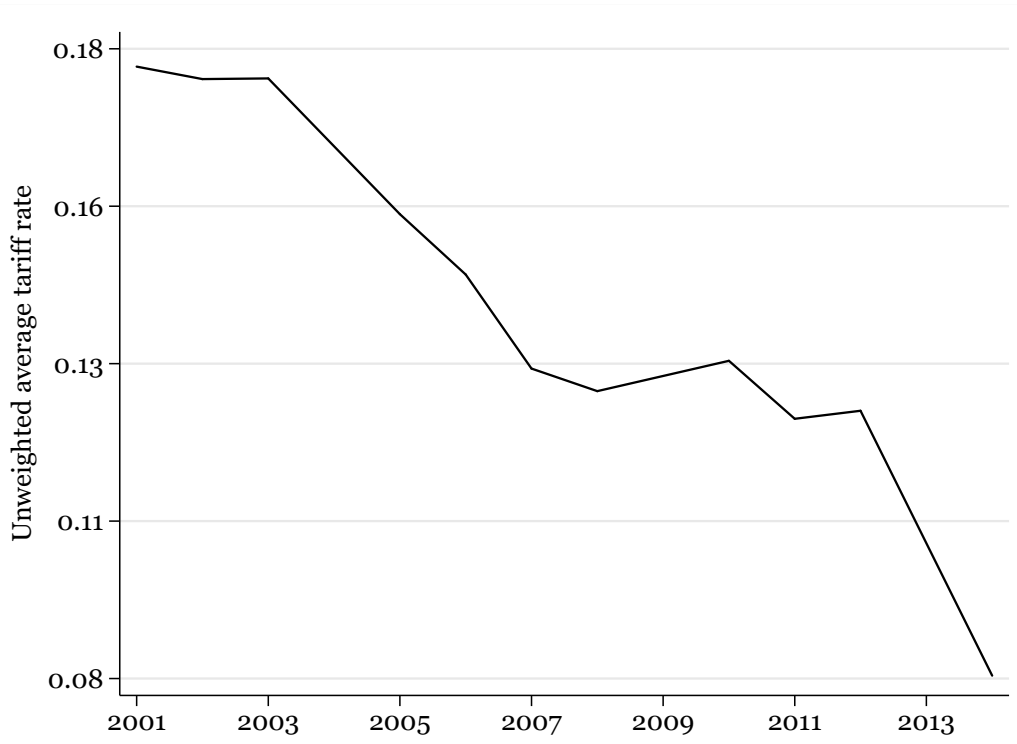
| | Panel D: Husband's behavior | | Panel E: Women's educational attainment | | | |
|---|---|---|---|---|---|---|
| | Husband is jealous when respondent talks to other men (1) | Husband accuses respondent of unfaithfulness (2) | Years of schooling (3) | Completed primary school (4) | Completed secondary school (5) | Completed higher school (6) |
| District tariff | -0.029 | -0.024 | -0.137 | -0.033 | -0.031 | -0.012 |
| | (0.076) | (0.060) | (0.102) | (0.047) | (0.056) | (0.013) |
| N | 7,977 | 7,987 | 34,623 | 34,624 | 34,624 | 34,624 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS for all panels except Panel C, where the data are from the 2003, 2009, and 2014 CSES. Dependent variables in Panel A are indicator variables for whether the respondent is married or whether she is divorced, widowed, separated. Dependent variables in Panel B are the number of children the respondent has and the number of children under the age of 5 that the respondent has. Dependent variables in Panel C are indicator variables for whether the respondent reports that he/she experienced psychological or emotional difficulties or has become extremely upset within the last month. Dependent variables in Panels D and E are an indicator variable for whether the respondent's husband is jealous when the respondent talks to other men; an indicator variable for whether the respondent's husband accuses the respondent of unfaithfulness; the respondent's years of schooling; and indicator variables for whether the respondent completed a particular degree (including primary, secondary, or higher schools). All panels report reduced-form regression results using the district tariff variable as an explanatory variable. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

# FOR ONLINE PUBLICATION

## Appendix A Additional Tables

Figure A1: Average Nominal Tariff Rates




*Note:* This graph plots the unweighted average of nominal tariff rates over time for Cambodia. The average is constructed at the 3-digit industrial classification level. Tariff data are obtained from the WITS–TRAINS database.

Table A1: Placebo Tests

| | **Panel A: 1999-2003 (Pre-accession)** | | **Panel B: 2009-2014 (Post-accession)** | |
|---|---|---|---|---|
| | Male employment (1) | Female employment (2) | Male employment (3) | Female employment (4) |
| District tariff | -0.353 | 0.018 | 0.025*** | -0.002*** |
| | (0.446) | (0.516) | (0.000) | (0.001) |
| N | 25,444 | 29,101 | 33,362 | 37,025 |

*Notes:* Data are from the 1999, 2003, 2009, and 2014 CSES. The dependent variables are an indicator variable for whether a male respondent is employed and an indicator variable for whether a female respondent is employed. Panel A covers the pre-WTO accession period prior to 2004, and Panel B covers the post-WTO accession period after 2004. In Panel A, we assign the district tariff measured over the post-period of 2009 to 2014 as an explanatory variable to conduct a placebo test. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for four educational categories (completed less than primary school, completed primary school, completed secondary school, and completed university), years of schooling, and indicator variables for being married, being illiterate, and living in a rural area. Robust standard errors in parentheses are clustered at the district level.

## Table A2: Trade Liberalization and Log Monthly Earnings

| | **Panel A: Reported wages sample** | | | | **Panel B: Full sample – imputed wages** | | | |
|---|---|---|---|---|---|---|---|---|
| | Male earnings | | Female earnings | | Male earnings | | Female earnings | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| District tariff | 0.078*** | 0.069*** | 0.039*** | 0.037*** | 0.029*** | 0.021*** | 0.005 | 0.000 |
| | (0.010) | (0.010) | (0.014) | (0.012) | (0.009) | (0.007) | (0.010) | (0.007) |
| Controls for (average) individual characteristics | No | Yes | No | Yes | No | Yes | No | Yes |
| N | 17,799 | 17,757 | 12,685 | 12,661 | 51,037 | 50,995 | 51,400 | 51,376 |

*Notes:* Data are from the 1999, 2003, 2009, and 2014 CSES. The dependent variables are the log monthly earnings reported by male and female workers. In Panel A, we use the sample of individuals who reported their wages, and in Panel B, we impute the wages of employed individuals who did not report their wages. In all specifications, the independent variable is the district tariff variable constructed using employment subsector weights as measured in 1998 and industry-specific tariffs over time. All specifications are estimated conditional on district fixed effects, year fixed effects, and district-specific linear time trends. Columns (2), (4), (6), and (8) also control for individual-level covariates, including age, indicator variables for four educational categories (completed less than primary school, completed primary school, completed secondary school, and completed university), years of schooling, and indicator variables for being married, being illiterate, and living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A3: Trade Liberalization and Migration

| | **Panel A: District population** | | **Panel B: Husband lives away** | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| District tariff | -0.003 | -0.061 | 0.016 | 0.015 |
| | (0.032) | (0.110) | (0.012) | (0.012) |
| Controls for (average) individual characteristics | No | Yes | No | Yes |
| N | 320 | 320 | 30,710 | 30,681 |

*Notes:* Data are from the 1998 and 2008 Cambodian Census in Panel A, and from the 2000, 2005, and 2014 Cambodia DHS in Panel B. The dependent variable in Panel A is the log of district population as reported by the Census data. The dependent variable in Panel B is an indicator variable of whether the respondent's husband lives away from the respondent. In all specifications, the independent variable is the district tariff variable constructed using employment subsector weights as measured in 1998 and industry-specific tariffs over time. All specifications are estimated conditional on district fixed effects, year fixed effects, and district-specific linear time trends. Columns (2) and (4) also control for individual-level covariates, including age, indicator variables for four educational categories (completed less than primary school, completed primary school, completed secondary school, and completed university), years of schooling, an indicator variable for being married, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A4: Trade Liberalization and Labor Market Outcomes: Using the Log of the District Tariff

| **Panel A: Employment Status Outcomes** | | | | | |
|---|---|---|---|---|---|
| | Employment (1) | Unemployment (2) | NILF (3) | | |
| *I. Men* | | | | | |
| Log district tariff | 0.648*** | -0.071 | -0.577*** | | |
| | (0.101) | (0.063) | (0.095) | | |
| N | 657,737 | 657,737 | 657,737 | | |
| *II. Women* | | | | | |
| Log district tariff | -2.364*** | -0.597*** | 2.962*** | | |
| | (0.155) | (0.030) | (0.154) | | |
| N | 738,756 | 738,756 | 738,756 | | |
| *III. Test of coefficient equality between women and men* | | | | | |
| *p*-value | 0.000 | 0.000 | 0.000 | | |
| **Panel B: Employment Outcomes by Type and Sector** | | | | | |
| | All (1) | Manufacturing (2) | Mining (3) | Agriculture (4) | Services (5) |
| *I. Men* | | | | | |
| **Paid Employment** | | | | | |
| Log district tariff | 3.031*** | 0.480*** | 0.753*** | 0.398*** | 1.401*** |
| | (0.130) | (0.017) | (0.076) | (0.057) | (0.099) |
| **Unpaid Employment** | | | | | |
| Log district tariff | -2.630*** | -0.040*** | -0.125*** | -2.479*** | 0.015 |
| | (0.090) | (0.005) | (0.005) | (0.097) | (0.027) |
| **Self-employment** | | | | | |
| Log district tariff | -0.403*** | 0.038** | -0.104*** | -1.250*** | 0.912*** |
| | (0.091) | (0.017) | (0.010) | (0.100) | (0.082) |
| N | 657,737 | 657,737 | 657,737 | 657,737 | 657,737 |
| *II. Women* | | | | | |
| **Paid Employment** | | | | | |
| Log district tariff | 0.817*** | -0.010 | 0.393** | 0.509*** | -0.076 |
| | (0.138) | (0.011) | (0.164) | (0.038) | (0.064) |
| **Unpaid Employment** | | | | | |
| Log district tariff | -3.876*** | 0.005 | -0.451*** | -3.632*** | 0.202*** |
| | (0.140) | (0.003) | (0.008) | (0.157) | (0.071) |
| **Self-employment** | | | | | |
| Log district tariff | -0.728*** | 0.205*** | 0.211*** | -1.615*** | 0.471*** |
| | (0.095) | (0.004) | (0.015) | (0.064) | (0.084) |
| N | 738,756 | 738,756 | 738,756 | 738,756 | 738,756 |

*Notes:* Data are from the 1998 and 2008 Cambodian Census. The explanatory variable is the log of the district tariff variable constructed using employment subsector weights as measured in 1998 and industry-specific tariffs over time. The dependent variables in Panel A are indicator variables for being employed, unemployed, and not in the labor force (NILF). The dependent variables in Panel B are indicator variables for being employed in any sector and for being employed in specific subsectors within different types of employment, including paid, unpaid, and self-employment. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for four educational categories (completed less than primary school, completed primary school, completed secondary school, and completed university), years of schooling, an indicator variable for being married, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A5: Trade Liberalization and Labor Market Outcomes: Reconstructing the District Tariff Excluding Those Industries with the Highest Tariff Declines

| **Panel A: Employment Status Outcomes** | | | |
|---|---|---|---|
| | Employment (1) | Unemployment (2) | NILF (3) |
| *I. Men* | | | |
| District tariff alt. | 0.083*** | -0.009 | -0.074*** |
| | (0.013) | (0.008) | (0.012) |
| N | 657,737 | 657,737 | 657,737 |
| *II. Women* | | | |
| District tariff alt. | -0.303*** | -0.077*** | 0.380*** |
| | (0.020) | (0.004) | (0.020) |
| N | 738,756 | 738,756 | 738,756 |
| *III. Test of coefficient equality between women and men* | | | |
| *p*-value | 0.000 | 0.000 | 0.000 |

| **Panel B: Employment Outcomes by Type and Sector** | | | | | |
|---|---|---|---|---|---|
| | All (1) | Manufacturing (2) | Mining (3) | Agriculture (4) | Services (5) |
| *I. Men* | | | | | |
| **Paid Employment** | | | | | |
| District tariff alt. | 0.389*** | 0.062*** | 0.096*** | 0.051*** | 0.180*** |
| | (0.017) | (0.002) | (0.010) | (0.007) | (0.013) |
| **Unpaid Employment** | | | | | |
| District tariff alt. | -0.337*** | -0.005*** | -0.016*** | -0.318*** | 0.002 |
| | (0.012) | (0.001) | (0.001) | (0.012) | (0.003) |
| **Self-employment** | | | | | |
| District tariff alt. | -0.052*** | 0.005** | -0.013*** | -0.160*** | 0.117*** |
| | (0.012) | (0.002) | (0.001) | (0.013) | (0.011) |
| N | 657,737 | 657,737 | 657,737 | 657,737 | 657,737 |
| *II. Women* | | | | | |
| **Paid Employment** | | | | | |
| District tariff alt. | 0.105*** | -0.001 | 0.050** | 0.065*** | -0.010 |
| | (0.018) | (0.001) | (0.021) | (0.005) | (0.008) |
| **Unpaid Employment** | | | | | |
| District tariff alt. | -0.497*** | 0.001 | -0.058*** | -0.466*** | 0.026*** |
| | (0.018) | (0.000) | (0.001) | (0.020) | (0.009) |
| **Self-employment** | | | | | |
| District tariff alt. | -0.093*** | 0.026*** | 0.027*** | -0.207*** | 0.060*** |
| | (0.012) | (0.000) | (0.002) | (0.008) | (0.011) |
| N | 738,756 | 738,756 | 738,756 | 738,756 | 738,756 |

*Notes:* Data are from the 1998 and 2008 Cambodian Census. The explanatory variable is an alternative measure of the district tariff that is re-constructed to exclude those industries that exhibited the highest tariff declines; this includes wearing apparel, beverages, wood products, and other textiles. Dependent variables in Panel A are indicator variables for being employed, unemployed, and not in the labor force (NILF). The dependent variables in Panel B are indicator variables for being employed in any sector and for being employed in specific subsectors within different types of employment, including paid, unpaid, and self-employment. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for four educational categories (completed less than primary school, completed primary school, completed secondary school, and completed university), years of schooling, an indicator variable for being married, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

TABLE A6: TRADE LIBERALIZATION AND LABOR MARKET OUTCOMES: RECONSTRUCTING THE DISTRICT TARIFF EXCLUDING THOSE INDUSTRIES WITH THE LOWEST TARIFF DECLINES

| **Panel A: Employment Status Outcomes** | | | | | |
|---|---|---|---|---|---|
| | Employment (1) | Unemployment (2) | NILF (3) | | |
| *I. Men* | | | | | |
| District tariff alt. | 0.030*** | -0.003 | -0.027*** | | |
| | (0.005) | (0.003) | (0.004) | | |
| N | 657,737 | 657,737 | 657,737 | | |
| *II. Women* | | | | | |
| District tariff alt. | -0.110*** | -0.028*** | 0.138*** | | |
| | (0.007) | (0.001) | (0.007) | | |
| N | 738,756 | 738,756 | 738,756 | | |
| *III. Test of coefficient equality between women and men* | | | | | |
| *p*-value | 0.000 | 0.000 | 0.000 | | |
| **Panel B: Employment Outcomes by Type and Sector** | | | | | |
| | All (1) | Manufacturing (2) | Mining (3) | Agriculture (4) | Services (5) |
| *I. Men* | | | | | |
| **Paid Employment** | | | | | |
| District tariff alt. | 0.141*** | 0.022*** | 0.035*** | 0.018*** | 0.065*** |
| | (0.006) | (0.001) | (0.004) | (0.003) | (0.005) |
| **Unpaid Employment** | | | | | |
| District tariff alt. | -0.122*** | -0.002*** | -0.006*** | -0.115*** | 0.001 |
| | (0.004) | (0.000) | (0.000) | (0.004) | (0.001) |
| **Self-employment** | | | | | |
| District tariff alt. | -0.019*** | 0.002** | -0.005*** | -0.058*** | 0.042*** |
| | (0.004) | (0.001) | (0.000) | (0.005) | (0.004) |
| N | 657,737 | 657,737 | 657,737 | 657,737 | 657,737 |
| *II. Women* | | | | | |
| **Paid Employment** | | | | | |
| District tariff alt. | 0.038*** | -0.000 | 0.018** | 0.024*** | -0.004 |
| | (0.006) | (0.000) | (0.008) | (0.002) | (0.003) |
| **Unpaid Employment** | | | | | |
| District tariff alt. | -0.180*** | 0.000 | -0.021*** | -0.169*** | 0.009*** |
| | (0.006) | (0.000) | (0.000) | (0.007) | (0.003) |
| **Self-employment** | | | | | |
| District tariff alt. | -0.034*** | 0.010*** | 0.010*** | -0.075*** | 0.022*** |
| | (0.004) | (0.000) | (0.001) | (0.003) | (0.004) |
| N | 738,756 | 738,756 | 738,756 | 738,756 | 738,756 |

*Notes:* Data are from the 1998 and 2008 Cambodian Census. The explanatory variable is an alternative measure of the district tariff that is re-constructed to exclude industries that exhibited the lowest tariff declines; this includes the printing, paper, publishing, and iron and steel industries. The dependent variables in Panel A are indicator variables for being employed, unemployed, and not in the labor force (NILF). The dependent variables in Panel B are indicator variables for being employed in any sector and for being employed in specific subsectors within different types of employment, including paid, unpaid, and self-employment. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for four educational categories (completed less than primary school, completed primary school, completed secondary school, and completed university), years of schooling, an indicator variable for being married, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A7: Trade Liberalization and Labor Market Outcomes: Reconstructing the District Tariff Excluding Off-Diagonal Industries

| **Panel A: Employment Status Outcomes** | | | | | |
|---|---|---|---|---|---|
| | Employment (1) | Unemployment (2) | NILF (3) | | |
| *I. Men* | | | | | |
| District tariff alt. | 0.061*** | -0.007 | -0.054*** | | |
| | (0.010) | (0.006) | (0.009) | | |
| N | 657,737 | 657,737 | 657,737 | | |
| *II. Women* | | | | | |
| District tariff alt. | -0.223*** | -0.056*** | 0.280*** | | |
| | (0.015) | (0.003) | (0.015) | | |
| N | 738,756 | 738,756 | 738,756 | | |
| *III. Test of coefficient equality between women and men* | | | | | |
| *p*-value | 0.000 | 0.000 | 0.000 | | |
| **Panel B: Employment Outcomes by Type and Sector** | | | | | |
| | All (1) | Manufacturing (2) | Mining (3) | Agriculture (4) | Services (5) |
| *I. Men* | | | | | |
| **Paid Employment** | | | | | |
| District tariff alt. | 0.010*** | 0.000 | 0.003*** | -0.006*** | 0.022*** |
| | (0.002) | (0.000) | (0.001) | (0.001) | (0.001) |
| **Unpaid Employment** | | | | | |
| District tariff alt. | 0.004*** | -0.000*** | 0.000*** | 0.010*** | -0.003*** |
| | (0.001) | (0.000) | (0.000) | (0.001) | (0.000) |
| **Self-employment** | | | | | |
| District tariff alt. | -0.014*** | 0.002*** | 0.002*** | -0.001 | -0.017*** |
| | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) |
| N | 657,737 | 657,737 | 657,737 | 657,737 | 657,737 |
| *II. Women* | | | | | |
| **Paid Employment** | | | | | |
| District tariff alt. | -0.025*** | -0.001*** | 0.004* | -0.009*** | -0.011*** |
| | (0.002) | (0.000) | (0.002) | (0.001) | (0.001) |
| **Unpaid Employment** | | | | | |
| District tariff alt. | -0.016*** | -0.000 | 0.001*** | -0.026*** | -0.004*** |
| | (0.002) | (0.000) | (0.000) | (0.002) | (0.001) |
| **Self-employment** | | | | | |
| District tariff alt. | 0.025*** | 0.001*** | 0.001*** | 0.037*** | -0.013*** |
| | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) |
| N | 738,756 | 738,756 | 738,756 | 738,756 | 738,756 |

*Notes:* Data are from the 1998 and 2008 Cambodian Census. The explanatory variable is an alternative measure of the district tariff that is re-constructed to exclude industries that appear to be "off the diagonal"; this includes the petroleum products, furniture, other textiles, wood products, and radio transmitters industries. The dependent variables in Panel A are indicator variables for being employed, unemployed, and not in the labor force (NILF). The dependent variables in Panel B are indicator variables for being employed in any sector and for being employed in specific subsectors within different types of employment, including paid, unpaid, and self-employment. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for four educational categories (completed less than primary school, completed primary school, completed secondary school, and completed university), years of schooling, an indicator variable for being married, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A8: Trade Liberalization and Intimate Partner Violence: Using the Log of the District Tariff

| | Women's employment (1) | Women's employment (2) | Physical violence index (3) | Injury index (4) | Sexual violence index (5) | Psychological violence index (6) | Decision making index (7) |
|---|---|---|---|---|---|---|---|
| Log district tariff | -0.714*** | -0.807*** | -0.821** | -0.825** | -0.639** | -0.808 | 1.112*** |
| | (0.180) | (0.243) | (0.330) | (0.410) | (0.300) | (0.609) | (0.335) |
| N | 34,503 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 16,852 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS. The dependent variables include an indicator variable for whether the respondent is employed and z-score indices constructed by simple averages of indicator variables representing physical violence, physical injury, sexual violence, psychological violence, and decision making. In all specifications, the independent variable is the log of the district tariff variable constructed using employment subsector weights as measured in 1998 and industry-specific tariffs over time. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A9: Trade Liberalization and Intimate Partner Violence: Reconstructing the District Tariff Excluding Those Industries with the Highest Tariff Declines

| | Women's employment (1) | Women's employment (2) | Physical violence index (3) | Injury index (4) | Sexual violence index (5) | Psychological violence index (6) | Decision making index (7) |
|---|---|---|---|---|---|---|---|
| District tariff alt. | -0.130*** | -0.167*** | -0.149* | -0.150* | -0.118** | -0.116 | 0.178** |
| | (0.035) | (0.039) | (0.077) | (0.091) | (0.050) | (0.148) | (0.080) |
| N | 34,503 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 16,852 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS. The dependent variables include an indicator variable for whether the respondent is employed and z-score indices constructed by simple averages of indicator variables representing physical violence, physical injury, sexual violence, psychological violence, and decision making. In all specifications, the independent variable is an alternative district tariff measure that is reconstructed to exclude those industries with the highest tariff declines (including wearing apparel, beverages, wood products, and other textiles). All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A10: Trade Liberalization and Intimate Partner Violence: Reconstructing the District Tariff Excluding Those Industries with the Lowest Tariff Declines

| | Women's employment (1) | Women's employment (2) | Physical violence index (3) | Injury index (4) | Sexual violence index (5) | Psychological violence index (6) | Decision making index (7) |
|---|---|---|---|---|---|---|---|
| District tariff alt. | -0.099*** | -0.115*** | -0.118** | -0.110* | -0.089** | -0.102 | 0.152*** |
| | (0.026) | (0.032) | (0.057) | (0.064) | (0.041) | (0.113) | (0.058) |
| N | 34,503 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 16,852 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS. The dependent variables include an indicator variable for whether the respondent is employed and z-score indices constructed by simple averages of indicator variables representing physical violence, physical injury, sexual violence, psychological violence, and decision making. In all specifications, the independent variable is an alternative district tariff measure that is reconstructed to exclude those industries with the lowest tariff declines (including printing, paper, publishing, and iron and steel industries). All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A11: Trade Liberalization and Intimate Partner Violence: Reconstructing the District Tariff Excluding Off-Diagonal Industries

| | Women's employment (1) | Women's employment (2) | Physical violence index (3) | Injury index (4) | Sexual violence index (5) | Psychological violence index (6) | Decision making index (7) |
|---|---|---|---|---|---|---|---|
| District tariff alt. | -0.105*** | -0.123*** | -0.126** | -0.114** | -0.095** | -0.110 | 0.167*** |
| | (0.026) | (0.033) | (0.053) | (0.061) | (0.042) | (0.101) | (0.055) |
| N | 34,503 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 | 16,852 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS. The dependent variables include an indicator variable for whether the respondent is employed and z-score indices constructed by simple averages of indicator variables representing physical violence, physical injury, sexual violence, psychological violence, and decision making. In all specifications, the independent variable is an alternative district tariff measure that is reconstructed to exclude industries that appear to be "off the diagonal" (including petroleum products, furniture, other textiles, wood products, and radio transmitters industries). All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

## Table A12: Alternative Channels: Using the Log of the District Tariff

| | Panel A: Women's marital status | | Panel B: Fertility outcomes | | Panel C: Psychological problems | |
|---|---|---|---|---|---|---|
| | Married (1) | Divorced widowed separated (2) | Number of children (3) | Number of young children (4) | Men (5) | Women (6) |
| Log district tariff | 0.048 | 0.057 | 1.067 | 0.113 | 0.064 | -0.037 |
| | (0.102) | (0.065) | (0.758) | (0.324) | (0.149) | (0.172) |
| N | 48,797 | 48,797 | 34,591 | 34,591 | 50,101 | 56,135 |

| | Panel C: Husband's behavior | | Panel D: Women's educational attainment | | | |
|---|---|---|---|---|---|---|
| | Husband is jealous when respondent talks to other men (1) | Husband accuses respondent of unfaithfulness (2) | Years of schooling (3) | Completed primary school (4) | Completed secondary school (5) | Completed higher school (6) |
| Log district tariff | -0.218 | -0.224 | -0.847 | -0.307 | -0.126 | -0.069 |
| | (0.488) | (0.378) | (0.645) | (0.261) | (0.321) | (0.081) |
| N | 7,977 | 7,987 | 34,623 | 34,624 | 34,624 | 34,624 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS for all panels except Panel C, where the data are from the 2003, 2009, and 2014 CSES. The explanatory variable is the log of the district tariff. The dependent variables in Panel A are indicator variables for whether the respondent is married or whether she is divorced, widowed, separated. The dependent variables in Panel B are the number of children the respondent has and the number of children under the age of 5 that the respondent has. The dependent variables in Panel C are indicator variables for whether the respondent reports that he/she experienced psychological or emotional difficulties, or has become extremely upset within the last month. Dependent variables in Panels D and E are an indicator variable for whether the respondent's husband is jealous when the respondent talks to other men; an indicator variable for whether the respondent's husband accuses the respondent of unfaithfulness; the respondent's years of schooling; and indicator variables for whether the respondent completed a particular degree (including primary, secondary, or higher schools). All panels report reduced-form regression results using the district tariff variable as an explanatory variable. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A13: Alternative Channels: Reconstructing the District Tariff Excluding Those Industries with the Highest Tariff Declines

| | Panel A: Women's marital status | | Panel B: Fertility outcomes | | Panel C: Psychological problems | |
|---|---|---|---|---|---|---|
| | Married (1) | Divorced widowed separated (2) | Number of children (3) | Number of young children (4) | Men (5) | Women (6) |
| District tariff alt. | 0.010 | 0.009 | 0.216 | 0.016 | 0.000 | -0.003 |
| | (0.018) | (0.011) | (0.157) | (0.060) | (0.007) | (0.007) |
| N | 48,797 | 48,797 | 34,591 | 34,591 | 50,101 | 56,135 |

| | Panel C: Husband's behavior | | Panel D: Women's educational attainment | | | |
|---|---|---|---|---|---|---|
| | Husband is jealous when respondent talks to other men (1) | Husband accuses respondent of unfaithfulness (2) | Years of schooling (3) | Completed primary school (4) | Completed secondary school (5) | Completed higher school (6) |
| District tariff alt. | -0.038 | -0.039 | -0.187 | -0.045 | -0.042 | -0.014 |
| | (0.095) | (0.080) | (0.134) | (0.062) | (0.073) | (0.017) |
| N | 7,977 | 7,987 | 34,623 | 34,624 | 34,624 | 34,624 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS for all panels except Panel C, where the data are from the 2003, 2009, and 2014 CSES. The explanatory variable is an alternative measure of the district tariff that is re-constructed to exclude industries that exhibited highest tariff declines; this includes wearing apparel, beverages, wood products, and other textiles. The dependent variables in Panel A are indicator variables for whether the respondent is married, or whether she is divorced, widowed, separated. The dependent variables in Panel B are the number of children the respondent has, and the number of children under the age of 5 that the respondent has. The dependent variables in Panel C are indicator variables for whether the respondent reports that he/she experienced psychological or feeling difficulties, or has become extremely upset within the last month. Dependent variables in Panels D and E are an indicator variable for whether the respondent's husband is jealous when the respondent talks to other men; an indicator variable for whether the respondent's husband accuses the respondent of unfaithfulness; the respondent's years of schooling; indicator variables for whether the respondent completed a particular degree (including primary, secondary, or higher schools). All panels report reduced-form regression results using the district tariff variable as an explanatory variable. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

Table A14: Alternative Channels: Reconstructing District Tariff Excluding Industries with Lowest Tariff Declines

| | Panel A: Women's marital status | | Panel B: Fertility outcomes | | Panel C: Psychological problems | |
|---|---|---|---|---|---|---|
| | Married (1) | Divorced widowed separated (2) | Number of children (3) | Number of young children (4) | Men (5) | Women (6) |
| District tariff alt. | 0.005 | 0.009 | 0.172 | 0.005 | 0.001 | 0.002 |
| | (0.014) | (0.009) | (0.122) | (0.048) | (0.003) | (0.002) |
| N | 48,797 | 48,797 | 34,591 | 34,591 | 50,101 | 56,135 |

| | Panel C: Husband's behavior | | Panel D: Women's educational attainment | | | |
|---|---|---|---|---|---|---|
| | Husband is jealous when respondent talks to other men (1) | Husband accuses respondent of unfaithfulness (2) | Years of schooling (3) | Completed primary school (4) | Completed secondary school (5) | Completed higher school (6) |
| District tariff alt. | -0.030 | -0.025 | -0.138 | -0.033 | -0.031 | -0.012 |
| | (0.076) | (0.061) | (0.103) | (0.047) | (0.057) | (0.013) |
| N | 7,977 | 7,987 | 34,623 | 34,624 | 34,624 | 34,624 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS for all panels except Panel C, where the data are from the 2003, 2009, and 2014 CSES. The explanatory variable is an alternative measure of the district tariff that is re-constructed to exclude industries that exhibited the lowest tariff declines; this includes the printing, paper, publishing, and iron and steel industries. The dependent variables in Panel A are indicator variables for whether the respondent is married or whether she is divorced, widowed, separated. The dependent variables in Panel B are the number of children the respondent has and the number of children under the age of 5 that the respondent has. The dependent variables in Panel C are indicator variables for whether the respondent reports that he/she experienced psychological or feeling difficulties, or has become extremely upset within the last month. The dependent variables in Panels D and E are an indicator variable for whether the respondent's husband is jealous when the respondent talks to other men; an indicator variable for whether the respondent's husband accuses the respondent of unfaithfulness; the respondent's years of schooling; and indicator variables for whether the respondent completed a particular degree (including primary, secondary, or higher schools). All panels report reduced-form regression results using the district tariff variable as an explanatory variable. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.

TABLE A15: ALTERNATIVE CHANNELS: RECONSTRUCTING THE DISTRICT TARIFF EXCLUDING OFF-DIAGONAL INDUSTRIES

| | Panel A: Women's marital status | | Panel B: Fertility outcomes | | Panel C: Psychological problems | |
|---|---|---|---|---|---|---|
| | Married | Divorced widowed separated | Number of children | Number of young children | Men | Women |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| District tariff alt. | 0.006 | 0.009 | 0.163 | 0.014 | 0.000 | 0.002 |
| | (0.015) | (0.010) | (0.121) | (0.049) | (0.003) | (0.002) |
| N | 48,797 | 48,797 | 34,591 | 34,591 | 50,101 | 56,135 |

| | Panel C: Husband's behavior | | Panel D: Women's educational attainment | | | |
|---|---|---|---|---|---|---|
| | Husband is jealous when respondent talks to other men | Husband accuses respondent of unfaithfulness | Years of schooling | Completed primary school | Completed secondary school | Completed higher school |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| District tariff | -0.036 | -0.036 | -0.134 | -0.045 | -0.020 | -0.010 |
| | (0.076) | (0.061) | (0.101) | (0.043) | (0.053) | (0.013) |
| N | 7,977 | 7,987 | 34,623 | 34,624 | 34,624 | 34,624 |

*Notes:* Data are from the 2000, 2005, and 2014 Cambodia DHS for all panels except Panel C, where the data are from the 2003, 2009, and 2014 CSES. The explanatory variable is an alternative measure of the district tariff that is re-constructed to exclude industries that appear as "off-diagonal"; this includes petroleum products, furniture, other textiles, wood products, and radio transmitters industries. The dependent variables in Panel A are indicator variables for whether the respondent is married or whether she is divorced, widowed, separated. The dependent variables in Panel B are the number of children the respondent has and the number of children under the age of 5 that the respondent has. The dependent variables in Panel C are indicator variables for whether the respondent reports that he/she experienced psychological or emotional difficulties, or has become extremely upset within the last month. The dependent variables in Panels D and E are an indicator variable for whether the respondent's husband is jealous when the respondent talks to other men; an indicator variable for whether the respondent's husband accuses the respondent of unfaithfulness; and the respondent's years of schooling; indicator variables for whether the respondent completed a particular degree (including primary, secondary, or higher schools). All panels report reduced-form regression results using the district tariff variable as an explanatory variable. All specifications are estimated conditional on district fixed effects, year fixed effects, district-specific linear time trends, and individual-level covariates, including age, indicator variables for three educational categories (completed primary school, completed secondary school, and higher school), years of schooling, an indicator variable for being married, indicator variables for the literacy level, and an indicator variable for living in a rural area. Robust standard errors in parentheses are clustered at the district level.