Women's Access to Labor Market Opportunities, Control of Household Resources, and Domestic Violence: Evidence from Bangladesh

Rachel Heath

Department of Economics

the University of Washington

Box 353330; Savery 305

Seattle, WA 98103

rmheath@uw.edu

phone: +1 (206) 543-5796

fax: +1 (206) 685-7477

July 26, 2013

Abstract

While there are many positive societal implications of increased female labor force opportunities, working may increase a woman's risk of suffering domestic violence. Using a dataset I collected in sixty villages outside of Dhaka, Bangladesh, I document a positive correlation between work and domestic violence, but only among women with less education or who were younger at first marriage. These results are consistent with a theoretical model in which a woman with low bargaining power can face increased risk of domestic violence upon entering the labor force as her husband seeks to counteract her increased bargaining power.

Keywords: domestic violence; female labor force participation; intra-household bargaining; South Asia; Bangladesh

Acknowledgments

I thank Elena Bardasi, John Giles, Elaina Rose, Gil Shapira, Adam Wagstaff, three anonymous reviewers, the editor, and seminar audiences at the Population Association of America 2012 meetings, the 2012 Northeast Universities Development Consortium Conference, and the University of Washington Labor-Development lunch for helpful comments. This paper was written in part while Heath was employed by the World Bank, but the findings, interpretations and conclusions expressed in this paper are entirely those of the author, and do not necessarily represent the views of the World Bank, its Executive Directors, or the governments of the countries they represent.

1. INTRODUCTION

Access to labor market opportunities is frequently believed to improve the lives of women. For instance, promoting women's access to economic opportunities is listed in the World Bank's 2012 World Development Report as one of its top five policy priorities in promoting gender equality. Indeed, there are both theoretical arguments and empirical evidence that females' access to labor market opportunities decreases early marriage and childbearing (Singh and Samara 1996; Jensen 2012) and improves women's bargaining power within the household (Dharmalingam and Morgan 1996; Rahman and Rao 2004; Anderson and Eswaran 2009; Majlesi 2012). Moreover, labor force opportunities can increase health and educational investments in children of mothers who work (Luke and Munshi 2011; Atkin 2009) or whose parents enroll them in school to improve their chances of gaining better jobs in the future (Oster and Millett in press; Heath and Mobarak 2011).

However, job opportunities may have unintended negative consequences for women if work changes relations within the household and their husbands respond with increased domestic violence. Theoretical household bargaining models show how a woman's access to economic opportunities can either decrease or increase violence, depending on her initial level of bargaining power (Tauchen, Witte, and Long 1991; Rao 1997; Eswaran and Malhotra 2011). A woman could face higher risk of domestic violence after beginning work as her husband seeks to offset the increased bargaining power that her income would otherwise bring her. Alternatively, an increase in bargaining power for a woman who already has high bargaining power can decrease domestic violence, since work opportunities increase her ability to flee a bad marriage. These types of models, which posit that domestic violence is a tool used by men to control household resources or the behavior of household members, are often called instrumental violence theories. By contrast, expressive violence theories argue that violence serves a direct purpose, such as relieving frustration.

Empirical tests of the effects of work opportunities on domestic violence have demon-

strated both possibilities: Hjort and Villanger (2011) find that randomized job offers from Ethiopian flower factories increase likelihood that a woman suffers physical violence, while Aizer (2010) finds that increases in relative female wages decrease domestic violence in the U.S, where women presumably do have higher baseline bargaining power. Other studies show mixed results on the correlation between whether a woman works and domestic violence (Vyas and Watts 2009).[1]

This paper documents evidence of this heterogeneity within a common population. I examine the relationship between a woman's labor force participation, variables that proxy her bargaining power before entering the labor force, and likelihood that the has suffered domestic violence. I use unique data that I collected in a set of sixty villages just outside of Dhaka, Bangladesh that are particularly diverse in population and job characteristics. These villages have become increasing influenced by the growth of Dhaka and its surrounding garment factories, but retain some of the traditions of village life (such as an extended family living together in an arrangement called a *bari*). I find a descriptive relationship between these variables that is consistent with a model in which a woman's bargaining power before entering the labor force is an important determinant of whether she faces domestic violence upon entering the labor force. Specifically, there is a positive correlation between whether a woman works and the possibility she suffers domestic violence, but this correlation disappears amongst women who are more educated or were older at first marriage.

These results are consistent with qualitative evidence from fieldwork in Bangladesh and existing quantitative evidence. Specifically, women I interviewed during my fieldwork described how receiving a salary allows them to feel more comfortable asserting a say in household decision-making but that this assertiveness can lead to conflicts, which might break down into violence. Along these lines, Friedemann-Sánchez and Lovatón (2012) and Flake and Forste (2006) both find that households in Colombia and throughout Latin America, respectively, in which the woman has most of the decision-making

power have higher levels of domestic violence than households with egalitarian decision-making. Existing qualitative evidence also documents the relationship between employment opportunities and woman's outside option: Kabeer (1997) points out that factory employment allows a woman to flee bad conditions within a marriage. A nontrivial number of garment workers do actually leave bad situations (Sultan Ahmed and Bould 2004, suggesting that this is a valid option. Furthermore, as would be predicted by a household bargaining model, Kabeer (1997) points out that the ability to leave improves a woman's treatment even if she does not actually leave. If less educated women – who do tend to earn less than non-educated women in Bangladesh (Pitt, Rosenzweig, and Hassan 2012) – are less able to provide for themselves on their own, then they may not be able to translate work opportunities into less violence through the credible threat to leave a violent marriage.

I then utilize the detailed information I collected on other household variables to look for evidence for alternative models proposed by different disciplines that could explain the positive correlation between work and domestic violence among women with less education or a higher age at marriage (which I will refer to jointly as lower status women). However, I do not find evidence consistent with an assortative matching story in which higher status women attract more enlightened husbands who do not resort to domestic violence to reassert control after a woman enters the labor force. I also do not find support for predictions of theories of expressive violence or backlash, in which men use violence to reassert their masculine identity in response to woman's newfound earnings potential (Barker 2001; Barker and Ricardo 2005) or mobility (Rafi, Banu, Alim, and Akter 2003). Finally, the results are also inconsistent with a model in which lower status women tend to join the labor force in response to a negative economic shock, which might both frustrate their husband and incite domestic violence (Renzetti 2009). Crucial to disentangling these stories is the fact I collected data on assets and income (including from agriculture and household enterprise) as well as measures of domestic violence, which are rare to have in

the same data.

Previous literature on domestic violence and female labor force participation has not focused on how a woman's characteristics affect whether she faces domestic violence upon entering the labor force. Documenting this heterogeneity is important to policy-makers who want to target interventions at female workers who are particularly likely to suffer domestic violence. Moreover, the results in this paper can help explain how studies in various settings have found both positive, negative, and zero correlation between domestic violence and women's labor force participation. These studies may all be consistent with the instrumental violence model implied by the findings in this paper, which predicts that the relationship between female labor force participation and domestic violence depends on the baseline level of bargaining power of women in the population studied. So while raising women's bargaining power high enough can allow her to escape domestic violence, increased bargaining power among women who have low baseline bargaining power may increase domestic violence. It is therefore important to consider this possibility when designing programs meant to improve women's access to the labor force or empowerment more generally.

2. EMPIRICAL STRATEGY

(a) Data

The data for this paper come from a survey of 1395 households outside of Dhaka, Bangladesh that I conducted, along with Mushfiq Mobarak. The survey took place from August to October, 2009. The sampling frame of the survey was every household[2] in 60 villages located in four subdistricts (Savar and Dhamrai in Dhaka District; Gazipur Sadar and Kaliakur in the Gazipur District). For each household selected for the survey, both the male and female heads of the household were surveyed. The male was asked about the household's assets and joint income, the female was asked about children's health and

education and her status within the home (including domestic violence), and both were asked about their own labor force participation and earnings. The husband knew that his wife would be surveyed, but not the details of the questions or that she would be asked about domestic violence.

The survey villages are close to Dhaka but not within the city; the average reported travel time into Dhaka is 30 minutes. On average, each village has 1782 people living in 465 households. This area has many garment factories: 34 percent of sampled women between the ages of 18 and 35 work in the garment industry. Unlike garment factories within large cities, though, the factories in which survey respondents work rarely have dormitories. Instead, garment workers commute (traveling an average of 18 minutes one-way) to factories but live in standard household arrangements. Many households are migrants from other areas of Bangladesh[3]; only 39.7 percent of male household heads and 34.3 percent of female household heads[4] were born in the subdistrict in which they are now residing. Information gathered during our fieldwork suggests that these villages are cohesive villages that have existed for a long time but have had their demographic composition and economic opportunities affected by the widening borders of Dhaka.

Table 1 here

Table 1 provide summary statistics of married women in the data, broken down by whether they are currently working for pay. Since women who work for pay are on average younger (27.7 years old) than women who do not work for pay (who are on average 34.1 years old), I also display the difference in means (women who work outside the home vs. women who do not) after controlling for age. Taking into account these age differences is important. For instance, while women who work for pay on average have 0.7 years more education than those who do not, a woman who works for pay has on average 0.4 years less education than a woman of the same age who does not work for pay. Despite less education, women who work for pay have a marginally higher age at marriage, fewer children, and a smaller age difference between husband and wife,

relative to women the same age who do not work for pay. They are also considerably more likely to be migrants than women who do not work for pay: 2.9 percent of women who work for pay are originally from the village in which they are currently living, versus 13.5 percent of women who do not work for pay.

There are similarly nuanced results on the overall economic household economic standing of households in which the wife does or does not work for pay. The husband is more likely to work for pay if the wife does (85 percent, versus 55 percent of husbands whose wives do not work for pay). However, if the husband does work for pay, those whose wives do not work for pay earn significantly more than those whose wives do not work for pay. Households in which the woman works for pay are more likely to have a cement floor, but the overall value of household assets are lower in households in which the wife does not work for pay.

Table 1 also reports variables that reflect the women's status within the home. While it is unsurprising that women workers leave the household compound (bari) much more often than workers due to their work schedules, they also report a greater say in household decisions and a smaller likelihood of needing a husband's permission to buy something for themselves. However, women who work for pay are no less likely than women who do not work for pay to say that it is ever justified for a husband to beat his wife and actually 4.5 percentage points more likely to have ever been beaten by their husband than a woman of the same age who does not work ($P = 0.109$). The empirical evidence in this paper will focus on investigating why women who work report greater control over household resources but do not seem to be able to translate this higher bargaining power over income into reductions in the violence that they face.

Table 2 here

Table 2 provides summary statistics of the nature of the work done by women who work for pay. Seventy-eight percent of women who work for pay are in the garment industry. These workers typically work long hours, an average of 11.78 hours per day

versus 8.34 hours per day for nongarment workers. The average and standard deviation of wages is similar for garment and other workers. The overall average wage of 3018 taka per month is approximately 36 dollars US and approximately twice the minimum wage at the time of the survey of 1662 taka per month. The typical garment worker has been working for 3.9 years and the typical non-garment worker has been working for 6.9 years.

(b) Measures

Measures of domestic violence and women's status used in the analysis come from the survey module administered to the wife of the household head (or the head if the household is female-headed). Because of the sensitive nature of questions about a woman's status within the household and domestic violence, we used female enumerators for this module and instructed them to politely inform other household members, including the husband, that these questions should be answered in private. Furthermore, we asked enumerators to record if, despite this request, the husband insisted on being present in the interview, which occurred in 17 percent of interviews. There was no statistically significant difference, however, in reported domestic violence in interviews in which the husband was present.

To conduct a direct test of a theory in which domestic violence increases in response to a woman's increased bargaining power upon entering the labor force, I would need information on the incidence of domestic violence throughout marriage that I could compare with the woman's work history. Instead, I am only able to use a cumulative measure of exposure: the woman's response to the question "Has your husband ever beaten you?" In response, 63.6 percent of women answered "no", 8.8 answered "once", 26.9 percent answered "more than once", and 0.8 percent answered "regularly". Of course, this cumulative measure is correlated with the current incidence of domestic violence, but I cannot rule out a reverse causality story in which women begin working to escape domestic violence.[5] In section 4, I argue that future work should prioritize the collection of data on the

incidence of domestic violence over time, which would allow an examination of the possibility that the relationship between a woman's status, domestic violence and whether she works for pay is driven by reverse causality. Another limitation to the data is that I do not have information on other dimensions of domestic violence – such as emotional abuse, forced sexual intercourse, or other types of physical violence – which is also prevalent in developing countries (Garcia-Moreno, Jansen, Ellsberg, Heise, and Watts 2006).

The main outcome I use is a binary variable that is equal to one if the wife has ever been beaten, which 35.4 percent were.[6] The cumulative prevalence of severe physical violence in my survey lines up roughly with the rates from Dhaka district of a recent nationally representative survey, the 2007 Demographic and Health Survey. Specifically, of the married women surveyed in the the 2007 DHS, 22.7 percent of women in Dhaka district (21.1 percent nationally) report ever having been punched with a fist or something harmful, kicked or dragged, or suffered attempted strangulation or burning at the hands of a spouse. The prevalence of domestic violence jumps to 50.2 percent (48.2 percent nationally) if the measure is expanded to include ever having been pushed, shook, or had something thrown at, and been slapped or had an arm twisted.

To help differentiate between the different mechanisms behind the correlation between work and domestic violence, I also examine the relationship between labor force participation and whether a woman can make spending decisions for herself and participates in household decision-making. Specifically, I use answers to the following questions:

- Do you need permission from your husband if you want to spend less than 100 Taka? More than 300 Taka? (yes/no)
- Do you need permission from your husband if you want to buy something for yourself? (e.g. bangles, coconut oil, soap)
- Does your husband consult with you often about household decisions?

(never/sometimes/often/always)

I both consider the relationship between work, age at marriage, and education with each of these measures independently, using ordered probit models, and combine them into a composite index by converting them to a series of dummy variables, and then using the first principal component from a principal components analysis. This index focuses on the "authority" component of women's autonomy (Balk 1994), compared to the leniency her household gives her, the mobility she has, or the attitudes she and her households has about gender roles. Self-reported decision-making authority has been found to correspond to observed behavior (Ashraf 2009) and has been found to be an important determinant of domestic violence in other settings (Coleman and Straus 1986; Flake and Forste 2006; Friedemann-Sánchez and Lovatón 2012).

While these variables are interesting precisely because they are likely to change in response to a women's labor force participation, it is also crucial to have measures of a woman's bargaining power within the household but are typically predetermined at the time a woman enters the labor force. I use two primary measures of predetermined bargaining power, age at marriage and education.[7] A higher age at marriage is associated with greater bargaining power within the household (Jensen and Thornton 2003; Mathur, Greene, and Malhotra 2003), and most (82 percent) of the women in the sample who work began working after marriage. Education is also associated with a higher status within the household in Bangladesh and other locations (Malhotra, Schuler, et al. 2005; Quisumbing and Hallman 2003) and is almost always finished before beginning work or marriage in the Bangladeshi context (Field and Ambrus 2008).

Note that a causal interpretation of the effect of age at marriage or education on bargaining power is not necessary in order to interpret these variables as measures of woman's bargaining power in a household bargaining framework. It is possible, for instance, that conservative families tend to marry their daughters off more early, and it is this conservative upbringing, rather than a young age at marriage, that lowers the wife's

bargaining power. In that case, age at marriage serves as a proxy for these cultural factors, and the fact that women who entered marriage earlier suffer more domestic violence upon entering the labor force is still consistent with the intra-household bargaining framework used in this paper.

Table 3 here

Because the household bargaining framework used in the paper posits that the mechanism through which age at marriage and education are protective against domestic violence is through a woman's improved outside option, I use the 2007 DHS to provide information on separation rates by education level and age at marriage. Whether educated women have higher rates of separation depends on whether you consider marriages in which the husband and wife live separately – but the woman reports her marital status as "married" – as separated.[8] Table 3 shows that when using the broader definition of separation, 16.1 percent of women in Dhaka division with 5 or more years of education were separated (compared to 12.9 percent of women with less than 5 years of education) and 15.4 percent of women in Dhaka division who were over 15 or older at marriage were separated (compared to 13.7 percent of women younger than 15 at marriage). Therefore, while it is impossible to tell which separations are due to the fact that the woman really wanted to leave, more educated women are more likely to actually be living away from their husbands. Another consideration is that actually leaving may not reflect the ability to leave, if woman can translate the ability to leave into better treatment in a marriage (as a household bargaining model, such as the type used in this paper, predicts) or women with more education or higher age at marriage enter into marriages with partners less prone to violence and mistreatment.

A final set of important variables are the measures of household income and assets, which I use to investigate the possibility that economic hardship is both driving women into the labor force and prompting domestic violence. Household income is calculated by taking the sum of wage income of each household member[9], and subtracting total

costs from revenues from each household enterprise and crop grown by the household. I look separately at total household income, and the income by the husband and wife separately, since the identity of the income earner could matter. The household's total assets were calculated by taking the sum of the current value of agricultural land, homestead land (including house), other real estate, rickshaw, cart/van, cows/buffaloes/goats, fan, radio/cassette player, television, bicycle, wall/table clock, furniture, sewing machine, freezer, mobile phone, and other assets.

(c) Empirical model

The theoretical model described in the introduction predicts a heterogeneous relationship between whether a woman works and domestic violence, based on her initial bargaining position upon entering the labor force. Accordingly, while I begin by estimating a probit model that assesses the overall relationship between work and domestic violence:

$$Pr(Ever\ Beaten)_i = \beta Work_i + \epsilon_i \tag{1}$$

I then estimate a model that allows the effects of work on domestic violence to vary by a woman's education and age at marriage:

$$Pr(Ever\ Beaten)_i = \beta_1 Work_i + \beta_2 Education_i + \beta_3 Work_i \times Education_i + \epsilon_i \tag{2}$$

$$Pr(Ever\ Beaten)_i = \beta_1 Work_i + \beta_2 MarriageAge_i + \beta_3 Work_i \times MarriageAge_i + \epsilon_i \tag{3}$$

The household bargaining model predicts that $\beta_1 > 0$ and $\beta_3 < 0$ in both equations: working for pay is correlated with higher domestic violence, but this effect is lessened among women with higher baseline bargaining power (as proxied by a higher age at marriage or more education). To assess whether the interaction term captured by β_3 is indeed linear, I also estimate Lowess curves of the relationship between age at marriage and education and domestic violence, separately by a woman's work status. Prior re-

search has also found that education and higher age at marriage are associated with less domestic violence even if a woman does not work outside the home (Abramsky et al. 2011; Koenig, Ahmed, Hossain, and Mozumder 2003; Jejeebhoy and Cook 1997), so I also expect that $\beta_2 > 0$ in both equations.

3. RESULTS

(a) Women's characteristics, work, and domestic violence

Table 4 here

Figure 1 here

Table 4 shows estimates of equations 1 - 3, which assess the overall relationship between work and domestic violence, and how this relationship varies with the wife's age, education and age at marriage. I convert the coefficients from the probit model to marginal effects, which I evaluate at the mean of the independent variable. The first column shows that a woman who works for pay is 4.7 percentage points more likely to have ever suffered domestic violence than a woman the same age who does not work for pay, although this difference is not statistically significant at conventional levels ($P = 0.169$). Column 2 shows that this insignificant average effect masks substantial work-age interactions. Specifically, the probability that a woman has ever suffered domestic violence increases by 0.3 percentage points each year she ages, but an additional 1.1 percentage points per year if she works for pay.[10] To assess visually whether the age-work interaction is indeed linear, figure 1 shows a Lowess curve of relationship between age and domestic violence, estimated separately among women who work and women who do not. Women below approximately age 24 who work for pay suffer less domestic violence than women who do work. The prevalence of domestic violence among women who work for pay increases steeply with age until approximately age 30 and then levels off.[11]

Figure 2 here

Column 3 of table 4 and figure 2 depict the relationship between domestic violence, work, and age at marriage. While there is not a statistically significant relationship between age at first marriage and domestic violence among woman who do not work for pay, a one year increase in age at marriage is associated with a 2.7 percentage point decrease in the probability of domestic violence for women who work for pay, compared to those who do not. Figure 2 shows that there is particularly high prevalence of domestic violence among women who work for pay who were 13 or younger when first married; for women married at age 14 and older there is little difference in domestic violence between those who work for pay and those who do not.[12]

Figure 3 here

Similarly, column 4 of table 4 and figure 3 show the relationship between domestic violence, work, and education. An additional year of education is associated with a statistically significant 1.4 percentage point decrease in the probability that a woman has suffered domestic violence. Among women who work for pay the statistically significant decrease in domestic violence associated with an additional year of education is an additional 1.5 percentage points. Similar to the case with age at marriage, figure 3 shows that women with very low education (2 years or less) who work for pay suffer especially high rates of domestic violence. At higher levels of education, an additional year of education is associated with the same decrease in prevalence of domestic violence for women who work for pay and women who do not.

These results are consistent with a theory of instrumental violence in the context of intra-household bargaining, in which a woman with higher bargaining power before entering the labor force (as proxied by her education or age at marriage) is less likely to face domestic violence upon entering the labor force. The mechanism is not that work is associated with higher increases in autonomy among educated women or women with

greater age at marriage, but rather that these women have more autonomy even before they begin working. Accordingly, I can provide further evidence for the instrumental violence theory by examining the relationship between these variables and the intermediate outcome of autonomy. Specifically, the theory predicts higher levels of autonomy among women who work, and women with more education or greater age at marriage, but not a positive interaction between the two.

Table 5 here

Table 5 tests this theory using three measures of self-reported decision-making power as well as a the first principal component from a principal components analysis that combines the first three. Overall, the three main patterns that emerge provide further support for an intra-household bargaining theory of domestic violence. First, panel A shows that work is associated with higher autonomy. Second, panels B and C show that education is significantly correlated with higher autonomy (age at marriage is correlated with higher autonomy, but not significantly so); the same relationship has been found in various other developing country contexts (Lloyd, Young, and Council 2009). Third, there is no evidence that work is associated with differentially higher autonomy in women with more education or higher age at marriage: the point estimate on the interaction between education and work is actually negative (although not statistically significant at convention levels, $P = 0.163$)[13] in the column 4 regression that uses the composite autonomy measure, suggesting that work and education are not complements (if anything, look more like substitutes) in raising a woman's bargaining power.

(b) Alternative explanations

Having established a relationship between a woman's status, bargaining power, and domestic violence, I next examine whether patterns in the data are consistent with theories of violence other than an instrumental violence model. I first examine whether

there is evidence that assortative matching in the marriage market pairs educated or older women with husbands with more education or who are closer in age to their wives, who may also be less inclined toward domestic violence overall and when their wives work in particular.

Table 6 here

If assortative matching on these dimensions is the reason why the positive correlation between women's work and domestic violence disappears among higher-status women, then controlling for husband's education or his age relative to his wife will decrease the magnitude of the interaction term between the wife's education or age at marriage and work. However, columns 1 and 2 of table 6 show that, conditional on wife characteristics, both the main effects of the age difference between a husband and wife and his education, as well as the interactions between these variables and whether the wife works, are uncorrelated with domestic violence. Meanwhile, the wife characteristics remain almost identical to the magnitude of those in table 4, which are unconditional on husband characteristics.

The results of table 6 also provide some evidence against a backlash story, at least among husbands whose characteristics the existing literatures suggests are particularly likely to resort to violence to express frustration. Jewkes (2002) argues that when men are frustrated by their inability to attain the material success that they associate with modern masculine ideals, new ideals of masculinity centered on misogyny emerge. Violence of this type is especially common within households where the man has a lower status – for instance, less education or less occupational prestige – than his wife (Jewkes 2002; Yllö and Bograd 1988). The results in columns 1 and 4 run counter to this type of backlash story: there is no stronger relationship between domestic violence and work if a wife's education or wage (a proxy for educational prestige) is high relative to her husband.[14] Other research has found that women in India (ICEN 2000) and Canada (Macmillan and Gartner 1999) who work outside the home – but whose husbands do not work outside

the home – are particularly at risk for domestic violence, concluding that unemployment may be another risk factor for the sort of disempowerment that leads husbands to express their frustration through violence. By contrast, I find the opposite result: the third column of table 6 shows the correlation between whether a woman works and domestic violence is actually higher if her husband is employed outside the home.[15]

Another potential source of expressive violence is that a husband is primarily angered by the fact that participating in the labor force causes her to violate the social norm of *purdah*, or female seclusion. While women are generally more mobile in urban or suburban areas such as the surveyed villages in this paper than in rural areas, the sentiment of purdah is still influential in these areas (Salway, Jesmin, and Rahman 2005). While it is difficult to predict which husband's are especially angered by violations of purdah, there is some evidence that purdah adherence declines with both female education (Malhotra et al. 2005)[16]) and male education (Jamal 2013; Muhammad and Askar 2009) education. If so, the fact that the relationship between domestic violence and a woman's status is unaffected by the husband's education level (as seen in column 1 of table 6), also provides some suggestive evidence against this type of backlash story.

I next consider whether a lower-status woman is more likely to enter the labor force in response to economic hardship, which might also provoke domestic violence, than a higher-status woman who may be more likely to enter due to "pull" factors such as the availability of a good job. I use two approaches to test this theory. The first is to look for increased violence among working women who live in households with certain characteristics that might reflect particularly high levels of stress. One possible source of stress is a husband's job loss, but column 3 of table 6 provides evidence against this hypothesis. Another possible stressor is migration, and in particular, whether the woman began working after migration. However, column 6 of table 4 shows that the correlation between whether a wife work for pay and domestic violence is actually lower in migrant households. While households with more cooperation may be both more likely to undertake

the decision to migrate and contain less violence (thus implying that the coefficient on the main effect of migration is below the causal effect of migration on domestic violence), such endogeneity would only bias the interaction between work and migration if there was differential positive selection of cooperative households among migrant households where the wife works for pay.

The second approach is to control for current household income (table 7) and household assets (table 8) in equations 2 and 3 and the interaction of each measure with whether a woman works. I consider both measures of total income and assets for the entire household and per capita measures, since either aggregate resources or resources per household member could be relevant in determining the household's socioeconomic status. For income, I also consider a specification that controls separately for husband's and wife's income, and the interaction of husband's income with whether a wife works. Adding these controls, equations 2 and 3 then assess whether women with relatively less education or lower age at marriage still encounter greater domestic violence when they work, even compared to women whose households have the same current or long-standing economic status.

Table 7 here

Table 7 suggests that differences in income do not the domestic violence that lower status women face when entering the labor force. In columns 1 and 2, the coefficients on overall household income per capita are small and not statistically significant. Column 3, however, reveals that who earns the income matters: women who work suffer greater domestic violence, the more than their husbands earn. This difference is borderline statistically significant ($P = 0.111$), and becomes statistically significant once wife characteristics are controlled for. The wife's income, by contrast, is unrelated to whether she suffers domestic violence upon working. The result on husband's income is inconsistent with an economic hardship story, as well as the psychological evidence that men

that feel disempowered by low status or earnings are more likely to take our their frustration on their wives. Meanwhile, the coefficients on wife characteristics are still significant: columns 4 through 9 show that regardless of whether total household income, income per capita, or husband and wife's income separately are considered, the correlation between whether a woman works for pay and domestic violence diminishes among women with more education or a greater age at marriage.

Table 8 here

It is possible, however, that the stresses of poverty take longer to build up, so that the more relevant measure of household resources is a long-run measure of economic status, such as the value of a household's assets, rather than income. Accordingly, table 8 controls for measures of household assets and household assets interacted with whether a woman works, and tests whether the interaction between work and age at marriage, and work and education, remain significant. The results indicate that differential levels of household assets also do not explain the fact that lower status women face greater domestic violence when they begin working than higher status women do. Specifically, while the overall rate of domestic violence is lower in households with more assets, controlling for assets does not change the estimated coefficients on work interacted with age at marriage and education from the baseline results in table 4. In this setting, a woman's characteristics, and not her household's income or assets, predict whether she suffers increased risk of domestic violence upon entering the labor force.

One caution in interpreting the coefficients on assets is that I cannot identify whether the assets are owned by the husband, wife, or jointly, and thus cannot separate out the effects of individual member's assets the same way I could look separately at the husband and wife's income in table 7. The identity of the asset owner has been shown to matter in intra-household bargaining and domestic violence in other contexts (Friedemann-Sánchez 2006; Panda and Agarwal 2005; Grabe 2010): a woman's ownership of assets is associated with a lower risk of domestic violence. Indeed, a possible mechanism behind

the results of this paper is that higher-status women are better able to translate their earnings into asset ownership than lower status women, which then protects them from their husband's attempts to regain control of household resources through domestic violence. Future data collection with explicit information on asset ownership would enable a direct test of this hypothesis.

Table 9 here

I also look for evidence that underreporting can explain relationship between education or age at marriage, work, and domestic violence. Specifically, higher status women might report domestic violence whether or not they are in the labor force, but lower status women are only compelled to report domestic violence to the enumerators after the exposure to the broader world that comes with entering the labor force. While I cannot test directly for this possibility, some indirect evidence comes from examining the relationship the woman's reported answer to the question "do you believe it is ever acceptable for a husband to beat his wife?", her status, and whether she works. If labor force participation is differentially compelling lower-status women to report domestic violence, we might also expect it to decrease the probability that they believe domestic violence is ever acceptable. Table 9 shows that while women with higher age at marriage report marginally less often that wife beating is ever acceptable ($P = 0.119$), there is no evidence that working compels women with lower age at marriage to reject the acceptability of domestic violence: the point estimate on the interaction between work and age at marriage is actually negative, although not statistically significant at conventional levels ($P = 0.221$).

The pattern with education is somewhat different. As with age at marriage, women with more education are less likely to believe that beating is ever acceptable – every additional year of education is associated with a statistically significant 1.2 percent point decrease in the probability a woman reports that wife beating is ever acceptable. By contrast, there is some evidence that work differentially compels women with less education

to change their minds about the acceptability of wife-beating: the interaction term between work and education is positive and marginally significant ($P = 0.114$). To help interpret this effect, note that estimated coefficient on work indicates that there is a 30.8 percentage point decrease in the likelihood that a woman with no education reports domestic violence being acceptable if she works for pay. There is a smaller – although still large – reduction of 16.1 percent points in the probability that a woman with 10 years of education who works (versus one who does not work) reports wife beating ever being acceptable. Thus, I cannot rule out the possibility that some of the reports of increased violence among less educated women may be due to changes in reporting frequency rather than actual violence. In section 4, I suggest some methods that future data collection efforts can use to examine the extent of underreporting, and how it varies by education and labor force status.

Table 10 here

Finally, given the social stigma and long hours associated with garment workers in Bangladesh, I assess whether the relationship between women's status, work, and domestic violence is driven primarily by work in the garment industry. The first column of table 10 shows that if anything, women who work in the garment industry face less domestic violence than women who work in other jobs: women who work in the garment industry are 7.1 percentage points less likely to have faced violence than women of the same age working in other jobs. The second column adds interaction terms between work and age, age at marriage, and education. With these controls, the coefficient on garment industry drop to essentially zero. Therefore garment jobs do not seem to be protective per se, rather, they attract relatively younger women with more education and an older age at marriage, who tend to suffer less domestic violence upon entering work, regardless of the type of work they do.

4. CONCLUSION

While there is growing policy interest in providing jobs to women to promote gender equality and development more broadly, policy makers should be aware of domestic violence and other potential negative consequences that joining the labor force can have on women's lives. This paper has shown that women who work for pay in Bangladesh face greater rates of domestic violence than women who do not work for pay, but only those women who have less education or young age at first marriage. I argue that these results are consistent with a theory in which domestic violence is used instrumentally by husbands to counteract the increase in bargaining power women receive upon working, but women whose bargaining power is sufficiently high are more capable of fleeing abusive marriages and thus do not face this increase in violence. While it is not possible to definitively rule out all other potential alternative explanations for these correlations, I provide evidence that some of the most natural alternative explanations – husband characteristics, women entering the labor force due to economic stress, underreporting, and psychological backlash – cannot explain all of the results in this paper.

One limitation of this study is that I do not know when the domestic violence began, so I cannot rule out the possibility that lower status women enter the labor force to escape domestic violence. Future data collection conducted by researchers interested in domestic violence can address this limitation in two ways. Researchers could ask respondents directly about their history of experience with domestic violence. While this retrospective information will likely be recalled with error, it will still give researchers a very useful picture of the sequencing of work and domestic violence in a respondent's life. Alternatively, future surveys could revisit households about whom domestic violence data was collected at a certain point in the past in order to assemble panel datasets with information about domestic violence at multiple points in time.

Data about labor force participation and domestic violence at several points in time will also allow researchers to test whether the effects of working for pay on domestic violence vary with time. Ahmed (2011) argues that empowerment programs in Bangladesh

increase domestic violence in the short run as the household adjusts to the newly empowered women, but decrease domestic violence in the long run as women are able to use their newly improved economic status to demand less violence within the household, but the data has not been available to test whether there are similar adjustment dynamics to a woman's labor force participation. Overall, longitudinal data would be an invaluable resource for social scientists interested in the evolution of domestic violence, a woman's work status, and other outcomes within the household.

Another priority in this proposed future data collection is the use of methods to collect data on domestic violence that minimize under-reporting. While I attempted to make women feel as comfortable as possible reporting domestic violence by using female enumerators and trying as best as possible to make sure the questions were asked in private, there is still the potential that women would not report the violence they have experienced. Future data collection efforts could assemble records of reported injuries, either by the women or by health care providers (Aizer 2010), since it is possible that women who do not report domestic violence to survey enumerators may report injuries if they do not have to report the cause. Additionally, surveys could use techniques where women flip a coin in private and report whether either they suffer domestic violence or a certain outcome has occurred (Warner 1965). This technique has been found to increase respondents' reports of corrupt behavior (Azfar and Murrell 2009). Finally, advances in tablet technology should increase the feasibility of allowing women to input their own answers (using pictures when surveying populations in which literacy is low)[17], while keeping the enumerator blind to the response.

Even with data on just a snapshot in time and the possibility of underreporting, however, the data analyzed in this paper present several important implications for policymakers interested in counteracting domestic violence. While an instrumental violence model can ultimately deliver an optimistic result – women whose outside option improves sufficiently will not face increased violence and may even face decreased violence

– women whose bargaining power is low initially are at risk for increased violence when a job opportunity increases their bargaining power. Therefore when there is the expansion of new jobs in an area, particularly those jobs that hire low-skilled women whose status within the household is likely to be low, policymakers should consider complementary efforts to reduce domestic violence. While there is growing evidence on interventions – such as small groups providing information to either women or men – that can reduce domestic violence, further research is also needed to assess whether these programs are particularly effective at targeting the instrumental violence that this paper shows can occur after females begin labor force participation.

Another policy implication of this paper builds on its emphasis on the importance of a valuable outside option in reducing violence. While women with greater education or who were married later already have good outside options, policy-makers could attempt to improve the outside options of all women through providing safe housing for women who flee domestic violence, whose families may not take them back. The results in this paper suggest that the benefits of such options go beyond the women who choose to live in them, as long as their husbands know they *could* leave if treatment gets bad enough. Both direct anti-violence campaigns and programs to improve women's outside options could potentially allow communities to reap the benefits of increased female labor force participation without the adverse effects of domestic violence.

References

Abramsky, T., Watts, C. H., Garcia-Moreno, C., Devries, K., Kiss, L., Ellsberg, M., … Heise, L. (2011). What factors are associated with recent intimate partner violence? Findings from the WHO multi-country study on women's health and domestic violence. *BMC Public Health*, *11*(1), 109.

Ahmed, S. (2011). Intimate partner violence against women: Experiences from a woman-

focused development programme in Matlab, Bangladesh. *Journal of Health, Population and Nutrition*, *23*(1), 95–101.

Aizer, A. (2010). The gender wage gap and domestic violence. *American Economic Review*, *100*(4), 1847–59.

Anderson, S., & Eswaran, M. (2009). What determines female autonomy? Evidence from Bangladesh. *Journal of Development Economics*, *90*(2), 179–191.

Ashraf, N. (2009). Spousal control and intra-household decision making: An experimental study in the philippines. *The American Economic Review*, 1245–1277.

Atkin, D. (2009). Working for the future: Female factory work and child health in Mexico. *Unpublished Manuscript, Yale University*.

Azfar, O., & Murrell, P. (2009). Identifying reticent respondents: assessing the quality of survey data on corruption and values. *Economic Development and Cultural Change*, *57*(2), 387–411.

Balk, D. (1994). Individual and community aspects of women's status and fertility in rural bangladesh. *Population Studies*, *48*(1), 21–45.

Barker, G. (2001). Cool your head, man: Preventing gender based violence in favelas. *Development*, *44*(3), 94–98.

Barker, G., & Ricardo, C. (2005). *Young men and the construction of masculinity in sub-Saharan Africa: Implications for HIV/AIDS, conflict, and violence*. World Bank.

Coleman, D. H., & Straus, M. A. (1986). Marital power, conflict, and violence in a nationally representative sample of American couples. *Violence and Victims*, *1*(2), 141–157.

Dharmalingam, A., & Morgan, S. (1996). Women's Work, Autonomy, and Birth Control: Evidence From Two South Indian Villages. *Population Studies*, *50*(2), 187–201.

Eswaran, M., & Malhotra, N. (2011). Domestic violence and women's autonomy in developing countries: theory and evidence. *Canadian Journal of Economics*, *44*(4), 1222–1263.

Field, E., & Ambrus, A. (2008). Early marriage, age of menarche, and female schooling

attainment in Bangladesh. *Journal of Political Economy*, *116*(5), 881–930.

Flake, D. (2005). Individual, family, and community risk markers for domestic violence in Peru. *Violence against Women*, *11*(3), 353–373.

Flake, D., & Forste, R. (2006). Fighting families: family characteristics associated with domestic violence in five Latin American countries. *Journal of Family Violence*, *21*(1), 19–29.

Friedemann-Sánchez, G. (2006). Assets in intrahousehold bargaining among women workers in Colombia's cut-flower industry. *Feminist Economics*, *12*(1-2), 247–269.

Friedemann-Sánchez, G., & Lovatón, R. (2012). Intimate partner violence in Colombia: Who is at risk? *Social Forces*, *91*(2), 663–688.

Garcia-Moreno, C., Jansen, H. A., Ellsberg, M., Heise, L., & Watts, C. H. (2006). Prevalence of intimate partner violence: findings from the who multi-country study on women's health and domestic violence. *The Lancet*, *368*(9543), 1260–1269.

Grabe, S. (2010). Promoting gender equality: The role of ideology, power, and control in the link between land ownership and violence in Nicaragua. *Analyses of Social Issues and Public Policy*, *10*(1), 146–170.

Heath, R. (2011). *Why do firms hire using referrals? Evidence from Bangladeshi garment factories*. Unpublished doctoral dissertation, Yale University.

Heath, R., & Mobarak, M. (2011). Does demand or supply constrain investments in education? Evidence from garment sector jobs in Bangladesh. *Yale University mimeo*.

Hjort, J., & Villanger, E. (2011). Backlash: Female employment and domestic violence. *University of California, Berkeley, CA mimeo*.

ICEN. (2000). International Clinical Epidemiologists Network: Domestic violence in India. a summary report of a multi-site household survey. *International Center for Research on Women*.

Jamal, A. (2013). *Engaging men for gender justice: Overcoming barriers to girls' education in the Pashtun Tribes of Northern Pakistan*. Unpublished doctoral dissertation, University of

Calgary.

Jejeebhoy, S. J., & Cook, R. J. (1997). State accountability for wife-beating: The Indian challenge. *The Lancet*, *349*, S10–S12.

Jensen, R. (2012). Do labor market opportunities affect young women's work and family decisions? Experimental evidence from India. *The Quarterly Journal of Economics*, *127*(2), 753–792.

Jensen, R., & Thornton, R. (2003). Early female marriage in the developing world. *Gender and Development*, *11*(2), 9–19.

Jewkes, R. (2002). Intimate partner violence: causes and prevention. *The Lancet*, *359*(9315), 1423–1429.

Kabeer, N. (1997). Women, wages and intra-household power relations in urban Bangladesh. *Development and Change*, *28*(2), 261–302.

Kishor, S., & Johnson, K. (2004). *Profiling domestic violence: a multi-country study*. MEASURE DHS+, ORC Macro.

Koenig, M., Ahmed, S., Hossain, M., & Mozumder, A. (2003). Women's status and domestic violence in rural Bangladesh: individual-and community-level effects. *Demography*, *40*(2), 269–288.

Lloyd, C., Young, J., & Council, P. (2009). *New lessons: The power of educating adolescent girls: a Girls Count report on adolescent girls*. Population Council.

Luke, N., & Munshi, K. (2011). Women as agents of change: Female income, social affiliation and household decisions in South India. *Journal of Development Economics*, *94*(1), 1–17.

Macmillan, R., & Gartner, R. (1999). When she brings home the bacon: Labor-force participation and the risk of spousal violence against women. *Journal of Marriage and the Family*, 947–958.

Majlesi, K. (2012). *Labor market opportunities and sex specific investment in childrens human capital: Evidence from mexico* (Tech. Rep.). Working Paper. Lund University.

Malhotra, A., Schuler, S., et al. (2005). Women's empowerment as a variable in international development. *Measuring empowerment: Cross-disciplinary perspectives*, 71–88.

Mathur, S., Greene, M., & Malhotra, A. (2003). *Too young to wed: the lives, rights and health of young married girls*. International Center for Research on Women.

Muhammad, N., & Askar, A. (2009). The genesis of gender bias in education: a case study in rural areas of Charsadda District. *Sarhad Journal of Agriculture*, *25*(3), 517–521.

Naved, R., & Persson, L. (2005). Factors associated with spousal physical violence against women in Bangladesh. *Studies in Family Planning*, *36*(4), 289–300.

Oster, E., & Millett, M. (in press). Do call centers promote school enrollment? Evidence from India. *Journal of Development Economics*.

Panda, P., & Agarwal, B. (2005). Marital violence, human development and women's property status in India. *World Development*, *33*(5), 823–850.

Pitt, M. M., Rosenzweig, M. R., & Hassan, M. N. (2012). Human capital investment and the gender division of labor in a brawn-based economy. *The American Economic Review*, *102*(7), 3531–3560.

Quisumbing, M., & Hallman, K. (2003). *Marriage in transition: evidence on age, education, and assets from six developing countries* (No. 183). The Population Council.

Rafi, M., Banu, D., Alim, M. A., & Akter, S. (2003). An assessment of male attitudes toward violence against women. *Bangladesh Rural Advancement Committee (BRAC) Research Report*.

Rahman, L., & Rao, V. (2004). The determinants of gender equity in India: examining Dyson and Moore's thesis with new data. *Population and Development Review*, *30*(2), 239–268.

Rao, V. (1997). Wife-beating in rural south india: a qualitative and econometric analysis. *Social Science & Medicine*, *44*(8), 1169–1180.

Renzetti, C. M. (2009). Economic stress and domestic violence. *National Online Resource Center on Violence Against Women Applied Research Paper*.

Salway, S., Jesmin, S., & Rahman, S. (2005). Women's employment in urban Bangladesh: A challenge to gender identity? *Development and Change*, *36*(2), 317–349.

Singh, S., & Samara, R. (1996). Early marriage among women in developing countries. *International Family Planning Perspectives*, 148–175.

Sultan Ahmed, S., & Bould, S. (2004). "One able daughter is worth 10 illiterate sons": Reframing the patriarchal family. *Journal of Marriage and Family*, *66*(5), 1332–1341.

Tauchen, H. V., Witte, A. D., & Long, S. K. (1991). Domestic violence: A nonrandom affair. *International Economic Review*, 491–511.

Vlassoff, C. (1994). From rags to riches: The impact of rural development on women's status in an Indian village. *World Development*, *22*(5), 707–719.

Vyas, S., & Watts, C. (2009). How does economic empowerment affect women's risk of intimate partner violence in low and middle income countries? A systematic review of published evidence. *Journal of International Development*, *21*(5), 577–602.

Warner, S. L. (1965). Randomized response: A survey technique for eliminating evasive answer bias. *Journal of the American Statistical Association*, *60*(309), 63–69.

Yllö, K. E., & Bograd, M. E. (1988). Feminist perspectives on wife abuse. In *National conference for family violence researchers, 2nd, 1984, u of new hampshire, nh, us.*

Notes

[1]Specifically, as detailed by Vyas and Watt, the correlation between work and domestic violence is positive and significant in Peru (Flake 2005) and Iran (Kishor and Johnson 2004), negative and significant in Egypt (Kishor and Johnson 2004), varies depending on the type of employment in India (Panda and Agarwal 2005), and varies by location in Bangladesh (Naved and Persson 2005). No correlation was found in studies in Haiti, the Philippines, Zambia, or Cambodia (Kishor and Johnson 2004).

[2]The actual unit sampled was the *bari*, an extended family compound, because one of the other purposes of the data was the study of social interactions between extended families in the garment industry. Additionally, households with garment workers, consanguineous marriages, or women born between 1975 and 1980 were oversampled. For details of the sampling strategy, see Heath (2011).

[3]Only 6 of the 1395 household heads were born abroad.

[4]i.e., the head of a female-headed household or the spouse of the male head of a household

[5]Note that if the only measure I had was current exposure, there would still be reverse causality concerns if domestic violence exposure is serially correlated. The issue is not just with the cumulative measure, but rather with the fact that I do not know when the violence began.

[6]The results are qualitatively very similar if when I estimate ordered probit model using all possible reported levels of violence (none, once, several times, regularly). Results available in an online appendix, table A1.

[7]For brevity, I will refer to women with higher age at marriage and more education

together as "higher status" women.

[8]While including women living separately from their husbands includes some households where the husband has migrated for work but the woman is well-treated, it also likely includes some couples where the marriage has broken down, but they did not want to report officially being separated.

[9]I use the average between reported income in good and bad months if these values were different, which occurred in 25.3 percent of reports.

[10]The fact that domestic violence rises with age is unsurprising given that the measure reflects cumulative occurrence of domestic violence over a woman's life, but it is still interesting to note that this effect is much stronger among women who work for pay.

[11]Note that since the data is from a single cross section, there is no way to tell whether these are age effects or cohort effects. The younger cohort, for instance, is exposed to better work opportunities – namely, jobs in the garment industry – than the older cohort. In fact, table 10 provides suggestive evidence that workers in garment sector jobs suffer lower incidence of domestic violence than workers in other jobs.

[12]These nonlinear results are confirmed in a regression framework in the online appendix, table A2. Women with very low age at marriage or no education are statistically significantly more likely to face domestic violence upon entering work.

[13]The point estimates are similar if I control for husband's education and its interaction with whether the wife works, suggesting that these results are not driven by the educated women's tendency to marry better educated men.

[14]I also tried using dummy variables for whether a wife has more education or earns more than her spouse, since this may the relevant point at which the feelings of inadequacy that relate to violence begin. However, the interactions between these indicator

variables and whether a woman works were also small in magnitude and insignificant.

[15]When I also included interactions between whether a husband works in a household enterprise or on the household's farm and domestic violence, women whose husbands were working in these capacities also suffered less domestic violence if they work. This explanation is consistent with the possibility that husbands who are completely economically inactive are neither healthy enough to work or beat their wives. (I thank a referee for bringing up this point.)

[16]Although there are a few notable exceptions where women's education does not decrease – or actually increases – adherence to purdah (Vlassoff 1994

[17]For instance, Open Data Kit (ODK), a platform for using android phones to program customized functionality into surveys.

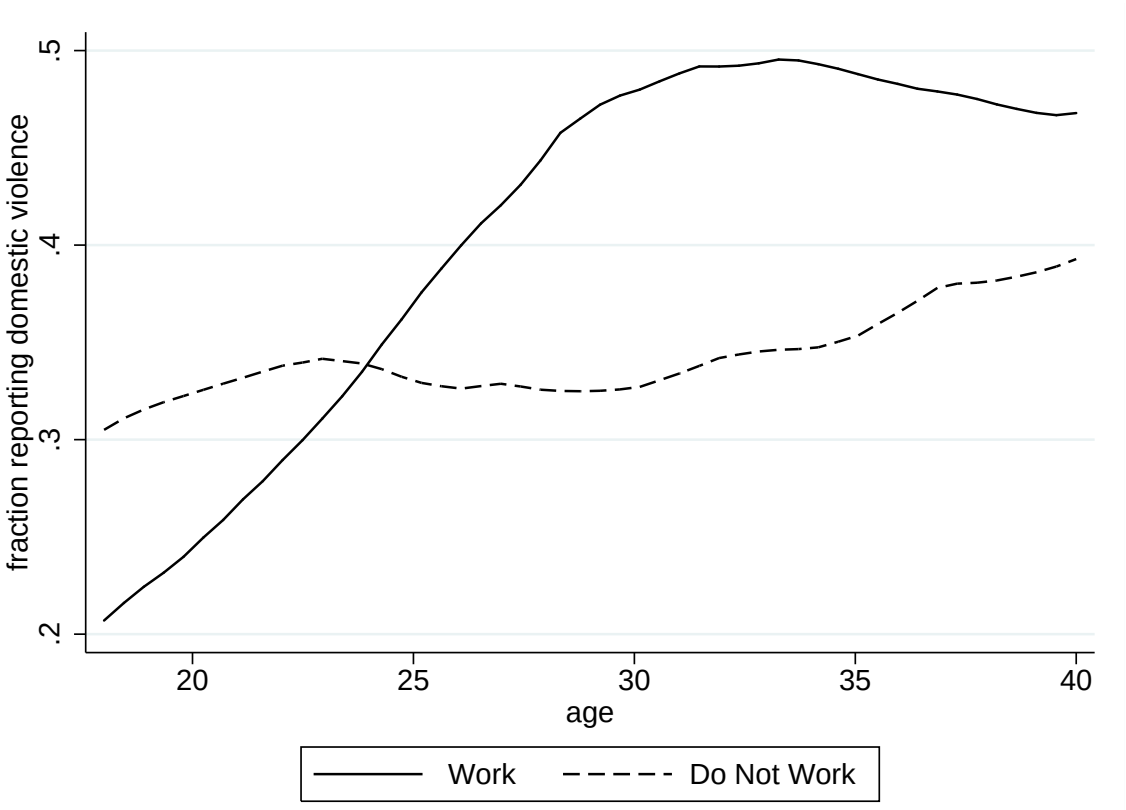

Figure 1: Domestic Violence, Labor Force Participation, and Age

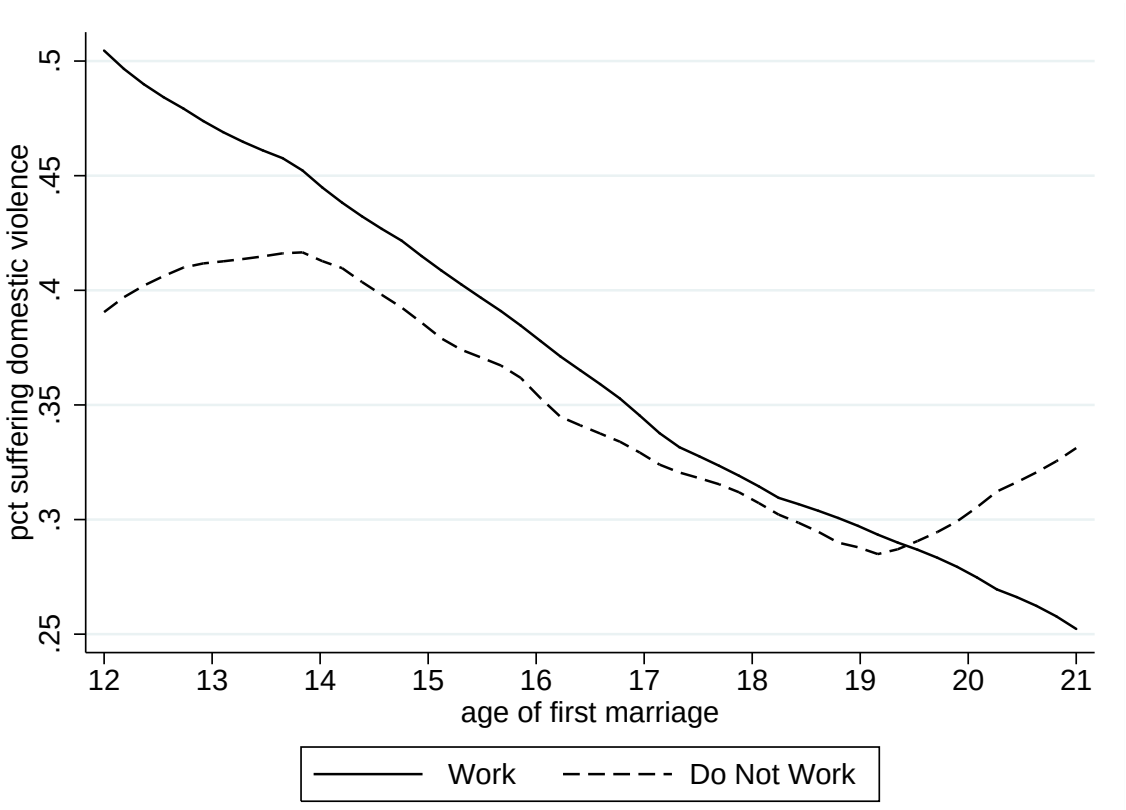

Figure 2: Domestic Violence, Labor Force Participation, and Age at Marriage

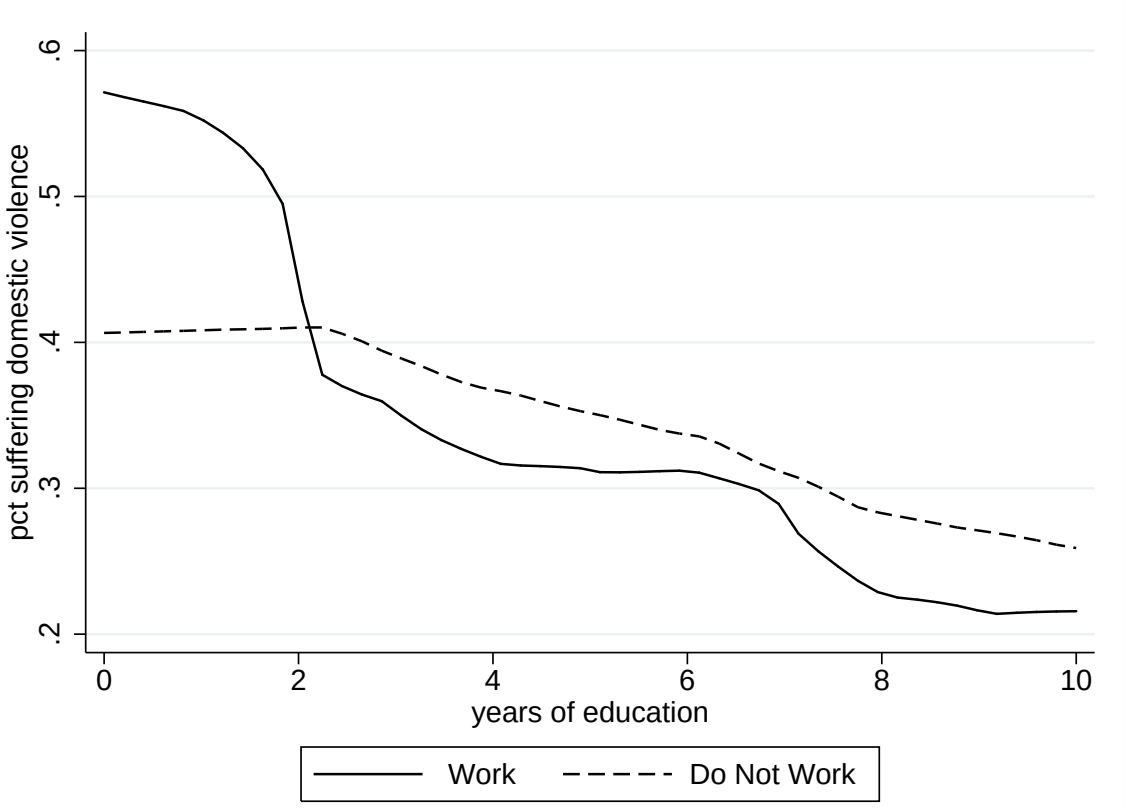

Figure 3: Domestic Violence, Labor Force Participation, and Education