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Women Empowerment in Bangladesh: Household Decisions under Development of Non-Farm Sectors and Microfinance Institutions

By

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Abstract

We analyze the factors and dynamics that contributed to the empowerment of women in Bangladesh. We first investigate the role of non-farm sector growth in facilitating female labor force participation and educational attainment, and then we explore how women's decision-making roles in a household have improved over the same time period. Our results indicate that the proportion of village non-farm labor force participation is positively associated with female school enrollment as well as other indicators of women empowerment. Moreover, microcredit participation is found to be associated with larger roles for females in making household decisions particularly on non-farm activities.

Keywords: non-farm labor force participation; Bangladesh; female schooling; marriage; fertility

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1. Introduction

One of the UN Millennium Development Goals (MDGs) is to "promote gender equality and empower women," and the UN Sustainable Development Goals (SDGs) encourages the continuous efforts to "achieve gender equality and empower all women and girls." The empowerment of women is important beyond its intrinsic value. Since women now represent 40 percent of the global labor force (World Bank 2012), enhancing women's productivity by improving their abilities and opportunities is necessary to make the labor market and resource allocation more efficient. Women also play a significant role in effective resource allocation in households, including for child's health and educational outcomes as shown in previous studies (Duflo 2012; World Bank 2012).

Recent studies highlight the progress that Bangladesh has made toward empowerment in the last few decades (Alam 2012; Heath and Mobarak 2015; United Nations 2014; World Bank 2012).[1] Empirically, the issue of women empowerment has been approached in a variety of ways. One of the approaches is to measure the degree of women's empowerment by using relatively simple and measurable indicators such as women's age at marriage, female secondary school education, childbearing, women's decision-making ability, intra-household resource allocation by gender, and women's self-esteem and other psychosocial measures (Abadian 1996; Alam 2012; Anderson and Eswaran 2009; Field and Ambrus 2008; Mahmud et al. 2011). For example, school enrollment (the proportion of children aged 5–19 attending school) in Bangladesh increased among girls from 33 percent in 1991 to 56 percent in 2005. In addition, since its independence in 1972, the country has experienced a reduction in fertility from almost 7 to just over 2 children per family coupled with a considerable increase in labor force

[1] The concept of women empowerment as well as indicators to measure it have been widely discussed and studied by a number of researchers. As the concept and its indicators are highly influenced by culture, history, and social norms within a country or community, there is no one-size-fits-all strategy to examine every aspect of the issue.

participation among young women. In this paper, we follow the above approach and employ four different indicators to measure the degree of women's empowerment in Bangladesh: 1) female school enrollment; 2) female labor force participation; 3) marriage age (or probability of marriage); and 4) fertility. Using a unique nationally representative household panel data set covering the years 1988 to 2008, we analyze the factors and dynamics that contributed to the empowerment of women in Bangladesh.

Since the 1980s, Bangladesh has achieved rapid industrialization based on the development of export-oriented industries such as the garment, textiles, and pharmaceutical industries. This development has provided women, who used to be housewives with no earned income, with opportunities to enter the labor force and earn a decent income (Amin et al. 1998; Kabeer and Mahmud 2004; Rhee 1990). Although the development of non-farm sectors (Amin and Sonobe 2014; Mottaleb and Sonobe 2011; Rhee 1990) and the nationwide indicators of achievements in women empowerment (United Nation 2014; World Bank 2012) have been widely investigated in the existing literature, there is a lack of empirical evidence on the association between non-farm sector development and women's empowerment in Bangladesh. The increases in female non-farm job opportunities and the resulting improvement in earnings could lead to increased investments in human capital for girls. For example, Heath and Mobarak (2015) find that the development of the garment industry had a positive impact on female labor force participation as well as female years of schooling, which in turn delayed childbearing and female marriage in the urban areas in Bangladesh. However, they exclusively focus on the development of the garment industry in restricted urban areas near the capital city, Dhaka. Rather than being confined to a single sector such as the garment industry, our study uses nationally representative village household data, examining the overall nexus between farming and non-farm sectors, in order to investigate the role of growth in non-farm sectors as a whole on the livelihood of women in the entire country.

Our results indicate that the proportion of women participating in the non-farm labor force is positively associated with female school enrollment as well as some other indicators of the empowerment of women. Looking at the broader set of non-farm occupations using household data, we find that an additional year of education is associated with 0.18 unit increase in the labor force participation in the non-farm sector and with 7.5 percent reduction in number of childbirths.

We then investigate how women's ability to make decisions within their households has improved over the two decades and if so how this is associated with microfinance lending. Since women were regarded as being more credit constrained but more reliable in terms of loan repayments than men, rural women have been targeted by microfinance institutions (MFIs). The rapid penetration of microcredit programs in rural areas of Bangladesh is often cited as a key to improving women's empowerment by enhancing the bargaining power of women within households. In addition, microfinance participation might enable women to work on income-earning, market-based activities. This could empower women since the lack of women's influence in intra-household decision-making can be partly explained by the traditional gender-based division of labor restricting women's link to market-based activities (see Boserup 1970; Sen 1992; Kabeer 1997; and Duflo 2012). Moreover we assume that enhanced women's intra-household decision-making ability is closely related with other women empowerment factors, which we investigate in the first half of this chapter, such as female schooling, female labour force participation (FLFP), marriage and childbearing outcomes. Existing studies, however, show mixed evidence on the impact of microfinance on women's empowerment. The only study with a clean identification strategy known to us is by Banerjee et al. (2015).[2] The study found no *prima facie* evidence that microcredit access leads to important changes in

[2] Early studies on the impact of microfinance on the empowerment of rural women such as Hashemi et al. (1996), Kabeer (2001), Pitt and Khandker (1998), Pitt et al. (2006), Osmani (2007) and Schuler and Rottach (2010) did not employ sufficiently rigorous empirical strategies.

intra-household decision-making capacity of women or in social outcomes. Yet, the scope of their analysis is confined to an urban rather than rural population. As such, the overall role of microfinance in empowering the majority of microfinance clients living in rural areas deserves rigorous investigation. Using panel data we show that microcredit participation significantly improves females' role in making household decisions particularly on non-farm activities.

2. Analytical Framework of Women Empowerment

Figure 1 shows the analytical framework of our study on women's empowerment in Bangladesh. We assume that the development of the non-farm sector enhances female participation in earning activities and encourages female education, which results in the rise of female school enrollment. The increase in female human capital is positively associated with the probability of female labor force participation and the decision-making ability of women, while negatively associated with fertility and the probability of female marriage. The decline in fertility and the probability of female marriage could be caused by two factors. One is the increase in the opportunity cost for women to marry early and have children early, and the other is due to the improved decision-making ability of women on these issues. Although the issue is quite important, the underlying cause of these changes is beyond the scope of our study.

Another question is the effect of the development of MFIs on women's empowerment. As shown in Figure 1, we test a hypothesis that access to microfinance has a positive impact on female decision-making ability and women's empowerment. The other information in Figure 1 is provided for supplement purposes. We acknowledge that the development of MFIs has partially encouraged the non-farm self-employment of women and investments in female education. It is also notable that the conditional cash transfer program, called the Female Secondary School Stipend Program (FSSSP), launched by the Bangladeshi government in 1994,

has contributed to improvements in female secondary school education (Hahn et al. 2016; Khandker et al. 2003).

3. Data and Empirical Strategy

We employ a panel data set, "Livelihood System of Rural Households Panel Data," consisting of a nationally representative sample of households in Bangladesh.[3] A multi-stage random sampling method was adopted for the sample selection of 62 villages in 57 districts (out of 64 districts in Bangladesh) for the benchmark survey completed in 1988 (see Figure 2 for the location of selected villages). The sample is nationally representative as shown by the previous study for which data are available from official statistics (Hossain and Bayes 1994). The repeated panel household survey was conducted with the assistance of the International Rice Research Institute (IRRI) and the International Food Policy Research Institute (IFPRI). The panel data covers information from 1,240 randomly selected households in 1988, 1,880 households in 2000, 1,927 households in 2004, and 2,010 households in 2008.

To grasp the overall picture of the data set, Table 1 summarizes the basic statistics of selected variables. As we can see from the 1988 data, the average female population is quite young having a low level of education. At the time, non-farm labor employment opportunities were limited for women and labor force participation was low. Yet these indicators seem to improve over time. In particular, fertility rates among very young women have declined substantially from 0.63 in 1988 to 0.38 in 2008. Also, reflecting the rapid expansion of microfinance programs in Bangladesh, the average amount of borrowing increased substantially. We examine descriptive statistics of the core variables in more detail below.

[3] The panel data were collected by late Dr. Mahabub Hossain. We gratefully acknowledge his contribution and support for using the data set.

Schooling

Schooling outcomes can be measured by two variables: average years of schooling and school enrollment rates for each age group, as shown in Figures 3 and 4, respectively. We observe distinct patterns of schooling specific to gender in Figure 3: while men's average years of schooling has increased slowly, women's years of basic education on average have increased dramatically, suggesting that women caught up with men rapidly in terms of human capital stock. This overall growth in the stock of education can be achieved by increasing investments in education for each age between 6 and 18 years old (Figure 4). The average school enrollment rate for boys' increased from 1988 to 2000, but there has been little improvement in secondary school enrollment. In contrast, we can confirm a drastic improvements in girls' school enrollment rates from 1988 to 2000 at both primary and secondary levels.

Female Labor Force Participation (FLFP)

The second core variable is a binary variable of female labor force participation (FLFP) in the non-farm sector as well as other employment statuses such as farmer; housewife; unemployed; and student. Aggregating these binary variables, we can compute primary occupational compositions which are shown in Table 2 for the younger age group (15–19 years old) and Table 3 for the middle age group (30–35 years old). To examine the role of village-wide exposure to the non-farm sector in facilitating female labor force participation, we compute the percentage of those who are part of the non-farm labor force out of total labor force in each village. Then, we identify "high non-farm exposure villages" and "low non-farm exposure villages" which are defined as the villages whose percentage of the non-farm labor force in a village is in the top 25 percent and bottom 25 percent, respectively, among our sample 62 villages. Tables 2 and 3 show the occupational composition of women and men in high and low exposure villages in each age group (15–19 years old and 30–35 years old, respectively).

According to Table 2, the proportion of women aged 15–19 identified as housewives decreased and those as students increased substantially in both the high and low non-farm exposure villages. This transition from housewives to students among the young women seems to be associated with delayed marriage and increased labor market participation. In the high non-farm exposure villages, the proportion of non-farm occupations dropped slightly, but the proportion of unemployment increased substantially, implying increased job searches by women. In contrast, among the older age group of 30–35-year-olds, there is neither a clear sign of a declining proportion of housewives nor an increase in female labor force participation (Table 3), which implies that the effect of non-farm sector development on female schooling and work is particularly strong among young women and that the impact is weakened as women age.

Age of Marriage

The third variable of our concern is age of marriage. Early marriage has been a huge problem in Bangladesh. In fact, the country has one of the highest rates of marriage among girls under 19 years old. Figure 5 shows the proportion of married males and females in each survey year by age group. We note that almost all the Bangladeshi women who are older than 25 years old were married. An important observation is that the early marriage at age of 15–19 and 20–24 remains high by international standards, even though it has decreased.

To examine the potential role of non-farm sector development in decreasing early marriages, we compute the proportion of married women aged 15–19 and 20–24 in high and low non-farm exposure villages (Table 4). As can be seen, high exposure to the non-farm sector coincides with a lower percentage of early marriage among women ages 15–19 and 20–24.

Fertility

The fourth outcome variable of interest is the average number of children under the age of 12 per woman between 15 and 35 years old, which is clearly declining (Table 5). Since our data set

lacks information on migrants and it is possible for children over the age of 12 to have left their home village and migrated to urban area for study, we construct the fertility variable based on the number of children under the age of 12, who are unlikely to leave their home town and live separately from their parents. Figure 6 shows that this declining fertility is a common phenomenon among different age groups. Furthermore, as shown in Table 6, higher exposure to the non-farm sector seems to be correlated with a more rapid decline in fertility.

Intra-household Decision-making by Women

The final variable of interest is decision-making by women in household production activities. Figure 7 shows changes in the decision-making patterns in a household, indicating that the proportion of decisions in livestock production and fruit production made by women increased between 2004 and 2008. Figure 8 shows the decisions made by men, women, and jointly, using an average proportion of decision-makers in microfinance-borrowing and non-borrowing households. We find that the proportion of joint decisions over livestock and fruit production is larger among microfinance clients. As to the vegetable production, the proportion of female decisions also increased significantly with microfinance participation.

Empirical Strategy

In order to investigate a nexus among non-farm sector development and women's empowerment captured by investments in female education, female labor force participation, marital status, and fertility decisions, we adopt the canonical regression methods using household panel data. More specifically, we employ four different regression models: First, a school enrollment model; second, a female labor force participation model; third, a marriage model; and finally, a fertility decision model. Figure 9 summarizes the interrelationship among these models with relevant variables. The left equation in Figure 9 examines the determinants of female school enrollment. The non-farm sector development is our focal variable, and we control other factors such as

parents' education, land ownership, the number of siblings, development of infrastructure, and distance from major cities. Then, our analysis moves to the right-hand equations that examine the impact of female years of education on other women empowerment indicators such as the FLFP dummy, marriage dummy, and fertility. Combining results gained from the two sets of equations, we can gain a deeper understanding of the impact of the non-farm sector growth on the livelihoods of women in Bangladesh.

Regression Models

We assume that years of schooling, *H*, and annual school attendance, *S*, are related as follows:

(1) $H_{it} = \sum_{\tau} S_{i\tau}$,

(2) $S_{i\tau} = 1[a_{i\tau} > 0]$,

where H_{it} denotes years of schooling of person *i*, $a_{i\tau}$ is school attendance of person *i* in class *T*, and 1[.] is an indicator function which takes one if the statement is true; and zero otherwise.

We then follow Estudillo et al. (2009) to specify the following linear probability model regarding schooling decisions:

(3) $S_{ihlt} = \alpha_0 + \alpha_1 age_{it} + X_t^h \beta_h + X_t^l \beta_l + \sum_t \gamma_t 1[year = t] + \varepsilon_{ihlt}$,

where S_{ihlt} is an indicator variable of school attendance of girl *i* whose age is between 6 and 25 in *h*th household in a village *l* in year *t* , which takes 1 if she attends school and zero otherwise; age_{it} is age dummies; X_t^h *i*s a set of household characteristics including years of schooling of mother and father, the number of sibling(s), and total amount of owned land; X_t^l is a set of village characteristics including the distance from Dhaka to a village, distance from the *upazila* headquarter to a village, distance from the district headquarter to a village, an indicator variable of electrification in a village—which takes one if it has access to electricity and zero otherwise (access to electricity), the percentage of non-farm labor force in a village, the percentage of household with migrants in a village, and the percentage of non-farm labor force in a village at

baseline (1988); 1[.] is an indicator function which takes one if the statement inside the bracket is true, and zero otherwise; and ε_{ihlt} is an error term. Our variable of interest, the proportion of non-farm village labor force, is constructed in the following way by using the same household panel data: total non-farm village labor force is divided by total village labor force. Labor force in this context means those who take either farming occupation, non-farming occupation, unemployment status, or housewife position.

Second, we examine female labor force participation decisions with special attention to the impact of accumulated human capital. We adopt the following multinomial logit model:

(4) $$\Pr(FLFP_{ihlt} = j) = \frac{exp(a_1 age_{it} + b_1 H_{it} + b + \sum_t c_t 1[year=t])}{\sum_{k=6} exp(a_1 age_{it} + b_1 H_{it} + b + \sum_t c_t 1[year=t])}, \ \mathrm{j} = 0, \ldots 6,$$

where $FLFP_{ihlt}$ is an indicator variable denoting the choice of a women *i* in *h*th household in a village *l* in year *t* with respect to *j*th occupation. The variable H_{it} is the years of schooling of women, which is assumed to be predetermined.

For marital status, we postulate the following linear probability model:

(5) $$Marital_{ihlt} = f_0 + f_1 age_{it} + g_1 H_{it} + X_t^l g_l + \sum_t h_t 1[year = t] + i_{ihlt},$$

where $Marital_{ihlt}$ is an indicator variable of marital status of woman *i* in *h*th household in a village *l* in year *t*, which takes 1 if married and zero otherwise.

We explore fertility decisions by estimating a linear model of the number of children as follows:

(6) $$Child0\_12_{ihlt} = k_0 + k age_{it} + l_1 H_{it} + X_t^l l_l + \sum_t m_t 1[year = t] + n_{ihlt},$$

where $Child0\_12_{ihlt}$ is the number of children whose age is between 0 and 12 of woman *i* in *h*th household in a village *l* in year *t*.

4. Results

Estimation results of four outcome variables of women empowerment, i.e., school attendance, labor force participation, marriage, and fertility models, are shown in Tables 7–11. In Table 7, which reports the estimated coefficients of the school attendance regression model of equation (3), the proportion of non-farm labor force participation at the village level has positive and statistically significant coefficients throughout the different econometric models controlling for potential endogeneity bias.[4] The columns (4) to (6) and (9) to (10) show instrument variable (IV) estimates treating the proportion of the non-farm labor force, migrated family members, and the proportion of non-farm labor force at baseline (in year 1988) in each village as endogenous. Since non-farm labor force participation and migration decisions would be affected by cost and benefit calculations, we employ distance and infrastructure information as identifying IVs. Specifically, we use the following variables as IVs: distance from the village to Dhaka; distance from the village to the *upazila* headquarter; distance from the village to the district headquarter; and a dummy variable for electrification which takes one if the village is electrified.

Results also show that household characteristics such as father's education, mother's education, the number of siblings, and the amount of owned land are statistically significant and positively associated with female school enrollment. Moreover, the coefficients of the year dummy of 2000 and 2008 (base year is 1988) are positive and statistically significant, and the size of the coefficients becomes large from 2000 to 2008, which indicates that female school enrollment has improved over years. In sum, the overall results support a hypothesis that

[4] We also estimated models with household or dynasty fixed effects. While the statistical significance of the non-farm labor proportion variable is weakened, qualitative results are still maintained. This is not necessarily inconsistent because the fixed effects *per se* capture the effect of exposure to village-level non-farm labor participation and thus the proportion variable captures merely time fluctuations of the proportion.

village-level exposure to non-farm labor participation facilitates school attendance of female students.

We also apply the same regression model to boys ages 6 to 25 to compare the impact of non-farm exposure on female school enrollment with male school enrollment. The results are shown in Appendix 2. It is notable that the proportion of the non-farm labor force at the village level has small and statistically insignificant coefficients in most cases, which is in contrast to the case of girls. In our study, it seems clear that the development of non-farm sectors favored girls' education.

To investigate whether improved female school attendance has been motivated, at least partially, by the improved prospect for non-farm labor market participation, we follow Estudillo et al. (2013) and explore how occupational choice has been affected by individual education level, which we assume is positively associated with village-level exposure to non-farm labor participation. Tables 8 and 9 show the estimation results of the multinomial logit regression model of female occupational choice in which the choice of being a housewife is taken as the default category. The coefficients of years of education are positive and statistically significant, even though coefficients of other categories (farming or/and primary occupation and housewife) are either smaller in size or statistically insignificant. Thus, it is clear that years of education, which we assume are partially a proxy of the proportion of the non-farm labor force in each village, are significantly related to the probability of choosing a non-farm occupation.

The estimation results of female marital status by different age groups is shown in Table 10. Again, the negative and statistically significant coefficients of years of education can be observed. It is also notable that the coefficients are larger among the younger age group and shrink as women age (an additional one year of education reduces the probability of marriage by 3.5 percent among women aged 15–19, 1.9 percent among women aged 20–24, and 0.4 percent among women aged 25–29). This is consistent with what was observed in the descriptive statistics in the previous section, that the impact of non-farm employment is particularly

impactful in reducing early marriage. Yet, the negative coefficients on education in the marriage regression become statistically insignificant once we incorporate household fixed effects. Particularly, among the youngest age group of 15–19, the point estimate with household fixed effects becomes substantially small [specification (4) in Table 10]. This suggests that education does not directly affect delayed marriage. An alternative interpretation of estimated results in Table 10 is that unobserved household-level progressive norms facilitate both female education and delayed marriage simultaneously.

Finally, Table 11 shows the regression results of the number of children under the age of 12 per woman aged 15–35. In our assumption, women who are exposed to non-farm employment opportunities are more likely to enroll in school, participate in a non-farm occupation, delay their marriage, and therefore, have fewer children. The results we gain in Table 11 seem to be partially consistent with our story. The coefficient of years of education is negative and statistically significant even with the household fixed effect. An additional one year of schooling reduces the number of children by 0.055, which is a reduction of 4.1 percent, 5.3 percent, and 7.5 percent in the years 1988, 2000, and 2008, respectively. Hence, we obtain supportive evidence of the model described in Figure 9, which postulates that the increased female human capital (years of education) enhances FLFP in non-farm sectors, increases the age of female marriage, and reduces the number of children a woman would have in her life.

Women's Role in Household Decision-making

Here we discuss the estimation results focusing on intra-household decision-making patterns of MFI borrowers and non-borrowers. For this purpose, we utilize the latest two waves of surveys in 2004 and 2008 which contain information about intra-household decision making patterns. We would like to examine whether participation in microfinance has enhanced women empowerment through the attainment of bargaining power over productive opportunities in the household.

The results reported in Table 12 suggest that MFI participation can stimulate female decision-making particularly on non-farm activities; vegetable production as well as sewing. Indeed, if a household borrows from MFIs, the probability of female decision-making increases by 7.3 percent on vegetable productions and 8.3 percent on sewing activities. The results are statistically significant at 5 percent in both cases. In contrast, no such impact of MFI borrowing can be observed on male decision-making on household production activities. Thus, our results are consistent with our hypothesis that MFI borrowing enhances women's empowerment by enhancing their bargaining power within the household.

5. Concluding Remarks

In this paper we analyzed women empowerment in Bangladesh using nationally representative survey data. First, we investigated the evolution of female labor force participation in the non-farm sector and educational attainment. Bangladesh has achieved the rapid industrialization of export-oriented non-farm industries such as the garment and pharmaceutical industries, which has provided opportunities particularly for relatively educated women to work outside their homes. From analysis of household panel data collected from 1988 to 2008, we found that educational attainment matters for non-farm labor market participation for women and that non-farm sector growth in a village facilitates women's educational attainment. In addition, we examined how roles of women in household decision-making have changed over the same time periods and found that increased participation in microfinance activities is associated with a larger role for women in making household decisions on vegetable production and sewing. The "microfinance revolution" or the rapid penetration of rural areas by microcredit programs in Bangladesh is often cited as a key to improving women's decision-making power within each family. However, the simultaneous improvement in female school enrollment as well as delayed marriage may alternatively occur as a result of unobserved changes in household-level

progressive norms. Such changing norms may be difficult to quantify by nature but not entirely impossible. For example, it has been found in the case of Brazil that exposure to a “family soap opera with fewer children” resulted in a decline in fertility rates among people living in high fertility societies (La Ferrara, Chong, and Duryea 2012). This is an area for future research in Bangladesh.

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Table 1. Descriptive Statistics

Long-run changes in key household and female variables

	1988	2000	2008
Mean age of female family members	18.5 (4.88)	20.4 (3.44)	21.2 (2.84)
Female school attendance dummy which takes 1 if a girl aged between 6 and 25 attends school, and 0 otherwise	0.34 (0.47)	0.58 (0.49)	0.56 (0.50)
Female years of education	1.60 (2.76)	4.48 (3.60)	6.23 (3.45)
FLFP dummy which takes 1 if a woman is involved in any occupation, and 0 if she is either unemployed or a housewife	0.081 (0.27)	0.041 (0.20)	0.046 (0.21)
Female marital dummy which takes 1 if a woman is married, 0 otherwise	0.65 (0.48)	0.82 (0.39)	0.85 (0.36)
Fertility which is captured by the average number of children below the age of 12 per woman	0.63 (1.12)	0.50 (0.81)	0.38 (0.78)
Nominal household total income (Tk)	40232.6 (53255.1)	68251.4 (112146.4)	126585.7 (164690.6)
Nominal household total income (US$)	1225.4 (1620.4)	1348.3 (2215.5)	1856.1 (2414.8)
% of non-farm labor in village[b]	14.3 (8.46)	22.1 (8.87)	22.0 (10.3)
Total amount of borrowing	175.9 (1082.5)	3329.5 (9749.3)	9768.7 (26404.2)

Notes: Standard deviation in the parentheses.

[a] Infants, students, disabled, and retired persons are excluded.

[b] Here "village total labor force" is defined as the total population in a village of those who are classified as either under: farm/primary occupation; non-farm/non-primary occupation; unemployment; or housewife. Infants, students, disabled, and retired persons are excluded. The "% of non-farm labor in village" is the proportion of labor force in non-farm/non-primary occupation in the total.

Table 2. Occupational composition by year and gender (%) : ages 15-19

High Non-farm Exposure Villages				
Occupation	Female 1988	Female 2008	Male 1988	Male 2008
Farming	1.25	0.00	22.08	8.26
Non-farm	2.50	1.35	19.48	38.84
Housewife	66.25	30.41	--	--
Unemployed	3.75	18.92	3.90	4.96
Student	26.25	44.59	54.55	46.28
Others	0.00	4.73	0.00	1.65
Total	100.00	100.00	100.00	100.00
No. of observations	(80)	(148)	(77)	(121)
Low Non-farm Exposure Villages				
Occupation	Female 1988	Female 2008	Male 1988	Male 2008
Farming	0.00	1.72	50.00	35.65
Non-farm	4.00	0.00	5.36	10.43
Housewife	82.00	46.55	--	--
Unemployed	0.00	8.62	3.57	6.09
Student	10.00	35.34	39.29	47.83
Others	4.00	7.76	1.79	0.00
Total	100.00	100.00	100.00	100.00
No. of observations	(50)	(116)	(56)	(115)

Notes: "Farming" occupation includes all primary occupations such as crop farming, fishing, and livestock raising. "Non-farm" occupation includes all occupations other than "farming."

Table 3. Occupational composition by year and gender (%) : ages 30-35

High Non-farm Exposure Villages				
Occupation	Female 1988	Female 2008	Male 1988	Male 2008
Farming	0.00	0.85	48.28	24.14
Non-farm	7.81	8.47	49.43	70.69
Housewife	92.19	89.83	--	--
Unemployed	0.00	0.00	1.15	2.59
Student	0.00	0.85	0.00	0.86
Others	0.00	0.00	1.15	0.00
Total	100.00	100.00	100.00	100.00
No. of observations	(64)	(118)	(87)	(116)
Low Non-farm Exposure Villages				
Occupation	Female 1988	Female 2008	Male 1988	Male 2008
Farming	3.33	0.00	87.84	77.27
Non-farm	0.00	4.76	12.16	19.32
Housewife	95.00	94.29	--	--
Unemployed	0.00	0.00	0.00	2.27
Student	0.00	0.00	0.00	0.00
Others	1.67	0.95	0.00	1.14
Total	100.00	100.00	100.00	100.00
No. of observations	(60)	(105)	(74)	(88)

Notes: "Farming" occupation includes all primary occupations such as crop farming, fishing, and livestock raising. "Non-farming" occupation includes all occupations other than "farming."

Table 4. Proportion of married women by year and age group

High non-farm exposure villages			
	Female 1988	Female 2000	Female 2008
Age 15-19	39.76	29.05	26.35
Age 20-24	90.00	79.38	76.98
Age 25-29	96.49	99.06	95.92
Age 30-35	98.44	100.00	100.00
Low non-farm exposure villages			
	Female 1988	Female 2000	Female 2008
Age 15-19	58.00	47.32	46.55
Age 20-24	95.08	83.33	90.57
Age 25-29	98.44	97.09	98.91
Age 30-35	98.33	99.11	100.00

Table 5. Average number of children below the age of 12 per woman aged 15-35

	Mean (Standard Deviation)
1988	1.35
	(1.62)
2000	1.04
	(1.32)
2008	0.73
	(1.12)

Table 6. Average number of children below the age of 12 per woman aged 15-35

Year	High non-farm exposure villages	Low non-farm exposure villages
1988	1.13	1.56
	(1.59)	(1.69)
2000	0.99	1.07
	(1.32)	(1.26)
2008	0.59	0.83
	(1.04)	(1.22)

Note: Standard deviation in the parentheses.

Table 7. Female school attendance regression
Dependent variable: 1= if a girl aged between 6 and 25 enrolls in schooling

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Method	OLS	OLS	OLS	IV	IV		FE	FE	IV Household FE	IV Household FE
% of village non-farm labor force +	0.0020***	0.0018**		0.0058***	0.0035		0.0036*	0.0039**	0.027*	
	(0.00073)	(0.00072)		(0.0020)	(0.0037)		(0.0019)	(0.0019)	(0.016)	
% of households with migrants in village+		0.00098***			-0.0024			0.00077*		-0.0069
		(0.00018)			(0.0028)			(0.00045)		(0.0046)
% of village non-farm labor force in 1988+			0.0023**			0.0064***				
			(0.0010)			(0.0023)				
Access to electricity in survey year	0.031**	0.038***	0.036**				-0.035	-0.040		
	(0.014)	(0.014)	(0.017)				(0.029)	(0.029)		
Father's education	0.0068***	0.0066***	0.0062**	0.0070***	0.0076***	0.0066***	-0.00095	-0.00050	0.00018	-0.0072
	(0.0020)	(0.0020)	(0.0024)	(0.0020)	(0.0022)	(0.0025)	(0.0050)	(0.0050)	(0.0047)	(0.0059)
Mother's education	0.015***	0.014***	0.017***	0.014***	0.017***	0.015***	0.0089	0.0085	0.00070	0.011*
	(0.0026)	(0.0026)	(0.0033)	(0.0027)	(0.0056)	(0.0035)	(0.0059)	(0.0059)	(0.0062)	(0.0065)
Number of sibling(s)	0.0067*	0.0070*	0.0061	0.0055	0.0061	0.0050	0.0063	0.0070	0.011*	0.0022
	(0.0037)	(0.0036)	(0.0041)	(0.0038)	(0.0042)	(0.0043)	(0.0065)	(0.0065)	(0.0056)	(0.0069)
Total owned land	0.033***	0.033***	0.035***	0.039***	0.033***	0.041***	0.018	0.018	0.0057	0.021
	(0.0080)	(0.0078)	(0.0088)	(0.0089)	(0.012)	(0.0092)	(0.016)	(0.016)	(0.016)	(0.017)
Year==2000	0.19***	0.11***	0.22***	0.17***	0.40	0.23***	0.22***	0.15***	0.037	0.87**
	(0.017)	(0.024)	(0.017)	(0.023)	(0.27)	(0.017)	(0.028)	(0.052)	(0.12)	(0.41)
Year==2008	0.21***	0.11***	0.22***	0.20***	0.44	0.24***	0.29***	0.21***	0.11	0.97**
	(0.019)	(0.027)	(0.020)	(0.020)	(0.28)	(0.017)	(0.033)	(0.057)	(0.11)	(0.45)
Constant	-0.22***	-0.24***	-0.25***	-0.33***	-0.24**	0.0052	-0.24***	-0.26***		
	(0.038)	(0.038)	(0.043)	(0.032)	(0.11)	(0.040)	(0.063)	(0.064)		
Observations	4,442	4,442	3,344	4,321	4,321	3,254	4,442	4,442	3,954	3,954
R-squared	0.529	0.533	0.507	0.521	0.488	0.499	0.739	0.739	0.505	0.482
Household FE	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES
Cluster standard error	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
F statistic				37.6	10.5	33.11			7.70	5.60
Hansen J statistic				2.76	1.78	3.61				
p-value of Hansen J statistic				0.43	0.41	0.31				

Notes: [a] Robust standard errors clustered at household level are shown in parentheses. [b] *** p<0.01, ** p<0.05, * p<0.1. [c] We also include the following control variables which are not shown in the table: age dummy variables. [d] + Indicates endogenous variables. [e] We used the following variables as exclusion restrictions: distance from village to Dhaka (km_dhaka_village); distance from village to upazila headquarter (km_upazilahq); distance from village to district headquarter (km_districthq); and a dummy variable for electrification which takes one if the village is electrified.

Table 8. Multinomial Logit Regression Results

Dependent variable: female occupation: 1=Farming/Primary, 2=Non-farming/Non-primary, 3=Housewife, 4=Unemployed, 5=Student, 6=Others: among women aged between 15 and 35

VARIABLES	(1) Farming/Primary	(2) Non-farming /Non-primary	(3) Unemployed	(4) Student	(5) Others
Years of education	-0.048	0.18***	0.10***	0.83***	-0.053
	(0.047)	(0.038)	(0.037)	(0.056)	(0.061)
Age	-0.0054	0.086***	-0.064*	-0.67***	-0.036
	(0.032)	(0.020)	(0.034)	(0.060)	(0.062)
Marital-state dummy: Married=1 Unmarried=0	-1.20**	-2.43***	-5.44***	-4.31***	-4.25***
	(0.58)	(0.31)	(0.60)	(0.29)	(0.68)
Access to electricity in survey year	-1.29***	-0.49**	0.12	0.30	-0.21
	(0.42)	(0.22)	(0.32)	(0.26)	(0.40)
% of households with migrants in village	-0.0012	-0.017***	-0.00056	0.0078**	0.0023
	(0.0095)	(0.0057)	(0.0055)	(0.0037)	(0.0062)
Year==2000	-0.094	0.82	0.91	-0.56	-0.21
	(0.79)	(0.54)	(0.66)	(0.48)	(0.89)
Year==2008	0.60	1.17**	2.08***	-0.86*	2.44***
	(0.91)	(0.58)	(0.73)	(0.52)	(0.85)
Constant	-2.69***	-3.53***	-1.31*	6.22***	-2.20*
	(0.70)	(0.57)	(0.74)	(0.90)	(1.20)
Observations	4,000	4,000	4,000	4,000	4,000
Household FE	NO	NO	NO	NO	NO
Cluster standard error	YES	YES	YES	YES	YES

Notes:
[a] Standard errors clustered at household level are shown in parentheses.
[b] *** p<0.01, ** p<0.05, * p<0.1.
[c] "Housewife" is base outcome.
[d] "Others" includes infants, persons with disabilities, and retired persons.

Table 9. Multinomial Logit Regression with Household Fixed Effect Results

Dependent variable: female occupation: 1=Farming/Primary, 2=Non-farming/Non-primary, 3=Housewife, 4=Unemployed, 5=Student, 6=Others: among women aged between 15 and 35

VARIABLES	(1) Farming/Primary	(2) Non-farming/ Non-primary	(3) Unemployed	(4) Student	(5) Others
Years of education	0.19	0.23***	0.13*	0.81***	0.026
	(0.14)	(0.088)	(0.071)	(0.11)	(0.19)
Age	0.053	0.14***	-0.012	-0.74***	-0.14
	(0.037)	(0.037)	(0.073)	(0.17)	(0.097)
Marital-state dummy: Married=1 Unmarried=0	-2.03**	-3.07***	-4.67***	-5.07***	-7.73***
	(0.86)	(0.67)	(1.19)	(1.23)	(1.48)
Access to electricity in survey year	-1.86	-0.26	1.10*	2.54*	1.20
	(1.27)	(0.75)	(0.59)	(1.32)	(1.48)
% of households with migrants in village	0.016	-0.032*	-0.0074	0.019	0.062*
	(0.017)	(0.018)	(0.015)	(0.027)	(0.033)
Year==2000	-2.82	1.67	0.26	-2.65	-9.66**
	(2.09)	(1.69)	(1.71)	(3.53)	(4.37)
Year==2008	-1.87	2.05	0.87	-3.65	-7.01
	(1.74)	(1.89)	(1.84)	(3.86)	(4.64)
Observations	1,551	1,551	1,551	1,551	1,551
Household FE	YES	YES	YES	YES	YES
Cluster standard error	NO	NO	NO	NO	NO

Notes:

[a] Standard errors clustered at household level are shown in parentheses.

[b] *** p<0.01, ** p<0.05, * p<0.1.

[c] "Housewife" is base outcome.

[d] "Others" includes infants, persons with disabilities, and retired persons.

Table 10. OLS and Household Fixed Effect Regression Results
Dependent variable: 1=if a woman in below age groups is married

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	OLS age 15-19	OLS age 20-24	OLS age 25-29	Village FE age 15-19	Village FE age 20-24	Village FE age 25-29
Years of education	-0.035***	-0.019***	-0.0040**	-0.016	-0.027	0.0030
	(0.0041)	(0.0038)	(0.0019)	(0.019)	(0.021)	(0.017)
Age	0.17***	0.033***	0.0025	0.14***	0.032	0.012
	(0.0089)	(0.0075)	(0.0038)	(0.029)	(0.031)	(0.019)
Access to electricity in survey year	-0.054*	-0.037	-0.021*	0.093	-0.0023	-0.053
	(0.030)	(0.024)	(0.011)	(0.15)	(0.19)	(0.12)
% of households with migrants in village	-0.00028	-0.00010	-0.00036	0.00055	-0.0013	0.0024
	(0.00041)	(0.00040)	(0.00022)	(0.0027)	(0.0020)	(0.0042)
Year==2000	0.038	-0.017	0.064**	-0.18	0.051	-0.16
	(0.050)	(0.042)	(0.025)	(0.27)	(0.23)	(0.35)
Year==2008	0.012	0.021	0.074***	-0.27	0.16	-0.19
	(0.056)	(0.047)	(0.025)	(0.29)	(0.29)	(0.34)
Constant	-2.17***	0.27*	0.92***	-1.88***	0.35	0.59
	(0.16)	(0.16)	(0.10)	(0.51)	(0.66)	(0.54)
Observations	1,026	991	919	1,026	991	919
R-squared	0.292	0.088	0.027	0.863	0.837	0.796
Household FE	NO	NO	NO	YES	YES	YES
Cluster standard error	YES	YES	YES	YES	YES	YES

Notes:
[a] Standard errors clustered at village level are shown in parentheses.
[b] *** p<0.01, ** p<0.05, * p<0.1.

Table 11. OLS and Household Fixed Effect Regression Results
Dependent variables: number of children below the age of 12 per woman aged between 15 and 35

VARIABLES	OLS	FE
Years of education	-0.055***	-0.027**
	(0.0049)	(0.011)
Age	0.12***	0.12***
	(0.0031)	(0.0052)
Access to electricity in survey year	-0.036	0.11
	(0.041)	(0.096)
% of households with migrants in village	-0.000097	-0.0017
	(0.00069)	(0.0018)
Year==2000	-0.27***	-0.36*
	(0.083)	(0.19)
Year==2008	-0.47***	-0.63***
	(0.089)	(0.21)
Constant	-1.23***	-1.38***
	(0.083)	(0.16)
Observations	4,000	4,000
R-squared	0.382	0.698
Household FE	NO	YES
Cluster standard error	YES	YES

Notes:
[a] Standard errors clustered at household level are shown in parentheses.
[b] *** p<0.01, ** p<0.05, * p<0.1

Table 12. Fixed Effect Regression Results

Dependent variable: decision-making dummy on household production activities by gender

	Female					Male				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	livestock	poultry	vegetable	fruit/tree	sewing	livestock	poultry	vegetable	fruit/tree	sewing
Borrow from MFI	0.00818	-0.00647	0.0731**	-0.0102	0.0829**	-0.00630	0.00380	0.0125	-0.0243	-0.00145
	(0.0159)	(0.0275)	(0.0352)	(0.0202)	(0.0332)	(0.0238)	(0.00623)	(0.00852)	(0.0382)	(0.00730)
Land asset	-0.00417	-0.0374	0.0217	-0.00596	-0.00463	0.0506**	-0.00942	0.0161	0.0764*	-0.00606
	(0.0202)	(0.0455)	(0.0426)	(0.0194)	(0.0295)	(0.0250)	(0.00909)	(0.0101)	(0.0418)	(0.00595)
Livestock asset	-0.0118	-0.000996	0.0620	-0.137***	0.0640	0.00288	0.0141	0.0116	0.114	-0.00150
	(0.0266)	(0.0653)	(0.0789)	(0.0385)	(0.0797)	(0.0507)	(0.0133)	(0.0142)	(0.0720)	(0.00890)
Business capital asset	-0.00432	0.00984	0.0119	0.00210	0.00403	-0.00540	-0.00270	0.00861	0.00200	-0.000184
	(0.00362)	(0.0132)	(0.0144)	(0.00506)	(0.0277)	(0.00693)	(0.00276)	(0.0134)	(0.0143)	(0.000909)
Equipment asset	0.00762	0.0912*	-0.0787	0.0133	0.0503	0.0344	0.00664	0.0691**	0.0187	0.00305
	(0.0170)	(0.0523)	(0.0698)	(0.0198)	(0.0634)	(0.0444)	(0.00967)	(0.0299)	(0.0623)	(0.00346)
% of Female	0.0567	0.0201	0.0472	0.158**	0.0639	-0.0201	0.0135	-0.0914**	-0.117	-0.0152
	(0.0548)	(0.100)	(0.110)	(0.0599)	(0.0938)	(0.0741)	(0.0325)	(0.0375)	(0.0905)	(0.0207)
Observations	3,451	3,451	3,451	3,451	3,383	3,451	3,451	3,451	3,451	3,383
R-squared	0.001	0.042	0.008	0.014	0.058	0.079	0.007	0.028	0.054	0.001
Number of sample	1,747	1,747	1,747	1,747	1,741	1,747	1,747	1,747	1,747	1,741

Notes:

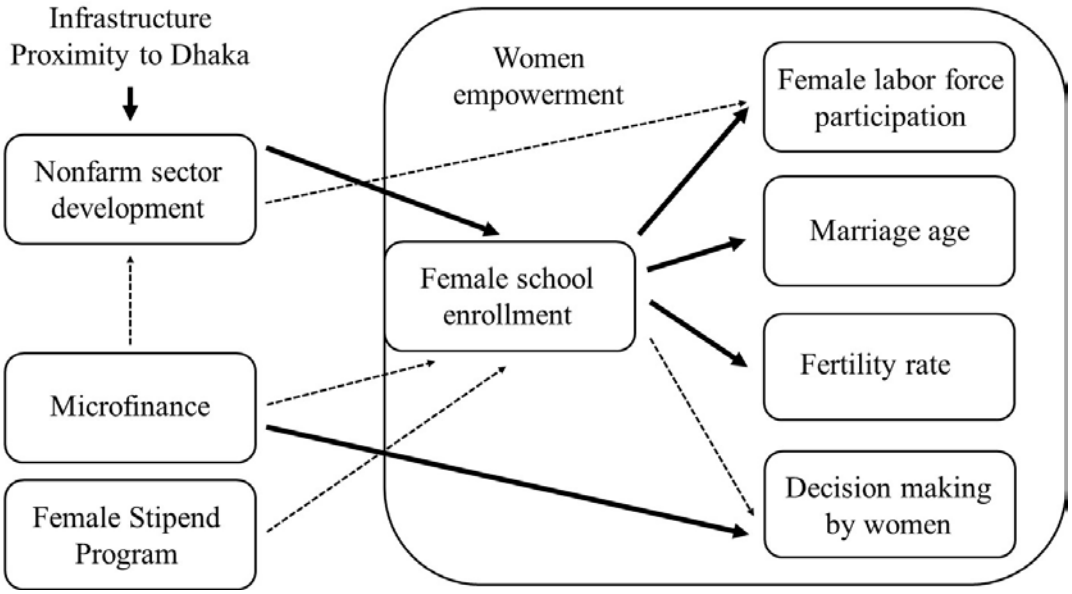
[a] Year and household fixed effects are included in all regressions.

[b] MFI includes Grameen Bank.

[c] Robust standard errors in parentheses (62 village clusters).

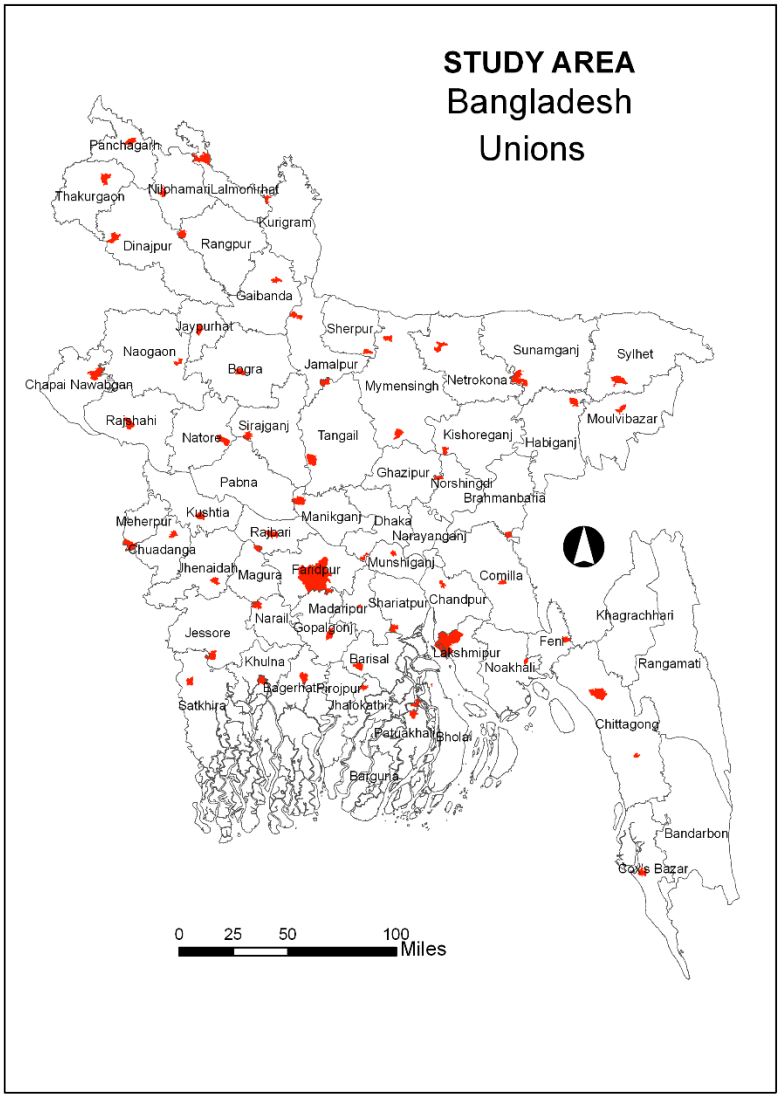
[d] *** p<0.01, ** p<0.05, * p<0.1

Figure 1. Analytical Framework of Women Empowerment in Bangladesh



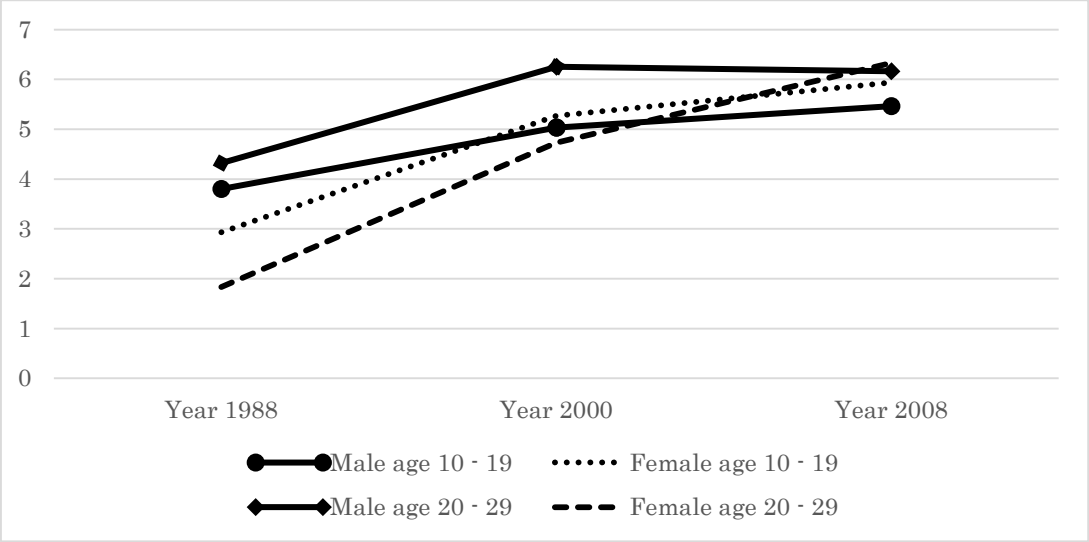
Source: Figure is created by authors.
Note: Solid lines show the relationships which are examined in the present paper, whereas dotted lines indicate relationships which are not explored in this study but may exist. Note that our findings suggest associations among these factors although the lines indicate specific direction of the impact.

Figure 2. Location of sample villages



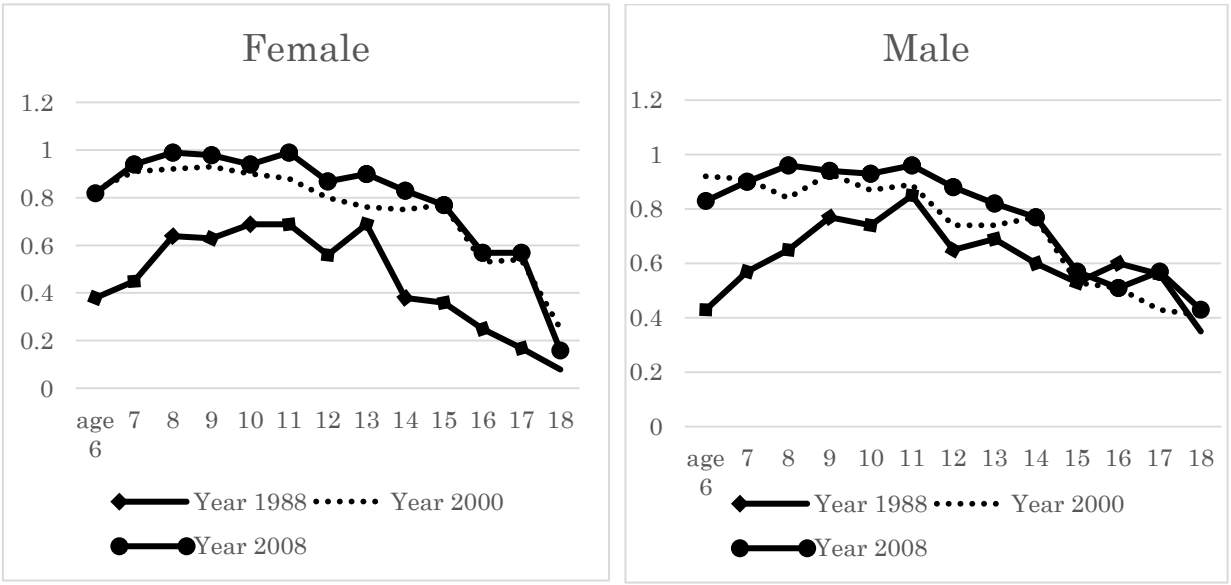
Source: Figure is created by authors

Figure 3. Average Years of Schooling by Gender and Age Group



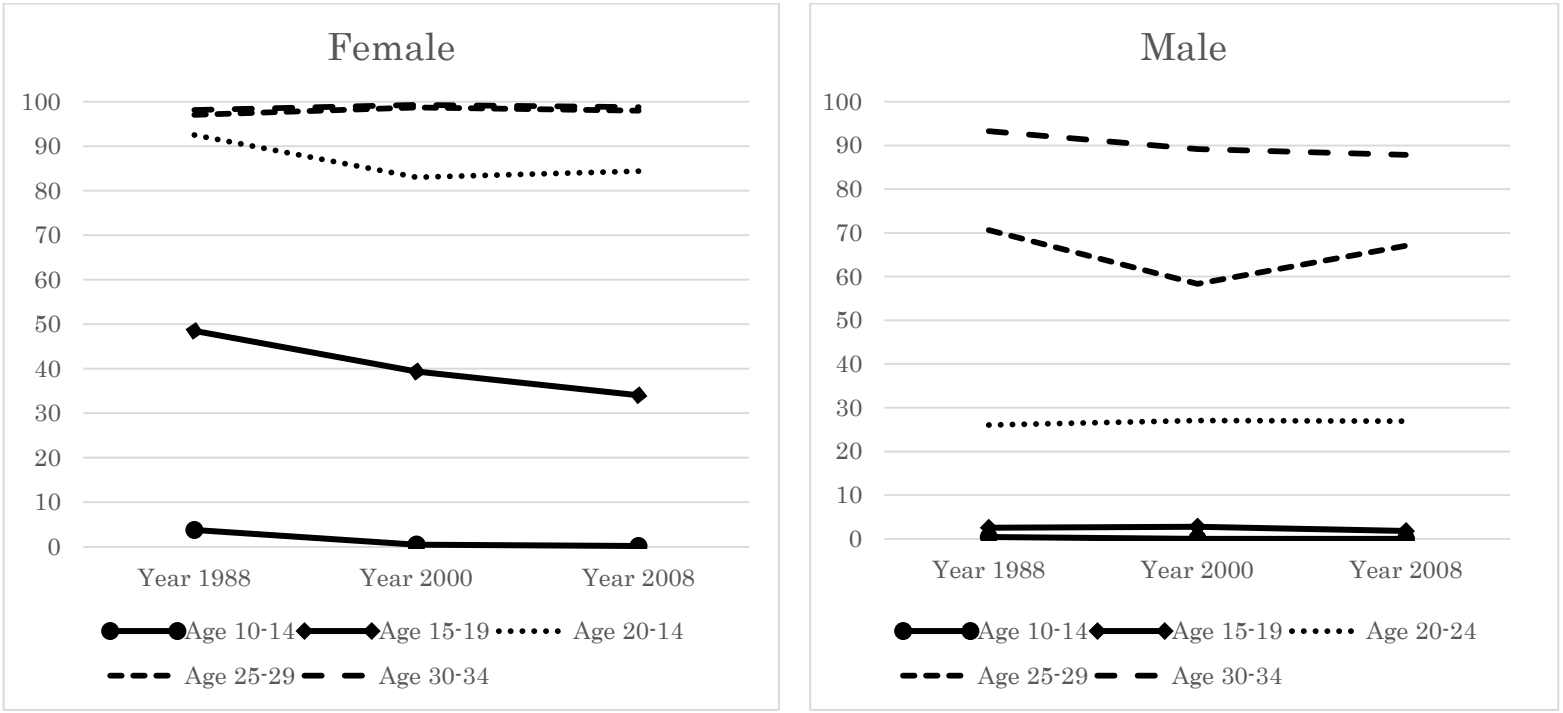
Source: Livelihood System of Rural Households Panel Data

Figure 4. Average School Enrollment Rate by Gender and Age



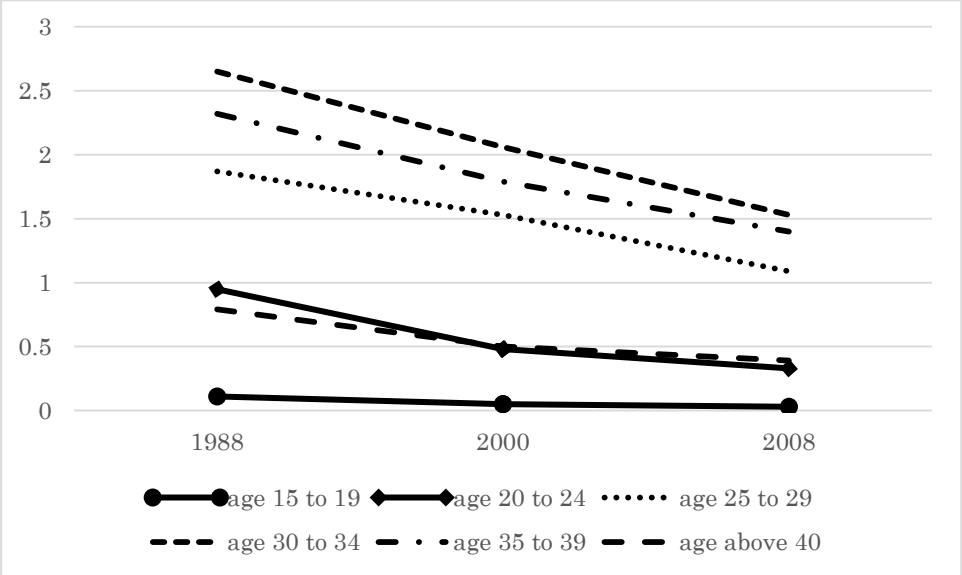
Source: Livelihood System of Rural Households Panel Data

Figure 5. Proportion of the Married by Gender and Age Group



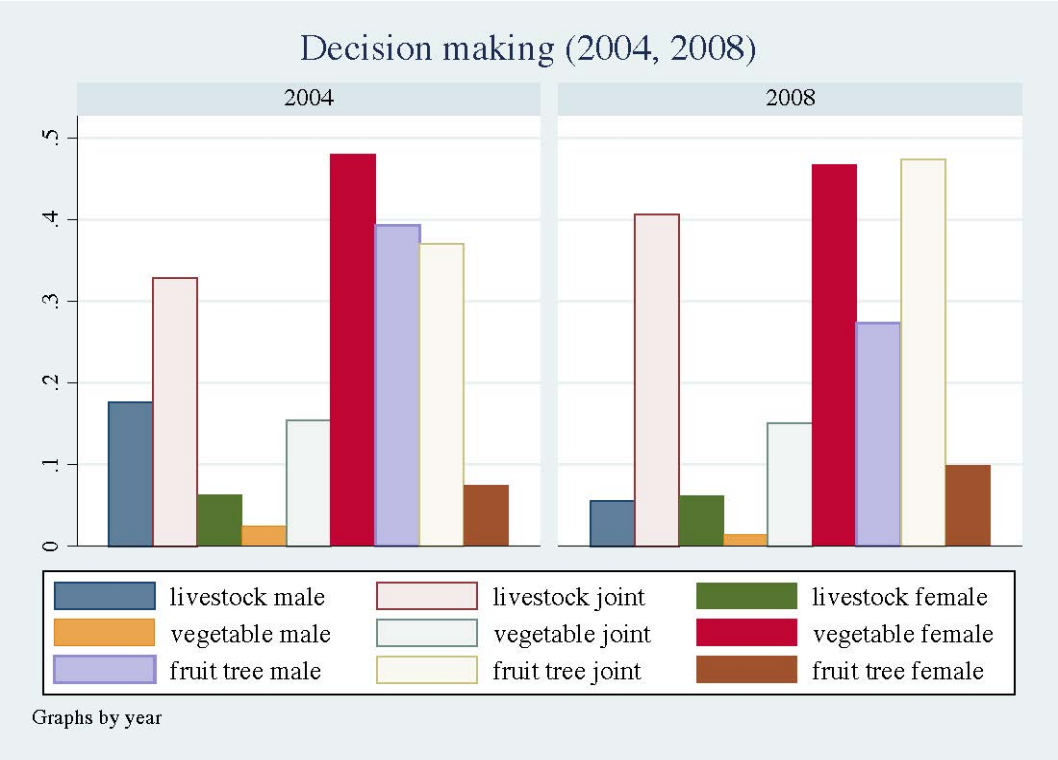
Source: Livelihood System of Rural Households Panel Data

Figure 6. Average Number of Children below the Age of 12 per Woman by Age Group



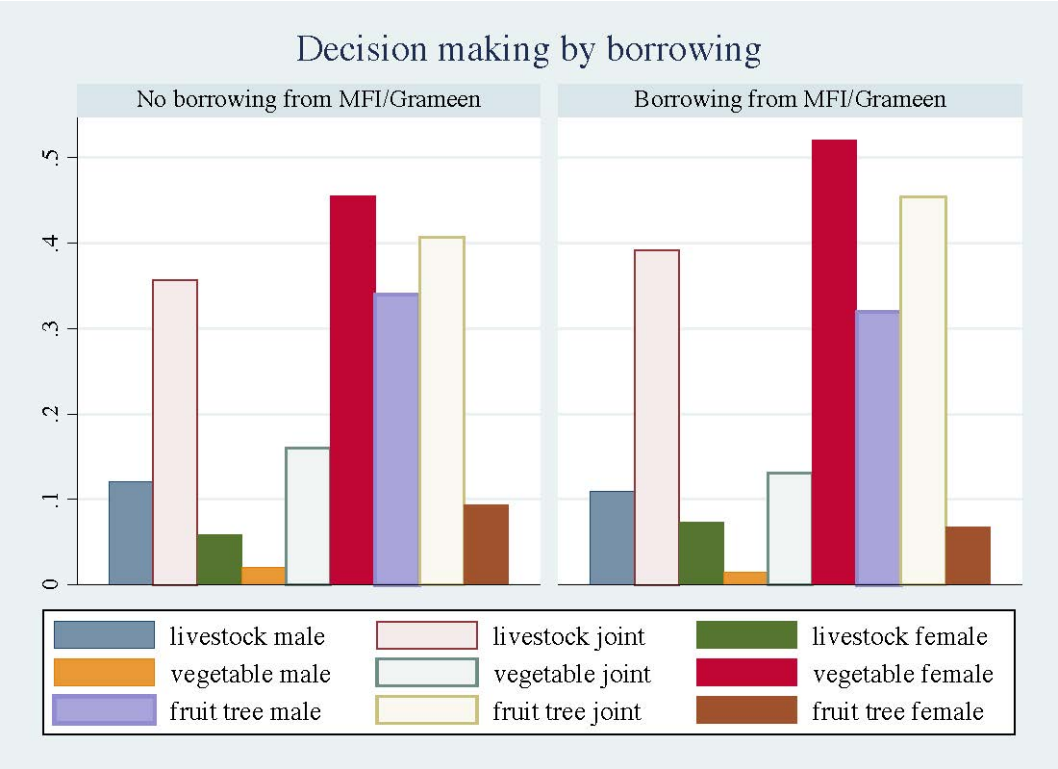
Source: Livelihood System of Rural Households Panel Data

Figure 7. Changes in the Decision-making on Household Production Activities by Male, Female, and jointly from 2004 to 2008



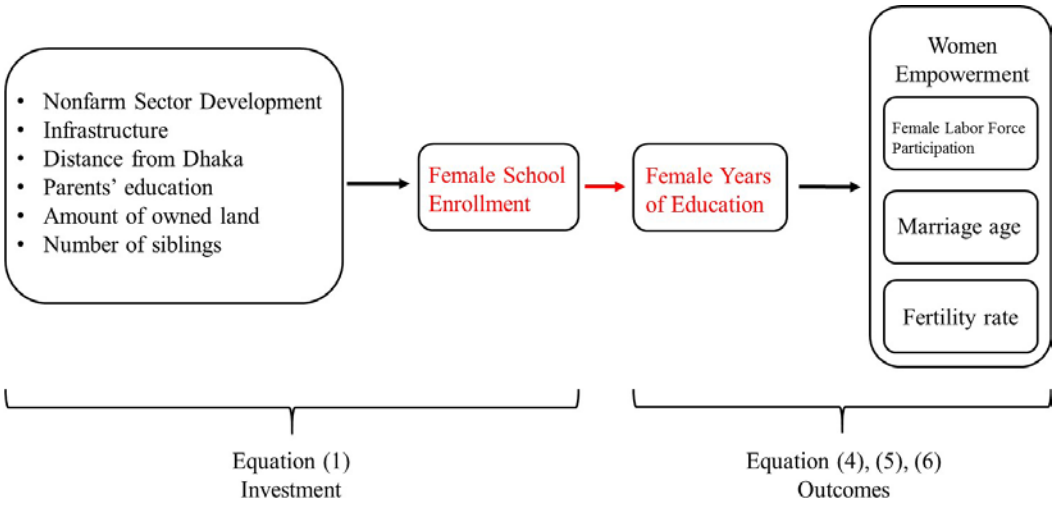
Source: Livelihood System of Rural Households Panel Data

Figure 8. Changes in the Decision-making on Household Production Activities by Male, Female, and Jointly from 2004 to 2008 in Microfinance-Borrowing Households and Non-Borrowing Households



Source: Livelihood System of Rural Households Panel Data

Figure 9. Models of non-farm sector development and women's empowerment



Source: Figure is created by authors

Appendix 1. The first-stage regression results for endogenous variables in Table 7:

VARIABLES	(1) % of village non-farm labor force	(2) % of households with migrants in a village	(3) % of village non-farm labor force	(4) % of households with migrants in a village
Distance from Dhaka to village	-0.0023	-0.020***		
	(0.0024)	(0.0072)		
Distance from upazila headquarter to village	-0.56***	0.59**		
	(0.051)	(0.23)		
Distance from district headquarter to village	-0.033***	0.021		
	(0.012)	(0.034)		
Access to electricity in year survey conducted	2.96***	-5.12***	-1.65***	6.41**
	(0.44)	(1.27)	(0.59)	(2.71)
Father's education	-0.0073	0.29	-0.14	-0.55
	(0.071)	(0.23)	(0.095)	(0.48)
Mother's education	0.29***	1.37***	0.22**	0.72
	(0.094)	(0.35)	(0.11)	(0.45)
Number of sibling(s)	0.33**	-0.034	-0.098	-0.87
	(0.14)	(0.44)	(0.13)	(0.57)
Total owned land	-0.72***	-1.49	0.37	0.85
	(0.26)	(1.00)	(0.36)	(1.54)
Year==2000	7.25***	89.8***	8.11***	89.4***
	(0.42)	(1.42)	(0.48)	(1.81)
Year==2008	3.98***	98.6***	7.58***	94.8***
	(0.52)	(1.91)	(0.59)	(2.13)
Constant	22.6***	22.6***	16.3***	23.4***
	(1.22)	(4.87)	(0.76)	(2.86)
Observations	4,321	4,321	4,442	4,442
R-squared	0.299	0.690	0.887	0.943
Household FE	NO	NO	YES	YES
Cluster standard error	YES	YES	YES	YES
F statistic	37.6	10.5	7.70	5.60

Notes:

[a] Standard errors clustered at household level are shown in parentheses.

[b] *** p<0.01, ** p<0.05, * p<0.1.

[c] We also include the following control variables which are not shown in the table: age dummy variables.

Appendix 2. Male school attendance regression (with Household Fixed Effect)
Dependent variable: 1= if a boy aged between 6 and 25 enrolls in schooling

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Method	OLS	OLS	OLS	IV	IV	IV	FE	FE	IV-FE	IV-FE
% of village non-farm labor force +	0.00075	0.00053		0.0084***	0.014***		0.00064	0.00067	0.015	
	(0.00079)	(0.00078)		(0.0022)	(0.0041)		(0.0022)	(0.0022)	(0.018)	
% of households with migrants in village+		0.0011***			0.0084**			0.00013		-0.0032
		(0.00024)			(0.0036)			(0.00051)		(0.0039)
% of village non-farm labor force in 1988+			0.0017			0.0089***				
			(0.0011)			(0.0025)				
Access to electricity in survey year	0.036**	0.042***	0.023				-0.024	-0.025		
	(0.015)	(0.015)	(0.019)				(0.031)	(0.031)		
Father's education	0.016***	0.015***	0.019***	0.015***	0.0087**	0.018***	0.0020	0.0020	0.0046	0.0013
	(0.0023)	(0.0023)	(0.0028)	(0.0024)	(0.0043)	(0.0029)	(0.0058)	(0.0058)	(0.0066)	(0.0051)
Mother's education	0.013***	0.013***	0.013***	0.0097***	0.0027	0.0099**	-0.0025	-0.0025	-0.0016	0.00086
	(0.0032)	(0.0032)	(0.0039)	(0.0034)	(0.0055)	(0.0040)	(0.0069)	(0.0069)	(0.0063)	(0.0059)
Number of sibling(s)	-0.0066*	-0.0064*	-0.0077*	-0.011**	-0.015**	-0.013**	-0.0038	-0.0036	-0.0079	-0.010
	(0.0039)	(0.0039)	(0.0046)	(0.0044)	(0.0059)	(0.0052)	(0.0084)	(0.0085)	(0.0073)	(0.0084)
Total owned land	0.048***	0.049***	0.040***	0.059***	0.080***	0.048***	0.0016	0.0016	-0.0099	-0.0088
	(0.0076)	(0.0076)	(0.0089)	(0.0095)	(0.016)	(0.011)	(0.017)	(0.017)	(0.017)	(0.016)
Year==2000	0.11***	0.016	0.11***	0.055**	-0.73**	0.11***	0.18***	0.17***	0.042	0.44
	(0.018)	(0.027)	(0.019)	(0.025)	(0.34)	(0.019)	(0.032)	(0.053)	(0.15)	(0.34)
Year==2008	0.099***	-0.0030	0.093***	0.071***	-0.75**	0.11***	0.20***	0.19***	0.059	0.47
	(0.021)	(0.031)	(0.024)	(0.023)	(0.35)	(0.021)	(0.038)	(0.059)	(0.14)	(0.37)
Constant	0.031	0.0082	0.070	-0.25***	-0.48***	-0.23***	0.039	0.036		
	(0.054)	(0.053)	(0.057)	(0.038)	(0.11)	(0.042)	(0.074)	(0.076)		
Observations	4,559	4,559	3,422	4,387	4,387	3,303	4,559	4,559	4,158	4,158
R-squared	0.369	0.373	0.356	0.351	0.143	0.345	0.661	0.661	0.349	0.356
Household FE	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES
Cluster standard error	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
F statistic				33.8	8.87	29.6			6.52	6.71
Hansen J statistic				12.1	4.09	4.85				
p-value of Hansen J statistic				0.0071	0.13	0.18				

Notes: [a] Robust standard errors clustered at household level are shown in parentheses. [b] *** p<0.01, ** p<0.05, * p<0.1. [c] We also include the following control variables which are not shown in the table: age dummy variables. [d] + indicates endogenous variables. [e] We used the following variables as exclusion restrictions: distance from village to Dhaka (km_dhaka_village); distance from village to upazila headquarter (km_upazilahq); distance from village to district headquarter (km_districthq); and a dummy variable for electrification which takes one if the village is electrified.

Abstract(In Japanese)

要約

バングラデシュの農村における、女性のエンパワーメントの変化、およびそれらを促す要因を解明することが本研究の目的である。バングラデシュは 1980 年代から経済が急速な産業化を経験すると同時に、NGO などのアクターによりマイクロファイナンスが全国的に広く普及した。本研究ではそれらの背景を踏まえ、非農業セクターの発展とマイクロファイナンスの普及が、どのように女性の教育、労働参加、家計における意思決定能力などの、女性のエンパワーメント指標に貢献してきたかを推計している。1988-2008 年の農村パネルデータを使用した分析結果では、村における非農業労働者の比率が女性の教育と労働参加とに正の関係性がある一方、若年層における既婚率と出生率とに負の関係性があることが示された。またマイクロファイナンスを採択している家計では、家計内の経済活動における女性の意思決定能力が高いことが明らかとなった。

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