Effects of Local Wages on Female Joint Decision of Marriage and Working: A Cross-Data Analysis

By

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A thesis submitted to the Department of Economics & Social Sciences in partial fulfillment of the requirements for the degree of

Master of Science in Applied Economics

Department of Economics & Social Sciences

BRAC University

May, 2024

Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at BRAC University.

2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.

3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.

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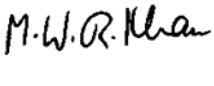

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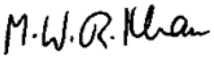

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Abstract

This research investigates how rising local wages in Bangladesh influence young women's joint decisions regarding marriage and labor force participation. It conducts a comparative analysis of female involvement across districts characterized by diverse wage levels, unveiling nuanced responses to economic stimuli. The analysis, employing a cross-sectional survey focusing on young women aged 18-30, reveals a significant relationship between local wages and labour force participation for unmarried women. These rising local wages incentivize unmarried women to prioritize career pursuits over marriage, potentially due to increased financial independence and career opportunities. Conversely, the impact of local wages on the decision-making of married women is less pronounced. While there is a slight tendency for married women to remain employed as local wages rise, wages do not significantly influence the decision to enter the workforce. These findings highlight the likelihood of a woman's decision regarding marital statusand workforce participation. They also hold valuable insights for policymakers aiming to design interventions that promote gender equality and empower women in the Bangladeshi workforce.

Keywords: Wage dynamics, Female workforce participation, Marital decisions, Economic influences

Acknowledgement

This thesis would not have been possible without the support of many people. Many thanks to Dr. K.M. Arefin Kamal and Dr. A S M Shakil Haider who read my numerous revisions and helped make some sense of the confusion. Their insights and comments motivated me to sharpen my thoughts and raised the caliber of my work.

Thanks to BRAC University for giving me the opportunity to present this thesis. And finally, thanks to my husband and parents who endured this long process with me, always offering support and love.

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1. Introduction

Understanding the intricate determinants influencing young women's engagement in the workforce and their decisions regarding marriage is essential for fostering gender equality and sustainable development in Bangladesh. While existing studies have delved into the complexities of female workforce participation in the country, emphasizing the profound influence of societal norms, family structures, and household dynamics, a notable gap remains in comprehending how wages specifically shape the decision-making processes of young women, particularly concerning marriage.

Prior research, as exemplified by survey data collected by Kabeer et al. (2011) in Bangladesh, underscores the multifaceted benefits of women's participation in formal waged work outside the home. Paid employment, particularly in formal roles, has been found to positively impact women by bolstering self-worth, agency, decision-making power, and community status, among other factors. This underscores the transformative potential of women's paid employment in reshaping gender relations. However, despite the increasing involvement of women in Bangladesh's workforce, challenges persist in achieving economic growth and poverty alleviation, with women lagging behind men in workforce participation and facing limitations in sectors offering fewer opportunities and lower remuneration. Many women also contribute as unpaid labor to family enterprises.

This paper seeks to address the nuanced relationship between wages and young women's likelihood of making decisions regarding careers and marriage. Historically, empirical studies have consistently demonstrated a U-shaped relationship between household income and women's workforce participation, attributed to the income effect, whereby higher household income may afford women the choice not to work. However, rising wages present a different trend, known as the substitution effect, wherein higher wages incentivize women to engage more actively in the workforce, as observed by Rahman et al. (2013).

Furthermore, as articulated by Choudhry & Elhorst (2018), the U-shaped relationship between female labor force participation and economic development suggests that certain turning points, such as shifts in industry mix towards services and increased educational attainment among women, contribute to narrowing the gender gap in workforce participation. Additionally, studies have documented a significant increase in labor force participation rates among young, single

women compared to married ones, signaling a growing emphasis on economic considerations among this demographic.

Age also plays a complex role in shaping women's career trajectories, with changing personal priorities, family dynamics, and evolving aspirations influencing employment patterns. Research by Fitzenberger and Wunderlich (2004) has highlighted a shift among women from full-time, higher-paying jobs to part-time, lower-paying work as they age, influenced by factors such as family responsibilities and the desire for work-life balance.

Moreover, the enduring challenge of the gender pay gap underscores the intersectionality of age, gender, and societal factors in shaping women's experiences in the workforce. While some attribute this gap to differences in human capital between female and male workers, others emphasize discriminatory practices within the labor market against women (Hossain & Tisdell, 2005; Ahmed and Maitra, 2010).

Against this backdrop, this paper aims to contribute to the existing literature by focusing on the impact of local wages on the joint decision-making of young women. Unlike previous studies that primarily examined the broader impact of wage discrimination on labor force participation, this paper endeavors to compare female participation in districts with varying wage levels, elucidating the nuanced relationship between wages and women's decisions regarding workforce participation and marriage.

2. Literature Review:

The exploration of female labor force participation stands at the intersection of societal dynamics, economic progress, and gender equity. Many researchers have directed their attention toward the interplay between marital status, education, and economic conditions, particularly at the regional level. Studies have recognized the significance of the stated variables on women's workforce engagement, which is pivotal for societal progress and economic development.

In their study, Bidisha et al. (2022) looked at the factors influencing Female Labor force Participation (FLFP), especially their concentration in low-productive jobs and lower occupational levels. Using Probit and Multinomial Logit (MNL) estimations, the research reveals that gender-specific factors such as marital status as a wife and the presence of young children and household factors such as family income play a crucial role in determining women's employment status. The analysis indicates that largely unexplained factors rather than inherent capabilities limit women from entering higher-paying non-agricultural jobs.

Multiple researchers have testified to this similar underlying variable in their work on developing economies and developed nations. The study by Tong and Chiu (2016) 's study on FLFP in developed nations suggests that both marriage and maternity can reduce the probability of women engaging in the workforce. This decline is attributed to societal and cultural norms that limit married women, particularly mothers, to household responsibilities and motherhood duties. Furthermore, other empirical studies have also documented the discrimination against married women that occurs in work settings, where employers in sizable companies and specific occupational categories exhibit a preference for hiring men or unmarried women. (Verme et al., 2016; Mehrotra & Parida, 2017)

Nevertheless, owing to the husband's limited earning capacity compared to the household's daily expenses, a wife might need to seek employment outside the home to augment the family income. Using Thailand as a case study, empirical research by Tumsarp and Pholphirul (2020) shows that marital status does not reduce the likelihood of FLFP. Instead, married Thai women are significantly more likely (approximately 15.9 percentage points higher) to engage in the labor market and work more hours than unmarried women. This holds, especially for younger, less educated, non-household heads with fewer family responsibilities. On the other hand, Cameron and Suárez (2020) argued that in their study on Indonesia, the key determinants affecting FLFP

are marital status, the count of children aged 0 to 2 in the household, educational achievement (particularly tertiary education), and the village industrial structure, where agriculture and manufacturing cater to female employment. The substantial negative influence of marital status and young children on FLFP underscores the potential efficacy of policies facilitating women's reentry into the workforce after childbirth to boost FLFP.

To discern the impact of educational attainment on married women's FLFP, Ismail and Sulaiman (2014) conducted a study, revealing a positive correlation between the number of schooling years and the active participation of married women in the workforce. Furthermore, Ghazali et al. (2015) explained that advancements in women's educational access contribute to a heightened engagement of FLFP. At the same time, Rahman and Al-Hasan (2019) state that most of the previous relevant literature supports the idea of a U-shaped relationship between FLFP and economic development. As economies develop, women initially leave the workforce due to increased opportunities for men and societal barriers. However, women often re-enter the workforce in white-collar jobs as education levels rise.

This U-shaped pattern in female labor force participation is not always a strict outcome of the typical labor supply model but has been observed in many studies across developed and developing countries (Mammen & Paxson, 2000; Tanaka & Muzones, 2016; Tam, 2011). Das et al. (2015) implied that the female participation rate exhibits a U-shaped or J-shaped pattern relative to women's education levels. This hypothesis that education positively influences the rate of women's labor force participation has also been supplemented by Chaudhary and Verick (2014), who acknowledged this relationship because of the interplay between income and substitution effects.

Nevertheless, among urban women, the trend takes an opposite turn as Abraham (2013) and Klasen and Pieters (2015) respectively observe a declining trend in the participation rates of urban women (aged 15 and above) across all educational categories between 1987–1988 and 2009–2010 and that between 1993–1994 and 2011–2012, married women with no education and those with a graduate degree experienced a relatively higher percentage decline in their labor force participation rates. However, using distinct methodological approaches, et al. (2016) and Andres et al. (2017) find that the reduction in both urban and rural societies is mainly attributed to rising education levels among married women and men in their households, along with a stable family income.

Klasen and Pieters (2015) found in their study that rising incomes and education among men have contributed to a reduction and stagnation in Indian FLFP, indicating the impact of the classic income effect. Similarly, Gaddis and Klasen (2013) stated how the progression of women's wages and work prospects evolves at a slower pace compared to the rapid increase in their husbands' incomes, and in consequence, the adverse income effect is expected to outweigh any favorable substitution effect resulting from growing female wages. But a few studies also show how the wages of husbands and wives were found to have no significant impact on determining the labor supply of married women, suggesting that wages are not a primary factor influencing the employment decisions of married women (Ismail & Sulaiman, 2014; Dallakyan & Bakhtavoryan, 2012). Some other scholars, like Humera (2009) and Addison and Ozturk (2012), found that increasing the minimum wage rate in the economy leads to decreasing FLFP.

3. Methodology

3.1Research Objective:

Kotze and Zake (2021) highlighted that married women's involvement in the workforce depends on whether their potential earnings exceed their minimum acceptable wage. Additionally, women navigate significant life choices such as marriage, childbearing, and employment decisions (UEDA, 2007). Sundjo and CHE (2018) aim to justify exploring how maternal and household characteristics influence female labor force participation and examining how the employment status of spouses affects it.

Previous studies have investigated factors like wages, income disparities, childcare decisions, spouse's earnings, and education levels in relation to women's workforce participation. Therefore, this study focuses on understanding how the local wage influences young women's decisions regarding marriage and employment. Our hypothesis aligns with this objective;

H1: With the increase of local wages, women who are married and working are more likely to be so. According to Mincer (1962), employed married women are likely to remain in the workforce despite their marital status as the rise in average wages renders leisure time comparatively more costly, thereby incentivizing continued employment.

H2: As local wages increase, the likelihood of being married and not working decreases. Kotze and Zake (2021) contend that married women who are not currently employed are inclined to enter

the workforce as the average wage increases. This inclination stems from the market wage surpassing their reservation wage, thereby increasing the likelihood of employment.

H3: McElwain and Lee (1985) stated that employed unmarried women are prone to prolonging their decision to marry in response to an uptick in average wages. Highly educated women are more inclined toward career advancement, often delaying marriage accordingly. So, the increase in local wages lowers the increase of likelihood that women are unmarried and working.

H4: The increase in local wages will decrease the likelihood of being unmarried and not working. Neuman and Grossbard-Shechtman (1988) assert that unmarried women who are not employed are likely to opt for employment over marriage as average wages rise. This decision-making process is directly influenced by anticipated wage opportunities in the labor market and inversely affected by the perceived value of leisure time at home.

3.2 Data Source and Sample size:

The study sample encompasses data from the year 2017, comprising 493,886 individual-level observations derived from the Labour Force Survey 2017 conducted by the International Labour Organization, as documented by Khatun (2016). In instances of missing data, a placeholder value of 99999999 is employed, following the methodology established by Volker and Miller (1983) and Ahmad and Hafeez (2002). For the cross-sectional analysis, the sample is confined to young adults aged between 18 and 30, totaling 62,086 individuals among all female participants. This selection criterion is informed by the observation that married women aged 25–39 exhibit a higher propensity for labor force participation compared to women aged 40–54, as evidenced by Widarti (2006).

3.3 Model specification:

The analytical framework of the study draws upon the LFP Logit Model formulated by Hossain and Anwar (2016), wherein Labor Force Participation (LFP) is represented as a binary variable denoting employment or unemployment. Explanatory variables incorporated into this model encompass marital status, age, and educational attainment. Similarly, Abraham et al. (2017)

investigated female labor force participation (FLFP), utilizing a binary variable to delineate employment status. The determinants of this variable include age, educational attainment, wealth, and marital status. A regression analysis is undertaken to explore the concurrent relationship between work and marriage, as elucidated by UEDA (2007), in conjunction with the average wage prevailing in each district

$$y_{id} = \beta_0 + \beta_1 W_d + \epsilon_{id}$$

3.4 Data description:

In this context, the dependent variable represents the outcome of women denoted as "i" within district "d" while signifies the average wage within district "d." For the rudimentary analysis, the model is segregated into four distinct outcomes, where the dependent variable assumes a binary form, as outlined by Hossain and Anwar (2016). It is presupposed that if the individual is concurrently:

- Married and working, the dependent variable assumes the value of 1; otherwise, it assumes 0.
- Unmarried and working, the dependent variable takes on the value of 1; otherwise, it takes 0.
- Married but not working the dependent variable is assigned the value of 1; otherwise, it is set to 0.
- Unmarried and not working, the dependent variable is designated as 1 if the condition is met; otherwise, it defaults to 0.

In the context of this study, both marital statuses, as delineated by UEDA (2007), and labor force participation, as defined by Choudhry and Elhorst (2018), are binary dummy variables. Specifically, if an individual is married, the variable assumes a value of 1; otherwise, it is coded as 0. Similarly, if an individual is employed, the corresponding variable is assigned a value of 1; otherwise, it is set to 0.

The primary explanatory variable under scrutiny is the average wage prevailing across districts. It is posited that gainfully employed individuals may increase their work hours in response to an uptick in wages, attributable to the income effect, as elucidated by Kotze and Zake (2021). In calculating the average wage, male and female participants with educational qualifications ranging from grades 5 to 12 are considered. Before wage computation, missing values are replaced with 99999999, which are subsequently transformed to 0 for income values, whereas non-missing values remain unaltered. The average wage is then computed district-wise and transformed into a logarithmic form for analysis.

Furthermore, the variables of education and age are controlled for in examining the joint decision-making process about work and marriage, as advocated by Yakubu (2010). Educational attainment and age are influential factors in women's decision-making processes; notably, individuals with higher levels of education tend to exhibit a greater inclination toward career advancement. Moreover, age is often associated with the decision to enter into marriage. Hence, these variables are controlled to discern the impact of wage increases on female decision-making regarding marriage and employment.

In this analysis, the control variable age is quantified in years by the methodology outlined by Tumsarpa and Pholphirul (2020). Conversely, as delineated by Sundjo and CHE (2018), education is categorized into dummy variables. The highest level of education attained is categorized within the following thresholds for analysis:

- If the education level falls within the range of 0 to 5, it is assigned a value of 1; otherwise, it is coded as 0.
- If the education level ranges from 6 to 10, it is coded as 1; otherwise, it is set to 0.
- For education level 11, the variable is designated as 1; otherwise, it is coded as 0.
- If the education level falls within the range of 12 to 13, it is assigned a value of 1; otherwise, it is set to 0.
- For education levels 14 and above, the variable is designated as 1; otherwise, it is coded as 0.
- If the education level corresponds to 99 (Madrasha), it is coded as 1; otherwise, it assumes a value of 0.

The regression equation is estimated using Ordinary Least Squares (OLS), with standard errors clustered by districts. While age and education are included as control variables in the estimation process, they are not considered focal points in the analysis. Rather, the primary objective is to investigate the impact of average wage increases across districts on the joint decision-making process regarding marriage and employment.

4. Result and Analysis

4.1 Descriptive analysis:

The summary statistics of the variables under study are presented below. Appendix 1 showcases the statistics for high-wage districts, while Appendix 2 delineates the statistics for low-wage districts.

The classification of high- and low-wage districts is determined based on percentiles. Districts with wages at or above the 75th percentile are categorized as high-wage districts, while those below the 25th percentile are designated as low-wage districts. Specifically, districts with wages equal to or exceeding 12,479.39 are deemed high-wage, whereas districts with wages equal to or below 10,681.677 are categorized as low-wage.

Appendices 3 and 4 illustrate the proportions of young females married and employed within high-wage districts. Among the total female 16,664 participants of high-wage districts, 13,460 are married, while 3,589 are employed. Within high-wage districts, 21.53% of participants are employed, while 80.77% are married of total female participants.

Upon scrutinizing Appendix 3, it becomes evident that Gopalganj exhibits the lowest percentage of working females at 2.59%, whereas Rajbari demonstrates the highest at 44.67% of that particular district. Regarding marital status, as depicted in Appendix 4, among the total women ofthat district, Sylhet records the lowest proportion of married women at 71.80%, while Pabna reports the highest at 87.97%.

Appendices 5 and 6 delineate the percentage of the total number of young females who are married and working in low-wage districts. Total 12,108 female participants in low-wage districts, 9,936

are married, and 2,092 are employed. Thus, it signifies that among all participants in low-wage districts, 17.27% are employed, while 82.06% are married, which is the total number of female participants.

Upon examination of Appendix 5, it becomes apparent that Kishoregonj exhibits the lowest percentage of working females at 4.92%, whereas Naogaon demonstrates the highest at 33.59% among the total women of that district. Regarding marital status, as illustrated in Appendix 6, Maulvibazar records the lowest proportion of married women at 73.45%, while Naogaon reports the highest at 87.09% of the total females of that particular district.

4.2 Regression Analysis:

Tables 1 present the estimates of the equation for various outcomes. In table 1 it outlines the impact of an increase in the logarithm of average district income on female decision-making regarding marriage and employment.

The coefficient exhibits insignificance and a negative effect on these decisions as this group of females is married and working, so the increase in local wage has no influence on decision-making regarding being married and in the workforce. However, it is noted that an increase in local wages within a district has been observed to marginally enhance the likelihood of married women persisting in their employment, underscoring the stability and commitment displayed by married women in the workforce, as highlighted by Sundjo and CHE (2018).

Again, the coefficient is insignificant yet positive for married women who do not engage in employment. With the increase in local wages, the likelihood increases. This suggests that for non-working married women, there exists a slight inclination towards entering the workforce, particularly among women aged 25–39, who are more predisposed to working compared to those aged 40–54, as indicated by Widarti (2006), especially when market wages exceed reservation wages.

Further, it shows a positive and significant coefficient for unmarried women actively participating in the labour force. For this group of females, with an increase in local wages, the likelihood of being unmarried and working increases. If the local wage increases by 1 unit, the probability of being unmarried and working increases by 0.0615 units for young women. This trend reflects contemporary societal shifts wherein young individuals prioritize education and career pursuits

over marriage. With the escalation of average wages, there is a notable increase in the likelihood of unmarried women remaining in the workforce, aligning with findings by UEDA (2007), which underscore the growing tendency among the youth to defer or eschew marriage in favour of career advancement.

Finally, Table 6 reveals a negative yet significant coefficient for unmarried women who are neither married nor employed. A decrease in the likelihood of being unmarried and not working is being observed. So, with a 1 unit increase in local wages, the probability of being unmarried and not working decreases by 0.0702 units for young women. As these women are not tethered to familial responsibilities or employment obligations, a wage increase is observed to heighten their propensity to join the workforce rather than opt for marriage. This finding is particularly pertinent for unmarried women aged 18 to 30, who prioritize higher education and delayed entry into the workforce, as documented by UEDA (2007) in their exploration of the interplay between marital status, childcare decisions, and labor force participation among women. Notably, women pursuing extended education beyond high school tend to postpone marriage and workforce entry.

Table 1 Effect of local wage on joint decision of women

	Dependent Variable			
	Married_ Working	Married_not _Working	Unmarried _Working	Unmarried_ not_Working
Constant	0.3143***	0.8353***	-0.6644***	0.5149**
	(0.0600)	(0.1109)	(0.1390)	(0.1701)
Log (Average Income)	-0.0011	0.0098	0.0615***	-0.0703***
	(0.0062)	(0.0117)	(0.0147)	(0.0180)
Age	-0.0066***	-0.0287***	0.0124***	0.0229***
	(0.0002)	(0.0004)	(0.0004)	(0.0005)
Education Level (0-5)	-0.1129***	-0.1592***	-0.0001	0.2722***
	(0.0106)	(0.0112)	(0.0141)	(0.0163)
Education Level (6-10)	-0.1235***	-0.1408***	-0.0425**	0.3068***
	(0.0106)	(0.0111)	(0.0140)	(0.0162)
Education Level 11	-0.0865***	0.1173***	-0.1087***	0.0779***
	(0.0109)	(0.0122)	(0.0142)	(0.0170)
Education Level (12-13)	-0.0239.	-0.0222	-0.0252	0.0714***
	(0.0126)	(0.0137)	(0.0163)	(0.0194)
Education Level 99	-0.1557***	-0.0718.	-0.0674.	0.2949***
	(0.0110)	(0.0411)	(0.0379)	(0.0516)
Observations	62,086	62,086	62,086	62,086
R2	0.03421	0.21418	0.02941	0.07309
Adj. R2	0.0341	0.21409	0.0293	0.07299

Note:
(i) *p<0.1; **p<0.05; ***p<0.01
(ii) Standard errors in parentheses are clustered by district
(iii) control for both age and education.

5. Limitation

- While this study offers insights into female decision-making regarding marriage and workforce participation in response to variations in average wages, it acknowledges the limitation of solely focusing on this factor. There are several factors like number of children, age of infant, transportation poverty, day care facilities which motivate a woman in their decision process.
- Furthermore, the use of cross-sectional analysis restricts the study to data from a single year. Therefore, it is unable to account for district-specific time-specific co-founders.
- Despite these limitations, this research's findings are relevant for policymakers. They highlight the importance of addressing factors influencing female decision-making and promoting women's participation in the workforce, including considerations related to marriage.

6. Conclusion

In essence, this study underscores the profound influence of increasing average wages on the joint decisions of young women concerning marriage and employment in Bangladesh. Unlike conventional economic theories suggesting a negative correlation between household income and female labor force participation, the findings reveal a notable shift: rising wages catalyze women to enter the workforce, driven by the allure of enhanced financial stability and independence. Moreover, age emerges as a pivotal factor shaping these decisions as women navigate through various life stages, including education, career initiation, and family-building. These changing life circumstances, coupled with evolving aspirations, significantly influence women's choices regarding workforce participation and marital decisions.

Despite progress, persistent gender pay gaps remain a significant challenge, indicating ongoing disparities in economic opportunities for women. This highlights the imperative for policymakers to address wage differentials and promote gender equality through targeted interventions. Such interventions may include initiatives to enhance access to education, training, and skill development programs, empowering women to capitalize on economic opportunities.

Furthermore, policies supporting work-life balance and flexible employment arrangements can facilitate women's integration into the labor market while accommodating their diverse roles and responsibilities. Moving forward, continued research efforts are essential to deepen our understanding of the complex dynamics surrounding wage determination and its implications for women's economic empowerment, thereby informing evidence-based strategies to foster sustainable development and gender equality in Bangladesh and beyond.

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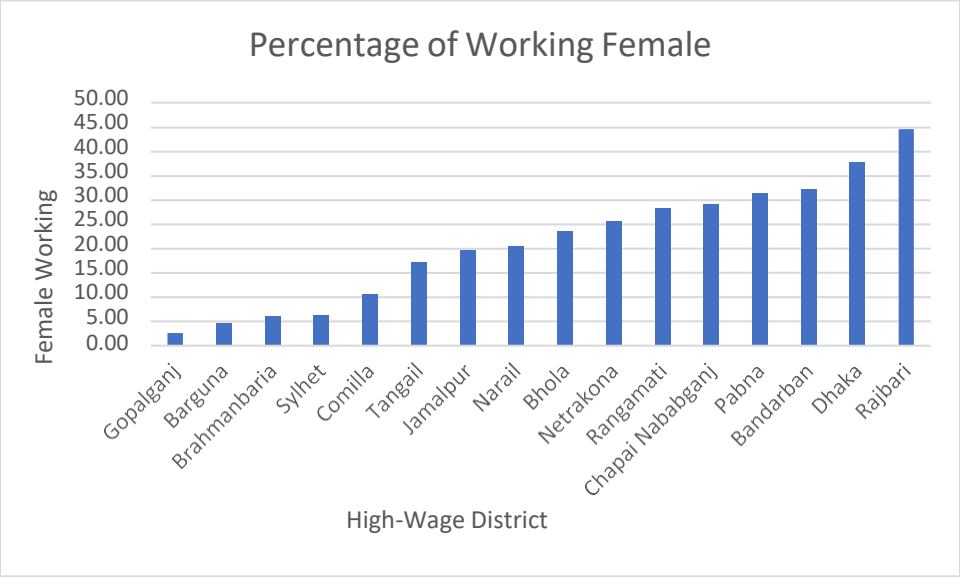
APPENDIX

Variable	N	Mean	S. D
Average Wage	16664	13754	1020.28
Marital Status	16664	0.81	0.39
Working Status	16664	0.22	0.41
Age	16664	24.18	3.78
Education Level (0-5)	16664	0.32	0.47
Education Level (6-10)	16664	0.49	0.5
Education Level 11	16664	0.14	0.34
Education Level (12-13)	16664	0.03	0.17
Education Level (14-15)	16664	0.02	0.14
Education Level 99	16664	0.00	0.04

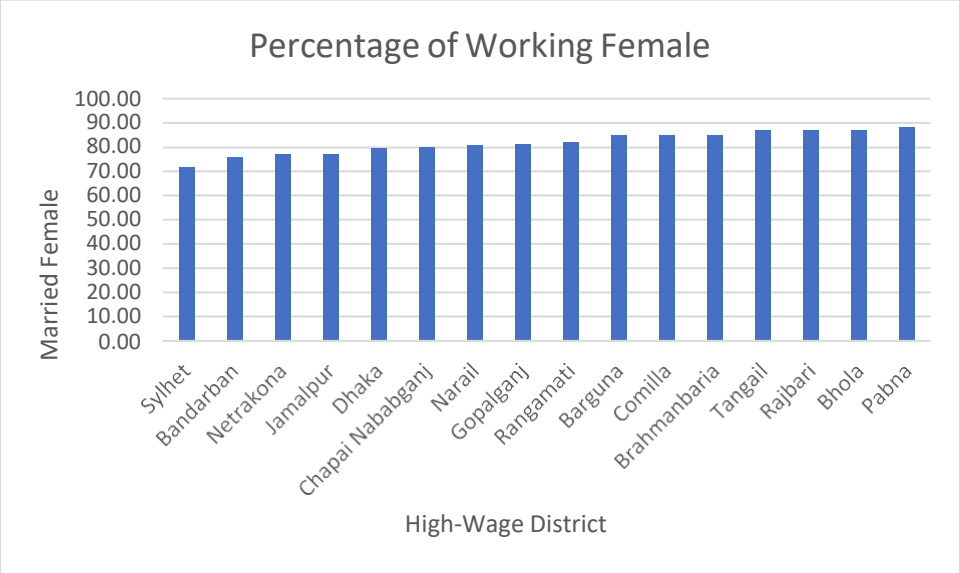
Appendix 1: Summary Statistics of High Wage Districts

Variable	N	Mean	S. D
Average Wage	12108	10183	388.18
Marital Status	12108	0.82	0.38
Working Status	12108	0.17	0.38
Age	12108	24.11	3.88
Education Level (0-5)	12108	0.37	0.48
Education Level (6-10)	12108	0.48	0.50
Education Level 11	12108	0.11	0.31
Education Level (12-13)	12108	0.03	0.16
Education Level (14-15)	12108	0.01	0.10
Education Level 99	12108	0.00	0.05

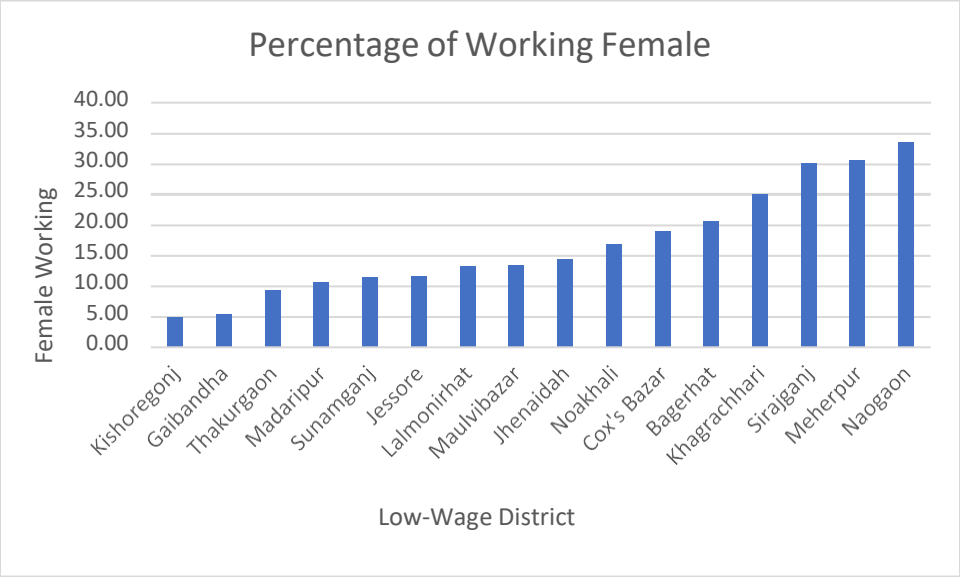
Appendix 2: Summary Statistics of Low Wage Districts



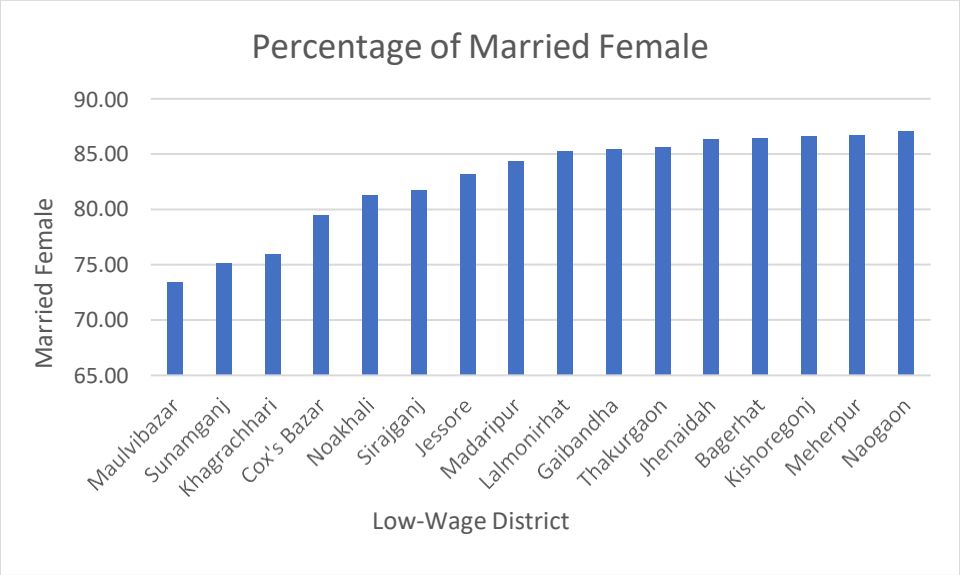
Appendix 3: Female who are working in High Wage Districts



Appendix 4: Female who are married in High wage districts



Appendix 5: Female who are working in Low wage districts



Appendix 6: Female who are married in Low wage districts