Women's Job Opportunities and Marriage Quality*

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Abstract

This paper evaluates the effect of women's job opportunities on their ability to choose their spouse and their eventual marriage quality. We posit a simple theory that explains that women's job opportunities increase the value of remaining unmarried, and thereby raise the average quality of marriages they enter. We test this theory by constructing measures of gender-differentiated labor demand (Bartik, 1991) in a woman's district at the time of marriage. We find that one standard deviation increase in women's labor demand shock during their year of marriage increases their ability to choose their spouse independently by 9.3-12.8%. We also find that this effect is more muted among-non-Hindu women, but instead, they experience more say in the choice of their spouse even when the final decision maker is someone else. Women are more likely to marry men who are closer to their educational attainment and age in response to better job opportunities. Lastly, women are less likely to migrate farther distances for marriage and more likely to marry men who grew up in the same village/town as their natal home in response to positive female labor demand shocks at the time of marriage.

Keywords: Labor Demand, Marriage, Household Bargaining, Women's Autonomy, India

JEL Codes: O12, J12, J23

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1 Introduction

Globalization has created many new jobs for women in developing countries. By significantly improving women's earnings potential, these opportunities have affected many aspects of women's lives, such as their bargaining power within the household (Dharmalingam and Morgan, 1996; Rahman and Rao, 2004; Majlesi, 2016), their fertility (Schultz, 1997; Schultz; Jensen, 2012; Heath and Mobarak, 2015), and the human capital investments they can make in their children (Luke and Munshi, 2011; Atkin, 2009). Marriage is another vital component of a woman's quality of life, and there is evidence that job opportunities delay marriage by improving the attractiveness of the option of remaining unmarried (Singh and Samara, 1996; Jensen, 2012; Heath and Mobarak, 2015; Sivasankaran, 2015).

Job opportunities may also allow women to reject potential marriages that they find unattractive. However, there is minimal empirical evidence on the relationship between job opportunities for women and the characteristics of the spouse the woman ultimately marries. The determinants of marriage-matching are important for women's welfare, given evidence that the conditions under which a woman enters marriage – such as patrilocality (Niraula and Morgan, 1996), the woman's say in the choice of spouse (Ouattara et al. 1998; Vogl 2013), dowry (Bloch and Rao 2002; Brown 2009), the spousal age gap (Casterline et al., 1986), and consanguinity (Mobarak et al., 2018) – affect post-marriage outcomes such as a woman's bargaining power, the incidence of domestic violence, and investments in her children's human capital. Marriage quality is likely especially important in developing countries such as India where patrilocality is common: newly married women often move to an area where they know no one.

We study the impact of job opportunities for women on their ability to chose their spouse and the characteristics of marriages they enter in India. We propose a theoretical model in which job opportunities raise the value of remaining unmarried so that women are only willing to enter relatively appealing marriages. To test this theory, we exploit

the considerable regional variation in industries to construct measures of female labor demand that are plausibly exogenous to local demographic changes and marriage trends. Specifically, we construct national average wages in an industry (calculated leaving out the individual's district to avoid area-specific shocks to productivity) weighted by the share of workers of each sex working in each industry in that locality (Bartik, 1991). To construct these labor demand shocks, we use the 1987-88, 1999-00, 2004-05, 2005-06, 2007-08, 2009-10, and 2011-12 Employment and Unemployment rounds of the National Sample Surveys of India.

We investigate the effect of the constructed gender-specific labor demand shocks on marriage outcomes data from the eligible women surveys of the 2004-05 and 2011-12 India Human Development Surveys. Overall, we find that an increase in job opportunities for women during their year of marriage increases their ability to chose their spouse independently and also improves the quality of their spouse. In particular, one standard deviation increase in yearly female labor demand shocks during the year of marriage: (1) increases the proportion of women who choose their spouse independently (instead of jointly with parents or relatives) by 9.3%; (2) increases the proportion of non-Hindu women who report having any say in the choice of their spouse (if parents, relatives, or others made the final decision) by 6.5%; (3) increases the proportion of women who had met, talked over the phone, seen photo, emailed, or had a chat with their spouse before marriage by 4.9% for those who have a history of wage employment; (4) decreases both the spousal education gap and spousal age gap by about 1.2 months; (5) increases the proportion of women who marry someone from their natal village/town by 12.9%; and (6) decreases the distance between the married women's current residence and natal home by about 3 minutes. We also find that female labor demand shocks at the time of marriage does not affect the type of households women get married into; however, male labor demand affects these outcomes. Specifically, one standard deviation increase in annual male labor demand shocks at the time of marriage increases the proportion of

consanguineous marriages that women enter by 14.8%.

Our work is complementary to Sivasankaran (2015), who finds that the duration that a woman has worked in a textile firm in Tamil Nadu increases her autonomy in her marriage decisions. Her sample consists of women who currently or previously worked, and she focuses on the direct effects of work experience on women's marriage outcomes. By contrast, we examine demand shocks for women's labor, and our results are unconditional on the past and present employment status of the married women. We, therefore, focus on the importance of jobs in determining women's outside option. Additionally, our gender-specific measure of job opportunities enables us to look at the role of both absolute and relative increases in female labor demand (compared to male labor demand) to evaluate which is a stronger predictor of the marriage outcomes.

Our paper contributes to the literature on the determinants of women's bargaining power and overall welfare. Long-term economic and social factors – such as the suitability of crops which women have a comparative advantage in growing (Alesina et al., 2013), matrilineality (Lowes, 2017), bride price traditions (Lowes and Nunn, 2017), or a woman's legal right to inheritance (Roy, 2015; Harari, 2019) – matter for determining a woman's bargaining power within a marriage. Our results suggest a specific mechanism – the choice of a spouse – linking women's economic empowerment to her outcomes within a marriage.

Our results also relate to the literature on how and when job opportunities affect women. Previous literature has documented that current job opportunities matter for a woman's bargaining power and investment in children (Anderson and Eswaran, 2009; Majlesi, 2016). Parents invest more in girls when they anticipate future jobs that reward their human capital (Jensen, 2012; Heath and Mobarak, 2015). Moreover, having worked in the past also affects women's marriages (Sivasankaran, 2015) and their ability to invest in their children (Atkin, 2009). We point out that past job opportunities matter, even unconditional on the woman herself working, by allowing women more say in the type of marriages

they enter.

Finally, our results relate to a literature on bargaining between parents and adolescent children. Becker (1974) first pointed out that parents and children may have different preferences, but goes on to prove that absent imperfect information or other frictions, parents can induce efficient behavior in children. However, such frictions may be important (Bernheim et al., 1986; Bergstrom, 1989), which can lead to inefficient outcomes (Bursztyn and Coffman, 2012; Ashraf et al., 2016). Such frictions may be particularly salient among adolescent girls in societies where women are more closely tied to their husband's families after marriage. Indeed, Ashraf et al. (2018) find that negotiation training increased the educational attainment of adolescent girls in Zambia, presumably by teaching them how to shift household outcomes closer to their own preferences. While most of the existing literature has focused on educational investments, we show that bargaining between parents and daughters extends to spousal choice as well. By showing that better job opportunities increase the probability that a girl chooses her own spouse, we also find that the bargaining between parents and children responds to similar external determinants of outside options as the bargaining between husbands and wives (Anderson and Eswaran, 2009; Majlesi, 2016).

The rest of this paper proceeds as follows. Section 2 describes the conceptual framework that derives the key prediction that job opportunities for women increase spouse quality. In section 3, we provide the empirical strategy used to test this prediction, and in section 4, we describe the data and variable construction. Section 5 gives results; and Section 6 concludes.

2 Conceptual Framework

In this section, we present a simple model to formalize the prediction that better job opportunities improve the quality of marriages that women enter. The prediction rests on

the following intuition: As the demand for female labor increases, their wages increase. An increase in the wage that unmarried daughters draw from their jobs increases their value in their natal household or their ability to live independently and therefore, lowers the household's or woman's cost of waiting for her to get married. A decline in the net cost of continuing to search for a spouse will then increase the reservation marriage quality that the woman or her natal household will agree to, and thus increases the average quality of marriages observed in a year.

2.1 Set-up and Baseline Predictions

We model a household's decision between accepting a potential husband for their unmarried daughter, or rejecting an offer and continuing to search. We assume an infinite-horizon, discrete-time set-up in which a household lives indefinitely, is risk-neutral and has a discount factor, β. In each period, a household with an unmarried daughter receives a marriage offer which they can accept or reject. If they accept the marriage offer then their daughter gets married in the next period, and it lasts forever.[1]

The quality of a marriage match (h) is drawn from a distribution $F(h)$ with a p.d.f $f(h)$: When a household accepts a marriage quality of h, they receive a utility of h during each period after that. A household with an unmarried daughter receives a wage (w) that she draws from her job. They also incur a cost (c), which we can think of as the cost of spousal search and the taboo cost of an unmarried daughter. V is the household's value of continuing to search for a spouse for their daughter and can be described by the following Bellman equation:

$$V = w - c + \beta \int_0^\infty max\left[\frac{h}{1-\beta}, V\right] f(h)dh. \tag{1}$$

The household accepts a marriage offer if the discounted value of marriage is at least

[1]We thus assume that there are no divorces and therefore there is no search while the daughter is married. While this is a realistic assumption in India's context, allowing for the potential of divorce and re-marriage should not change the fundamental mechanism that jobs for women increase the optional value of remaining unmarried.

as large as the value of continuing the search. So the minimum husband quality that the household is willing to accept ($\underline{h}$) is defined by:

$$V = \frac{\underline{h}}{1-\beta}. \tag{2}$$

Using equation 2, we can simplify equation 1 to:

$$\underline{h} = w - c + \frac{\beta}{1-\beta}\int_{\underline{h}}^{\infty}[h-\underline{h}]f(h)dh. \tag{3}$$

Differentiating equation 3 with respect to w, we get:

$$\frac{\partial \underline{h}}{\partial w} = \frac{1}{\frac{\beta}{1-\beta}\int_{\underline{h}}^{\infty}[h-\underline{h}]f(h)dh} > 0 \tag{4}$$

So the reservation marriage quality is increasing in the woman's potential wage offer, which truncates the distribution of observed marriages occurring in a given year.

This prediction holds irrespective of whether the woman or her household makes the decision. However, this model could also be extended to include a bargaining stage between the woman and her family, if they disagree about a potential spouse. A better wage offer would plausibly increase the woman's bargaining power vis-a-vis her parents as well by increasing her outside option (living alone or with a relative). Thus, we test both measures of marriage quality and the woman's involvement in choosing her partner using the data and strategy described below.

The identity of the primary decision-maker also dictates the specific marriage quality indicators which we expect to be affected by women's job opportunities. If the woman herself is the primary decision-maker, she is presumably more likely to value characteristics of the spouse himself, such as proximity in age. Alternatively, a woman's parents may still take the daughters' preferences into account in an arranged marriage (Uberoi, 2006; Fuller and Narasimhan, 2008). This participation can be by involving her in the selection

process, offering her veto power over potential choices, or selecting potential spouses they believe would be good companions for her. In other cases, a woman's family may weight their preferences more heavily. The family is arguably more likely than the woman herself to care about the prestige of the match, as reflected in the caste or wealth of the husband (Caldwell et al., 1983; Mody, 2008; Banerjee et al., 2013), or opt for a consanguineous marriage that allows promised future dowry payments to be more credible (Mobarak et al., 2013).

3 Empirical Strategy

3.1 Estimating Equation

To test this model, we construct measures of changes in local female labor demand in a district that are plausibly exogenous to local demographic trends and changes in marriage markets by using wage changes in districts other than the woman's own as a measure of demand shocks (Bartik, 1991). Specifically, let $\hat{D}^g_{dt}$ be equal to the change in the national wage w in industry i (leaving out district d, whose labor demand is being calculated) from year $t-1$ to year t, weighted by the share η of district d's employment of gender g in industry i in the prior year $t-1$. Specifically,

$$\hat{D}^g_{dt} = \sum_{i}^{N_i} \eta^g_{di,t-1}(\bar{w}_{di,t} - \bar{w}_{di,t-1}). \tag{5}$$

This strategy takes advantage of the considerable geographical variation in the industrial composition in India and pre-existing gender differences in the composition of the labor force in a specific industry. For instance, it predicts that female labor demand in the Darjeeling district in West Bengal (an area with a large number of tea estates and with a history of hiring women) will be high when wages in the tea industry in other parts of the country (such as the Dibrugarh district in Assam) are rising. Note that it captures both

short term and long term responses (Jaeger et al., 2018).

We then use these measures of changes in labor demand to test the main prediction that job opportunities increase the quality of marriages that began in that year, and the say the woman has in choosing a spouse. Specifically, for women i in district d married in year t, a measure Y_{idt} of marriage outcome is assumed to be a function of the district-of-marriage fixed effects (δ_d) and year-of-marriage fixed effects(τ_t), as well as the woman's characteristics that are pre-determined at the time of marriage (X_i), and the local demand for female labor ($\hat{D}^f_{dt}$).

$$Y_{idt} = \delta_d + \tau_t + X_i'\beta + \gamma \hat{D}^f_{dt} + \epsilon_{idt} \tag{6}$$

X_i includes an indicator variable for each level of the following pre-determined variables: woman's year of birth, the highest education completed by her father, the highest education completed by her mother, her number of brothers, and her number of sisters. ϵ_{idt} captures the regression's i.i.d. error component. If women's labor force opportunities improve the marriage outcomes of women married in that year, then γ is expected to be positive.

We estimate the regression both conditional and unconditional on male labor demand ($\hat{D}^m_{dt}$): The results unconditional on male labor demand likely capture job opportunities for all workers since male and female labor demand are likely to comove. Since the most literal interpretation of the model is about a woman's absolute utility from her ability to live on her own or the household's absolute value of an unmarried daughter (and not her relative labor demand), this regression is a direct test of the model. We also re-estimate the regression conditional on male labor demand to assess whether relative labor demand matters more for marriage outcomes than absolute female labor demand. This would be the case if households considered the relative value of an unmarried daughter compared to her future husband.

4 Data

4.1 Measures of Labor Demand

We use the 43rd, 55th, 61st, 62nd, 64th, 66th, and 68th Employment and Unemployment rounds of the National Sample Surveys (NSS) of India to construct gender-specific labor demand shocks. The NSS is a nationally representative repeated cross-sectional survey. The Employment and Unemployment rounds of the NSS collect individual (and household) labor data. The NSS administers the surveys typically across an entire year from July to June. They divide each round of the survey temporally into 3-month long sub-rounds, and the labor survey is nationally representative during each sub-round. The NSS conducted these seven rounds of the Employment and Unemployment survey in 1987-88, 1999-00, 2004-05, 2005-06, 2007-08, 2009-10, and 2011-12, respectively.

The NSS asks all residents in the sampled households detailed information about their labor market experience. The record includes their current employment status, the industry they work in, and their weekly wages[2]. Additionally, the survey collects demographic information about the household members such as their district of residence[3], gender, age, marital status, and others. We use the sample of individuals working for wages and equation 5 to construct the gender-specific labor demand shocks at the district-level for the years 1988, 1999-00, and 2004-12.

4.2 Marriage Outcomes

The primary outcomes data is from the nationally representative India Human Development Surveys (IHDS) of 2004-05 (I) and 2011-12 (II). During each of these waves, the IHDS interviewed a sample of ever-married women between 15 and 49 years of age (surveyors

[2]We convert nominal wages to 1981 real wages using the Consumer Price Index

[3]We recode all districts to the 1981 Census boundary definitions for this study. In case a district was formed from multiple parent districts, we drop the parents and the newly formed district from the analysis.

randomly chose one eligible woman from each household). For these women, the survey collected detailed information on the decisions made at the time of their marriage. In our analysis, we pool all eligible women from both the IHDS waves who married during 1988, 1999-00, or 2004-12, which leads to a total of 13,223 women in our final sample. We focus on the following groups of marriage outcomes:

1. IHDS I asked the eligible women information on who chose their spouse, and the options were: (a) Respondent herself; (b) Respondent along with her parents or relatives; (c) Parents or Relatives and; (d) Others. For those women who answered either (c) or (d) the survey then asked if they had any say in this choice. Accordingly, we construct two variables to investigate women's autonomy in their marriage decisions - (1) For the sample of women who either answered (a) or (b), an indicator variable that is equal to one if the woman answered (a) and zero if she answered (b); and (2) for the sample of women who either answered (c) or (d), an indicator variable equal to one if she reported to have any say in the matter and zero if not.

2. Interaction before marriage: IHDS I & II asked the eligible women for how long did they know their spouse before marriage. Using this information, we construct an indicator variable equal to one if the woman had met her husband at any point before the wedding day and zero otherwise. Apart from this, IHDS II asked the eligible women if they had any contact with their spouse before marriage, which includes having met, talked over the phone, seen photo, emailed or had a chat with her spouse. We construct an indicator variable equal to one to denote if the woman had any of these forms of contact.

3. Spouse's characteristics - IHDS II collected some information about the eligible woman's spouse, such as their completed years of education and age. Using these records, we construct the following outcome variables of interest (a) spousal age gap, which is equal to the woman's completed years of education subtracted from

her spouse's completed years of education; and (b) spousal age gap, which is equal to the woman's age subtracted from her spouse's age[4].

4. Characteristics of spouse's household - IHDS I & II collect some information about the eligible women that can indicate the type of households they got married into. These include (a) an indicator variable for consanguinity, that is, whether the woman is married to a blood relative (a cousin, an uncle, or others); (b) an indicator for whether the economic status of the woman's natal household was worse off compared to her spouse's household and; (c) an indicator for whether the woman's natal household and spouse's household are from the same caste.

5. Marriage Migration - From IHDS I & II, we use (a) an indicator variable that is equal to one to denote if the woman grew up in the same village/town as her spouse and zero otherwise and; (b) How long (in hours) it takes to travel (one way) from her current residence to her natal home[5].

5 Results

5.1 Labor Force Participation

We start by using the NSS data to confirm that the constructed gender-specific labor demand shocks following equation 5 predicts an increase in gender-specific labor force participation. Table 2 reports the results of the regression of an indicator variable for whether a respondent works for wages[6] on the gender-specific labor demand shocks. Column 1 in Table 2 shows that an increase in the female labor demand shock by one thousand

[4]Both of these outcome variables are winsorized at the 5th and 95th percentiles to remove outliers.
[5]The hours of travel variable is winsorized at the 5th and 95th percentiles to remove outliers.
[6]2004-05, 2005-06, 2007-08, 2009-10, and 2011-12 waves of the NSS Employment and Unemployment Surveys specifically asked the respondents whether they worked for wages. However, this variable is unavailable for the 1987-88 and 1999-00 NSS Employment and Unemployment Surveys. Therefore, we use an indicator for whether the respondent was engaged in full-time work for these waves. Our results are almost identical when we exclude the 1987-88 and 1999-00 waves.

rupees increases the probability that women work for wages by 0.042 percentage points ($p < 0.01$). Column 2 in Table 2 shows that this result is robust to the inclusion of district-specific linear time trends, which partly controls for other time-varying characteristics in a district[7]. For the sample period, the average proportion of women working for wages was 0.121. Therefore, one standard deviation increase in the female labor demand shock during a year (Rs. 302) increases the probability that a woman worked for wages by roughly 10.5%($= \frac{0.042}{0.121} \times \frac{302}{1000}$).

Columns 3 and 4 in Table 2 show the effect of female labor demand shocks on women's labor force participation conditional on male labor demand shocks. We find that the inclusion of male labor demand shocks slightly increases the coefficient on female labor demand. If female and male labor demand comove, then the small and negative effect of male labor demand shock on female labor force participation may explain this increase. Therefore, after controlling for male labor demand, one standard deviation increase in the yearly change in female labor demand shock increases the probability that a woman worked for wages by roughly 11%($= \frac{0.044}{0.121} \times \frac{302}{1000}$).

Therefore, we find that the constructed female labor demand shocks are a strong predictor of labor force participation of women. This result is also robust to the inclusion of district trends and male labor demand shocks. The effect of male labor demand shocks on men's probability of working for wages is positive but small and statistically insignificant. Therefore, we do not find that the constructed labor demand shocks predict increases in male wage employment, at least at the external margin.

Given that an increase in job opportunities for women increases their wage employment, we next investigate how these opportunities affect women's autonomy in marriage decisions and the quality of their marriage match.

[7]The interpretation of the specifications that include linear time trends by districts would be complicated if there was a strong serial correlation in labor demand shocks. However, as shown in figure 2, there is if anything a negative correlation in labor demand (conditional on year and district fixed effects) between subsequent years.

5.2 Autonomy in Choice of Spouse

Column 1 in Panel A of Table 3 shows that an increase in female labor demand during a year by one thousand rupees increases the probability that a woman married during that year chose her spouse independently (as opposed to jointly with parents or relatives) by 0.048 percentage points. Columns 2, 3, and 4 in Panel A of Table 3 show that the coefficient estimates change very little with the inclusion of woman's characteristics determined before her marriage, and district-specific linear time trends.

Columns 7 through 10 in Table 3 shows that the coefficient on male labor demand, though negative, is small and statistically insignificant. Therefore, we do not find that male job opportunities affect women's ability to choose their spouse. This result is consistent with the argument that absolute changes in women's job opportunities should matter more than relative changes (compared to job opportunities for men) as it is a more representative measure of her ability to live by herself. After controlling for male labor demand, the coefficient on female labor demand increases by a similar magnitude of the coefficient on male labor demand. Therefore, as seen in Table 2, a comovement in female and male labor demand shocks can explain this pattern.

The average proportion of women who chose their spouse by themselves instead of cooperatively with their parents or others during the sample years is 0.193. Therefore, one standard deviation increase in female labor demand shock (Rs. 374) leads to a 9.3%($= \frac{0.048}{0.193} \times \frac{374}{1000}$) increase in the probability that a woman chose her spouse autonomously and not together with her parents or others. After controlling for male labor demand shocks, we find that this effect increases to 12.8%($= \frac{0.066}{0.193} \times \frac{374}{1000}$).

Columns 5 and 11 in Panel A of Table 3 show that, for women who have never worked for wages, an increase in female labor demand during the year of marriage by one thousand rupees increases the probability that they chose their spouse independently (as opposed to jointly with parents or relatives) by 0.066 percentage points. For women who are currently

working or have worked for wages in the past, this effect is 0.157 percentage points. However, the difference is not statistically significant. Therefore, we find suggestive evidence that increasing women's job opportunities not only improve women's autonomy in choice of a spouse for those who have participated in the labor market but also for those who have not by generally increasing women's outside option.

Columns 6 and 12 in Panel A of Table 3 show that Hindu women primarily drive the increase in the likelihood of choosing one's spouse in response to increases in female labor demand; however, the difference is not statistically significant.

We next investigate a sample of women who reported that their spouse was chosen entirely by their parents, relatives, or others. IHDS also asked these women if they had any say in this choice. Panel B of Table 3 presents the results of the regression of an indicator variable equal to one if they report having any say in the choice of their spouse on the gender-specific labor demand shocks. Overall, for the full-sample, consistent with Panel A of Table 3, the coefficient on female labor demand is positive, and male labor demand is negative, but the estimates are mostly imprecise. However, the effects on particular sub-samples are noteworthy: First, Columns 6 and 12 in Panel B of Table 3 show that an increase in female labor demand shock has a positive and statistically significant effect on the say of non-Hindu women. We find that a 1000 rupees increase in female labor demand shock increases the probability of having any say by 0.066 percentage points ($p < 0.10$) for non-Hindu women. After controlling for male labor demand, the coefficient on female labor demand non-Hindu women increases to 0.116 percentage points ($p < 0.05$), and this is statistically significantly more compared to Hindu women. The sample average of the probability of having a say for non-Hindu women is 0.562. Therefore, one standard deviation increase in annual female labor demand shock increases the probability of having any say in the choice of a spouse for non-Hindu women by 6.5%($= \frac{0.116}{0.562} \times \frac{318}{1000}$).

Second, Column 11 in Panel B of Table 3 shows that an increase in female labor demand shock by Rs. 1000 increases the probability of having a say for women who currently work

or have worked in the past for wages by 0.090 percentage points. Though this coefficient is about one-fifth of the size for women who have never worked, the difference is not statistically significant. Third, an increase in male labor demand by 1000 rupees decreases the say of Hindu women by 0.009 percentage points. Though this coefficient is much larger for non-Hindu women (-0.022), it is imprecisely estimated.

Our findings establish that better job opportunities for women improve their ability to choose or reject potential spouses irrespective of their work history. We also find that for the sub-samples where this effect is more muted (non-Hindu households), better job opportunities enable these women to have some say in the choice of their spouse even if someone else is making the final decision. Therefore, increases in woman's job opportunities have a quantitatively significant impact on their autonomy in marriage decisions.

5.3 Previous Interaction with Spouse

Columns 4 and 8 in Panel A of Table 4 shows that for women who have worked in the past or are currently working for wages, a 1000 rupees increase in female labor demand increases the probability that women have any contact with their spouse before the wedding by 0.081-0.93 percentage points. However, this is the only sub-sample for whom we find that an increase in women's job opportunities increases any contact with their spouse before the wedding. The sample average of the probability that the women had met, talked over the phone, seen photo, emailed, or had a chat with their spouse was 0.506 for the women who have ever worked. Therefore, the coefficient estimate can be interpreted as a $\frac{503.73 \times 0.000037}{0.62} \times 100 = 4.9\%$ increase in the probability that a woman with work history has an opportunity to interact with her husband before marriage resulting from a standard deviation increase in yearly female labor demand shock.

5.4 Spouse's Characteristics

Table 5 tests if positive female labor demand shocks, at the time of marriage, improve the quality of the spouses that women marry. The dependent variable in Panel A of Table 5 is the difference in completed years of education between the eligible woman and her spouse. The dependent variable in Panel B of Table 5 is the difference in age between the eligible woman and her spouse. In our estimation sample, on average, the husbands have 1.126 years of more education and are 4.736 years older than their wives.

In Panel A of Table 5, we find that an increase in female labor demand by 1000 rupees decreases the spousal education gap by 0.317 years. Therefore, one standard deviation increase in yearly female labor demand decreases the spousal education gap by 8.8%(= $\frac{0.317}{1.126} \times \frac{312}{1000}$). Columns 5 and 10 in Panel A of Table 5 show that Hindu women drive this result, and the effect on them is statistically significantly greater compared to non-Hindu women. The sample average of the spousal education gap for Hindu women is 1.213. Therefore, one standard deviation increase in female labor demand shock during the year of marriage decreases the spousal age gap for Hindu women by 11.6%(= $\frac{0.451}{1.123} \times \frac{311}{1000}$). We do not find any heterogeneous effect of female labor demand on spousal education gap by women's work history. However, we do find that an increase in male labor demand increases spousal education gap for women with a history of wage employment and this is statistically significantly different from women with no work history, for whom the coefficient on male labor demand is negative, small, and statistically insignificant.

Panel B of Table 5 shows that an increase in female labor demand by 1000 rupees increases the spousal age gap by 0.311 years. Therefore, a standard deviation increase in yearly female labor demand shock decreases the spousal age gap by about 2%(= $\frac{0.311}{4.736} \times \frac{310}{1000}$). We also find some evidence that male labor demand increases the spousal age gap.

Therefore, we find that women marry men who are closer to their education and age in response to improved job opportunities for them. In contrast, we also find some evidence

of improved job opportunities for men to increase both spousal education and age gap.

Traditionally, marriages in India are arrangements between families (Rahman and Rao, 2004; Rosenzweig and Stark, 1989). Therefore, in addition to their spouse's characteristics, women's job opportunities may affect the type of household she gets married into. We investigate this next.

5.5 Spouse's Household Characteristics

Table 6 shows that female labor demand has no statistically significant effect on the probability that a woman is related to her spouse, is from an economically worse off household than the one she marries into, or is from the same caste as her husband.

Interestingly, however, an increase in male labor demand has a positive effect on the probability that a woman marries a relative. Column 7 in Panel A of Table Table 6 shows that one thousand rupees increase in male labor demand increases the probability that a woman enters a consanguineous marriage by 0.012 percentage points. The sample average of the probability of women marrying a relative is 0.128. Therefore, one standard deviation increase in annual male labor demand shock during the year of marriage increases the probability of a woman's consanguineous marriage by 14.8%. We do not find any statistically significant difference in this result by religion or women's work history. In Panel B of Table 6, we also find some evidence that an increase in male labor demand increases the probability that the women marry into economically better-off households, especially for women who have never worked for wages.

Overall, we do not find any evidence that better job opportunities for women affect the type of households that they get married into, but we do find evidence that male labor demand shocks affect these characteristics. As noted in section 2, during the bargaining stage between the woman and her family, a better wage offer for either agent increases the bargaining power of the said agent. The increase in consanguineous marriages and into

better-off households in response to positive male labor demand shocks can be explained as a consequence of the increase in the bargaining power of the household heads (typically male). This then manifests as more matches with qualities that households care more about compared to the woman herself (Caldwell et al., 1983; Mody, 2008; Mobarak et al., 2013).

5.6 Marriage Migration

Table 7 shows the effect of gender-specific labor demand shocks during the year of marriage on women's marriage migration patterns. The dependent variable in Panel A of Table 7 is an indicator equal to one if a woman's spouse is from her natal village and the dependent variable in Panel B of Table 7 is the number of hours it takes a married woman to travel to her natal household. We find that an increase in female labor demand by one thousand rupees during the year of her marriage increases the probability that a woman married someone from her natal village by 0.048 percentage points. This result is primarily driven by women who have previously worked or are currently working for wages. For these women with a history of labor force participation, a 1000 rupees increase in female labor demand shock results in 0.1 percentage points increase in the probability that their spouse is from their natal village. This coefficient is about one-tenth in size and statistically insignificant for women with no work history, and the difference between the two groups is statistically significant. The sample average of the probability that the spouse is from the woman's natal village is 0.127 for the women with a work history. Therefore, one standard deviation increase in the annual female labor demand shock increases the women's probability of marrying someone from their natal village by 24.25%($= \frac{0.1}{0.127} \times \frac{308}{1000}$) for those who had or have wage employment.

Panel B of Table 7 shows that 1000 rupees increase in female labor demand shock decreases the time taken by women to travel to natal home by 0.149 hours. The result is robust to the inclusion of individual covariates predetermined at the time of marriage,

district trends, and male labor demand shocks. the sample average time it takes a woman to travel to her natal home is 2.234 hours. Therefore, one standard deviation increase in the annual labor demand shock decreases married women's distance from natal home by 2.25%($= \frac{0.149}{2.234} \times \frac{338}{1000}$). Though the coefficients are more precisely estimated for Hindu women, we do not find any statistically significant differences by religion or wage employment on hours to natal home.

Overall we find that women are less likely to migrate away from their natal home at the time of marriage if they experience an increase in local job opportunities. This result is consistent with few possibilities: First, an increase in job opportunities for unmarried women increases their value in their natal household, and it becomes more acceptable for households to have an unmarried daughter longer. A greater willingness to have an unmarried daughter may reduce the household's search efforts for a spouse, which may lead to more women marrying within their village or shorter distances even when they migrate out of the village (Fulford, 2015). Second, since the labor demand shocks are local, the opportunity cost of marrying outside the district increases and the fraction of acceptable marriage offers may shrink if we suppose that the women or their family do not want to marry into districts with worse off job opportunities than at natal home. Therefore, this channel can also lead to the observed decline in marriage migration. Lastly, recall that the women who have participated in wage employment display stronger effects of female labor demand on their probability of choosing their spouse independently, having any contact with their spouse before marriage, and marrying someone from their natal village. These results together suggest that women's exposure to potential spouses can be another possible explanation for the effects. Women who have participated in wage employment have higher chances of having interacted with potential spouses by themselves, and these men are also more likely to be local.

6 Conclusion

Existing literature on the effect of women's job opportunities on their ability to make their own marriage decisions is limited. We show that positive female labor demand shocks have a quantitatively significant impact on women's ability to choose/reject marriage matches. In the context of India, where households rather than the bride traditionally makes marriage decisions, this represents an important change from the prevailing culture. In India, marriages rarely end in separation or divorce. Therefore, greater autonomy in marriage decisions for women indicates that they have more control over the quality of life they will lead in the future. Additionally, we find that women's job opportunities also lead them to marry men with education and age closer to their own, and who grew up close to or in their natal village/town.

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7 Figures and tables

Figure 1: Distribution of Labor Demand Shocks

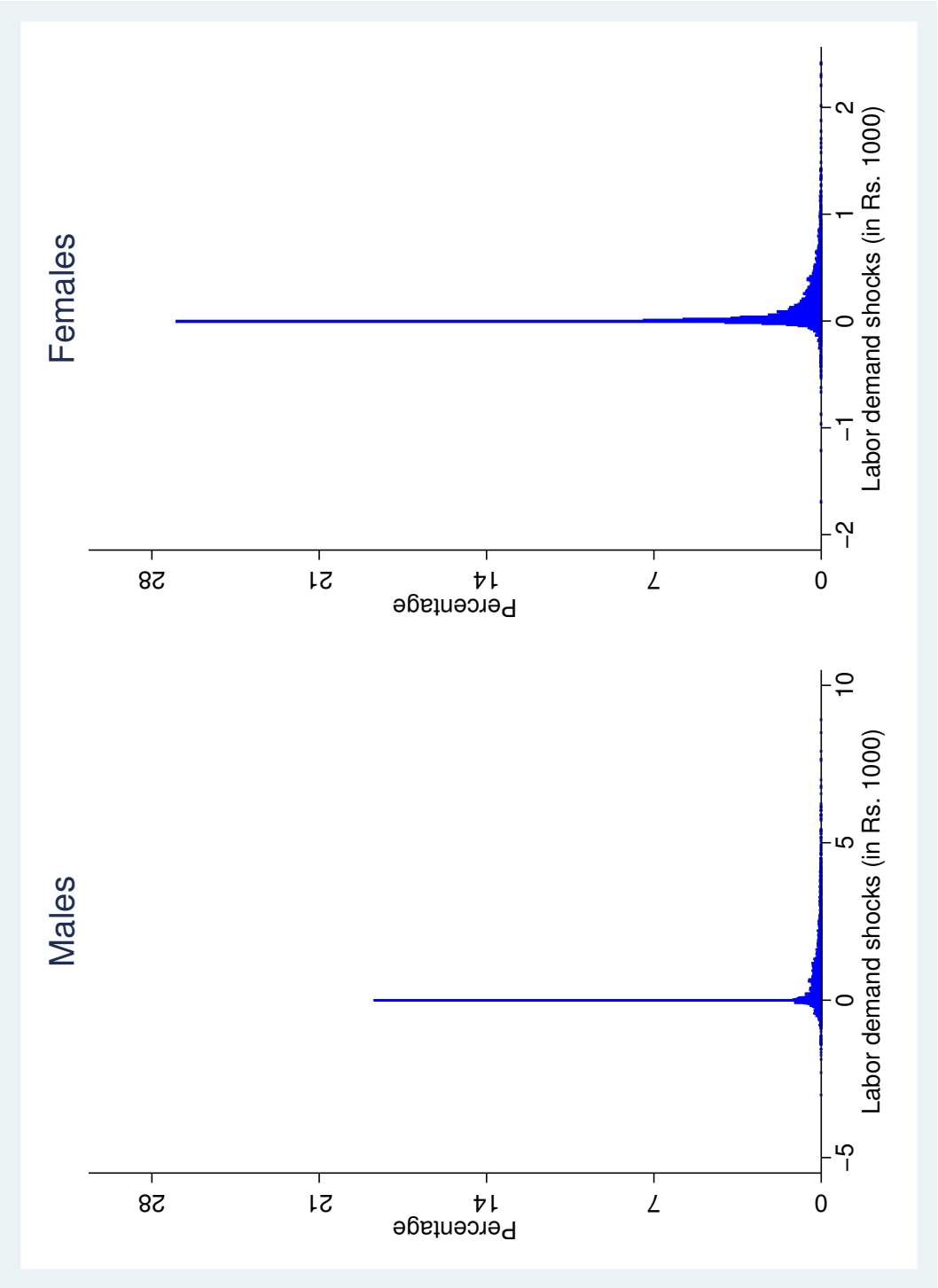

Figure 2: Serial Correlation in Labor Demand Shocks

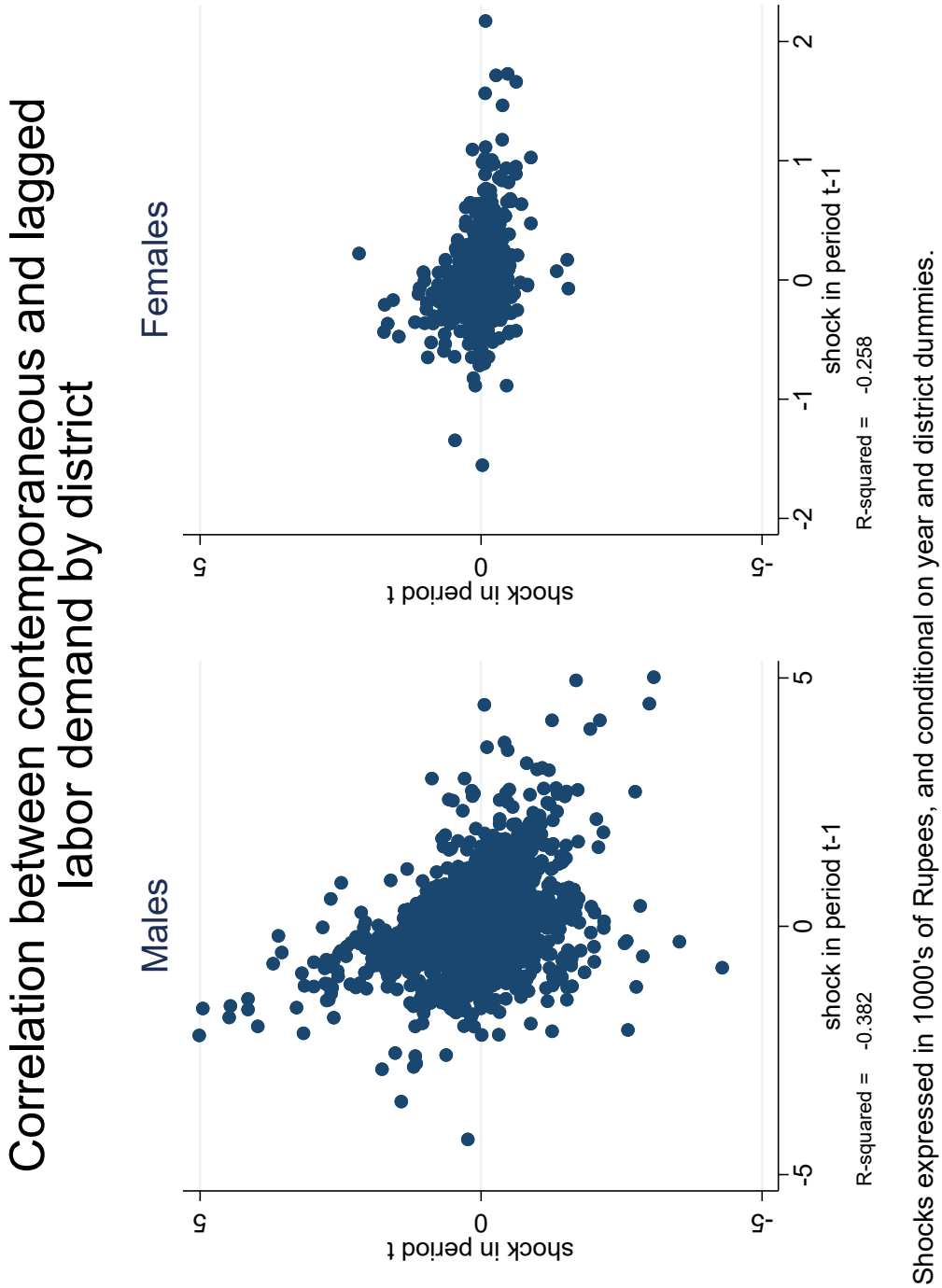

Table 1: Descriptive Statistics by Work Status and Religion

			Ever Worked		*Never Worked*	
	Mean	Obs.	Mean	Obs.	Mean	Obs.
Panel A: Full Sample						
Father's Completed Years of Education	4.18	9711	3.19	3270	4.67	6420
Mother's Completed Years of Education	2.03	9730	1.66	3277	2.21	6432
Number of Brothers	1.81	9728	1.75	3283	1.84	6424
Number of Sisters	1.73	9718	1.73	3284	1.74	6413
Age	26.66	13223	27.89	3292	26.34	6440
Completed Years of Education	4.63	20152	5.86	3291	7.41	6440
Age of Menarche	13.83	13203	13.84	3288	13.85	6428
Age of Marriage	13.76	20153	19.13	3292	19.25	6440
Ever Worked for Wages/Pay	0.33	9732	1.00	3292	0.00	6440
Hindu	0.82	20153	0.86	3292	0.79	6440
Panel B: Hindu Women						
Father's Completed Years of Education	4.31	7911	3.08	2839	4.95	5056
Mother's Completed Years of Education	2.03	7929	1.53	2846	2.29	5067
Number of Brothers	1.72	7928	1.70	2851	1.73	5061
Number of Sisters	1.66	7920	1.68	2852	1.65	5052
Age	26.63	10740	27.85	2859	26.29	5070
Completed Years of Education	4.63	16332	5.71	2858	7.58	5070
Age of Menarche	13.87	10723	13.85	2856	13.90	5060
Age of Marriage	13.69	16333	19.02	2859	19.26	5070
Ever Worked for Wages/Pay	0.34	7929	1.00	2859	0.00	5070
Hindu	1.00	16333	1.00	2859	1.00	5070
Panel C: Non-Hindu Women						
Father's Completed Years of Education	3.64	1800	3.85	431	3.58	1364
Mother's Completed Years of Education	2.05	1801	2.47	431	1.91	1365
Number of Brothers	2.19	1800	2.01	432	2.25	1363
Number of Sisters	2.07	1798	2.03	432	2.09	1361
Age	26.79	2483	28.12	433	26.54	1370
Completed Years of Education	4.64	3820	6.77	433	6.78	1370
Age of Menarche	13.70	2480	13.78	432	13.68	1368
Age of Marriage	14.11	3820	19.80	433	19.20	1370
Ever Worked for Wages/Pay	0.25	1803	1.00	433	0.00	1370
Hindu	0.00	3820	0.00	433	0.00	1370

The full sample includes all ever-married women who were administered the eligible woman's questionnaire in the IHDS 2011-12 and who married only once. We calculate the means using sampling weights.

Table 2: Probability of Working for Wages

	(1)	(2)	(3)	(4)
$\hat{D}^{female}$	0.042***	0.041***	0.044***	0.044***
	(0.013)	(0.013)	(0.013)	(0.013)
$\hat{D}^{female} \times$ Male	-0.083***	-0.083***	-0.087***	-0.087***
	(0.015)	(0.015)	(0.017)	(0.017)
Male	0.332***	0.332***	0.327***	0.327***
	(0.004)	(0.004)	(0.006)	(0.006)
$\hat{D}^{male}$			-0.002	-0.001
			(0.004)	(0.004)
$\hat{D}^{male} \times$ Male			0.006	0.006
			(0.005)	(0.005)
District-specific Linear Trends	No	Yes	No	Yes
$\hat{D}^{female} + \hat{D}^{female} \times$ Male	-0.041	-0.042	-0.043	-0.043
	(0.011)	(0.011)	(0.012)	(0.011)
	[0.000]	[0.000]	[0.000]	[0.000]
$\hat{D}^{male} + \hat{D}^{male} \times$ Male			0.004	0.004
			(0.004)	(0.004)
			[0.270]	[0.254]
Sample Average of Y for Females	0.121	0.121	0.121	0.121
Sample Average of Y for Males	0.439	0.439	0.439	0.439
SD of $\hat{D}^{female}$	0.302	0.302	0.302	0.302
SD of $\hat{D}^{male}$			1.321	1.321
Observations	3151061	3151061	3151061	3151061

The table includes data from 1987-88, 1999-00, 2004-05, 2005-06, 2007-08, 2009-10, and 2011-12 Employment and Unemployment Rounds of the National Sample Surveys (NSS). The dependent variable is an indicator variable equal to one if the respondent worked for wages in the 1999-00, 2004-05, 2005-06, 2007-08, 2009-10, and 2011-12 rounds and an indicator variable equal to one if the respondent worked full-time in the 1987-88 and 1999-00 rounds. $\hat{D}^{female}$ and $\hat{D}^{male}$ are constructed gender-specific labor demand shocks following Equation 5. All specifications include district and year fixed effects. NSS sample weights applied. Parenthesis reports cluster robust standard errors at the district level. Square brackets report p-values for linear combinations. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

Table 3: Autonomy in Choice of Spouse

Panel A: Chose spouse independently instead of jointly with parents or others

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\hat{D}^{female}$	0.048*	0.051*	0.103***	0.054*	0.066*	0.014	0.066*	0.065*	0.113***	0.067*	0.077*	0.067
	(0.028)	(0.030)	(0.036)	(0.031)	(0.038)	(0.047)	(0.035)	(0.036)	(0.041)	(0.037)	(0.045)	(0.087)
$\hat{D}^{female}\times$ Ever Work					0.091						0.090	
					(0.056)						(0.072)	
Ever Work					0.014						0.015	
					(0.023)						(0.024)	
$\hat{D}^{female}\times$ Hindu						0.047						-0.001
						(0.041)						(0.080)
Hindu						-0.002						-0.011
						(0.022)						(0.023)
$\hat{D}^{male}$							-0.015	-0.012	-0.010	-0.011	-0.010	-0.025
							(0.010)	(0.009)	(0.011)	(0.010)	(0.012)	(0.022)
$\hat{D}^{male}\times$ Ever Work											-0.000	
											(0.017)	
$\hat{D}^{male}\times$ Hindu												0.017
												(0.020)
Individual Covariates	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
District Trends	No	No	No	Yes	No	No	No	No	No	Yes	No	No
IHDS II only	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work					0.157						0.167	
					(0.052)						(0.064)	
					[0.003]						[0.010]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work											-0.010	
											(0.015)	
											[0.509]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu						0.061						0.066
						(0.030)						(0.033)
						[0.047]						[0.046]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu												-0.009
												(0.009)
												[0.317]
Mean of Y	0.193	0.192	0.203	0.192	0.204	0.192	0.193	0.192	0.203	0.192	0.204	0.192
SD of $\hat{D}^{female}$	0.374	0.374	0.328	0.374	0.328	0.374	0.374	0.374	0.328	0.374	0.328	0.374
SD of $\hat{D}^{male}$							1.576	1.577	1.382	1.577	1.383	1.577
Observations	4595	4589	2954	4589	2949	4589	4595	4589	2954	4589	2949	4589

Panel B: Had any say in choice of spouse if choice was made by parents or others

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\hat{D}^{female}$	0.017	0.023	0.032	0.025	0.027	0.066*	0.031	0.037	0.041	0.036	0.017	0.116**
	(0.023)	(0.022)	(0.022)	(0.022)	(0.025)	(0.035)	(0.026)	(0.026)	(0.026)	(0.026)	(0.032)	(0.048)
$\hat{D}^{female}\times$ Ever Work					0.016						0.073	
					(0.038)						(0.064)	
Ever Work					0.014						0.021	
					(0.016)						(0.017)	
$\hat{D}^{female}\times$ Hindu						-0.052						-0.096*
						(0.035)						(0.053)
Hindu						0.039*						0.035
						(0.023)						(0.023)
$\hat{D}^{male}$							-0.011	-0.011	-0.008	-0.009	-0.002	-0.022
							(0.009)	(0.009)	(0.010)	(0.009)	(0.009)	(0.014)
$\hat{D}^{male}\times$ Ever Work											-0.018	
											(0.014)	
$\hat{D}^{male}\times$ Hindu												0.013
												(0.014)
Individual Covariates	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
District Trends	No	No	No	Yes	No	No	No	No	No	Yes	No	No
IHDS II only	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work					0.043						0.090	
					(0.034)						(0.051)	
					[0.208]						[0.081]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work											-0.019	
											(0.015)	
											[0.187]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu						0.013						0.020
						(0.024)						(0.028)
						[0.570]						[0.474]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu												-0.009
												(0.009)
												[0.313]
Mean of Y	0.552	0.552	0.561	0.552	0.561	0.552	0.552	0.552	0.561	0.552	0.561	0.552
SD of $\hat{D}^{female}$	0.318	0.318	0.298	0.318	0.298	0.318	0.318	0.318	0.298	0.318	0.298	0.318
SD of $\hat{D}^{male}$							1.488	1.487	1.374	1.487	1.375	1.487
Observations	8555	8546	6645	8546	6631	8546	8555	8546	6645	8546	6631	8546

As indicated, apart from Columns 3, 5, 9, and 11, all regressions include pooled data from the 2004-05 and 2011-12 waves of the India Human Development Survey (IHDS). The sample consists of eligible women between 15 and 49 years of age (one randomly selected from each household during each wave of IHDS). $\hat{D}^{female}$ and $\hat{D}^{male}$ are constructed gender-specific labor demand shocks following Equation 5. All specifications include district and year fixed effects. Individual covariates include the year of birth effects and dummies for the age of menarche for the pooled samples. In addition to these, individual covariates include dummies for father's completed years of education, mother's completed years of education, number of brothers, and number of sisters for the IHDS II sample. IHDS sample weights applied. Parenthesis reports cluster robust standard errors at the district level. Square brackets report p-values for linear combinations. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

Table 4: Previous Interaction

Panel A: Had any contact with spouse before wedding day

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\hat{D}^{female}$	0.016	0.025	0.027	-0.004	0.008	0.024	0.032	0.035	0.001	0.026
	(0.030)	(0.028)	(0.027)	(0.031)	(0.041)	(0.032)	(0.031)	(0.030)	(0.035)	(0.060)
$\hat{D}^{female}\times$ Ever Work				0.085**					0.092	
				(0.034)					(0.058)	
Ever Work				-0.033**					-0.032**	
				(0.016)					(0.016)	
$\hat{D}^{female}\times$ Hindu					0.021					0.007
					(0.044)					(0.067)
Hindu					-0.019					-0.020
					(0.019)					(0.019)
$\hat{D}^{male}$						-0.006	-0.007	-0.007	-0.006	-0.010
						(0.007)	(0.007)	(0.007)	(0.008)	(0.016)
$\hat{D}^{male}\times$ Ever Work									-0.002	
									(0.014)	
$\hat{D}^{male}\times$ Hindu										0.005
										(0.016)
Individual Covariates	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
District Trends	No	No	Yes	No	No	No	No	Yes	No	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work				0.081					0.093	
				(0.039)					(0.054)	
				[0.036]					[0.086]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work									-0.008	
									(0.012)	
									[0.512]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu					0.028					0.034
					(0.031)					(0.034)
					[0.357]					[0.331]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu										-0.006
										(0.007)
										[0.421]
Mean of Y	0.524	0.522	0.522	0.522	0.522	0.524	0.522	0.522	0.522	0.522
SD of $\hat{D}^{female}$	0.310	0.308	0.308	0.308	0.308	0.310	0.308	0.308	0.308	0.308
SD of $\hat{D}^{male}$						1.382	1.377	1.377	1.378	1.377
Observations	9720	9614	9614	9595	9614	9720	9614	9614	9595	9614

Panel B: Knew spouse before wedding day

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\hat{D}^{female}$	-0.002	-0.002	-0.002	0.014	-0.007	-0.054*	0.006	0.004	0.008	0.022	-0.012	-0.056
	(0.022)	(0.022)	(0.027)	(0.021)	(0.031)	(0.030)	(0.024)	(0.024)	(0.029)	(0.023)	(0.034)	(0.048)
$\hat{D}^{female}\times$ Ever Work					0.017						0.063	
					(0.038)						(0.045)	
Ever Work					0.027						0.033*	
					(0.017)						(0.019)	
$\hat{D}^{female}\times$ Hindu						0.064**						0.075
						(0.030)						(0.049)
Hindu						-0.055***						-0.054***
						(0.017)						(0.018)
$\hat{D}^{male}$							-0.007	-0.005	-0.009	-0.006	-0.004	-0.002
							(0.007)	(0.007)	(0.008)	(0.008)	(0.009)	(0.012)
$\hat{D}^{male}\times$ Ever Work											-0.015	
											(0.010)	
$\hat{D}^{male}\times$ Hindu												-0.003
												(0.011)
Individual Covariates	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
District Trends	No	No	No	Yes	No	No	No	No	No	Yes	No	No
IHDS II only	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work					0.010						0.052	
					(0.035)						(0.039)	
					[0.770]						[0.180]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work											-0.020	
											(0.011)	
											[0.079]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu						0.011						0.019
						(0.023)						(0.025)
						[0.643]						[0.444]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu												-0.006
												(0.007)
												[0.429]
Mean of Y	0.358	0.359	0.359	0.359	0.359	0.359	0.358	0.359	0.359	0.359	0.359	0.359
SD of $\hat{D}^{female}$	0.339	0.339	0.308	0.339	0.308	0.339	0.339	0.339	0.308	0.339	0.308	0.339
SD of $\hat{D}^{male}$							1.521	1.521	1.378	1.521	1.379	1.521
Observations	13208	13186	9634	13186	9614	13186	13208	13186	9634	13186	9614	13186

Panel A uses data from the 2011-12 India Human Development Survey (IHDS). For Panel B, as indicated, apart from Columns 3, 5, 9, and 11, all regressions include pooled data from the 2004-05 and 2011-12 waves of the IHDS. The sample consists of eligible women between 15 and 49 years of age (one randomly selected from each household during each wave of IHDS). $\hat{D}^{female}$ and $\hat{D}^{male}$ are constructed gender-specific labor demand shocks following Equation 5. All specifications include district and year fixed effects. Individual covariates include the year of birth effects and dummies for the age of menarche for the pooled samples. In addition to these, individual covariates include dummies for father's completed years of education, mother's completed years of education, number of brothers, and number of sisters for the IHDS II sample. IHDS sample weights applied. Parenthesis reports cluster robust standard errors at the district level. Square brackets report p-values for linear combinations. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

Table 5: Spouse's Characteristics

Panel A: Education Gap (Husband's Completed Years of Education − Wife's Completed Years of Education)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\hat{D}^{female}$	-0.317*	-0.322	-0.340*	-0.366	0.301	-0.380*	-0.369*	-0.370*	-0.247	0.595
	(0.191)	(0.198)	(0.206)	(0.232)	(0.285)	(0.206)	(0.216)	(0.223)	(0.251)	(0.407)
$\hat{D}^{female}\times$ Ever Work				0.125					-0.401	
				(0.257)					(0.332)	
Ever Work				-0.201*					-0.273**	
				(0.113)					(0.122)	
$\hat{D}^{female}\times$ Hindu					-0.752***					-1.158***
					(0.287)					(0.438)
Hindu					0.681***					0.626***
					(0.128)					(0.136)
$\hat{D}^{male}$						0.056	0.043	0.026	-0.010	-0.070
						(0.046)	(0.050)	(0.050)	(0.055)	(0.100)
$\hat{D}^{male}\times$ Ever Work									0.175**	
									(0.081)	
$\hat{D}^{male}\times$ Hindu										0.134
										(0.100)
Individual Covariates	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
District Trends	No	No	Yes	No	No	No	No	Yes	No	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work				-0.241					-0.648	
				(0.235)					(0.289)	
				[0.307]					[0.026]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work									0.165	
									(0.076)	
									[0.032]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu					-0.451					-0.563
					(0.213)					(0.238)
					[0.036]					[0.019]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu										0.064
										(0.052)
										[0.216]
Mean of Y	1.126	1.137	1.137	1.138	1.137	1.126	1.137	1.137	1.138	1.137
SD of $\hat{D}^{female}$	0.312	0.311	0.311	0.311	0.311	0.312	0.311	0.311	0.311	0.311
SD of $\hat{D}^{male}$						1.388	1.384	1.384	1.384	1.384
Observations	8761	8671	8671	8651	8671	8761	8671	8671	8651	8671

Panel B: Age Gap (Husband's Age − Wife's Age)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\hat{D}^{female}$	-0.311**	-0.263*	-0.167	-0.267	-0.617**	-0.401**	-0.360**	-0.245	-0.264	-0.783**
	(0.147)	(0.141)	(0.145)	(0.169)	(0.255)	(0.156)	(0.150)	(0.155)	(0.188)	(0.328)
$\hat{D}^{female}\times$ Ever Work				-0.003					-0.324	
				(0.241)					(0.373)	
Ever Work				-0.339***					-0.380***	
				(0.098)					(0.096)	
$\hat{D}^{female}\times$ Hindu					0.433					0.516
					(0.288)					(0.354)
Hindu					-0.198*					-0.188*
					(0.110)					(0.114)
$\hat{D}^{male}$						0.078	0.086*	0.069	0.053	0.108
						(0.050)	(0.049)	(0.051)	(0.047)	(0.084)
$\hat{D}^{male}\times$ Ever Work									0.104	
									(0.070)	
$\hat{D}^{male}\times$ Hindu										-0.026
										(0.087)
Individual Covariates	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
District Trends	No	No	Yes	No	No	No	No	Yes	No	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work				-0.271					-0.587	
				(0.206)					(0.303)	
				[0.191]					[0.054]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work									0.157	
									(0.080)	
									[0.052]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu					-0.184					-0.267
					(0.155)					(0.160)
					[0.238]					[0.095]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu										0.082
										(0.051)
										[0.113]
Mean of Y	4.736	4.730	4.730	4.730	4.730	4.736	4.730	4.730	4.730	4.730
SD of $\hat{D}^{female}$	0.310	0.308	0.308	0.308	0.308	0.310	0.308	0.308	0.308	0.308
SD of $\hat{D}^{male}$						1.385	1.380	1.380	1.381	1.380
Observations	8946	8856	8856	8837	8856	8946	8856	8856	8837	8856

All regressions include data from the 2011-12 wave of the India Human Development Survey (IHDS). The sample consists of eligible women between 15 and 49 years of age (one randomly selected from each household). $\hat{D}^{female}$ and $\hat{D}^{male}$ are constructed gender-specific labor demand shocks following Equation 5. All specifications include district and year fixed effects. Individual covariates include the year of birth effects, dummies for the age of menarche, father's completed years of education, mother's completed years of education, number of brothers, and number of sisters. IHDS sample weights applied. Parenthesis reports cluster robust standard errors at the district level. Square brackets report p-values for linear combinations. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

Table 6: Spouse's Household Characteristics

Panel A: Spouse is Related

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\hat{D}^{female}$	-0.003	-0.004	0.001	0.002	-0.001	-0.024	-0.018	-0.019	-0.012	-0.015	-0.008	-0.052
	(0.017)	(0.018)	(0.021)	(0.019)	(0.024)	(0.028)	(0.019)	(0.019)	(0.022)	(0.021)	(0.027)	(0.033)
$\hat{D}^{female}\times$ Ever Work					0.002						-0.015	
					(0.029)						(0.032)	
Ever Work					-0.006						-0.008	
					(0.014)						(0.014)	
$\hat{D}^{female}\times$ Hindu						0.025						0.042
						(0.027)						(0.038)
Hindu						-0.056***						-0.054***
						(0.015)						(0.015)
$\hat{D}^{male}$							0.012*	0.012**	0.012*	0.013**	0.010	0.017*
							(0.006)	(0.006)	(0.006)	(0.006)	(0.008)	(0.009)
$\hat{D}^{male}\times$ Ever Work											0.006	
											(0.011)	
$\hat{D}^{male}\times$ Hindu												-0.006
												(0.010)
Individual Covariates	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
District Trends	No	No	No	Yes	No	No	No	No	No	Yes	No	No
IHDS II only	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work					0.001						-0.023	
					(0.027)						(0.027)	
					[0.961]						[0.395]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work											0.016	
											(0.009)	
											[0.071]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu						0.001						-0.010
						(0.018)						(0.022)
						[0.941]						[0.652]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu												0.011
												(0.007)
												[0.103]
Mean of Y	0.128	0.128	0.119	0.128	0.120	0.128	0.128	0.128	0.119	0.128	0.120	0.128
SD of $\hat{D}^{female}$	0.371	0.371	0.346	0.371	0.346	0.371	0.371	0.371	0.346	0.371	0.346	0.371
SD of $\hat{D}^{male}$							1.578	1.577	1.469	1.577	1.470	1.577
Observations	8682	8671	6077	8671	6059	8671	8682	8671	6077	8671	6059	8671

Panel B: Natal Household is of Worse Economic Status

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\hat{D}^{female}$	-0.004	-0.001	0.002	-0.002	0.013	0.019	-0.009	-0.007	-0.008	-0.010	-0.005	0.028
	(0.012)	(0.011)	(0.013)	(0.012)	(0.015)	(0.019)	(0.014)	(0.013)	(0.015)	(0.014)	(0.018)	(0.022)
$\hat{D}^{female}\times$ Ever Work					-0.031						-0.010	
					(0.019)						(0.028)	
Ever Work					0.011						0.014	
					(0.010)						(0.011)	
$\hat{D}^{female}\times$ Hindu						-0.024						-0.044*
						(0.020)						(0.026)
Hindu						0.016						0.014
						(0.011)						(0.011)
$\hat{D}^{male}$							0.004	0.005	0.009*	0.007	0.011*	0.000
							(0.004)	(0.004)	(0.005)	(0.005)	(0.006)	(0.007)
$\hat{D}^{male}\times$ Ever Work											-0.007	
											(0.008)	
$\hat{D}^{male}\times$ Hindu												0.006
												(0.007)
Individual Covariates	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
District Trends	No	No	No	Yes	No	No	No	No	No	Yes	No	No
IHDS II only	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work					-0.019						-0.015	
					(0.018)						(0.025)	
					[0.305]						[0.551]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work											0.005	
											(0.008)	
											[0.567]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu						-0.006						-0.015
						(0.012)						(0.015)
						[0.651]						[0.318]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu												0.006
												(0.005)
												[0.169]
Mean of Y	0.101	0.101	0.102	0.101	0.102	0.101	0.101	0.101	0.102	0.101	0.102	0.101
SD of $\hat{D}^{female}$	0.339	0.339	0.308	0.339	0.308	0.339	0.339	0.339	0.308	0.339	0.308	0.339
SD of $\hat{D}^{male}$							1.514	1.514	1.378	1.514	1.379	1.514
Observations	13047	13020	9625	13020	9606	13020	13047	13020	9625	13020	9606	13020

As indicated, apart from Columns 3, 5, 9, and 11, all regressions include pooled data from the 2004-05 and 2011-12 waves of the India Human Development Survey (IHDS). The sample consists of eligible women between 15 and 49 years of age (one randomly selected from each household during each wave of IHDS). $\hat{D}^{female}$ and $\hat{D}^{male}$ are constructed gender-specific labor demand shocks following Equation 5. All specifications include district and year fixed effects. Individual covariates include the year of birth effects and dummies for the age of menarche for the pooled samples. In addition to these, individual covariates include dummies for father's completed years of education, mother's completed years of education, number of brothers, and number of sisters for the IHDS II sample. IHDS sample weights applied. Parenthesis reports cluster robust standard errors at the district level. Square brackets report p-values for linear combinations. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

Table 6: Spouse's Household Characteristics (Continued)

Panel C: Spouse is from same caste

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\hat{D}^{female}$	0.001	0.001	0.001	0.004	0.005	0.008	0.004	0.003	0.000	0.004	0.002	-0.010
	(0.011)	(0.011)	(0.012)	(0.012)	(0.013)	(0.018)	(0.012)	(0.012)	(0.013)	(0.012)	(0.014)	(0.025)
$\hat{D}^{female}\times$ Ever Work					-0.014						-0.005	
					(0.018)						(0.028)	
Ever Work					-0.006						-0.005	
					(0.007)						(0.008)	
$\hat{D}^{female}\times$ Hindu						-0.009						0.016
						(0.015)						(0.027)
Hindu						-0.011						-0.007
						(0.011)						(0.011)
$\hat{D}^{male}$							-0.003	-0.002	0.000	-0.000	0.001	0.004
							(0.003)	(0.003)	(0.004)	(0.003)	(0.005)	(0.006)
$\hat{D}^{male}\times$ Ever Work											-0.003	
											(0.006)	
$\hat{D}^{male}\times$ Hindu												-0.008
												(0.006)
Individual Covariates	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
District Trends	No	No	No	Yes	No	No	No	No	No	Yes	No	No
IHDS II only	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work					-0.009						-0.004	
					(0.019)						(0.025)	
					[0.631]						[0.882]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work											-0.002	
											(0.006)	
											[0.764]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu						-0.001						0.006
						(0.011)						(0.012)
						[0.945]						[0.636]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu												-0.003
												(0.003)
												[0.302]
Mean of Y	0.943	0.943	0.944	0.943	0.945	0.943	0.943	0.943	0.944	0.943	0.945	0.943
SD of $\hat{D}^{female}$	0.339	0.339	0.308	0.339	0.308	0.339	0.339	0.339	0.308	0.339	0.308	0.339
SD of $\hat{D}^{male}$							1.521	1.521	1.376	1.521	1.376	1.521
Observations	13171	13156	9606	13156	9587	13156	13171	13156	9606	13156	9587	13156

As indicated, apart from Columns 3, 5, 9, and 11, all regressions include pooled data from the 2004-05 and 2011-12 waves of the India Human Development Survey (IHDS). The sample consists of eligible women between 15 and 49 years of age (one randomly selected from each household during each wave of IHDS). $\hat{D}^{female}$ and $\hat{D}^{male}$ are constructed gender-specific labor demand shocks following Equation 5. All specifications include district and year fixed effects. Individual covariates include the year of birth effects and dummies for the age of menarche for the pooled samples. In addition to these, individual covariates include dummies for father's completed years of education, mother's completed years of education, number of brothers, and number of sisters for the IHDS II sample. IHDS sample weights applied. Parenthesis reports cluster robust standard errors at the district level. Square brackets report p-values for linear combinations. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

Table 7: Marriage Migration

Panel A: Spouse is from Same Village

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\hat{D}^{female}$	0.048***	0.047***	0.049**	0.043**	0.019	0.048	0.053***	0.051***	0.052**	0.050**	0.031	0.062
	(0.016)	(0.017)	(0.021)	(0.019)	(0.024)	(0.034)	(0.017)	(0.018)	(0.022)	(0.020)	(0.027)	(0.050)
$\hat{D}^{female}\times$ Ever Work					0.081**						0.054	
					(0.037)						(0.040)	
Ever Work					0.008						0.004	
					(0.011)						(0.012)	
$\hat{D}^{female}\times$ Hindu						-0.001						-0.014
						(0.036)						(0.055)
Hindu						-0.058***						-0.060***
						(0.015)						(0.016)
$\hat{D}^{male}$							-0.004	-0.003	-0.003	-0.006	-0.005	-0.007
							(0.005)	(0.005)	(0.006)	(0.005)	(0.006)	(0.011)
$\hat{D}^{male}\times$ Ever Work											0.009	
											(0.009)	
$\hat{D}^{male}\times$ Hindu												0.004
												(0.010)
Individual Covariates	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
District Trends	No	No	No	Yes	No	No	No	No	No	Yes	No	No
IHDS II only	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work					0.100						0.085	
					(0.030)						(0.031)	
					[0.001]						[0.007]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work											0.003	
											(0.009)	
											[0.704]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu						0.046						0.048
						(0.018)						(0.019)
						[0.009]						[0.012]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu												-0.003
												(0.005)
												[0.602]
Mean of Y	0.126	0.126	0.120	0.126	0.120	0.126	0.126	0.126	0.120	0.126	0.120	0.126
SD of $\hat{D}^{female}$	0.339	0.339	0.308	0.339	0.308	0.339	0.339	0.339	0.308	0.339	0.308	0.339
SD of $\hat{D}^{male}$							1.521	1.521	1.377	1.521	1.378	1.521
Observations	13178	13163	9612	13163	9593	13163	13178	13163	9612	13163	9593	13163

Panel B: Hours to Natal Home

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\hat{D}^{female}$	-0.149**	-0.155**	-0.220***	-0.170**	-0.209**	-0.096	-0.129*	-0.143*	-0.210**	-0.152*	-0.235**	0.022
	(0.069)	(0.071)	(0.078)	(0.072)	(0.092)	(0.115)	(0.076)	(0.077)	(0.083)	(0.078)	(0.107)	(0.143)
$\hat{D}^{female}\times$ Ever Work					-0.012						0.093	
					(0.122)						(0.156)	
Ever Work					-0.046						-0.033	
					(0.064)						(0.065)	
$\hat{D}^{female}\times$ Hindu						-0.074						-0.200
						(0.107)						(0.148)
Hindu						0.119*						0.102
						(0.066)						(0.067)
$\hat{D}^{male}$							-0.015	-0.010	-0.008	-0.015	0.003	-0.042
							(0.020)	(0.021)	(0.025)	(0.022)	(0.028)	(0.032)
$\hat{D}^{male}\times$ Ever Work											-0.034	
											(0.034)	
$\hat{D}^{male}\times$ Hindu												0.039
												(0.031)
Individual Covariates	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
District Trends	No	No	No	Yes	No	No	No	No	No	Yes	No	No
IHDS II only	No	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No
$\hat{D}^{female}+\hat{D}^{female}\times$ Ever Work					-0.221						-0.142	
					(0.104)						(0.118)	
					[0.034]						[0.230]	
$\hat{D}^{male}+\hat{D}^{male}\times$ Ever Work											-0.031	
											(0.033)	
											[0.348]	
$\hat{D}^{female}+\hat{D}^{female}\times$ Hindu						-0.169						-0.179
						(0.073)						(0.081)
						[0.022]						[0.029]
$\hat{D}^{male}+\hat{D}^{male}\times$ Hindu												-0.003
												(0.021)
												[0.883]
Mean of Y	2.234	2.234	2.174	2.234	2.173	2.234	2.234	2.234	2.174	2.234	2.173	2.234
SD of $\hat{D}^{female}$	0.338	0.338	0.307	0.338	0.307	0.338	0.338	0.338	0.307	0.338	0.307	0.338
SD of $\hat{D}^{male}$							1.523	1.523	1.379	1.523	1.379	1.523
Observations	12030	12019	8745	12019	8731	12019	12030	12019	8745	12019	8731	12019

As indicated, apart from Columns 3, 5, 9, and 11, all regressions include pooled data from the 2004-05 and 2011-12 waves of the India Human Development Survey (IHDS). The sample consists of eligible women between 15 and 49 years of age (one randomly selected from each household during each wave of IHDS). The dependent variable in Panel B is winsorized at the 5th and 95th percentiles. $\hat{D}^{female}$ and $\hat{D}^{male}$ are constructed gender-specific labor demand shocks following Equation 5. All specifications include district and year fixed effects. Individual covariates include the year of birth effects and dummies for the age of menarche for the pooled samples. In addition to these, individual covariates include dummies for father's completed years of education, mother's completed years of education, number of brothers, and number of sisters for the IHDS II sample. IHDS sample weights applied. Parenthesis reports cluster robust standard errors at the district level. Square brackets report p-values for linear combinations. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.