

**The Effect of Workforce Participation and Household Income Contribution on  
Women's Healthcare Empowerment in Rural Bangladesh**

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## Abstract

Women in Bangladesh have gained increased access to paid work in the past decade yet still experience limited choices and access to resources, which threatens their ability to exercise control over healthcare for themselves and their children. Several collective household bargaining theories hypothesize a link between women's workforce participation and empowerment. This paper uses a cross-sectional approach and survey data collected at the end of a randomized trial field experiment in rural Bangladesh from 2007 to 2017 to examine health empowerment outcomes for 7,151 young women ages 14 to 32. The results show that women who work for income are expected to be more health empowered, specifically due to an increased ability to make their own health decisions. As a woman contributes more income to her household, her health empowerment is expected to increase, through increased abilities to make her own health decisions, purchase medicine for herself, and seek medical treatment independently. Greater mobility and stronger female-positive attitudes towards gender norms are potential mechanisms through which paid work and household income contribution can translate into health empowerment. Furthermore, higher total household income, having children, and being more educated than her husband are expected to increase a woman's health empowerment. These results are significant while controlling for the effects of various individual and household characteristics.

*JEL classification:* J1; J16; I15

**Keywords:** Female Health Empowerment; Workforce Participation; Household Income

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## 1. Introduction

Over the last decade, Bangladesh is among the few developing countries that has made significant strides in increasing female employment and reducing the wage gap between men and women (World Bank, 2019). Women have gained access to paid work largely due to the spread of microfinance programs by NGOs and the increased demand for women workers in the labor-intensive garment sector, Bangladesh's rapidly growing flagship export industry (Asian Development Bank, 2016). However, despite these improvements, women still experience limited choices, control and decision-making power over their employment and financial assets, and the female labor force participation rate remains low at only 34%, compared to the male labor force participation rate of over 80%. This reflects the patriarchal society in Bangladesh, where young women are traditionally viewed as poorly educated homemaker mothers and adolescent girls face sociocultural pressures to abandon education and economic pursuits in order to get married and have children: 65% of all women aged 20-24 were married before age 18, the second highest rate in the world, and 33% of adolescents began childbearing before age 20 (Abdul, 2014). Early marriage, limited education and limited access to resources are highly correlated with each other and with poor health outcomes for young women and their children (Buchmann, 2018). As a result, the widespread lack of income and financial skills among young women in Bangladesh reduces their household bargaining power and threatens their ability to exercise control over healthcare decisions for themselves, their family, and their children.

Previous studies have shown that participation in the workforce and increased financial independence can empower women to play a more active role in household-decision making and experience greater bargaining power over healthcare utilization (Hossain, 2012; Mainuddin, 2015; Cornish, 2019; Anik, 2021). This study uses survey data from the Kishoree Kontha (KK)

Girls Empowerment Program, a randomized trial field experiment implemented in rural Bangladesh from 2007 to 2017, to examine whether participation in income generating activities and greater contribution to household income increases a woman's healthcare empowerment by strengthening her ability to utilize healthcare services and make health decisions for herself. Empowering women may not only strengthen their individual authority and independence, but also has the potential to result in positive health development for the family, society, and country around them. Understanding the relationships between women's workforce participation, empowerment, and healthcare can be critical to implementing effective policies to promote long-term work and health benefits for young women in Bangladesh.

## **2. Literature Review**

The current literature on women empowerment in developing countries establishes women's participation in paid work as an important determinant of individual choice and autonomy (Kabeer, 2005; Hossain, 2012; Lee, 2017; Cornish, 2019). Several economic theories, including the endowment and entitlements, game-theoretic bargaining, and cooperative conflict theories, hypothesize a direct link between women's labor force participation and empowerment through increased endowments, *a priori* command over resources, and relative bargaining or "threat" power (Kabeer, 1999). In many developing countries, evidence has shown that access to paid work can increase women's agency and has led to positive changes in women's control over resources and involvement in household decisions (Kabeer, 2005; Lee, 2017). Specifically in Bangladesh, women working in the garment industry expressed higher satisfaction from having a formal job and regular wages compared to the informal and poorly paid work that were previously their only options, with this newfound earning power translating into improved negotiation power in their marriages and a stronger sense of independence (Kabeer, 2005).

While previous studies have found positive relationships between income and female autonomy in household and healthcare decisions, these relationships lose significance when controlling for the effects of various household and individual characteristics (Hossain, 2012; Lee, 2017). These cross-sectional studies have also generated conflicting evidence on how greater decision-making authority translates into increased healthcare utilization. Using the most recent nationally representative Bangladesh Demographic and Health Survey from 2017, over 4,000 women aged 15-49 across wealth quintiles and urban and rural regions were assessed on their decision-making status over their own and children's healthcare. Ghose et al. (2017) found no correlation between decision-making power and healthcare utilization since neither women who made decisions independently or jointly with their husbands utilized maternal healthcare services more. However, a follow-up study by Anik et al. (2021) found positive associations between higher female empowerment levels, measured by social independence and decision-making, and health service utilization. The lack of consistent findings suggests a need for more research on the associations between women's status in the household and their use of healthcare resources, while controlling for physical health conditions that could differentially impact the effects empowerment has on healthcare utilization.

Lastly, few studies have rigorously examined the causal effect of labor force participation on women's empowerment in healthcare decisions. Mainuddin et al. (2015) conducted a cross-sectional study in Bangladesh among 200 rural married women ages 16-65 in 2014 and use multivariate regression analyses to show that workforce participation is positively correlated with women empowerment, measured in terms of mobility and decision-making authority, and increases health seeking behavior, controlling the effect of other independent variables. However, despite their involvement in income generating activities, women's contribution to

household income is still not recognized as equal to that of men, limiting the magnitude of the effect of paid work on increasing female control over self and child healthcare. A study by Hossain et al. (2012) examines the direct effect of women's workforce participation on their healthcare empowerment using micro-level data from 456 women ages 15-50 in urban Bangladesh in 2012. Their study compares the position of working and non-working women to find that working women in garment industries have greater autonomy in household decisions on fertility and child health and are more likely to possess and have control over resources. However, they highlight the fact that the importance of workforce participation may be severely overestimated without controlling for the effects of other relevant explanatory variables. They also only examine urban married populations, which fails to account for young women in rural areas who are likely to be more vulnerable to poverty, unemployment and lack of independence, and the impacts of marital status on decision-making among rural households. In addition, women's employment in urban areas is primarily dependent on the single garment-making industry (Rahman, 2013), so an analysis of only formal labor in the garment sector limits the study from identifying how other types of informal, agricultural or industry work can increase women's control over healthcare.

Overall, there has been little research on the complex interrelationships between participation in paid work across formal and non-formal sectors and healthcare empowerment among adolescent girls in rural Bangladesh. My paper expands on previous literature by capturing the impacts of a woman's participation in diverse work industries and income earned, as well as her perceived status in society on direct measurements of her ability to make healthcare decisions for herself and her children. It uses data from the Kishoree Kontha Girls Empowerment field experiment that specifically targets vulnerable adolescent female



populations to identify whether there is a positive relationship between paid work and two primary indicators of women's health empowerment: healthcare decision-making power and health-seeking behavior. I utilize a cross-sectional study design approach to examine women at the same point in time in 2017 and assesses a wide range of socioeconomic and cultural individual and household-level factors to account for the potential impact of confounders. Although cultural norms change slowly, they still evolve over time, so the recent time frame of this study suggests that findings will still be relevant to policy implementation now. Finding a direct link between workforce participation and healthcare empowerment from this rural Bangladesh field experiment could be key to improving the health, economic and social status of vulnerable female populations in developing countries.

### **3. Methods**

#### **3.1 Kishoree Kontha Girls Empowerment Program Data**

The Kishoree Kontha Girls Empowerment Program was a randomized control trial implemented by Save the Children USA and the Abdul Latif Jameel Poverty Action Lab (J-PAL) in southern Bangladesh from January 2007 to September 2017. Its goal was to evaluate the impacts of education, marriage age, and control over resources on adolescent, maternal, and child health, and health service utilization to understand which elements of empowerment programs provide the greatest benefits to adolescent girls. The KK Program aimed to reach 90% of girls in target communities by the end of four 6-month cycles and was one of the largest empowerment programs implemented in the developing world (Abdul, 2014). It consisted of two main interventions: an empowerment program and a conditional stipend. The empowerment program included a series of community mobilization, education, social competency, and financial savings training, all of which are peer led and designed to last 6 months. Two peer

educators, typically older girls trained for 16-40 hours to deliver a curriculum, would meet with twenty girls in “Safe Spaces” five days a week for two hours each day for 6 months. The curriculum aimed to increase literacy and numeracy, oral communication, life skills, nutritional and reproductive knowledge, and enhance girls’ abilities to generate income and manage finances. The conditional stipend intervention was an in-kind transfer designed to encourage parents to delay their daughters’ marriages by providing cooking oil to households if all their daughters remained unmarried until 18.

The field experiment was conducted in six Bangladesh sub-districts (Daulatkhan, Bubanganj, Muladi, Patuakhali Sadar, Bauphal, and Bhola Sadar). Villages that were too remote for distribution or had less than 40 or more than 490 adolescent girls were excluded from the study. The experiment included 460 eligible villages, each randomly assigned into four intervention arms: 1) empowerment program, 2) conditional incentive, 3) empowerment plus conditional incentive, or 4) the control group. Twenty households with adolescent girls per village were randomly selected from the census and all girls in these households were interviewed. For empirical analysis, my paper uses census survey responses collected at the end of the KK Project. All women were interviewed without the presence of her husband and were not allowed to consult their husbands on what the appropriate answer should be. The survey was designed to test the wife’s knowledge, opinion, attitude, perception, and decision-making capacity about several aspects of her life.

The entire KK dataset includes baseline, midline, and endline survey responses collected over ten years to track the women’s outcomes after the start of the interventions. However, because I only have access to endline data, my paper utilizes a cross-sectional study design approach to specifically examine women at the end of the survey in 2017 and measure the effects

of multiple socioeconomic factors on healthcare empowerment outcomes at the same point in time. The resulting sample population from the endline survey consists of 7,151 women aged 14-32 years (in 2017). The dataset provides individual and household-level information on characteristics, including marriage, children, education, health, economic activity, mobility, and gender perceptions.

### **3.2 Theoretical Framework**

Women's empowerment is a multi-dimensional factor that incorporates a wide range of subjective factors, including social customs, cultural attitudes and beliefs, education and income, religion and family characteristics. Based on the assumption that men and women differ in their social status, which results in asymmetric power relations between genders, "women's empowerment" has been formally defined as the process of increasing women's access to control over the strategic life choices that affect them and access to the opportunities that allow them to fully realize their capacities (Chen, 2014). At the macro-level, women's empowerment deals with gender inequalities in employment, earnings, education, life expectancy, and the female-male population ratio, many of which have been used by empirical studies as indirect indicators of women's empowerment. At the household level, women's empowerment is defined by her degree of involvement in decision-making on marriage, fertility, children's education and healthcare, and her freedom of mobility and access to and control over resources (Hossain, 2012). Although a macro-level increase in gender equality through employment, earnings and education does not directly indicate a woman is more empowered at the household level, a woman's participation in income generating activities can act as an important determinant of her individual choices and ability to make decisions within the household (Joekes, 1987; Lim, 1990).

The concept of women's empowerment remains an ambiguous concept that many studies have attempted to capture through unique sets of direct and indirect indicators. Kabeer (1999) argues that in order to evaluate empowerment, "three dimensions of choice are indivisible in determining the meaning of an indicator and hence its validity as a measure of empowerment": resources, agency, and achievements.<sup>1</sup> Resources are the pre-conditions that determine a woman's ability to make choices and can be defined as both her current and future access to human and social resources. Agency can explicitly be measured by indicators on women's mobility in public domains and participation in public action. Most literature, including this paper, focus on agency as it relates to the decision-making process, which is measured based on how women answer questions about their role in making certain choices, and can be combined into indexes or examined separately. Studies in developing countries typically focus on different areas of decision-making depending on the geographical context. In Bangladesh specifically, a woman's role in healthcare decisions is typically used as an indicator of her agency (Cleland, 1994). Evidence from South Asian studies suggest that within households, decisions relating to child health appear to fall under the female domain of decision-making. As a result, acting from her own agency, a woman can act independently in her private life to improve the circumstances, including healthcare, of herself and her children (Chen, 2014). Lastly, achievements measure the outcomes of a woman's choices that lead to empowerment, and can include participation in the modern sector, which endows women with greater assets, earnings, education and employment (Kishor, 1997). Together, these interrelated dimensions suggest that a woman's participation in the labor force may have implications on her ability to make choices within the household.

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<sup>1</sup> Kabeer (1999), p. 437

Several models on the economics of family explain women's empowerment by examining women's roles and bargaining power within a household. The unitary model proposed by Becker (1965) assumes that households maximize a joint utility function in which a single, altruistic member of the household dictates all allocation of resources. However, several competing economic models, including the endowment and entitlements, game-theoretic bargaining, and cooperative conflict theories, suggest multiple utility functions within a household and separate the roles of women and their husbands. The endowment and entitlements theory states that institutional factors, such as attitudes and beliefs, cultural norms, and social effects define an individual's possession and use of resources (Sen, 1981). As a result, participation in the workforce endows women with resources and *a priori* command over those resources and has the potential to increase their entitlement within the household. The bargaining model emphasizes the conflicting preferences of household members, where an individual's degree of involvement in decisions depends on her level of bargaining or "threat" power (Alderman, 1995). Thus, income and increased access to work, in addition to external environmental factors such as female-male ratios and cultural acceptability of female labor, can strengthen a woman's bargaining power. Lastly, the cooperative conflict theory argues that an individual's bargaining power depends on her "perceived" rather than "actual" economic contribution to the household (Sen, 1990). This theory suggests that a woman's perceived status and gender roles can impact the extent to which her earnings and employment can increase her authority.

These collective household bargaining theories provide a strong framework for establishing a link between women's workforce participation and empowerment. Beyond work and income, the bargaining and cooperative conflict models emphasize the importance of

external acceptability and a woman's "perceived" contribution in improving her bargaining power, implying that studying women's empowerment at the household level requires careful examination of their status in society (Hossain, 2012). Status effects may especially be significant in rural Bangladesh, where the highly prevalent purdah system means women are often marginalized and treated worse than their male counterparts (Rousham, 2016). Thus, it is important to explore the differential impacts of work and income on healthcare empowerment depending on a woman's social status.

In addition to a woman's work, income and social status, there are many other factors that may affect a woman's empowerment within her household. The multiple utility functions proposed by the cooperative conflict and bargaining theories suggest that since husbands and other household members may act as key or sole decision makers, it is necessary to control for husband characteristics and who a woman lives with when assessing her bargaining power. The endowments theory suggests that education may be a key endowment for increasing a woman's *a priori* command over resources. Previous literature has also indicated the importance of controlling for such factors when establishing a causal relationship between work and empowerment. Hossain et al. (2012) shows that a woman's education level is a significant predictor of her decision-making power over children's healthcare. Mainuddin et al. (2015) concludes that age, husband's education, marriage age and participation in non-governmental organization programs have significant impacts on a woman's healthcare-seeking decisions. Thus, the appropriate and available measures of these factors from the survey data used for this study are included as individual-level controls in the main empirical model.

### 3.3 Empirical Strategy

The methods of my paper build on the work of Hossain et al. (2012) and Mainuddin et al. (2015) to establish a causal relationship between women's participation in paid work and income contribution and their level of empowerment at the household level, specifically in terms of healthcare decision-making power and utilization. My paper also examines two potential mechanisms through which a woman's income may translate into higher bargaining power: through a woman's increased freedom to freely visit places and move about her village or through a woman's stronger female-positive attitude towards gender norms. In my paper, paid work is defined as any activity that generates income for an individual or household, including agriculture, livestock, industry, business and professional services, as well as informal work.

#### 3.3.1 Main Logistic Regression

The main empirical model (1) is a binary logistic regression that estimates the effects of participating in paid work and income contribution for the  $i$ -th woman in the  $j$ -th household on the probability that she answers "Yes" to a health empowerment outcome:

$$\log \left( \frac{P(y_{ij} = Yes)}{P(y_{ij} = No)} \right) = \beta_0 + \beta_1 work_{ij} + \beta_2 income_{ij} + \beta_3 work * income_{ij} + \beta_4 \mathbf{X}_{ij} + \alpha_u + \varepsilon_{ij} \quad (1)$$

The health empowerment outcomes,  $y_{ij}$ , correspond to one of three indicators of a woman's empowerment on her own healthcare: 1) whether the woman makes decisions about her healthcare by herself, 2) whether she purchases medicine for herself, and 3) whether she seeks medical treatment for her health problems. All three of these outcomes are binary variables that take on a "Yes" or "No" value. Two main explanatory variables are used to describe a woman's participation in paid work and income earned.  $work_{ij}$  is a binary indicator of whether the woman is currently working for income and  $income_{ij}$  is a continuous variable that measures a woman's income earned from working as a percentage of her and her husband's combined total

household income. Income is expressed in terms of nominal value of Bangladeshi taka (BDT) based on earnings in 2017. Since my paper uses a cross-sectional approach to examine incomes earned at one point in time, it is not necessary to convert income into real terms or adjust for inflation. Income can be positive even if women do not work since non-working women generate non-wage income through pocket money and allowance, school stipends, gifts, loans and credits (taken out by herself), and earned interest. Working women may also generate income through these methods in addition to their income from paid work. The interaction between work and income decomposes the effects of household income contribution on health empowerment for working and non-working women by classifying income into wage income and non-wage income. Coefficient estimates for the interaction term measure whether the relationship between income contribution and health empowerment differs for working and non-working women (i.e. whether non-wage and wage income have different effects on a woman's health empowerment).

The vector  $X_j$  consists of 8 individual- and household-level control variables, including a woman's total household income, age, marital status, whether she has children, her education relative to her husband's, how she felt physically in the past week, whether her family has an income-generating business or activity, and her KK program treatment. Total household income is the sum of a woman and her husband's income and is mean centered at 8984.59 BDT to allow for more meaningful coefficient interpretations. Age ranges from 14 to 32 and is normally distributed around a mean of 21; it is also mean centered to allow for clearer interpretations. A woman's relative education is calculated by subtracting her husband's years of education from her own years of education; an education difference of 0 indicates the woman and her husband attained the same number of years of education. Physical health is measured using a categorical measure of how sick the woman felt on most of the days last week (Well, Alright, Sick, or



Extremely sick) and is important to control for since it may affect whether or how often a woman needs to seek health treatment. Whether a woman's family has an income-generating business is controlled for since women who live in households with better economic statuses may experience greater decision-making power since their households are less constrained in terms of resources. Since my study uses data from the KK Project field experiment implemented in rural Bangladesh, the regression also controls for whether a woman received the program treatment from the KK Project. Program treatment is a categorical variable with 4 levels that indicates whether the woman received the empowerment training program, conditional financial incentive, both components, or was part of the control group. Including controls in the regression allows for a stronger causal interpretation of estimates. Furthermore, since villages in the survey sample were randomly assigned to receive the program treatment after stratification by unions of about 10 communities to ensure geographic and population homogeneity across groups,  $\alpha_u$ 's are included in all regressions as union dummies and act as a fixed effect for stratification at the union level.

### 3.3.2 Mobility and Gender Attitude OLS Regressions

Two OLS regressions (2) are used to examine the mechanisms through which a woman's participation in paid work and income contribution can translate into increased empowerment:

$$I_{ij} = \beta_0 + \beta_1 work_{ij} + \beta_2 income_{ij} + \beta_3 work*income_{ij} + \beta_4 X_{ij} + \alpha_u + \varepsilon_{ij} \quad (2)$$

The response variable,  $I_{ij}$ , corresponds to two outcomes, a woman's mobility freedom and her gender attitude, both of which are continuous variables. The first OLS model estimates the effects of work and income on mobility, which is a continuous variable ranging from 0-5 that counts the number of locations a woman has permission to visit alone out of the club/social gathering place for women, market/haat bazar, friend/neighbor/relative's house, cinema hall, and

religious center (mosque, madrasa, shrine, graveyard) in the last month. Mobility is included as an outcome variable since it is important to consider a woman's mobility freedom when assessing her ability to go out and seek healthcare. The second OLS model estimates the effects of work and income on gender attitude, which is a continuous 0-6 index constructed based on six questions that measure a woman's perception of gender norms. If a woman answers yes to a question that promotes a society where women experience equal or more opportunities compared to men, her gender attitude index increases by 1, so a higher gender attitude index means the woman believes women have a higher social status in society. Coefficient estimates for the mobility model measure the effects of paid work and income on the extent to which a woman can freely move about in her community and coefficient estimates for the gender attitude model measure the effects of paid work and income on the extent to which a woman believes women have a higher status in society.

### 3.3.3 Health Empowerment Index

In order to create a comprehensive measure of a woman's health empowerment, I construct a standardized health empowerment index (*HealthEmp<sub>ij</sub>*). The standardized health empowerment index is a Z-score of the sum of the three empowerment outcomes, whether a woman makes her own health decisions, whether she purchases medicine, and whether she seeks medical treatment. A linear regression (3) is used to examine how much working and income contribution affects a woman's overall healthcare agency in terms of standard deviation from the mean:

$$HealthEmp_{ij} = \beta_0 + \beta_1 work_{ij} + \beta_2 income_{ij} + \beta_3 work*income_{ij} + \beta_4 X_{ij} + \alpha_u + \varepsilon_{ij} \quad (3)$$

R-squared and adjusted R-squared values are reported for OLS regressions, and pseudo R-squared and  $\chi^2$  values are reported for logistic regressions to assess model accuracy.

## 4. Results

### 4.1 Summary Statistics

Table 1 summarizes individual and household-level characteristics for the full sample, as well as for subsamples of working and non-working women. Out of the 7,151 women in the sample, 31% were working for income, 74% of all sample women were married and 58% had children at the time of the endline survey in 2017. The average income contribution to the household's combined husband and wife income is 49% for working women and 31% for non-working women, which makes sense since the average income for working women is approximately 1600 BDT higher than the average income for non-working women, and the average income for working women's husbands is approximately 900 BDT lower than the average income for non-working women's husbands.

Overall, women appear to attain more years of education than their husbands. This trend makes sense since recently, there has been a greater emphasis on female education globally with an increasing number of programs in developing countries encouraging young women to stay in school longer. Especially since this sample includes very young women, ranging from 14-32 years old, many of them may have participated in empowerment programs that keep them in school until and even after marriage. In contrast, men of the households may be more likely to drop out to work and provide for the family. In terms of physical health, the percentage of women who felt sick or extremely sick is very high and reaches almost 80% for both working and non-working woman. These high rates accurately reflect the poor health conditions in rural Bangladesh, where young women experience low access to quality education, health, family planning, and financial resources, exposing them to greater risks of poor health. Furthermore,

more than 30% of females begin childbearing before 20 years old, causing them to face greater health risks, high fertility rates, and short birth spacing without access to high quality healthcare.

Tables 5.1 and 5.2 (Appendix) summarize the three main binary outcomes of healthcare decision-making power and healthcare utilization along with the two continuous outcomes of mobility freedom and gender attitude. Own health decisions are measured only for married women while healthcare utilization, mobility, and gender attitudes are measured for all women. Table 5.1 displays empowerment outcomes for the full sample, as well as for working and non-working women. Comparing the mean values between working and non-working women, it appears that working women are slightly more likely to make their own health decisions, buy medicine, seek medical treatment, and have more female-positive gender attitudes. A woman's in-laws are more likely to make health decisions for her if she does not work for income; 29% of non-working women's health decisions are made by their in-laws and only 19% of working women's health decisions are made by their in-laws. In addition, working women appear to have less mobility freedom and more female-positive gender attitudes than non-working women.

Table 5.2 compares outcomes of married women with and without children. Women who have children appear to be much more likely to make their own health decisions compared to women who do not have children. About 13% of women with children make their own health decisions while only 7.5% of women without children can make their own health decisions. For women without children, in-laws appear to have the greatest say in the woman's health decisions; 37% of these women's health decisions are made by their in-laws. Women with children seem to have more female-positive gender attitudes but also experience less mobility compared to women without children.

**Table 1. Summary statistics for characteristics of full sample and working vs. non-working women**

	Full Sample	Working	Non-working
Age, years	21.11 (2.68)	21.30 (2.58)	21.02 (2.73)
Married, 1=yes	.740 (.438)	.657 (.475)	.792 (.406)
Has children, 1=yes	.584 (.493)	.546 (.498)	.612 (.487)
Number of children	1.20 (.625)	1.25 (.619)	1.18 (.626)
Woman's education, years	9.08 (3.45)	9.09 (3.63)	9.08 (3.36)
Husband's education, years	7.95 (4.36)	7.29 (4.36)	8.21 (4.33)
Woman's total income, BDT	2803.06 (6677.38)	3964.10 (7745.05)	2279.65 (6062.58)
Husband's total income, BDT	6095.67 (4244.88)	5565.28 (4325.98)	6450.86 (4134.38)
Total household income, BDT	8984.59 (8300.66)	9529.38 (9301.68)	8780.52 (7778.19)
Woman's income contribution, %	37.12 (38.57)	49.37 (38.89)	31.17 (36.99)
Woman's total savings, BDT	10451.63 (38547.85)	10660.37 (38873.05)	10343.48 (38383.39)
Sick last month, 1=yes	.631 (.483)	.669 (.471)	.614 (.487)
Feel last week, Well	.0165 (.127)	.0178 (.132)	.0159 (.125)
Feel last week, Alright	.196 (.397)	.203 (.402)	.193 (.395)
Feel last week, Sick	.238 (.426)	.234 (.423)	.241 (.427)
Feel last week, Extremely sick	.549 (.498)	.546 (.498)	.551 (.497)
Family has income-generating business, 1=yes	.473 (.499)	.469 (.499)	.474 (.499)
Number of work sectors available in the area	2.05 (1.27)	2.37 (1.21)	1.90 (1.27)
KK treatment, Control	.331 (.470)	.326 (.469)	.331 (.471)
KK treatment, Empowerment	.313 (.464)	.323 (.468)	.308 (.462)
KK treatment, Oil Incentive	.180 (.384)	.171 (.376)	.183 (.387)
KK treatment, Combined	.177 (.382)	.180 (.384)	.178 (.383)
N	7151	2228	4923

Standard deviations in parentheses

## 4.2 Health Decision-making and Healthcare Utilization

Table 2 shows the odds ratios for participation in paid work and household income contribution, the interaction effect between working and income contribution, and the eight control variables for the binary logistic regressions on the three main health empowerment outcomes: whether a woman makes her own health decisions, whether she purchases medicine for herself, and whether she seeks medical treatment for her health problems.

The odds ratio for participation in paid work is statistically significant and greater than 1 only for the first indicator of health empowerment. Thus, holding all of a woman's individual- and household-level controls constant, a woman who works for income is expected to be 1.396 times ( $p < 0.05$ ) more likely to make her own health decisions compared to a woman who does not work for income, but is not more likely to buy medicine or seek medical treatment. This suggests that working for income significantly increases a woman's agency over her own health decisions but does not significantly increase her utilization of health resources. So, although women may have more of a say in the household due to working, they are not necessarily more likely to go out of the home and seek healthcare for themselves. These null effects of working on healthcare utilization may also be due to confounding factors, including the woman's physical health, her lack of health knowledge and awareness, or limited mobility freedom. For example, the woman may already have good physical health and not need medical treatment or she may have poor physical health and not be able to get medicine by herself, she may not have enough knowledge about where or how to obtain healthcare resources, or she may not have permission to go out into the village to seek healthcare services.

The odds ratios for income contribution are statistically significant and greater than 1 for all three indicators of health empowerment. More specifically, for every 1% increase in a

woman's household income contribution, the likelihood that she makes her own health decisions is expected to increase by 1.017 times ( $p < 0.001$ ), the likelihood that she buys medicine for herself is expected to increase by 1.016 times ( $p < 0.001$ ), and the likelihood that she seeks medical treatment is expected to increase by 1.0057 times ( $p < 0.05$ ). So, although participation in paid work itself does not increase the likelihood that a woman buys medicine and seeks medical treatment, contributing more to her household income does. This suggests that contribution to household income may be more effective than participation in paid work in increasing health empowerment, since it significantly increases both decision-making authority and utilization.

The odds ratios for the interaction term are not statistically significant for any health empowerment outcome, so there is no significant difference in the impact of wage income and non-wage income on health empowerment. Thus, all women experience the same increase in health empowerment by contributing more income to her household, regardless of whether the income is earned through wage or non-wage sources (i.e. allowance, stipends, loans, and interest).

Total household income is a significant predictor of all three indicators of health empowerment, as higher household income increases a woman's likelihood to make her own health decisions, buy medicine, and seek medical treatment. For a 10,000 BDT increase in a woman's total household income, the odds of her making her own health decisions are expected to increase by 1.62 times ( $p < 0.01$ ), the odds of her buying medicine for herself are expected to increase by 11.14 times ( $p < 0.001$ ), and the odds of her seeking medical treatment are expected to increase by 1.59 times ( $p < 0.01$ ). Higher household income likely means that the woman's household is less financially constrained. This promotes financial freedom for both the woman and her husband and allows the woman to have greater bargaining power within her household.

As a result, the woman would have more of a say in her health decisions, as well as have more knowledge and resources to support her going out of the home to seek health services.

Having children significantly increases a woman's likelihood of making her own health decisions and buying medicine, but not her likelihood of seeking medical treatment. For a woman with children, the odds of her making her own health decisions are expected to be 1.668 times ( $p < 0.001$ ) higher than the odds of a woman without children making her own health decisions and the odds of her buying medicine for herself are expected to be 2.077 times ( $p < 0.001$ ) higher than the odds of a woman without children buying medicine for herself. The positive effect of children on a woman's likelihood of making her own health decisions may be because after bearing a child for the family, women typically gain more authority and have more of a say within their households. The positive effect of children on a woman's likelihood of buying medicine for herself may be because women with children have experience taking their children to the doctor and buying medicine for their children, so they know how to access these same healthcare resources for themselves.

In terms of education, a woman who is more educated than her husband is significantly more likely to make her own health decisions and buy medicine for herself. For each additional year of education a woman attains compared to her husband, the likelihood that she makes her own health decisions is expected to increase by 1.048 times ( $p < 0.01$ ) and the likelihood that she buys medicine is expected to increase by 1.037 times ( $p < 0.01$ ). If the woman is the more educated member of the household, she may have a higher status within the household and have more of a say in her, her husband, her children, and her family's decisions, thus giving her greater agency over decisions about her own life and autonomy to purchase medicine as she pleases.



The results on the medical treatment indicator of health empowerment suggest that a woman's likelihood of seeking medical treatment is primarily a function of her physical health. A woman who felt sick or extremely sick in the last week is expected to be 0.5 times ( $p < 0.05$ ) less likely to seek medical treatment for her health problems compared to a woman who felt well in the last week. These women may experience a decreased likelihood to seek medical treatment because they are too ill and physically unable to go out and obtain treatment on their own. Thus, physical health does not appear to affect a woman's overall health empowerment but does impact her likelihood of seeking medical treatment.

The constant terms from the logistic regression specify the odds that a woman with benchmark characteristics experience healthcare empowerment. A woman who does not work, contributes 37% to household income, has a total household income of 8984.59 BDT, is 21 years old, unmarried, does not have children, attained 9 years of education, has a husband who attained 8 years of education, did not feel sick in the last week, did not receive the KK program treatment, and lives in the Adabaria, a union in Bauphal Upazila of Patuakhali District of southern-central Bangladesh is expected to have a 0.022 odds of making her own health decisions, a 0.103 odds of buying medicine for herself, and a 4.82 odds of seeking medical treatment independently. All coefficient interpretations are made assuming all other variables are held constant.

**Table 2. Odds ratios for binary logistic regressions of work and income contribution effects on a woman's ability to make her own health decisions, buy medicine for herself, and seek medical treatment**

	Makes own health decisions (1)	Buys medicine for herself (2)	Seeks medical treatment (3)
Works for income, 1=yes	1.396* (0.213)	1.243 (0.144)	1.149 (0.167)
Household income contribution, %	1.017*** (0.00236)	1.016*** (0.00188)	1.0057* (0.00238)
Works for income * Household income contribution	0.994 (0.00367)	0.996 (0.00301)	1.000648 (0.00390)
Total household income, BDT	1.000062** (0.0000195)	1.000114*** (0.0000157)	1.000059** (0.0000184)
Age, years	1.065** (0.0219)	1.029 (0.0161)	0.988 (0.0199)
Married, 1=yes	0.799 (0.200)	0.974 (0.203)	1.061 (0.254)
Has children, 1=yes	1.668*** (0.226)	2.0767*** (0.213)	1.054 (0.122)
Woman's education – husband's education, years	1.048** (0.0153)	1.037** (0.0115)	0.985 (0.014)
Feel last week = Alright	1.161 (0.460)	1.124 (0.316)	0.697 (0.238)
Feel last week = Sick	1.213 (0.478)	1.050 (0.294)	0.490* (0.167)
Feel last week = Extremely sick	1.218 (0.472)	0.841 (0.232)	0.516* (0.174)
Family has income-generating business, 1=yes	0.937 (0.0916)	0.828* (0.061)	0.939 (0.088)
KK program treatment = Combined	1.088 (0.159)	0.879 (0.0951)	1.077 (0.152)
KK program treatment = Empowerment	1.250 (0.151)	0.977 (0.089)	0.844 (0.098)
KK program treatment = Oil	1.249 (0.180)	0.976 (0.105)	0.945 (0.131)
Constant	0.022*** (0.0129)	0.103*** (0.042)	4.820* (2.371)
Observations	4477	4464	2933
$\chi^2$	160.01*** (df=51)	259.62*** (df=51)	88.28*** (df=51)
Pseudo R <sup>2</sup>	0.0499	0.0525	0.0292
Union fixed effects	Yes	Yes	Yes

Standard errors in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

### 4.3 Mobility Freedom and Gender Attitude

Table 3 shows the OLS estimates of work and income on mobility freedom and gender attitude. Holding all individual- and household-level controls constant, a woman who works for income is expected to have higher mobility freedom than a woman who does not work for income ( $p < 0.01$ ). As a woman contributes more to her and her husband's combined household income, her mobility freedom also increases ( $p < 0.05$ ) and her gender attitude becomes more female-positive ( $p < 0.001$ ). These findings make sense since a woman's ability to work and earn income for the household likely increases her bargaining power, giving her greater independence to go out of her home and into the village. Additionally, as a woman earns more income for her household, she is likely to have a higher view of her own status as a household contributor who is not completely dependent on her husband, thus causing her to believe women have a higher status in society (i.e. agreeing with the survey statements "I feel safe to walk/move in my village alone", "Girls should be allowed to wear whatever they want without being harassed" and disagreeing with the statements "It is better to be a man than to be a woman", "Boys should be allowed to get more opportunities and resources for education than girls", "Boys should be fed first compared to girls", "A husband should be more educated than his wife").

In column (1), the significant and negative coefficient of the interaction term ( $p < 0.05$ ) indicates that the positive effect of wage income on mobility is less than the positive effect of non-wage income on mobility. In other words, as a non-working woman contributes more non-wage income to her household, she experiences a greater increase in the number of places she has permission to visit compared to a working woman contributing more wage income to her household. Since non-working women obtain non-wage income from school, relatives, or government benefits and do not need to work themselves, they may be granted more permission

to go out to various places in the village, such as the market, club, a relative's house, or a religious center, to receive these non-wage sources. In contrast, working women would only need to go to their workplace to earn their wage income, so they may not need to be granted permission to visit other locations. These differences in the mobility effects of non-wage and wage income may also be due to time constraints, such as non-wage women have more time to move about in their village since they do not need to go to work.

Based on the OLS estimates for the controls in column (1), a woman with higher total household income and a family with an income-generating business is expected to experience greater mobility ( $p < 0.01$ ). Women with higher household incomes and more financially stable families may experience greater independence freedom to move around in her village because her family's decisions are less financially constrained. Younger women are also expected to experience greater mobility ( $p < 0.01$ ). These women are likely still in school and unmarried and do not have to stay at home take care of their husbands or children, thus giving them greater freedom to go places. Both of these findings support the intuition behind why non-wage income is more effective than wage-income in increasing a woman's mobility. Women who are younger, likely still in school, or under the care of a financially stable family, tend to have greater independence to leave their houses. In terms of physical health, a woman who has felt just alright or extremely sick is expected to experience less mobility than a woman who felt well in the past week ( $p < 0.01$ ). Poor physical health likely has a negative effect on a woman's mobility because women who feel sick are less likely to go out of their home and visit other locations in her village.

Based on the OLS estimates for the controls in column (2) of Table 3, a woman with higher total household income is expected to have stronger female-positive attitudes towards

gender norms ( $p < 0.001$ ). This finding supports the intuition that women who live in households with higher income are less financially constrained, so the woman experiences more freedom and female-positive attitudes towards her independence and social status. Older women are also expected to have more female-positive gender attitudes ( $p < 0.001$ ). This may be because older women have more life experience and are viewed by others and themselves as having a higher status in society, thus increasing their perception of women's overall statuses. Lastly, a woman who does not have children is expected to have more female-positive gender attitudes ( $p < 0.001$ ). Women without children are likely still in school and unmarried, so they may be part of educational or empowerment programs that delay marriage and childbearing in order to promote women's economic and social livelihoods. As a result, these women may have more progressive mindsets about female roles that do not follow the traditional male-dominated cultural norms.

Based on the constant terms from the OLS regressions, a woman with the benchmark characteristics specified in Section 4.2 is expected to, on average, have permission to visit 1.03 out of 5 locations in her community and have a gender attitude index of 2.66 out of 6 (with 0 being the most male-dominated attitude towards gender norms and 6 being the most female-positive attitude towards gender norms). All coefficient interpretations are made assuming all other variables are held constant.

**Table 3. OLS estimates of work and income effects on a woman's mobility freedom and gender attitude**

	Mobility Freedom (0-5) (1)	Gender Attitude (0-6) (2)
Works for income, 1=yes	0.0966** (0.0362)	0.0625 (0.0595)
Household income contribution, %	0.00143* (0.000576)	0.00667*** (0.000947)
Works for income * Household income contribution	-0.00229* (0.000969)	-0.00201 (0.00160)
Total household income, BDT	0.0000111* (0.00000460)	0.0000659*** (0.00000756)
Age, years	-0.0113* (0.00491)	0.0336*** (0.00806)
Married, 1=yes	0.0685 (0.0627)	0.0621 (0.104)
Has children, 1=yes	-0.0218 (0.0283)	-0.172*** (0.0464)
Woman's education – husband's education, years	0.00545 (0.00348)	0.00647 (0.00572)
Feel last week = Alright	-0.208* (0.0876)	-0.255 (0.144)
Feel last week = Sick	-0.145 (0.0871)	-0.160 (0.143)
Feel last week = Extremely sick	-0.278** (0.0854)	-0.0860 (0.140)
Family has income-generating business, 1=yes	0.0512* (0.0230)	0.0678 (0.0378)
KK program treatment = Combined	0.00817 (0.0337)	-0.00971 (0.0554)
KK program treatment = Empowerment	0.0181 (0.0286)	-0.00193 (0.0470)
KK program treatment = Oil	0.0262 (0.0338)	-0.0438 (0.0554)
Constant	1.030*** (0.159)	2.660*** (0.261)
Observations	4581	4577
R <sup>2</sup>	0.0237	0.0561
Adjusted R <sup>2</sup>	0.0127	0.0455
Union fixed effects	Yes	Yes

Standard errors in parentheses

\* p&lt;0.05, \*\* p&lt;0.01, \*\*\* p&lt;0.001

#### 4.4 Health Empowerment Index

Table 4 shows the OLS estimates of work and income on a standardized health empowerment index that captures all three measures of how empowered a woman is. The health empowerment index ranges from 0-3 and sums the number of times a woman answers yes to whether she makes her own health decisions, buys medicine, and seeks medical treatment. The standardized index centers this index at 0 with a standard deviation of 1.

Working for income is a positive and statistically significant predictor of a woman's health empowerment. Holding all individual- and household-level controls constant, a woman who works for income is expected to have a 0.149 ( $p < 0.05$ ) higher standardized health empowerment index than a woman who does not work. Although working for income does not significantly increase all three indicators of a woman's health empowerment (Table 2), the health empowerment index shows that working for income increases a woman's overall health empowerment level (Table 4). Household income contribution is also a positive and statistically significant predictor of a woman's health empowerment for both working and non-working women. Holding all controls constant, as a non-working woman's contribution to her total household income increases by 1%, her standardized health empowerment index is expected to increase by 0.00786 ( $p < 0.001$ ), and as a working woman's contribution to her total household income increases by 1%, her standardized health empowerment index is expected to increase by 0.00455 ( $p < 0.05$ ). This confirms the results from Table 2 that women who contribute more to their household's total income, regardless of whether they work or not, experience significantly higher health empowerment.

However, the significant and negative coefficient of the interaction term indicates that the positive effect of non-wage income on health empowerment is greater than the positive effect of

wage income on health empowerment. In other words, non-working women experience greater health empowerment benefits from contributing money to their households compared to working women. Non-wage income may be more effective in improving health empowerment than wage income because non-working women in rural Bangladesh typically receive non-wage income through transfers from family and relatives, schools, loans and credits, or interest, suggesting stronger socioeconomic backgrounds or familial financial backing. These women may be in school for longer, can easily ask people for money, or obtain external financial resources from many sources, which could give them more individual autonomy and power to make their own health-related decisions.

Based on the OLS estimates for the controls, a woman with higher total household income, children, and more years of education than her husband is expected to be significantly more health empowered. For each 10,000 BDT increase in a woman's total household income, her standardized health empowerment index is expected to increase by 0.457 ( $p < 0.001$ ). A woman with children is expected to have a 0.251 ( $p < 0.001$ ) greater standardized health empowerment index compared to a woman without children. For each additional year of education a woman attains over her husband's, her health empowerment index is expected to increase by 0.0143 ( $p < 0.05$ ). The constant term on this regression indicates that a woman with the benchmark characteristics specified in Section 4.2 is expected to, on average, have a health empowerment Z-score of -0.473. All coefficient interpretations are made assuming all other variables are held constant. The significance of these controls on a woman's overall health empowerment supports the results from Table 2 on the individual indicators of a woman's health empowerment, providing further evidence that a woman's total household income, child status, and relative education are key characteristics that impact her health empowerment.



**Table 4. OLS estimates of work and income effects on a woman's standardized health empowerment index**

	Standardized health empowerment index
Works for income, 1=yes	0.149** (0.0572)
Household income contribution, %	0.00786*** (0.000960)
Works for income * Household income contribution	-0.00331* (0.00152)
Total household income, BDT	0.0000457*** (0.00000752)
Age, years	0.0127 (0.00799)
Married, 1=yes	-0.0208 (0.0962)
Has children, 1=yes	0.251*** (0.0469)
Woman's education – husband's education, years	0.0143* (0.00565)
Feel last week = Alright	-0.0148 (0.114)
Feel last week = Sick	-0.0858 (0.115)
Feel last week = Extremely sick	-0.129 (0.113)
Family has income-generating business, 1=yes	-0.0451 (0.0373)
KK program treatment = Combined	0.00251 (0.0540)
KK program treatment = Empowerment	0.0305 (0.0463)
KK program treatment = Oil	0.0421 (0.0550)
Constant	-0.473** (0.182)
Observations	2861
R <sup>2</sup>	0.0630
Adjusted R <sup>2</sup>	0.0460
Union fixed effects	Yes

Standard errors in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

## 5. Discussion

The results provide evidence that for women ages 14-32 in rural Bangladesh, participating in paid work and contributing more income to their households increases their level of health empowerment. Women who work for income are more likely to make their own health decisions but are not necessarily more likely to utilize healthcare. However, contributing more income to their households increases all aspect of women's health empowerment since the more income a woman contributes, the more likely she is to make her own health decisions, purchase medicine, and seek medical treatment, holding individual- and household-level characteristics constant. Therefore, while participation in paid work likely increases a woman's agency over her own health, it is through higher income contribution that she experiences a greater independence to make decisions and seek healthcare for herself. Furthermore, while both wage and non-wage income contributions significantly increase a woman's health empowerment, non-wage income appears to be even more effective in increasing a woman's health empowerment, as well as her mobility freedom. These findings provide two main policy implications. First, developing countries should prioritize programs to encourage women to participate in paid work and implement reforms that make it easier for women to access work opportunities. Second, governments can provide more financial resources to women in the form of stipends, transfers, or benefits to increase their ability to contribute to their household income in addition to the wage-income earned from working.

A limitation of my paper is measurement error that exists for the three main indicators of health empowerment. Whether a woman makes decisions, can purchase medicine, or seek medical treatment independently are all binary variables, so they cannot capture a continuous measure of the extent to which a woman has power over her own health decisions and utilization.

In addition, because I used a binary logistic model, I was not able to measure the impacts of working and income on the likelihood of specific family members, such as husband, in-laws, parents, and other relatives, making health decisions for the woman. From the summary statistics in Tables 5.1 and 5.2 (Appendix), in-laws appeared to be more likely to make decisions for non-working women and women without children, but the potential significance of this difference in who makes a woman's health decisions is not reflected in the binary logistic model results.

The results also provide evidence that participating in paid work and contributing more to household income increases a woman's mobility and female-positive gender attitudes, suggesting that those two outcomes may be pathways linking work and income to health empowerment. The results on the control characteristics show that women with higher total household incomes, children, and more years of education than their husbands experience an increased ability to make their own health decisions and buy medicine for themselves, as well as higher overall health empowerment.

However, as with any survey data, response entries are prone to subjectivity, error, and missing values, and the measures for mobility freedom and gender attitude may be biased due to self-selection in answering survey questions. Mobility freedom only measures whether a woman had permission to visit a location but did not take into account whether she actually visited that location in the past month. Women who have no need to visit a particular location may not care about or even answer any of the survey questions about visiting that location, including whether she has permission to visit it. In addition, women who have positive gender attitudes may be more likely to answer the gender attitude questions. And because the survey was only administered to women, it did not measure men's gender attitudes, limiting the ability to assess husbands' views towards gender attitudes beyond their education levels. In terms of controls, the

current measure of physical health, how sick a woman felt in the past week, is subject to noisiness since it is a very subjective measure that only looks at a woman's health over a very short period of time. Furthermore, the results show that having children on improving a woman's health empowerment may be a key pathway to increasing her ability to strengthening her own health decision-making power and health-seeking behavior. While the survey provides information on who makes health decisions for a woman's child, this data is only applicable to women with children and is not an indicator of a woman's health empowerment for her own health. In addition, a woman being able to make decisions for her child by herself may not be an indicator of health empowerment, since it is likely more beneficial for the child and the entire household if both the woman and her husband, or the woman and her parents and in-laws make joint decisions about what to do when the child is sick. Thus, whether a woman makes health decisions for her child is not included as a health empowerment outcome in the main regressions.

Another limitation is the inability to consider the impacts of family members on a woman's living situation and labor force participation. Tables 6.1 and 6.2 (Appendix) provide summary statistics of empowerment outcomes for women based on who they live with (parents, husband only, husband and in-laws, or alone) and who initiated their paid work (self, husband, parents or in-laws, relatives or siblings, or friends or neighbors). Both living situation and work initiation are key factors that may heavily impact a woman's ability to work, earn income, and her decision-making power and independence within her household. However, the survey only provided living situation information for married women, and information on who initiated a woman's paid work is only applicable to working women, so these factors were not included as explanatory variables or controls in the regressions, despite their potential significances. Furthermore, while all regressions were conducted on the entire sample of married and

unmarried women, the majority of women in the sample were married (74%) and had children (58%) at the time of the survey in 2017. This may limit the generalizability of findings to unmarried women.

Lastly, in terms of the validity of the field experiment study itself, large villages were dropped from the Kishoree Kontha survey since they are difficult to reach for outreach and coverage. Thus, my findings may only apply to smaller rural villages because girls in larger villages are likely to have different characteristics than girls in smaller villages. On a larger scale, since results are specific to young women living in rural Bangladesh villages, they may not be externally valid for other cultural contexts.

## **6. Conclusion**

My paper uses 2017 data from the Kishoree Kontha Girls Empowerment program implemented in rural Bangladesh and a cross-sectional approach to examine the effect of women's participation in paid work and household income contribution on their health empowerment outcomes. I define health empowerment as a woman's ability to make her own health decisions, purchase medicine, and seek medical treatment independently.

The main finding is that participation in paid work increases a woman's agency over her own health decisions but does not necessarily increase her utilization of healthcare services. As a woman contributes more income to her household, her ability to make health decisions, purchase medicine, and seek medical treatment increases, improving her overall health empowerment. Both wage and non-wage income improve a woman's decision-making power and healthcare utilization, however, non-wage income appears to be a more effective income source for increasing a woman's health empowerment. Two potential mechanisms through which a woman's income contribution can translate into health empowerment are greater freedom to

move around in her village and a higher perceived social status in society, as indicated by more female-positive attitudes toward gender norms. Thus, my findings expand on existing literature by establishing a direct link between paid work and income contribution and women's health empowerment, while controlling for the effects of various household and individual characteristics, including household income, age, marital and child status, education, husband education, and physical health.

My paper strengthens the body of evidence that providing women with more income-generating opportunities and financial support are effective methods to increase their autonomy, choice, and control over resources. More specifically, women should be encouraged to participate in paid work and supplemented with external sources of wage and non-wage income so they can contribute more to income their households. In developing countries like rural Bangladesh, where women have limited access to financial resources and quality healthcare, it is important to continue implementing policies to promote female employment opportunities, wage gap reductions, and equal access to work and financial resources. While sociocultural norms that may still prevent women from exercising complete control over their lives, income generation and financial independence can improve women's own perceptions of themselves within their households and allow them to move around more freely in society. These policies may play a key role in helping women gain bargaining power within their households and take greater control over their own healthcare, bringing women in developing countries one step closer to achieving economic, social, and health independence.

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## 8. Appendix

**Table 5.1 Summary statistics for empowerment outcomes of working and non-working women**

	Full Sample	Working	Non-working
Who makes woman's health decisions			
Self	0.115	0.141	0.105
Husband	0.533	0.558	0.523
Jointly with husband	0.043	0.062	0.035
In-laws	0.264	0.191	0.292
Parents/siblings/other	0.045	0.047	0.044
N (married only)	5478	1537	3941
Buys medicine, 1=yes	0.243	0.276	0.230
N (all women)	5458	1534	3924
Seeks medical treatment, 1=yes	0.765	0.785	0.756
N (all women)	4519	1490	3025
Mobility freedom, 0-5	0.713 (.773)	0.751 (0.802)	0.709 (0.760)
N (all women)	7244	2228	4923
Gender attitude, 0-6	3.58 (1.30)	3.69 (1.29)	3.54 (1.30)
N (all women)	7143	2227	4916

Standard deviations in parentheses

**Table 5.2 Summary statistics for empowerment outcomes of married women by child status**

	Full Sample	Has Children	No Children
Who makes woman's health decisions			
Self	0.115	0.127	0.075
Husband	0.533	0.567	0.423
Jointly with husband	0.043	0.045	0.037
In-laws	0.264	0.231	0.374
Parents/siblings/other	0.045	0.032	0.092
N	5478	4222	1256
Buys medicine, 1=yes	0.243	0.270	0.153
N	5458	4207	1251
Seeks medical treatment, 1=yes	0.765	0.778	0.745
N	4519	2801	1718
Mobility freedom, 0-5	0.713 (.773)	0.695 (0.757)	0.738 (0.793)
N	7244	4231	3013
Gender attitude, 0-6	3.58 (1.30)	3.45 (1.29)	3.78 (1.29)
N	7143	4231	2912

Standard deviations in parentheses

**Table 6.1 Summary statistics for empowerment outcomes of married women by who they live with**

	Parents	Husband only	Husband and in-laws	Alone
Who makes woman's health decisions				
Self	0.153	0.123	0.092	0.136
Husband	0.700	0.407	0.509	0.323
Jointly with husband	0.105	0.028	0.019	0.016
In-laws	0.029	0.266	0.376	0.319
Parents/siblings/other	0.013	0.176	0.005	0.206
N	1435	921	2865	257
Buys medicine, 1=yes	0.261	0.322	0.212	0.208
N	1424	921	2858	255
Seeks medical treatment, 1=yes	0.754	0.791	0.768	0.763
N	1851	664	1831	173
Mobility freedom, 0-5	0.695 (0.772)	0.687 (0.778)	0.756 (0.763)	0.616 (0.811)
N	1048	3072	2866	258
Gender attitude, 0-6	3.638 (1.305)	3.747 (1.284)	3.413 (1.283)	3.391 (1.343)
N	1048	2971	2866	258

Standard deviations in parentheses

**Table 6.2 Summary statistics for empowerment outcomes of married women by who initiated their work**

	Self	Husband	Parents/ In-laws	Relatives/ Siblings	Friends/ Neighbors
Who makes woman's health decisions					
Self	0.151	0.127	0.123	0.126	0.200
Husband	0.579	0.663	0.444	0.527	0.578
Jointly with husband	0.064	0.063	0.043	0.071	0.078
In-laws	0.159	0.131	0.318	0.214	0.111
Parents/siblings/other	0.047	0.016	0.073	0.060	0.033
N	703	252	302	182	90
Buys medicine, 1=yes	0.263	0.321	0.262	0.293	0.300
N	701	252	302	181	90
Seeks medical treatment, 1=yes	0.778	0.800	0.800	0.788	0.742
N	663	185	310	226	97
Mobility freedom, 0-5	0.714 (0.767)	0.723 (0.808)	0.881 (0.842)	0.709 (0.791)	0.677 (0.875)
N	1010	253	488	326	133
Gender attitude, 0-6	3.799 (1.262)	3.352 (1.284)	3.696 (1.306)	3.699 (1.292)	3.451 (1.282)
N	1010	253	487	326	133