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Leaning in at Home

Women's Promotions and Intra-household Bargaining in Bangladesh

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Abstract

It is established that entering employment improves a woman's bargaining position in the household. This paper investigates whether a woman's career advancement further improves her intra-household bargaining power. The analysis exploits quasi-random participation in a career promotion program in Bangladesh's garment industry to causally estimate the impact of women's promotion on household decision-making. The findings show that women who participate in the promotion program gain bargaining power as measured by higher expenditures on women (51%) and girls (74%), and on remittances (58%). The promotion-related income effect only partially explains these increases, suggesting that women gain more agency over household income more generally. Further, these new female managers now serve as role models to their staff. The paper finds that the direct effects spill over to women who are quasi-randomly exposed to the new female managers, who also report more say in household decisions. Complementarities between women's positions in the workplace and in the household appear important.

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Leaning in at Home: Women's Promotions and Intra-household Bargaining in Bangladesh

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1 Introduction

Entering employment improves women's bargaining position in the household.[1] Given that employed women are therefore more likely to possess a higher initial bargaining power than the non-employed female population, it is unclear whether advancing in their careers will further affect female workers' bargaining power. The only evidence about the impact of promotions on the household so far presents a cautionary tale about marriage breakdown, showing that political and corporate promotions in Sweden double the divorce rates for promoted women but not for men (Folke and Rickne, 2020). Given that women in the course of economic development and by policy design – such as through quotas for political and corporate positions – tend to move up the career ladder, more evidence on household outcomes is needed. This is especially important since women's promotions not only impact the promoted women directly, but also because they affect a much larger number of workers indirectly through exposure to a female manager as a possible role model.

This paper investigates the impact of women's promotion on bargaining in the household, both directly and indirectly. I analyze this question in the context of the garment sector in Bangladesh. The work the sector provides is similar to many labor-intensive manufacturing industries in low- or middle-income countries. The garment industry is the main source of formal wage employment for Bangladeshi women, in a country where women traditionally did not work outside the home. Nevertheless, the positions available to women in the industry continue to be limited to the non-managerial level, similar to many industries across the world.[2] Even though about 80% of production-line workers in the sewing sections are typically female, they represent only about 5% of line supervisors, the lowest-level management position (Macchiavello et al., 2020; Menzel and Woodruff, 2021). I study the impacts on intra-household bargaining if a woman gets promoted from production-line operator to line supervisor, both for the promoted woman herself and for the female line operators working under her.

The ideal empirical scenario to analyze this research question would be by assigning promotions in a randomized fashion. However, profit-maximizing firms in this highly competitive industry are reluctant to allow their promotion offers to be determined by chance because effective supervisors are crucial for meeting production targets. Instead, I exploit variation created by a promotion program for about 200 women in 27 garment factories located in Dhaka division.[3] As part of the promotion program, the participating female production-line operators trialed as line supervisors for two months, were trained for this role and, if successful, were officially promoted

[1] See Heath and Jayachandran (2018); Duflo (2012) for reviews, though note that most of the evidence is observational.

[2] See Chiplunkar and Goldberg (2021) for an overview.

[3] Uckat and Woodruff (2020) describes the program in detail and analyzes its effect on factory outcomes.

by the factories. The participating women therefore gained experience in a management position whose leadership responsibilities were very different from the work they did before, even if not all of them were officially promoted. Importantly, this empirical set-up allows me to show that the impacts I identify are not primarily due to an income effect that a promotion or exposure to female managers may generate.

To study the impact on the household, I conducted two waves of extensive surveys with the women involved in the program and with their husbands, or another adult household member if the woman was unmarried. Because the vast majority of respondents were married couples, for simplicity I refer to them as "wife" and "husband" in the rest of the paper. The respondents were interviewed simultaneously but separately at their homes.[4]

I compare outcomes of women who were selected for the program to the nominated and shortlisted runners-up for an intent-to-treat analysis, thus exploiting the selection process for the program as a quasi-experiment. At the start of this process, we determined the number of new supervisors to be selected in each factory together with the respective management as factory-specific cutoffs. Factories then provided us with a ranked list of female production-line operators as candidates. Our team conducted extensive eligibility checks, which meant that only highly skilled and experienced operators with a supportive family were included in the shortlist for the program. Out of the eligible and shortlisted operators, only those with a rank that was better than the factory-specific cutoff were "selected" for the promotion program. The comparison group consists of the "nominated" and shortlisted women who passed all diagnostic checks but continued to work as production-line operators.

I argue that the assignment to the selected group is quasi-random because factories have limited ability to predict which women would become successful supervisors among the shortlisted group of women. Because the factories had historically nearly always promoted men, they had large numbers of skilled and experienced female line operators from which to choose new supervisors. The eligibility criteria and diagnostic tests further ensured that the considered line operators were a largely homogenous sample. While it might be easy for factories to identify operators who would **not** make a good supervisor in their factories, it is much harder to decide the ranking among a sample of women who had **all** been judged to be suitable after an extensive screening. This argument is similar in spirit to the literature on microenterprises, recruitment and venture capitalism, which shows that humans are often inept at predicting which firms, workers or investments will be successful among an already select sample (McKenzie and Sansone, 2017; Hoffman et al., 2018; Nanda, 2016). I conduct extensive checks comparing the two groups using variables from the promotion program baseline, which show that the two groups do not differ on observable criteria.

I use three estimation approaches for the analysis: a machine-learning technique to choose

[4]For funding reasons, the home surveys took place after the conclusion of the promotion program.

predictive control variables for OLS (the Post-Double Selection Least Absolute Shrinkage and Selection Operator, PDS Lasso, following Belloni et al. (2013, 2014a,b, 2016)), a regression discontinuity approach using the operator rankings, and a matching method. They all lead to the same conclusions. The promotion program was indeed successful in advancing women's careers. The selected women were assigned to work as supervisors for at least two months, and therefore gained experience in a leadership position. Within the first year after the promotion program start, selected women were 24 percentage points more likely to have been officially promoted to supervisor compared to the shortlisted comparison group, and more were still waiting for an official promotion at the time of the surveys.[5] For the officially promoted women, personal income increased by about 17% compared to the shortlisted group.

The women who were selected for the promotion program become significantly more involved in household decision-making in the short term than the comparison group, especially regarding purchases of clothing for the women themselves. The selected women are able to translate this increase in decision-making power into higher expenditures on assignable goods for women and girls, and on remittances.[6] When using the main PDS Lasso specification, the share of household income spent on women's goods (especially clothing and accessories) increases to about 8%, compared to 5.3% in the comparison group. I cannot entirely exclude that part of this effect might be driven by the need to look more professional in the new managerial position, but argue that increasing effect sizes over time make this improbable. This is also unlikely to be the reason for the increase in the income share spent on girls' goods (especially education), from 1.6% to 2.9%, and the large effects I find on remittances. The latter increase from 6% of household income to about 9.5%, which appears to result primarily from transfers to family members who take care of the couple's children living outside the household. The large increase in remittances hence seems to mask expenditures on children.

Further analysis suggests that the increase in household expenditures on female assignable goods and remittances is not primarily due to an income effect resulting from the promotion. A back-of-the-envelope calculation shows that the monetary increase in female assignable expenditures and remittances combined is more than two times as large as the increase in personal income. These magnitudes suggest that the selected women are not just able to appropriate additional income they may earn as a result of a promotion, but also that a reallocation of income the women would have earned in the absence of the program is taking place. This indicates that the promotion

[5]Note that ten nominees from the shortlisted comparison group joined the promotion program as replacements for women from the selected group who dropped out of the program. Four of these replacement nominees reported that they had been officially promoted during the household surveys. These replacements are part of the comparison group in the analysis.

[6]I define assignable goods as private goods whose nature allows the researcher to deduce that they are consumed exclusively or primarily by a specific type of household member.

program may have triggered renewed bargaining in the household over more than just the newly earned income.

While these results are encouraging for policy approaches that aim to increase equity for women in both the workplace and the home by fostering female leadership, the direct effects of promotions will only affect the small share of the female population that attains a management position. I therefore analyze whether there are any indirect effects of having the new female supervisors as role models on the women working as their subordinates. These effects would potentially be relevant for a much larger number of women. I compare outcomes of female sewing-line operators who were working on lines to which the newly selected female supervisors were assigned for the promotion program (the "exposed" group) to outcomes of women who were working on other lines (the "non-exposed" group) for an intent-to-treat analysis. I interviewed about 500 exposed and non-exposed wives and their husbands about nine months after the start of the exposure to female supervisors. According to industry experts, the assignment of operators to production lines is first and foremost determined by production requirements. It is especially unlikely that workers can sort to lines of new supervisors in their trial period, since factories use these periods to observe the performance of potential new supervisors with the resources they have been given. Extensive tests indeed indicate that the two groups are very similar on observable characteristics. I again use PDS Lasso to identify control variables for OLS in my estimation approach, but find that the estimates are robust to the inclusion of control variables.

I find that the exposed women — similar to the promoted women — are considerably more involved in decision-making in the household, especially regarding their own mobility, with a point estimate of 0.36 SD. There is suggestive evidence that the exposed women are able to translate this increased decision-making power into a reallocation of expenditures away from men's goods, with the income share spent on men's assignable expenditures decreasing in relative terms. For both the promoted and exposed groups, there is some suggestion that the increased involvement in decision-making and changes in expenditure patterns are resulting from women being more willing or able to get involved in negotiations in the household, as indicated by marginally insignificant increases in self-reported measures of attitudes towards bargaining. Notably, for both groups I do not find any impacts on outcomes of time use, domestic violence, or economic games inspired by Almås et al. (2018) that measure respondents' willingness to pay to hide or control payouts.

This paper makes two empirical contributions. It provides the first evidence of women's career advancement on intra-household decision-making, and shows that the impacts are not primarily driven by a change in the woman's income. It thus relates to the large literature investigating the impacts of women entering employment on the household level, which has found positive effects on a range of measures of women's bargaining power, such as domestic violence, expenditures,

involvement in decision-making, mobility or women's time use, with some exceptions.[7] This paper goes beyond the impact of women taking up work, and instead investigates how the household responds if women climb up the first step of the career ladder. Studies focusing on women's promotions have so far mainly analyzed the impact on firm outcomes.[8] One exception, and closest to this paper, is Folke and Rickne (2020). The authors analyze the impact of women's and men's promotions to top political and corporate positions on divorce rates in Sweden. They find that a promotion doubles divorce rates for promoted women, but not for men. The authors provide evidence that these higher divorce rates could result from a stressful re-negotiation of household tasks after the women's promotion or from a violation of social norms if the wife becomes the dominant earner. In comparison to Folke and Rickne (2020), this paper focuses on women's promotions to entry-level management positions in a lower middle-income context. And while Folke and Rickne (2020) exclusively discuss divorce, i.e. household breakdown, this paper focuses on a wide range of intra-household bargaining outcomes within continuing marriages. Importantly, the previous literature has not been able to differentiate whether changes in women's outcomes result from a change of a woman's status in the workplace (starting work or a promotion) or an income increase, which this paper is able to do.

As a second contribution, this paper presents the first evidence of the impact of female role models in the workplace on intra-household bargaining. The literature so far has primarily focused on female role models in the political sphere, in teaching environments or in the media, and has shown that female role models can be instrumental in changing norms as well as behavior.[9] In comparison, this paper investigates the impact of a female role model in the workplace — a female manager on the production line under whom the women work for at least ten hours a day for six days a week in the factory. This exposure to a female supervisor is therefore arguably more direct compared to female political leaders, as well as more direct and more sustained compared to television characters. It most resembles the type of exposure found in teaching environments, but affects the exposed women at a different point in their economic lives. Macchiavello et al. (2020), also working in Bangladesh's garment industry, provide suggestive evidence that having a female

[7] See e.g. Atkin (2009) and Majlesi (2016) for Mexico; Dharmalingam and Morgan (1996), Jensen (2012), Rahman and Rao (2004), Luke and Munshi (2011) and McKelway (2019) for India; Blattman and Dercon (2018), Getahun and Villanger (2018) for Ethiopia, and Friedemann-Sanchez (2006) for Colombia. For Bangladesh, Heath and Mobarak (2015), Anderson and Eswaran (2009), and Kabeer et al. (2018) found that formal work outside the household, including in the garment industry, enabled women to have more say in decision-making, and delay marriage and child birth, though Heath (2014) reports that women with low initial bargaining power may experience more domestic violence upon entering work.

[8] See e.g. Bertrand et al. (2019) and Dale-Olsen et al. (2013) analysing Norway's quota for women on company boards, Flabbi et al. (2019) for Italy, Marinova et al. (2016) for Denmark and the Netherlands, Deszö and Ross (2012) for the United States and Sabatier (2015) for France.

[9] See e.g. Beaman et al. (2009, 2012) for political role models, Carrell et al. (2010); Dee (2005); Bettinger and Long (2005); Asgari and Dasgupta (2010); Antecol et al. (2014) for teachers as role models, DellaVigna and La Ferrara (2015); La Ferrara (2016); Chong and La Ferrara (2009); La Ferrara et al. (2012) for the effect of the media.

line supervisor has positive, though insignificant, effects on female operators' career aspirations. The present study confirms this small but insignificant positive effect on career aspirations. I also add to this analysis and investigate whether having a female manager in the workplace changes household bargaining for exposed subordinates.

The paper further speaks to the large theoretical literature on intra-household bargaining.[10] The presented results align more closely with a non-unitary than a unitary model of the household, where the latter assumes that the household acts as if it is maximizing a single utility function. In the context of the more commonly used non-unitary bargaining models of the household, the evidence in this paper is consistent with an interpretation that a woman's career advancement – even without an income effect – and a woman's exposure to female role models are variables that positively affect the woman's bargaining position, e.g. as a distribution factor in the collective model (Browning et al., 2014), or as a variable determining the threat point in the separate spheres model (Lundberg and Pollak, 1993). The quasi-exogenous improvement in these variables that this paper analyzes therefore appears to shift the outcome of the intra-familial bargaining process in the woman's favor.[11]

The paper is structured as follows. I provide an overview of the context in Section 2, and explain the study design and empirical strategies in Section 3. Section 4 presents the impacts on the participants of the promotion program, whereas Section 5 does the same for the analysis of role model effects on female operators working with the new women supervisors. Section 6 concludes.

2 Context

The garment industry in Bangladesh experienced explosive growth from the 1980s onwards. Despite a dip in 2020 due to the COVID-19 pandemic, the sector currently produces about 80% of Bangladesh's exports, consists of at least 4,500 factories and employs more than 4 million workers (Bangladesh Garment Manufacturers and Exporters Association (BGMEA) 2017, 2019, 2021).[12]

The production in garment factories is usually divided into at least three sections: cutting, sewing, and finishing.[13] After the fabric is cut into the pieces required for a garment in the cutting section (e.g. a front and back piece, two sleeves and neckbinding for a simple T-shirt), the fabric pieces are sewn together to create the garment on the sewing floors, before being passed on to the finishing section for ironing and packaging. The sewing sections employ the majority of workers.

[10] See Browning et al. (2014) for an overview of this literature.

[11] I do not take a stance here on whether the underlying bargaining process is cooperative or non-cooperative since I do not have the necessary empirical set-up to test this.

[12] Figures B.1 and B.2 in the Online Appendix illustrate the sector's development.

[13] Some factories have additional sections, such as those that spin thread from the raw materials, knit fabric from the thread, dye the fabric, add embroidery to the fabric, or create stonewash in jeans. See Menzel and Woodruff (2021) for a more extensive discussion of the production process, and the differences in grades among sewing operators.

They are almost always divided into production lines, which take the cut fabric pieces as inputs and output the complete garment. These sewing lines consist of 20-80 workers, depending on the garment produced, who each perform one sewing operation (e.g. binding the neck for a T-shirt) at a work-station. Lines are typically composed of line operators of different skill levels and helpers doing auxiliary tasks. The production lines are usually managed by at least one line supervisor, several if the line is longer.[14]

The garment industry is the main sector in which Bangladeshi women can find formal wage employment, in a country in which women have traditionally not worked outside the home (Asadullah and Wahhaj, 2016). While statistics from a representative sample of factories are hard to come by, it is estimated that 56%-65% of all workers in the sector are female (Labowitz and Baumann-Pauly, 2015; Asian Center for Development, 2015). However, the opportunities for women in the industry still remain mostly limited to non-managerial positions. Among the line operators and helpers in the sewing section, about 80% are typically female, but only about 5% of line supervisors are women (Macchiavello et al., 2020; Menzel and Woodruff, 2021).

The impact of a woman's promotion from line operator to line supervisor on the household of the female supervisor herself, and the female workers she manages, is the focus of this paper. It is therefore important to understand that the work of a line supervisor is very different to that of operators. Whereas line operators sit at their work-stations and repeatedly perform their step of the sewing process, line supervisors are tasked with managing workers to ensure that their (part of the) line is running well. They are typically on their feet, and communicate with workers to motivate them to reach the target set for the line, solve problems with machines or inputs, or explain processes to operators. They also communicate any issues, such as worker absenteeism or machine problems that require technicians, to higher-level managers.

Compared to line operators, supervisors work only slightly longer hours, to set up the line at the beginning of the shift and wrap up after production has finished for the day. When comparing the hours worked reported by line supervisors and by line operators in the part of my sample that is unaffected by the promotion program, this difference is only about 11 minutes when controlling for factory and month fixed effects, and about 19 minutes without these additional controls.[15] Since line operators in my sample work on average 10 hours per day, line supervisors' work hours are only about 2%-3% longer. Officially promoted line supervisors also earn more than operators. In

[14]The hierarchy levels above line supervisors in the production department vary with the size of the factories. Larger factories often employ line chiefs responsible for several lines, floor managers responsible for one sewing floor, assistant production managers responsible for one unit, and production managers who report to the general manager. In smaller factories, which might have only few floors and only one unit, there are typically fewer levels of hierarchy.

[15]This sub-sample consists of all respondents that report working as line operators or line supervisors, from which I drop the nominees and selected women for the promotion program, as well as the women working with the selected women as supervisors. Note that this is not a representative sample, but serves as an illustration.

the factories included in this paper, the highest-skilled operators earn approximately 10,000 Taka per month (about 125 USD at the time of the surveys).[16] Established supervisors on average earn approximately 14,000 Taka per month (about 175 USD). Note, however, that the income increase for newly promoted supervisors is smaller, as I find below.

Previous work has found that women in the garment industry already possess a higher level of bargaining power than the average Bangladeshi woman (Asian Center for Development, 2015; Heath and Mobarak, 2015). There has been impressive progress in Bangladesh towards gender equality in the decades coinciding with the growth of the garment industry, and it has been argued that work in the sector has enabled women to have more say in decision-making in the household and to be more visible in the public sphere.[17] Since this paper is focused exclusively on women already working full-time outside the home in the garment industry, it is not immediately obvious whether women's promotions to managerial positions can a priori be expected to have an additional positive effect on these women's bargaining power in the household, considering the high initial bargaining power.

3 Study design and empirical strategy

3.1 Promotion program

I exploit variation created by a promotion program for women in the Bangladeshi garment industry, during which selected women were assigned to trial as production line supervisors for at least two months. The impacts of the program on factory outcomes are analyzed in Uckat and Woodruff (2020). The way in which female production line operators were selected for the program allows me to compare household outcomes of new female supervisors to outcomes of female operators who were short-listed for the program but did not make the cut because of space constraints.

Only skilled and experienced operators were considered for the program in which 27 large Bangladeshi garment factories participated. At the beginning of the program, the factories provided a ranking of female operators that they wanted to consider for new supervisor positions. Factories were instructed that those operators had to fulfil pre-set eligibility criteria in five areas.[18] These criteria mean that all short-listed women were skilled production line operators with significant experience in the garment industry and more than primary education. Factories also asked for eligible operators to be interested in becoming a supervisor and to have a family that supported this interest, though how exactly these criteria were implemented was up to the individual factories.

[16] These numbers represent net pay, which includes basic pay, overtime pay, and all allowances, minus any deductions, e.g. for absences.

[17] See e.g. The World Bank (2008) for a review of this progress and the drivers.

[18] See Panel A of Table C.1 in the Online Appendix for more details on these criteria and the diagnostic tests.

We further implemented diagnostic tests with all candidates and then excluded women who did not pass basic literacy and numeracy tests. Only women who passed all screening criteria were included in the shortlist. In total, the 27 factories short-listed 243 eligible women. We conducted baseline surveys in the factories with all shortlisted women.

In each factory, only the top-ranked candidates in the shortlist were allowed to participate in the promotion program. We determined a factory-specific cutoff in advance in collaboration with each factory management team. The goal was to only include as many participants in the promotion program as the factory would be able to absorb as new supervisors in a few months, such that selected operators had a good chance of officially being promoted during the program duration.[19]

Using the shortlists of operators, only the women with a better rank than the factory-specific cutoff were assigned to the promotion program. In this paper, these women are the "selected" group, consisting of 199 individuals. The women who passed all eligibility checks but whose rank was worse than the factory cutoff continued working as operators and form the comparison group. I call this group, which consists of 44 individuals, the "nominated" group. Only the selected group participated in the promotion program, which entailed trialing as an assistant supervisor with gradually increasing responsibility for at least eight weeks. Factories were encouraged to officially promote the selected women as soon as they felt that their quality warranted a promotion. This is similar to how factories promote new supervisors in the industry. Outside of any intervention, factories typically trial candidates for supervisor positions on the job. They first shadow existing supervisors, and then move to supervising a gradually increasing number of workers. If the factory is satisfied with their performance in managing a line or line section on their own, they receive an official promotion once a supervisor vacancy becomes available.[20]

[19]Half of the factories were randomly assigned to a two-hour "selection experiment", which is discussed in detail in Uckat and Woodruff (2020). These factories were able to change their ranking of shortlisted operators once, after reviewing the diagnostic scores for all tested candidates. Nominees in the other half of the factories undertook the diagnostic tests, but the results were not revealed to the factory, and the original ranking could not be changed. For factories that were assigned to the selection experiment, the final shortlist is the last ranking after the selection experiment, after exclusion of ineligible operators and a potential re-ranking. For factories that did not participate in the selection experiment, the final shortlist coincides with the original ranking of operators, after ineligible nominees were excluded. To account for this selection experiment, I include all diagnostic scores and factory fixed effects in the vector of potential control variables, as discussed in Section 3.5.1. I also show that results hold if I limit the sample to the half of the factories that did not participate in the selection experiment in the Online Appendix.

[20]The selected women were also assigned to different training regimes. These varied in their timing of two different modules, which were designed to train the selected women in soft and technical skills to make them better production line supervisors. Online Appendix A provides details. The impact of the training on factory outcomes is analyzed in Uckat and Woodruff (2020), which finds limited effects on factory outcomes. For the analysis of promotions on intra-household bargaining, I pool all women assigned to be participants of the promotion program in the "selected" group, regardless of their training assignment. In the Online Appendix, I show that my results are robust to potential training effects.

3.2 Survey implementation and sampling

To collect the outcome variables of interest for this paper, I implemented surveys with women and one of their household members at the respondents' homes. For funding reasons, these took place after the conclusion of the promotion program discussed in the previous subsection. For the analysis of the effects on the promoted women, which I call the "promotion analysis", the field team targeted all 243 women who were nominated and eligible for the promotion program by the 27 factories.[21] This sample was interviewed twice in person at their homes. The first wave took place on average four months after the beginning of the promotion program in the factories, and the second wave on average ten months after the beginning of the program.[22] For power reasons, I also conducted biweekly phone surveys to collect additional measurements for a subset of outcomes of interest.

The sample for the analysis of role model effects on the women working with female supervisors, which I call the "role model analysis", was determined during the follow-up surveys for the promotion program in the factories. On each trial line to which a participant of the promotion program had been assigned to trial as supervisor, female operators were sampled for the household surveys.[23] These are the so-called "exposed" operators. The trial lines had been chosen by the factories as needing a new supervisor before the start of the promotion program. In addition, in each factory, the same number of comparison lines was sampled from all other lines not involved in the promotion program, and from these lines, female operators were again sampled to be interviewed in the household. These latter operators are the "non-exposed" group, who are mostly supervised by men. Overall, 715 operators were sampled. The interviews for the exposure analysis took place on average nine months after the start of the promotion program.[24]

For the home surveys, a team of one female and one male enumerator visited the respondents' homes and administered the questionnaire simultaneously and separately. In advance, phone-based pre-surveys using contact details collected during factory visits were employed to agree on a time for the visit that fit the respondents' busy work schedule, determine the location, identify the second household member to be interviewed, and find an arrangement to ensure privacy of the

[21] In addition, we also surveyed 93 nominated and ineligible operators. Of these, 52 nominees failed the literacy and numeracy tests, 16 were absent during the evaluation and 25 withdrew before treatment assignment. They are excluded from the analysis since they are arguably not comparable to the nominated and eligible women.

[22] For logistical reasons, the promotion program was implemented sequentially. This ensured that class sizes for the training were manageable and that all trainees were taught by the same trainers. The household surveys followed this pattern. I therefore present the time line in reference to the beginning of the promotion program in the factories. See Figure B.3 in the Online Appendix for a detailed time line. The first wave of surveys took place between June and December 2017, the second wave between December 2017 and August 2018.

[23] The sampling of lines and operators was implemented using simple randomization implemented by a computer script.

[24] These surveys were implemented between August 2017 and March 2018.

interviews.[25] The woman known to us from the factory was always interviewed by the female enumerator, and the other interviewed household member by the male enumerator. The surveys were not conducted if privacy could not be maintained.[26]

The survey response rates for the sampled women were high, above 90% in the first wave for the promotion analysis sample and above 80% for the role model analysis sample.[27] The response rate for the nominated operators dropped to 77% in wave 2 for the promotion analysis, compared to 91% of selected operators. In Section 4.4, I show that this attrition is not driving results. About 70% of both samples were found to be married and living with their husbands in the pre-surveys, who were then identified as the second respondent to be surveyed. Only for approximately 10% of respondents, other adult household members were targeted, primarily parents and siblings. For readability, I therefore use the terms "wife" and "husband" in the rest of the paper to refer to the women known to us from the factories and all second household members interviewed, respectively. Close to a fifth of respondents lived without another adult in the household, for example in factory dormitories.[28] Since I am interested in bargaining between household members, I exclude these individuals from one-person households from the main analysis.

3.3 Main outcome variables

For both the promotion and the role model analysis, I use the survey data to implement the analysis in three steps.[29] In the first step, I investigate whether the wives report working as a supervisor during the home surveys (defined as any garment sector position with supervisory or managerial duties) and any possible effect on their personal and household income in Bangladeshi Taka. The personal and household income variables include income from all economic activities as well as

[25] If the sampled woman was married and living with her husband in the same household, the husband was identified as the second respondent to be interviewed. If the sampled woman was living with other adults but not currently married, or married but not living with the spouse, the adult in the household that the respondent identified as the main decision-maker was identified as the second respondent. If the sampled woman lived alone or only with minor children, she alone was interviewed. When interviewing the promotion sample in the second wave, we aimed to interview the same second respondent as in the previous wave. Only if the circumstances of the sampled woman had changed, for example if she married between the surveys or the respondent in the previous wave had left the household, was another respondent interviewed. Throughout the project, the following definition of a household was used: "Someone is a member of your household if they have spent at least 6 months out of the last year living in the same house and eating from the same kitchen. If you share a house with other households or families, we are only interested in the primary household/family."

[26] The enumerator team was entirely separate from the team that conducted the promotion program and the surveys in the factory, though they were hired by the same field organization. At no point during the survey administration was the promotion program mentioned to the respondents. In the consent form, the surveys were explained to the respondents as aiming to understand "how families of workers in the garment industry live, and how the different members in the family interact with one another".

[27] See Table C.2 in the Online Appendix.

[28] Table C.3 in the Online Appendix shows the breakdown in detail.

[29] All variables are defined in Table C.4 in the Online Appendix.

transfers received from family or friends, and income from other sources (e.g. government programs or prize money). Monetary values are winsorized before being summed up.

The second step analyzes the effect on women's involvement in seven different decisions in the household. These dimensions capture decisions about the woman's daily autonomy, i.e. visiting a friend, taking a bus, and purchasing clothing and jewelry for herself. They also cover decisions which affect the entire household, i.e. regarding large household repairs and purchases of large appliances as well as decisions about the woman's career such as taking up work and accepting a promotion. Respondents were asked to describe who makes these decisions in their household in an open-ended question, which was then coded by enumerators. As a follow-up question, respondents were asked whether the decision-makers required permission from any other household members. For each decision, the two questions were recoded into one ordinal variable where a higher number indicates a more extensive involvement in decision-making. These range from zero, indicating that the woman is not involved in the decision, to four, which indicates that the woman decides alone without needing permission. I then compute a summary index of all seven decisions using inverse covariance weighting following Anderson (2008) and O'Brien (1984), taking care not to ascribe cardinal meaning to ordinal differences.

In the last step, I ask whether women are able to translate a possible increase in income and/or in their involvement in decision-making into changes in expenditures. The main outcomes in this step capture the share of income that the household spends on assignable goods for women, girls, men, and boys, as well as remittances. Women's and men's assignable goods expenditures include spending for these household members on 1) cosmetics, 2) clothing and footwear, 3) jewelry and accessories, 4) health and medical expenditures, and (only for men) 5) tobacco and alcohol.[30] For girls and boys respectively, assignable expenditures include 1) clothing and footwear and 2) educational expenditures. All these expenditures are winsorized, harmonized on the monthly level, summed up for each type of household member, divided by the household's total monthly income, and multiplied by 100.

Remittances are similarly expressed as a percentage of the household's monthly income. They include remittances to family or friends living outside the household in the last calendar month, including monetary and in-kind transfers. These are defined as the transfers to the sampled woman's friends and family plus transfers to the husband's friends and family, if the husband was the second respondent. Since about two-thirds of the sample are migrants (see next section), directing remittances according to one's preferences may be an important avenue of exerting bargaining power.

[30]Note that, in the survey, the questions for cosmetics referred to both women and girls, and men and boys. This was done because it was thought likely that cosmetics are shared between adults and their under-age household members of the same gender, such that these expenditures could not be identified separately.

Further to these main outcomes, I discuss results for some additional outcomes below.[31] As additional proxies of intra-household bargaining, these include the wife's recent experience of physical violence perpetrated by the husband against her, the couple's time use, and outcomes from two small economic games that I implemented as part of the survey. To further explore mechanisms, I also investigate other expenditures of the household and measures of the women's attitudes and self-beliefs.

3.4 Descriptive statistics

The typical woman in the samples, for both the promotion and the role model analysis, is in her mid-twenties and lives with her husband and one child in a nuclear family. Women in both samples are similar on a number of dimensions.[32] The women are on average about 26 years old and more than 80% are married. Nearly two-thirds of the women have migrated to Dhaka from their place of birth. On average, they have one child. Interestingly, more than half of respondents with children report that at least one child does not live in the household, but instead lives with relatives.[33] The women are also four to five years younger than their husbands. Despite this age gap, they only have about a third of a year less education than the husbands. They contribute slightly below half of the total household income.[34] It is noteworthy that two-thirds of all husbands also work in the garment industry.

The two samples differ in other aspects which indicate that the women who were nominated or selected for the promotion program come from a higher socioeconomic background and play a larger role in their households than women in the role model analysis sample. For example, 12% of women in the promotion analysis sample consider themselves the household head, compared with only 1% in the role model analysis sample. In addition, the former group has on average about two years of education more than the latter group. The households in the promotion analysis sample also report slightly higher household income, of about 23,500 Taka (roughly 280 USD at the time of the surveys), compared to about 21,000 Taka (roughly 260 USD) in the role model analysis sample.

These differences underline that the sample of selected and nominated women is certainly not representative of all women in the garment industry. I however posit that comparing selected

[31] All are defined in detail in Table C.4 in the Online Appendix.

[32] See the summary statistics in Table C.5 in the Online Appendix.

[33] Note that this is derived from the non-exposed operators in the role model analysis sample, since I don't have comparable data from the promotion analysis factory baseline.

[34] Note that we only collected individual income data for the wife and husband in the promotion analysis baseline, but total household income during the household surveys. For the promotion analysis baseline, I therefore approximate total household income as the sum of income of both husband and wife. This will only differ from the total household income variable used in Panel B if household members other than the husband and wife also contribute income.

and nominated women yields the policy parameter of interest for the analysis of women's promotions on the household since both groups fit the profile of candidates that factories would consider for a promotion in the absence of an intervention. Without any intervention, factories – as any profit-maximizing firm – would not choose supervisors at random, but would instead aim to award promotions based on expected supervisor performance and availability. As Uckat and Woodruff (2020) shows, factories may not always be well informed about all factors driving supervisor performance. However, we would expect them to choose female candidates for supervisory positions with higher than average skills, more experience and – given women's limited autonomy in Bangladesh – a supportive family.

3.5 Empirical strategy and supporting evidence

3.5.1 Promotion analysis

The selection process for the promotion program described in Section 3.1 allows me to compare outcomes of selected women to nominated runners-up who were not included in the program because the factory did not have enough vacancies available. Recall that, after the factories provided us with a ranked list of candidates fulfilling pre-set criteria, we conducted extensive screening of all nominees and excluded those who failed literacy and numeracy tests. Half of all factories were able to re-rank their candidates in the shortlist once after reviewing the diagnostic tests, whereas the shortlist for the remaining factories remained the same. Out of the operators in the final shortlists, only those with a rank that was better than the factory-specific cutoff were selected and participated in the promotion program. The nominated women who passed all diagnostic checks but ranked below the cutoff continued to work as production-line operators and represent the comparison group.

I argue that the assignment to the selected and the nominated groups is quasi-random because factories have limited ability to predict which women would be successful as a supervisor among the eligible women. The factories had historically nearly always promoted men, and therefore had large numbers of competent female line operators from which to choose new supervisors. Our extensive eligibility checks meant that only skilled and experienced line operators were considered for the program. While it might be easy for factories to exclude operators who would **not** make a good supervisor in their factories, it is much harder to decide the ranking among a sample of women who had **all** been judged to be suitable after this extensive screening. This argument is similar in spirit to the literature on microenterprises, recruitment and venture capitalism, which shows that humans are often inept at predicting which firms, workers or investments will be successful among an already select sample (McKenzie and Sansone, 2017; Hoffman et al., 2018; Nanda, 2016).

Three pieces of evidence support this strategy. First, the results from the selection experiment in Uckat and Woodruff (2020) show that the nominees' original rank – before a potential re-ranking

in the factories that participated in the selection experiment – is orthogonal to the results of their diagnostic tests. Only once the factories are presented with these screening results as part of the selection experiment do they re-rank the candidates on their skills, and especially their soft skills. I explain below how I take this potential selection effect in the half of the factories that were randomized into the selection experiment into account in the estimation.

Second, I find strong support for this empirical strategy when comparing the selected and the nominated group on observable characteristics.[35] The balance tests in Table 1 demonstrate that the selected and nominated groups are statistically indistinguishable on a wide range of observable characteristics.[36] Only two tests out of 34 reject equality at the 10% significance level using the conventional t-tests in column (5), and only one test rejects when using the randomization inference p-values in column (6).[37] This is fewer than one would expect to reject by chance if the null hypothesis is true. The selected women have about a year **less** experience in the garment industry, but they score about seven percentage points higher on the diagnostic literacy test than the nominated group. In addition, the normalized differences between the means of the nominated and selected groups in column (7) are all weakly smaller in absolute value than 0.30 and can therefore be considered well-balanced according to this sample-size free way of investigating balance in covariates, following Imbens (2015).[38]

Lastly, I conduct a test of joint orthogonality by investigating whether these 34 observable characteristics jointly predict selection in a linear regression. The p-value of the F-test is 0.87, which shows that selection is not determined by a wide range of baseline observable characteristics.[39]

I employ three different estimation approaches. I use OLS with control variables chosen by PDS Lasso in the main analysis, and employ a regression discontinuity design and a matching method in Section 4.4. The following is the main specification for outcome Y of each selected or nominated operator i in factory f, while pooling both household survey waves $w = \{1,2\}$:

$$Y_{ifw} = \alpha + \beta \cdot selected_{if} + g(X_{if}) + \varepsilon_{ifw} \tag{1}$$

[35] Note that, for all checks in this subsection, I only include women whose data is also used in the analysis, i.e. who were interviewed in at least one household survey wave and had another adult decision-maker in the household. This is to ensure that attrition is not driving an imbalance.

[36] See Table C.4 in the Online Appendix for variable definitions.

[37] I use the "ritest" Stata package to implement the randomization inference tests, see Heß (2017).

[38] The normalized difference is calculated as the difference in means between the two groups, divided by the square root of the average of the sample variances of the two groups.

[39] See Table C.6 in the Online Appendix. In this paper, to include the variables only defined for married respondents, I follow two steps. First, I set these variables to zero if they are missing and, second, I include dummy variables that indicate whether the variables are missing in the regression. I also do not find that covariates predict selection if I include all covariates but limit the sample to married respondents, or if I only include covariates which are defined for all respondents in the regression. The p-values for the F-statistic of the regression in these cases are 0.96 and 0.92, respectively.

selected is the covariate of interest for this intent-to-treat analysis and is defined as a dummy variable indicating whether the individual is an operator selected for the promotion program, which is zero for the nominated group. X is a vector of potential control variables. The vector consists of all 34 variables for which I tested balance on in Table 1 and their squared terms, in addition to factory, enumerator, and month dummy variables. By including all diagnostic scores as well as factory fixed effects, I account for a potential re-ranking on these scores by the factories participating in the selection experiment. The set of control variables to be included are selected using the PDS Lasso algorithm, using the data-driven penalty loadings for clustered standard errors suggested in Belloni et al. (2013, 2014a,b, 2016). If available, the baseline outcome is in the amelioration set and hence always included in the regression. Standard errors are clustered at the individual level.

The PDS Lasso algorithm achieves a parsimonious selection of control variables in two steps. It first implements the Lasso algorithm twice to select two sets of covariates from the X vector: one set which is predictive for the outcome variable Y and one set which is predictive for *selected*, the covariate of interest. In the second step, β is estimated using an ordinary least squares regression of Y on *selected* and the union of the two sets of covariates selected in the first step. As Belloni et al. (2013) show, this method performs well across a variety of methods, enhances efficiency, and leads to valid inference even with mistakes in variable selection.[40]

Since I am interested in intra-household decision-making, I limit the sample to those women who report having another adult decision-maker in the household. As shown in Section 3, this is the husband in the vast majority of cases. I compute sharpened q-values to correct for multiple hypotheses testing for all main outcome variables defined in Section 3 following Benjamini and Hochberg (1995) and Benjamini et al. (2006).

3.5.2 Role model analysis

I follow a similar empirical approach to analyze the potential role model effects of female supervisors. I compare outcomes of production line operators who have worked with the new female supervisors from the promotion program to outcomes of production line operators on other, male-supervised lines. I argue that the assignment of workers to production lines is largely determined by production requirements and can be considered quasi-random. As discussed in Section 2, production lines typically consist of 20-80 operators, depending on the type of garment produced. Each operator is responsible for one step in the production process at a work station (e.g. attaching the sleeve to a T-shirt), which differ in the skills required. According to discussions with an industrial engineer with substantial experience in several garment factories, the assignment of line operators to sewing lines is done by the management of the sewing department, typically line chiefs

[40] I use the Stata package "pdslasso" to implement the algorithm, see Ahrens et al. (2018).

or production managers. In this process, the most important consideration is to match operators to the work stations that they are skilled at (e.g. overlock machines are only operated by workers skilled in using this machine).

The management of the production floor typically prefers to keep the composition of well-functioning lines unchanged. However, there are some situations when it can be necessary to move operators for production reasons, for example to temporarily cover absences of operators on other lines, or when the style produced changes and with it the production requirements. Operators might also be moved to lines with a lower target if they struggle to meet targets or increase alteration rates. Line operators and supervisors are sometimes able to express their preferences for the assignment of operators to lines, but — barring any serious allegations of misconduct — the production requirements always take precedence in dealing with any potential requests. According to the industrial engineer, it would be especially unlikely to observe sorting of line operators towards lines of new supervisors in their trial period. During this trial period, supervisors are expected to prove themselves with the team they have been given, and any requests by themselves or operators to move to their lines would be unlikely to be granted.

I provide three pieces of evidence that support this strategy.[41] First, I show that the exposed and non-exposed operators are balanced on a number of observable characteristics in Table 2. Since there is no baseline data for the random operators, these characteristics are from the household surveys and more limited than the data available for the promotion analysis. Out of the 15 mean-equality tests in Table 2, one test — for assets brought into the marriage — rejects at the 10% significance level using the conventional p-values in column (5), and one additional test — for age — rejects when I use the randomization inference p-values in column (6). This is in line with what one would expect to happen by chance. However, the normalized differences in column (7) are small to moderate. None of them is greater than 0.16 in absolute value, much smaller than the cutoff used by Imbens (2015). Second, I show that all 15 variables do not jointly predict exposure to a female supervisor by estimating a linear regression of *exposed* on all 15 variables. The p-value of the overall F test of the regression is 0.41.[42]

Lastly, I investigate whether the lines of the operators who were exposed to the female su-

[41] As in Section 3.5.1, to take attrition into account, I only include women in these checks whose data is also used in the analysis, i.e. who were interviewed in the household survey and had another adult decision-maker in the household. In the ideal scenario, I would be able to use data of line operator movements to exclude sorting towards lines exposed to new female supervisors based on characteristics that determine the operators' household outcomes of interest. Unfortunately, the factories in this sample do not keep a reliable account of operator movements.

[42] See Table C.7 in the Online Appendix. As in Section 3.5.1, to include the variables only defined for married women, I follow two steps. First, I set these variables to zero if they are missing and, second, I include dummy variables that indicate whether the variables are missing in the regression. As Table C.7 in the appendix shows, I also do not find that covariates predict selection if I include all covariates but limit the sample to married respondents, or if I only include covariates which are defined for all respondents in the regression. The p-values for the F-statistic of the regression in these cases are 0.28 and 0.32, respectively.

pervisors are different from the non-exposed lines on observable characteristics measured before the start of the promotion program.[43] I use daily line-level production data we collected and harmonized from the factories for four important production outcomes: efficiency, alteration rates, absenteeism and product complexity. Before the start of the promotion program, the lines exposed to the new female supervisors had very similar production statistics as the non-exposed lines. These groups did not differ in their efficiency, their complexity of garments produced and their alteration rates. The exposed lines have only slightly lower absenteeism rates, about 0.34 percentage points lower than the non-exposed mean of 4.23%.

The main specification for the role model analysis is similar to the one I employ for the promotion analysis. For outcome Y of each exposed and non-exposed subordinate operator s in factory f,

$$Y_{sf} = \alpha + \beta \cdot exposed_{sf} + g(X_{sf}) + \varepsilon_{sf}. \tag{2}$$

exposed is the covariate of interest and defined as a dummy variable indicating whether the individual was working on a line to which a selected participant of the promotion program was assigned, where the individual's line code was collected at the factory follow-up for the promotion program. *exposed* is equal to zero if the individual was working on a line unrelated to the promotion program.[44] Note that this comparison is likely to be a conservative estimate, since the female supervisor can be expected to have been visible to operators working on neighboring non-exposed lines, too. X is a vector of potential control variables, which consists of all 15 variables for which I tested balance on in Table 1 and their squared terms, in addition to factory, enumerator and month dummy variables. The set of control variables to be included are selected using the PDS Lasso algorithm as explained in Section 3.5.1. Standard errors are clustered at the production-line level, following Abadie et al. (2017). I again limit the sample to those women who report having another adult decision-maker in the household.

4 The effects of a promotion

4.1 Promotions and income

I now present the impacts of the promotion program on selected women, estimated for the outcomes defined in Section 3.3 using Equation 1. The first step of the analysis confirms that the

[43] Again, I only use lines of operators who are actually included in the analysis, to account for attrition. See Table C.8 in the Online Appendix for these tests, and Online Appendix Table C.4 for definitions.

[44] This means that no selected participant for the promotion program was assigned to that line and no selected participant was found to be working on that line at the survey follow-up for the promotion program.

promotion program was indeed successful in advancing women's careers. As column (1) in Panel A of Table 3 shows, the women selected for the program were 24 percentage points more likely than the nominated group to have been officially promoted to supervisor after the conclusion of the promotion program. This result remains significant after accounting for multiple hypothesis testing, as the sharpened q-values in squared brackets show. The women also saw some increase in their personal and household income. The women's personal income rose by about 689 Taka, equivalent to about 7% of the income in the comparison group, as per column (2), and total household income increased by about 84 Taka (about 0.4% of the comparison group mean, see column 3).

However, for the women who did receive an official promotion, income increased more. When I employ an instrumental strategy and use the selected variable as an instrumental variable for being a supervisor in column (4),[45] I find that the personal income of officially promoted women increased by about 17% compared to the comparison group mean, though the estimate is noisy and remains insignificant. Recall, however, that all selected women were assigned to trial as supervisors for at least two months, and therefore had experience in a leadership position. A number of them were also still waiting to be officially promoted at the time of the household surveys. Of course, the official promotion is an endogenous outcome, and I therefore focus on the intent-to-treat effects of being selected for the promotion program for the main results.

4.2 Decision-making

The second step of the analysis suggests that the selected women's power in intra-household decision-making increases, at least initially. As column (2) in Panel B of Table 3 shows, the impact on the decision-making index is large at 0.42 SD in wave 1 of the household survey and significant at the 10% level. However, the effect is insignificant if I pool both waves (column 1) and negative but insignificant in wave 2 (column 3).[46] This drop in effect size after wave 1 seems to be partly driven by attrition, since the attriters between wave 1 and 2 in the comparison group have lower involvement in decision-making at factory baseline and in wave 1 than the comparison group respondents that remain in the panel.[47] Note that this pattern of attrition works against finding a positive effect on women's bargaining power in wave 2 and the pooled estimate.

The large effect on decision-making in wave 1 is mainly driven by women reporting more decision-making power about purchases of clothing for themselves, followed by decisions about

[45] This means that column (1) of Panel A in Table 3 shows the first stage.

[46] Note that I do not find a similar drop-off in effects for the other outcomes in Tables C.9 and C.10 in the Online Appendix, which show results separately for each household survey wave.

[47] The attriters between wave 1 and 2 in the comparison group have a mean decision-making index of -0.06 SD at factory baseline and -0.68 SD in wave 1. This compares to -0.01 SD at factory baseline and -0.44 SD in wave 1 for the comparison group respondents in the panel.

accepting a promotion for the women, house repairs and purchases of large appliances.[48] The affected domains therefore encompass both decisions that primarily affect the women themselves as well as important decisions that affect the entire household. In terms of changes in the decision-making progress, the selected women appear to have gained more power by becoming a party to decisions that they have not previously been privy to, as opposed to becoming an equal partner in joint decision-making or being able to make decisions on their own.[49]

4.3 Expenditures

The women selected for the promotion program are able to translate their increased involvement in intra-household decision-making into increased expenditures on female assignable goods and remittances. The households of the selected women spend 2.71 percentage points more of household income on women's goods and 1.22 percentage points more on girls' goods than the households of the nominated women, as shown in columns (1) and (2) in Panel C of Table 3. These effects are large at about 51% and 74% of the mean in the nominated group, respectively. Column (5) also shows a large effect on remittances, of 3.48 percentage points or 58% of the comparison group mean. The sharpened q-values in squared brackets support that these results remain significant even after accounting for multiple hypotheses testing, with the exception of the increase in girls' expenditures. In contrast, I find noisy null effects on expenditures on male assignable goods, with small, insignificant and —in the case of boys' expenditures—negative point estimates in columns (3) and (4).[50]

The magnitudes of the effects suggest that the selected women are not just able to appropriate any additional income they may earn thanks to the promotion income, but also that a reallocation of the income they would earn in the absence of the program is taking place. A back-of-the-envelope calculation shows that the intent-to-treat impact on female expenditures and remittances combined adds up to about 1,543 Taka.[51] This is far greater than the intent-to-treat increase in personal income of about 689 Taka in Table 3. This suggests that the promotion program leads to renewed bargaining over more than just the newly earned income.

The effect is positive for all components of women's assignable expenditures, though the effects are largest on expenditures on women's clothing and footwear as well as accessories and

[48] See Figure B.4 in the Online Appendix. Note that the outcome variables for the separate decisions again are indices, since I dichotomize the four different categories of involvement explained in Section 3 into dummy variables, and then create a standardized Anderson index.

[49] See Figure B.5 in the Online Appendix

[50] Table C.12 in the Online Appendix investigates whether other household expenditures change, such as on food, different type of durables, housing, savings and recreation. None of these expenditures is significantly affected, though the point estimates are sizeable at -0.8 to -0.9 percentage points for kitchen durables, furnishing durables and savings, and +0.8 percentage points for food.

[51] See Table C.11 in the Online Appendix.

jewelry.[52] This aligns with the findings above, where women reported the largest increase in decision-making power for purchases of clothing for themselves.[53] The increase in girls' expenditures is largely driven by spending on education, with an increase of 1 percentage point from a mean of 1.5% of household income.[54].

I find suggestive evidence that the higher remittances to the family are also masking higher expenditures on children.[55] The effect on remittances to the husband's family is more than three times as large as the effect on remittances to the wife's family, but it appears that these remittances are mostly benefitting children who live outside of the household. As mentioned in Section 3.4, in this context it is common for children to not live with their parents and to be cared for by other family members. Households with selected women where at least one child lives outside the household report higher remittances, and the interaction terms between being selected and having children living outside the household are large though insignificant, at 3.6 percentage points.[56]

It is also noteworthy that there are several outcomes which are not affected by the promotion program.[57] I do not find an impact on the wives' or the husbands' likelihood of working or their time use. Conditional on working, there is some indication that the selected women work around a quarter of an hour longer and sleep shorter by the same amount on the last workday, but these effects are small in economic terms. Women also do not report having experienced more domestic violence, captured by the respondents inputting on the tablet themselves whether they have been beaten or slapped by the other respondent in the past five months or ever.[58] Similarly, the outcomes of two small economic games that I implemented as part of the surveys do not appear to be affected. These were inspired by Almås et al. (2018) and captured whether respondents were willing to pay

[52] See Figure B.6 in the Online Appendix.

[53] When comparing the distributions of these outcomes in the selected and nominated group in Figure B.7 in the Online Appendix, I find that the overall effect is concentrated in the upper half of the distribution, though the effect on clothing expenditures is clearly affecting the entire distribution. It is possible that some of the effects on clothing and accessories expenditures are driven by a need for the selected women to look more professional in their new supervisor position. I posit that the size of the effects over time makes this less likely. It is arguably more likely that the women selected for the promotion program need to invest in a stock of new clothing when starting their new position, which would suggest a larger effect early on. As Tables C.9 and C.10 in the Online Appendix show, the coefficient in the second wave (3.02 percentage points) is more than a third larger than the effect in the first wave (1.92 percentage points). This shows that the households of the selected women continued to spend a large income share on women's assignable expenditures even eight months after the beginning of the promotion program, which is less likely to be driven by job requirements.

[54] See Figure B.6 in the Online Appendix

[55] See Table C.13 in the Online Appendix.

[56] I do not find that the promotion program led the selected group to send their children to live with relatives, when I investigate the dates that children started living outside the household collected during the surveys.

[57] See Tables C.15 and C.14 in the Online Appendix for results, and Table C.4 for variable definitions.

[58] The recall period of five months was chosen to coincide with the time since the start of the promotion program during wave 1. The comparison group mean of 30% of women reporting ever having been slapped or beaten is in line with the incidence of domestic violence that Heath (2014) finds in Bangladesh. The paper reports that 37.4% of married women who work for pay have ever been beaten by their husbands.

to either hide money from their spouses (in wave 1) or whether to control money themselves (in wave 2).

I also investigate possible heterogeneity of effects along two dimensions that have been suggested as important in the intra-household bargaining literature, namely women's initial bargaining power and women starting to earn more than the husband.[59] I am underpowered to identify interaction terms between the selected variable and the heterogeneity variables, but the sizeable coefficients provide suggestive evidence that the increase in decision-making and female assignable expenditures is larger for selected women with above median initial decision-making involvement. In contrast, the selected women who started earning more than their husbands between factory baseline and household surveys appear to spend less on female expenditures and remittances. This is in line with the results in Bertrand et al. (2015), which found that US couples in which a woman earns more than her husband are less satisfied with their marriage, more likely to divorce and more likely to have a higher gender gap in non-market work.

4.4 Robustness checks

The large positive effects on expenditures on women's assignable goods and remittances are robust to different estimation approaches, placebo tests and checks for attrition, as well as different specifications, variable definitions and data sources, though the impacts on women's involvement in decision-making in wave 1 and girls' expenditures are somewhat more sensitive to those checks. I also demonstrate that the effects are not mainly driven by the training that was delivered as part of the promotion program.

I implement a regression discontinuity design (RDD) relying on the factory rankings of candidates[60] as well as a matching approach[61] as robustness checks. Figure 1 compares the coefficients between the PDS Lasso results and these two different approaches for the impacted variables, where the decision-making index is expressed in tenths of a standard deviation for exposi-

[59] Results are shown in Tables C.16 and C.17 in the Online Appendix.

[60] I use the ranked shortlist of operators provided by each factory after removal of any ineligible candidates, as explained in Section 3.1. Recall that only those operators with a rank better than the factory-specific cutoff were assigned to the program. Since factories nominated different numbers of operators, I scale the rank of operators by the total number of operators nominated in each factory to make the ranks comparable across factories. I use the distance of this scaled rank variable from the factory-specific cutoff as the running variable. I determine the optimal bandwidth following Imbens and Kalyanaraman (2012) for each outcome variable. Using the observations within this bandwidth, I then allow for a linear function of the running variable separately on either side of the cutoff when estimating the effect of being selected for the promotion program. Standard errors are clustered at the individual level.

[61] I implement the nearest-neighbor matching estimator suggested by Abadie et al. (2004), with one-to-one matching with replacement and using the matrix of the inverse sample standard errors of the matching variables as weights in the matching. I use all balance variables in Table 1, as well as all factory, enumerator and month dummies as matching variables. To include balance variables which are missing for some observations, I set these to zero if they are missing and also include indicators if they are missing in the matching.

tion.[62] Both the RDD and the matching approach confirm the effects on expenditures on women's assignable goods and remittances, despite the low statistical power of the RDD approach.[63] The matching procedure also confirms the effects on the decision-making index in wave 1 and girls' expenditures, though the RDD coefficients are small and insignificant for these two variables.

I further implement a placebo test by comparing outcomes of the women in the top half of the selected group (who I define to receive the *placebo* treatment) to outcomes of women in the bottom half of the selected group.[64] This means that I am now only comparing women who were participants of the promotion program. The placebo coefficients are all small and insignificant. These null results support the claims of the empirical strategy that (1) the ranking of eligible women in the shortlist is orthogonal to the outcomes of interest, and that (2) the cutoff which separates the selected from the non-selected is the relevant margin of interest.

As explained in Section 3.2, there was some differential attrition between the selected and the nominated group in the second wave of the household survey, for which I present two checks. The balance checks in Table 1 presented earlier only include the respondents whose responses are included in the analysis, and therefore show that the selected and the nominated group remain comparable even after taking attrition into account. Furthermore, bounds following Lee (2009) in Table C.21 confirm the main effects.[65] For the pooled estimates and the estimates only using data from wave 1, the bounds do not include zero for the outcomes I investigate. Also in wave 2, the bounds confirm positive effects on being a supervisor, female expenditures and remittances, though the higher attrition means that the bounds for the decision-making index include zero.

The Online Appendix shows several additional robustness checks.[66] Different data sources confirm the main results. Husbands of selected women also report higher promotions for their wives and higher expenditures on women's expenditures and remittances (though no impacts on the women's decision-making and girls' expenditures).[67] Furthermore, the high-frequency phone

[62] Tables C.18 and C.19 in the Online Appendix present the estimates for all main outcomes for both approaches.

[63] See, for example, Deke and Dragoset (2012) and Schochet (2008) for a discussion of the lower power of regression discontinuity designs.

[64] I create the placebo treatment as follows. I only keep the women who were selected for the promotion program. For each factory ranking, I then assign the selected women who are in the top half of the ranking to the placebo treatment, and the bottom half of the selected women to the placebo control. For example, imagine a factory had 15 women in the shortlist after excluding ineligible women, and ten of these women were selected for the promotion training, while the other five are the non-selected nominees. I drop the non-selected nominees for this placebo test and assign the five selected women with the top rank in the shortlist to the placebo treatment and the remaining five selected women in the shortlist to the placebo control. See Table C.20 in the Appendix for results.

[65] The OLS estimates in Table C.21 in the Online Appendix are from an OLS regression with no controls where the sample is restricted to respondents who are married at baseline and do not live alone, except for the outcome capturing expenditures on girls for which the sample in addition only includes those who have had children at baseline. The bounds are calculated for these OLS estimates and tightened based on whether respondents were married at baseline.

[66] See Tables C.22 to C.26 in the Online Appendix.

[67] Note that I estimate Equation 1 with the husbands' data but use the wives' set of potential control variables for the PDS Lasso algorithm as in Section 4. Also note that some husbands were unexpectedly unavailable at the time of

surveys with the women confirm the positive impacts on women's involvement in decision-making, female expenditures and remittances.[68] The results for women's expenditures and remittances are also robust to different OLS and PDS specifications, though I lose significance in some instances, whereas the impacts on the decision-making index in Wave 1 and girls' assignable expenditures are somewhat more sensitive to specifications. Turning to different outcome variable transformations, the coefficients remain sizeable when I take the inverse hyperbolic sine transformation of the expenditures in units of Taka, though they are all insignificant. Since the inverse hyperbolic sine is a transformation which compresses the distribution similar to a natural logarithm, this again suggests that the effect is concentrated in the upper half of the distribution. The results are also not primarily driven by the trainings offered as part of the promotion program. The impacts remain of similar magnitude for the sub-sample of factories that were not assigned to the selection experiment (except for the decision-making outcome), which shows that the re-rankings of shortlisted candidates as part of the selection experiment are not explaining the results. The training offered to the selected women in soft skills only or hard and soft skills is also not the main driver of the changes in intra-household outcomes, with interaction terms that are insignificant in all but one case.

4.5 Mechanisms

Three pieces of evidence support that the observed effects are not primarily due to Marshallian income effects. First, the magnitudes of the effects suggest that the additional expenditures on female assignable goods and remittances are much larger than the additional income the selected women earn. As mentioned above, a back-of-the-envelope calculation shows that the impact on female expenditures and remittances combined adds up to about 1,543 Taka, which is more than two times larger than the increase in personal income of about 689 Taka.

Second, the null effects on household expenditures on men's and boys' assignable goods shown in Table 3 make a pure income effect less likely, though the estimates are noisy. The insignificant effect on men's expenditures as a share of household income is only an eighth of the significant effect on women's expenditures of 2.71 percentage points. And while girls' expenditures increase significantly by 1.22 percentage points, the coefficient for the share spent on boys' goods is noisy, small and negative. A Marshallian income effect resulting from the woman's wage

the survey or refused to be surveyed, such that the number of observations is slightly smaller for husbands than for the wives.

[68] I estimate Equation 1 with the same set of potential control variables, but include survey round fixed effects instead of month fixed effects in the algorithm. For time reasons, the high-frequency surveys asked about assignable goods expenditures for women and girls (and men and boys) combined, and only included questions about remittances to the wife's family (not the husband's). It also did not include questions about income, which is why the expenditure outcomes are expressed in Taka per month.

increase would ease the household's budget constraint, increase the set of feasible consumption allocations and could affect the demand for all goods consumed in the household. Though the income elasticity could of course differ between goods, one would by definition expect a positive income elasticity for normal goods. The much larger and significant effects on female compared to the small, noisy, and insignificant effects on male good expenditures provide a further suggestion that a re-allocation of the household's budget towards female expenditures is taking place, rather than a Marshallian income effect.

As a third piece of evidence, subgroup analyzes in Table 4 support the limited role of an income effect. Columns (1) to (3) show that the impacts on female expenditures and remittances remain large even for women who had not yet been officially promoted with an income increase at the time of the survey, but who had been in a supervisory position as part of the promotion program and who may have still been waiting for a promotion. For this group, an income effect is excluded by definition and the large effects shown in Columns (1) to (3) in Table 4 further support that a reallocation is taking place. As an aside, I also do not find any effects on the expenditures of unmarried women who live in one-person households, for example in factory dormitories (See columns (4) to (5) of Table 4). For this subsample, intra-household bargaining is excluded by definition, but any possible Marshallian income effects will still be at play. Since the number of observations is small, I am mainly interested in the direction and size of effects. Table 4 shows a very small positive effect on women's expenditures of 0.35 percentage points (3% of the comparison mean), and a negative effect on remittances of -3.74 percentage points (about 19% of the comparison mean).[69] Taken together, these three pieces of evidence strongly support the argument that a re-allocation of expenditures towards female goods and remittances is taking place.

There is some evidence that the promotion effect operates by improving the selected women's attitudes and beliefs about themselves. Table 5 shows the results for several different measures of attitudes and beliefs, as well as an overall index in column (1).[70] I find positive point estimates for women's confidence, their involvement in negotiation, gender attitudes and their aspirations, though none of these are individually significant. The summary index of all these outcomes is positive and significant at the 10% significance level. While this is not conclusive evidence, these results are consistent with the leadership position improving the selected women's self-beliefs and attitudes.

[69]Note that 47% of the selected women living in one-person households have been officially promoted with an income increase at the time of the household surveys, so that this lack of effect cannot be attributed to a lack of income increase.

[70]All variables are defined in Table C.4 in the Online Appendix.

4.6 Summary

The results in this section have shown that women's quasi-random participation in the promotion program enabled them to gain decision-making power in the household, at least initially, which the women were then able to translate into higher expenditures on women's and girls' assignable goods as well as on remittances. The much larger impact on expenditures as compared to income suggests that women are not only able to appropriate any additional income they may earn because of the promotion, but also that income the household would have earned in the absence of the program is reallocated towards female expenditures.

5 Role model effects

The previous section provided encouraging evidence for the many policy approaches that aim to increase women's participation in leadership positions. However, since a large share of the workforce is made up of non-managerial positions (in the garment industry and otherwise), promotions to a management position will usually only affect a small share of the female population. In this section, I therefore analyze whether there are amplifying indirect effects of female leadership on the non-managerial female workforce.

5.1 Income, Decision-making, and Expenditures

None of the exposed women are working as a supervisor themselves, and their reported increase in personal income is small at 2.5% of the mean of the comparison group (though significant at the 10% level, see Panel A of Table 6). Despite no promotion and little increase in income, the women working with the new female supervisors report having more say in decision-making processes in the household. Panel A, Column (3) in Table 6 shows that the effect on the decision-making index is large at 0.36 SD, and highly significant. It also is robust to multiple hypotheses testing, with a sharpened q-value of 0.00. The effect is largest at more than 0.2 SD for the decisions for the woman to take a bus to run an errand, and on purchasing clothing and jewelry for the woman, though the point estimates for all seven different decisions are positive.[71] It hence appears that the women exposed to new female supervisors primarily gain more autonomy in their mobility and spending decisions. When analysing how the decision-making process changes, I find that the exposed women are both more likely to be involved in the decision-making process and to be the sole decision-maker, whereas joint decision-making insignificantly decreases.[72]

[71] See Figure B.8 in the Online Appendix.

[72] See Figure B.9 in the Online Appendix. This analysis also underlines that the women working in the Bangladeshi garment industry are already highly involved in decision-making in their households. In the non-exposed group, for

Panel B of Table 6 shows that, instead of the increase in female expenditures observed for the promoted women, the exposed women report a significant and large reduction of expenditures on men's assignable goods of about 23% of the comparison group mean. While the share of income spent on other expenditure categories is also decreasing, the decline for men's expenditures is the only significant coefficient and the largest in terms of the comparison group mean.[73] The reduction in men's expenditures is primarily driven by a decrease in spending on men's clothing and health care.[74]

There are several other relevant outcomes which are not affected by the exposure to the new female managers.[75] I do not find an impact on the wives' or the husbands' likelihood of working, intimate partner violence (though point estimates may suggest some increase), outcomes from the economic games, and little effects on time use of the spouses. There is some indication that the wives decrease and the husbands increase their time spent on chores on non-workdays by 10-15 minutes. However, these effects are small in economic terms, especially considering that the non-exposed women on average spend more than 4.5 hours on chores on non-workdays, compared to only about 2 hours for the husbands.[76]

These results show that the exposure to female supervisors allowed women to gain more say in intra-household decision-making, especially about their own autonomy. There are some suggestions that the exposed women are able to translate this increased bargaining power into reduced spending on men's assignable goods and a small shift of chores from wives to husbands, though these last results are only tentative.

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all seven questions about decision-making, at least 85% of women report being involved in decision-making. Nevertheless, their autonomy is low: only 10% of non-exposed women report that they on their own can make decisions about them visiting a friend. 8% of non-exposed women can decide alone whether they want to take a bus to run an errand; and 17% decide on their own about buying clothes and jewelry for themselves.

[73] Table C.27 in the Online Appendix confirms that the reduction in men's expenditures is largest also as a fraction of the comparison group mean when expressed in monetary units (Taka), though the negative coefficients on women's expenditures and remittances in units of Taka are also sizeable and significant.

[74] See Figure B.10 in the Online Appendix. Table C.28 in the Online Appendix investigates whether expenditures on other goods change, such as food, durables and housing. I observe a small and significant reduction in expenditures on recreation of a quarter of a percentage point, and a significant increase in expenditures on durables such as textiles and furniture of half a percentage point.

[75] See Tables C.29 and C.30 in the Online Appendix.

[76] I also investigate heterogeneity of effects by variables that have been found important in the literature, and find that exposed women who brought assets into the marriage or who earn more than their husbands have lower expenditures on women's assignable goods (Tables C.31 and C.32 in the Online Appendix), in line with the results from the promotion analysis.

5.2 Robustness checks

I implement the nearest-neighbor matching estimator suggested by Abadie et al. (2004) for the exposed and non-exposed comparison.[77] The results in Panel A of Figure 2 confirm the positive and significant effect on women's involvement in decision-making, with an estimate of 0.24 SD. This is a third smaller than the estimate I obtain using PDS Lasso, of 0.36 SD. I also find additional evidence for the reduction in spending on men's assignable expenditures, with a highly significant coefficient of -1.17 percentage points that is very similar to the PDS Lasso estimate of -1.06.[78]

To investigate whether the results could be driven by operators sorting to the lines of the new female supervisors, I estimate the effects on the main outcomes for the subsample of operators who joined the lines exposed to the new female supervisors before the start of the promotion program, comparing them to the previous sample of non-exposed operators. I use the data from the factory follow-up for Uckat and Woodruff (2020) to determine this condition. Panel B of Figure 2 shows that the results are not due to operator sorting. The impact on the decision-making index of 0.29 SD for this subsample is highly significant and similar to the result for the whole sample of exposed operators of 0.36 SD. The impact on men's expenditures is again negative, though smaller and insignificant at -0.35 percentage points.[79]

The Online Appendix shows several additional robustness checks.[80] The large positive impact on women's decision-making and the negative impact on men's expenditures are robust to different OLS specifications, a larger set of potential control variables for the PDS Lasso algorithm and a inverse hyperbolic sine transformation. The negative effect on men's expenditures is also found when using the husbands' data (though the coefficient is smaller and insignificant at -0.69 percentage points), and the husbands report a very small increase in women's involvement in decision-making index of 0.02 SD.[81]

5.3 Mechanisms

The evidence shown in the last subsection makes it unlikely that the increase in exposed women's decision-making power and the negative effect on men's expenditures is driven by an income effect.

[77] I follow the strategy described in Section 4.4, and match on all variables for which I test balance in Table 2, in addition to factory, enumerator and month dummy variables.

[78] Table C.33 in the Online Appendix shows the matching results for all main outcomes.

[79] Table C.34 in the Online Appendix presents the results for this subsample for all main outcomes. Note that due to data limitations I am unable to impose the condition of having been on the line before trial start on the comparison group and that the subsample of the exposed group is therefore likely more experienced, which may explain the larger impact on income shown in the table.

[80] See Tables C.35 and C.36.

[81] I do not find a positive impact on women's decision-making when I use data from the same sample of exposed and non-exposed operators at factory follow-up (about three months after exposure started), when women's involvement in four different spheres of decision-making was enumerated. The coefficient is negative at -0.12 SD and insignificant.

The effect on women's personal income is positive and small at only about 225 Taka or 2% of the comparison group mean. In addition, for normal goods, any income effect would imply a (weak) increase in expenditures if income increases. This is not what I observe with the significant decrease of men's expenditures in Table 6.

I further investigate whether exposure to new female supervisors could have affected the attitudes or beliefs of the women working under these new female managers, see Table 7. The effects on the overall index and all individual components are small, except for the women's negotiation behavior. For this variable, I find a positive effect of 0.17 SD, with a marginally insignificant p-value of 0.11. This outcome is an index derived from vignettes that present the women with a specific situation where a female character meets resistance from her husband against her plans (e.g. going to evening school to earn a school-leaving certificate). The respondent is then asked to describe how the character should respond to the husband to achieve her goals for each vignette, which is coded according to its sophistication and summarized in a standardized index following Anderson (2008) and O'Brien (1984). I interpret this outcome as capturing the women's willingness and ability to put herself forward in intra-household negotiations. Though this evidence can only be considered tentative, the large point estimate for this outcome suggests that the role model of a female supervisor in the workplace might have given the exposed women the ability or the confidence to get more involved in decision-making in the household.

6 Conclusion

This paper exploited a quasi-experiment in the Bangladeshi garment industry to analyze the direct and indirect impact of women's promotions on bargaining in the household. Women who participated in the promotion program, when compared to the short-listed runners-up, were more involved in decision-making in the household, at least initially. They were also able to translate this increased decision-making power into an increase in expenditures on assignable goods for women and girls as well as on remittances to family members who take care of the couple's children. The magnitudes of the effects suggest that the participation in the promotion program allowed women both to appropriate any additional income they may have earned as a result of the promotion as well as to reallocate income they would have earned in the absence of the program towards their own purposes.

These direct effects are amplified by indirect effects on women working under the new female managers, as compared to women working on male-supervised comparison lines. Women exposed to a female role model also report being more involved in decision-making in the household, and there are some suggestions that they can translate this into a reallocation of expenditures away from male goods. Overall, I find suggestive evidence that the findings for both the direct and indirect

effects are driven by women gaining the confidence and skills to get involved in bargaining in the household.

Viewed together, these results demonstrate that there are potential complementarities between women's position in the workplace and in the household. While it will be important to replicate these results in other contexts, this study suggests that policies to promote female career advancement have the potential to address inequities in the household at the same time. Importantly, the amplifying effects of a female role model in the workplace are potentially relevant for a much larger number of women than the direct effects of promotions, which will usually only affect a small share of the female working population.

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Tables

Table 1: Balance of the female workers selected for the promotion program and the nominated runners-up

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Nominated		**Selected**		p-value	Norm-
	N	(Mean)	N	(Mean)	p-value	(RI)	diff
Panel A: Variables from baseline survey							
Age	38	26.18	160	25.71	0.45	0.47	−0.13
Married	38	0.89	160	0.83	0.34	0.41	−0.18
Household members	38	3.32	160	3.26	0.85	0.91	−0.03
Household head	38	0.05	160	0.14	0.15	0.29	0.29
Migrant	38	0.68	160	0.66	0.74	0.82	−0.06
Education years	38	8.00	160	8.41	0.19	0.16	0.22
Nr Children	35	1.06	145	1.03	0.88	0.87	−0.03
Combined income of spouses	34	23408.41	133	23686.89	0.83	0.80	0.04
Spousal education difference	34	0.26	133	−0.46	0.22	0.30	−0.22
Age gap of spouses	34	−4.97	132	−4.55	0.43	0.41	0.15
Wife's spousal income share	34	0.45	133	0.47	0.41	0.36	0.18
Decision-making	38	−0.13	160	−0.18	0.79	0.77	−0.05
Supportive family	38	0.09	160	0.06	0.89	0.90	−0.02
Experience in garment sector	38	6.97	160	5.91	0.08*	0.12	−0.30
Exposure to female SV	38	0.63	160	0.54	0.33	0.31	−0.18
Internal locus of control	38	0.20	160	0.08	0.50	0.44	−0.12
Grit	38	−0.05	160	0.13	0.28	0.21	0.20
Self-efficacy	38	−0.06	160	0.06	0.51	0.51	0.11
Emotional competence	38	0.14	160	0.11	0.86	0.86	−0.03
Multi-factor Leadership	38	0.08	160	0.08	0.97	0.97	−0.01
Life satisfaction	38	7.55	160	7.60	0.89	0.92	0.03
Self-assessment	38	0.03	160	0.14	0.76	0.70	0.06
Ambition	38	2.16	160	2.20	0.84	0.86	0.04
Panel B: Variables from diagnostic tests before selection							
Literacy score	38	0.51	160	0.58	0.09*	0.04**	0.29
Numeracy score	38	0.45	160	0.47	0.62	0.60	0.08
Processing speed score	38	0.34	160	0.33	0.75	0.72	−0.06
Garment knowledge score	38	0.56	160	0.54	0.28	0.46	−0.21
Family support score	38	0.69	160	0.72	0.39	0.32	0.16
Interest score	38	0.72	160	0.74	0.62	0.59	0.09
Confidence score	38	0.73	160	0.73	0.96	1.00	−0.01
Panel C: Time-invariant variables from household surveys							
Muslim	38	0.97	160	0.97	0.87	1.00	−0.03
Socioeconomic background	38	−0.10	160	−0.01	0.65	0.72	0.09
Marriage duration	36	8.72	149	8.13	0.51	0.64	−0.13
Brought assets in marriage	36	0.31	149	0.34	0.73	0.67	0.06

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, short-listed runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Column (5) shows the p-value of a conventional t-test of equality of the group means in columns (2) and (4). Column (6) shows the p-value of the t-test implemented using randomisation inference, with 5000 replications of treatment assignment that maintain the share of selected women within factory strata. Column (7) shows the normalised difference of the group means in columns (2) and (4), calculated as the difference in means between the two groups divided by the square root of the average of the sample variances of the two groups, following Imbens (2015). * p<0.1, ** p<0.05, *** p<0.01

Table 2: Exposure analysis: Balance of the female workers exposed to female managers, and the non-exposed female workers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Non-exposed		**Exposed**		p-value	Norm-
	N	(Mean)	N	(Mean)	p-value	(RI)	diff
Age	238	26.20	250	26.91	0.10	0.09*	0.15
Married	238	0.89	250	0.92	0.21	0.19	0.11
Household members	238	3.09	250	3.21	0.39	0.38	0.08
Migrant	238	0.63	250	0.58	0.22	0.32	−0.11
Education years	238	6.08	250	5.94	0.56	0.56	−0.05
Nr Children	224	1.16	239	1.24	0.25	0.22	0.11
Household income	238	21166.26	250	20964.74	0.76	0.75	−0.03
Age gap of spouses	208	−5.24	219	−5.22	0.96	0.96	0.00
Muslim	238	1.00	250	0.98	0.20	0.34	−0.12
Socioeconomic background	238	0.08	250	−0.06	0.13	0.12	−0.14
Marriage duration	224	9.50	239	10.02	0.29	0.26	0.10
Brought assets in marriage	224	0.23	239	0.17	0.08*	0.07*	−0.16
Household head	238	0.01	250	0.03	0.23	0.32	0.11
Spousal education difference	208	−0.35	219	−0.29	0.86	0.86	0.02
Wife's HH income share	238	0.48	250	0.48	0.97	0.97	0.00

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Column (5) shows the p-value of a conventional t-test of equality of the group means in columns (2) and (4). Column (6) shows the p-value of the t-test implemented using randomisation inference, with 5000 replications of treatment assignment that maintain the share of exposed women within factory strata. Column (7) shows the normalised difference of the group means in columns (2) and (4), calculated as the difference in means between the two groups divided by the square root of the average of the sample variances of the two groups, following Imbens (2015). * p<0.1, ** p<0.05, *** p<0.01

Table 3: Main results for women's career and income, decision-making power, and expenditures

Panel A: Effects on women's promotions and income (Pooled waves)

	(1)	(2)	(3)	(4) IV
	Supervisor (Dummy)	Personal income (Taka)	Household income (Taka)	Personal income (Taka)
selected	0.24***	688.96	83.99	
	(0.06)	(487.32)	(1350.47)	
	[0.00]	[0.26]	[0.85]	
supervisor				1695.02
				(2079.10)
				[0.46]
N	363	363	363	363
Nominated mean	0.09	9883.31	23758.90	9883.31
Nominated SD	0.29	3203.56	7963.02	3203.56

Panel B: Effects on women's decision-making power

	Decision-making (Index)		
	Pooled waves	Wave 1	Wave 2
selected	0.11	0.42*	−0.12
	(0.15)	(0.24)	(0.11)
	[0.46]	[0.17]	[0.37]
N	363	181	182
Nominated mean	−0.16	−0.48	0.22
Nominated SD	1.13	1.38	0.58

Panel C: Effects on assignable goods expenditures and remittances (Pooled waves)

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	2.71**	1.22**	0.32	−0.37	3.48**
	(1.07)	(0.62)	(0.57)	(0.72)	(1.40)
	[0.05]	[0.12]	[0.50]	[0.50]	[0.05]
N	363	146	363	161	362
Nominated mean	5.32	1.65	3.92	2.69	6.00
Nominated SD	4.48	2.41	3.99	3.65	8.63

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses, sharpened q-values in squared brackets. Controls chosen using pdslasso (ivlasso for Panel A, Column 4) from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies. Where available, the baseline outcome is included in the amelioration set. In Panel A, Column 4 Supervisor is being instrumented by selected, for which the first stage is shown in Panel A, Column 1. The sample in Panel C, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table 4: Testing for an income effect

	Women not yet officially promoted			Single women	
	(1) Women's expenditures	(2) Girls' expenditures	(3) Remittances	(4) Women's expenditures	(5) Remittances
	(All outcomes as % in household income)				
selected	3.59**	0.92	3.12*	0.35	−3.74
	(1.42)	(0.85)	(1.69)	(2.09)	(6.86)
N	256	103	255	49	49
Nominated mean	5.49	1.50	6.29	11.58	19.32
Nominated SD	4.65	1.92	8.90	14.70	20.45

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies. Where available, the baseline outcome is included in the amelioration set. The sample in Columns 1-3 is limited to those respondent who had not yet been officially promoted at the time of the household surveys. The sample in Columns 4-5 is limited to those respondent who are unmarried with a household size of 1.

Table 5: Effects on attitudes and beliefs

	(1) Overall self-beliefs (Index)	(2) Confidence (Index)	(3) Negotiating (Index)	(4) Gender attitudes (Index)	(5) Aspirations (Dummy)
selected	0.22*	0.15	0.13	0.07	0.07
	(0.13)	(0.13)	(0.11)	(0.09)	(0.07)
N	363	363	363	363	363
Nominated mean	−0.17	−0.12	−0.10	0.04	0.49
Nominated SD	1.14	1.11	0.95	0.74	0.50

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies.

Table 6: Role model effects: Main results on income, decision-making power and expenditures

Panel A: Effects on income and decision-making power

	(1) Personal income (Taka)	(2) Household income (Taka)	(3) Decision-making (Index)
exposed	235.54 **	−45.71	0.36***
	(117.85)	(631.78)	(0.09)
	[0.10]	[0.56]	[0.00]
N	488	488	488
Non-exposed mean	9387.21	21166.26	−0.26
Non-exposed SD	2863.31	7325.44	1.08

Panel B: Effects on assignable goods expenditures and remittances

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
exposed	−0.89	−0.19	−1.06 **	−0.06	−1.39
	(0.74)	(0.37)	(0.44)	(0.37)	(1.10)
	[0.29]	[0.56]	[0.06]	[0.56]	[0.29]
N	488	255	488	262	483
Non-exposed mean	6.48	2.41	4.69	2.35	8.49
Non-exposed SD	6.63	2.50	5.25	2.41	11.81

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. Sharpened q-values in squared brackets. Controls chosen using pdslasso from demographic controls and bargaining measures, their squares, and factory, enumerator and month dummies. The estimation in Panel A, Column 2 excludes the household income variable from the set of possible controls. The sample in Panel B, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table 7: Role model analysis: Effects on attitudes and beliefs

	(1) Overall self-beliefs (Index)	(2) Confidence (Index)	(3) Negotiating (Index)	(4) Gender attitudes (Index)	(5) Aspirations (Dummy)
exposed	−0.03	0.00	0.17	−0.05	0.03
	(0.13)	(0.11)	(0.11)	(0.09)	(0.05)
N	488	488	488	488	488
Non-exposed mean	0.04	0.09	0.02	0.10	0.50
Non-exposed SD	1.23	0.84	1.04	0.93	0.50

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies.

Figures

Figure 1: Comparison of estimates using three different estimation approaches

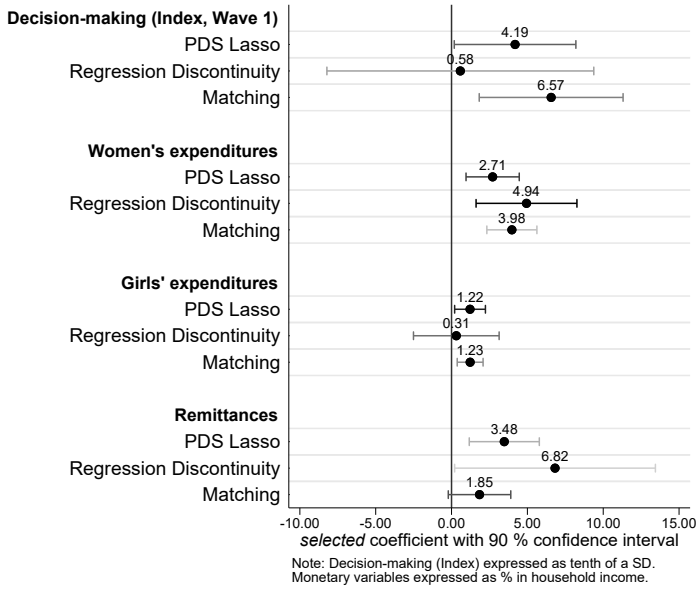
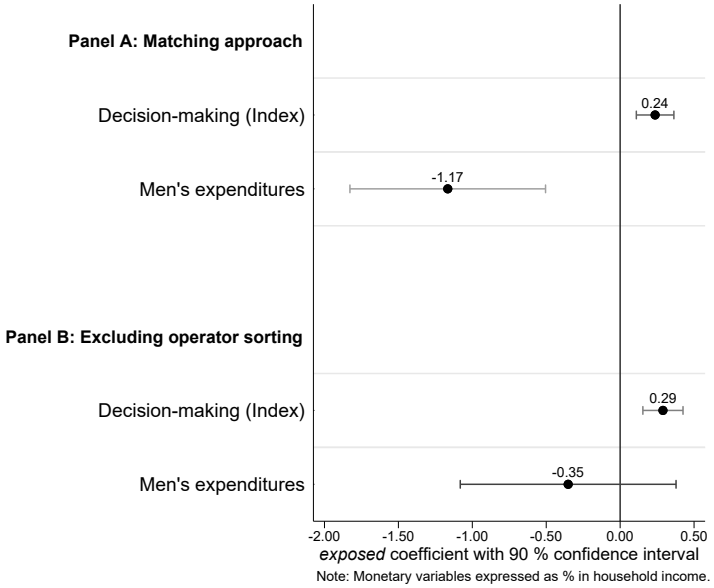


Figure 2: Role model effects: Robustness to matching approach and excluding operator sorting



Online Appendix

A Description of the training modules

The training consisted of one soft-skills component of four days, and one hard-skills component of five days. The soft skills training aimed to equip female operators with the non-cognitive skills to be successful as line supervisors. It was developed in cooperation with a Bangladeshi psychologist and covered the following topics:

- Stress management, self-awareness and setting boundaries
- Assertive communications and confidence
- Leadership and worker management skills

The hard-skills component aimed to give female operators the technical skills required for a line supervisor. It was developed in cooperation with Bangladeshi industrial engineers experienced in the garment industry and covered the following topics:

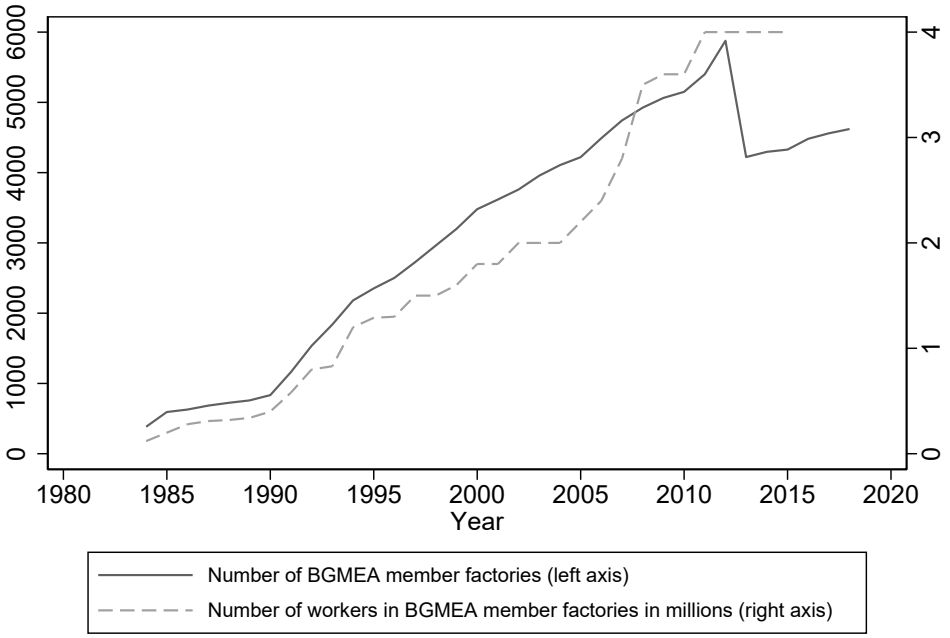
- Overview of the entire production process (from first contact with buyer to shipment)
- Planning and managing production lines (tracking production, efficiency calculations, machine layout, machine types and attachments, quality control)
- Solving problems on the production line (bottlenecks, line balancing, quality problems)

One third of the selected women were assigned to receive both training modules immediately (the "soft & hard-skills group"). Another third only received the soft skills component immediately and was trained in the technical skills about six months later (the soft-only group). The remaining third received both training modules six months later, after the experimental period (the control group).

The training was implemented part-time. Trainees participated in training at a training centre for two days a week, and worked in the factory the other four days of the working week. On the days in the factory, trainees from all three groups worked as Assistant Line Supervisors with gradually increasing responsibilities during the eight-week trial period. This set-up mirrors the traditional way in which workers are promoted to supervisors in the industry.

B Additional figures

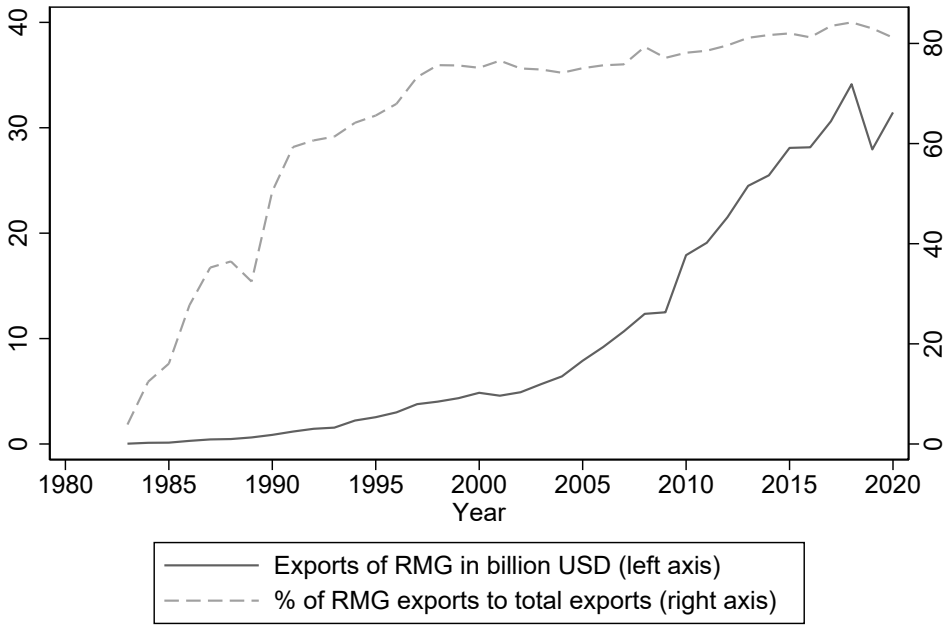
Figure B.1: Number of factories and employment in the Bangladeshi ready-made garment sector[82]



Data source: BGMEA Trade Statistics 2017 and 2019
Note that data is on a fiscal year basis, i.e. the data point for 2015 captures July 2015 to June 2016.

[82]Note that the number of BGMEA member factories dropped by more than a quarter in 2013-2014. This coincides with the period after the collapse of the Rana Plaza factory in April 2013, during which more than a thousand workers died. In the aftermath of the collapse, the Bangladeshi government, the BGMEA and buyer organizations intensified inspections and closed down some factories, but it is unclear whether this alone explains the large drop. It is also possible that factories deregistered to avoid scrutiny or that non-operating factories were purged from lists following inspections. For more information on the response to the Rana Plaza disaster, see Boudreau (2019).

Figure B.2: Exports of the Bangladeshi ready-made garment (RMG) sector



Data source: BGMEA Trade Statistics 2021
Note that data is on a fiscal year basis, i.e. the data point for 2019 captures July 2019 to June 2020.

Figure B.3: Timeline

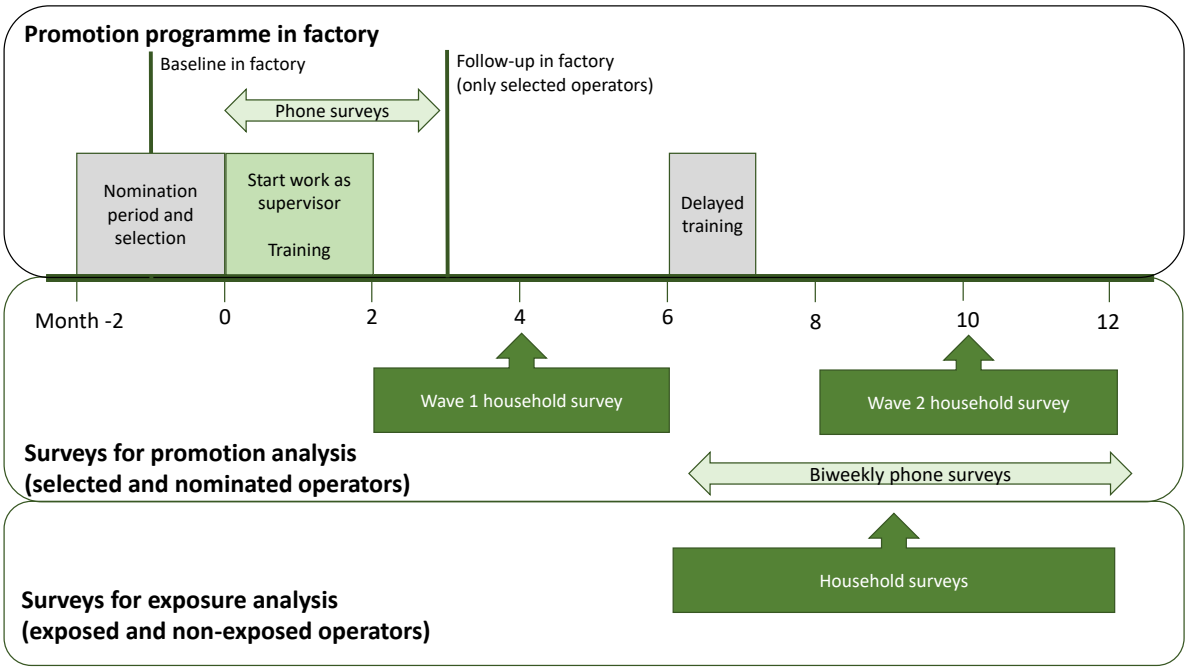


Figure B.4: Effects on different components of the decision-making index

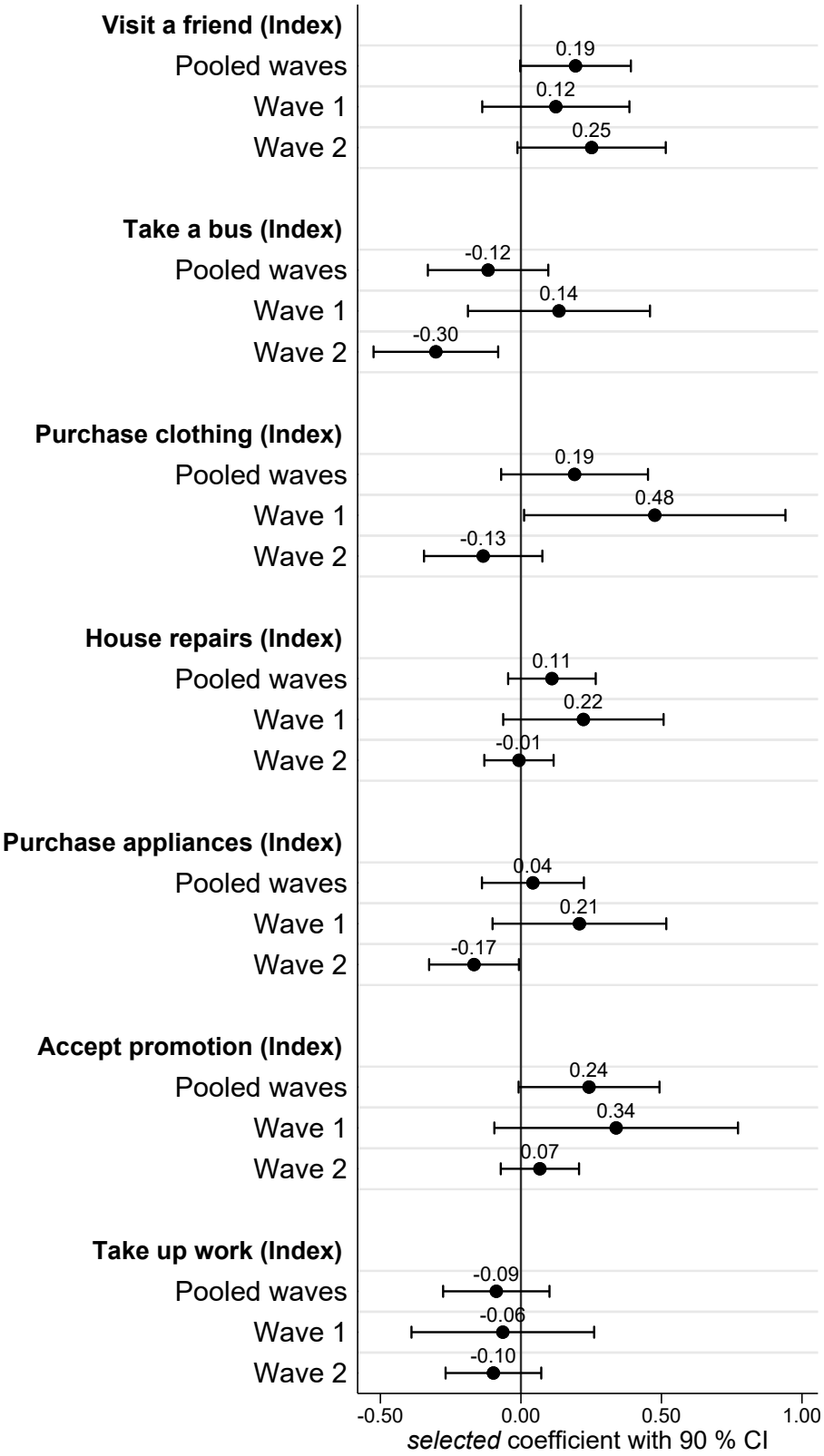


Figure B.5: Effects on different definitions of the decision-making index

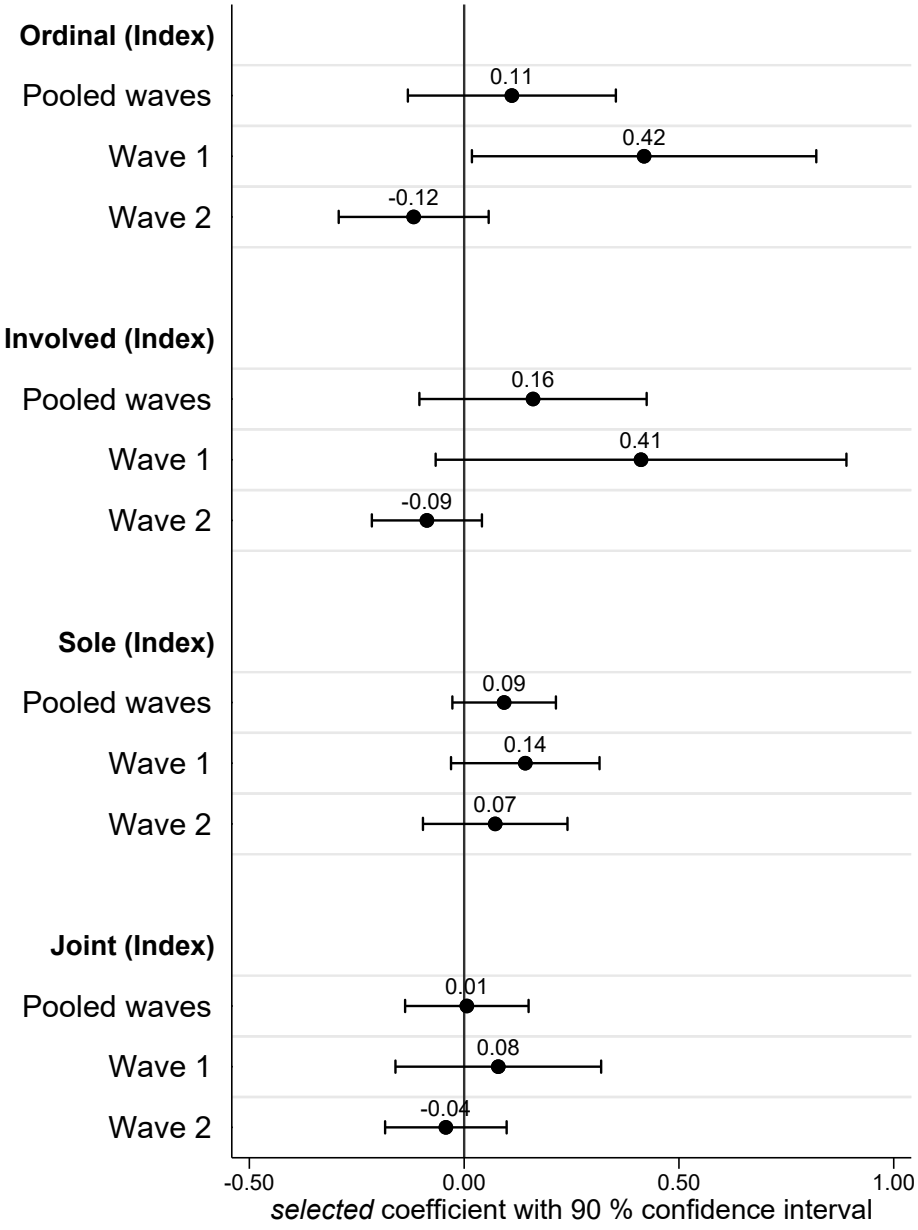


Figure B.6: Effects on different components of women's and girls' assignable expenditures

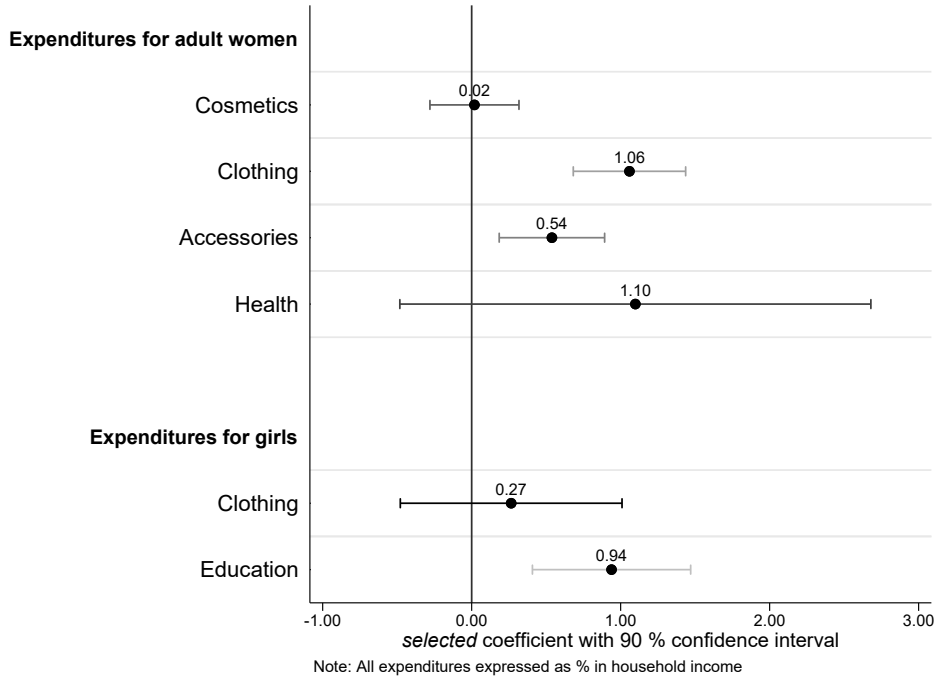
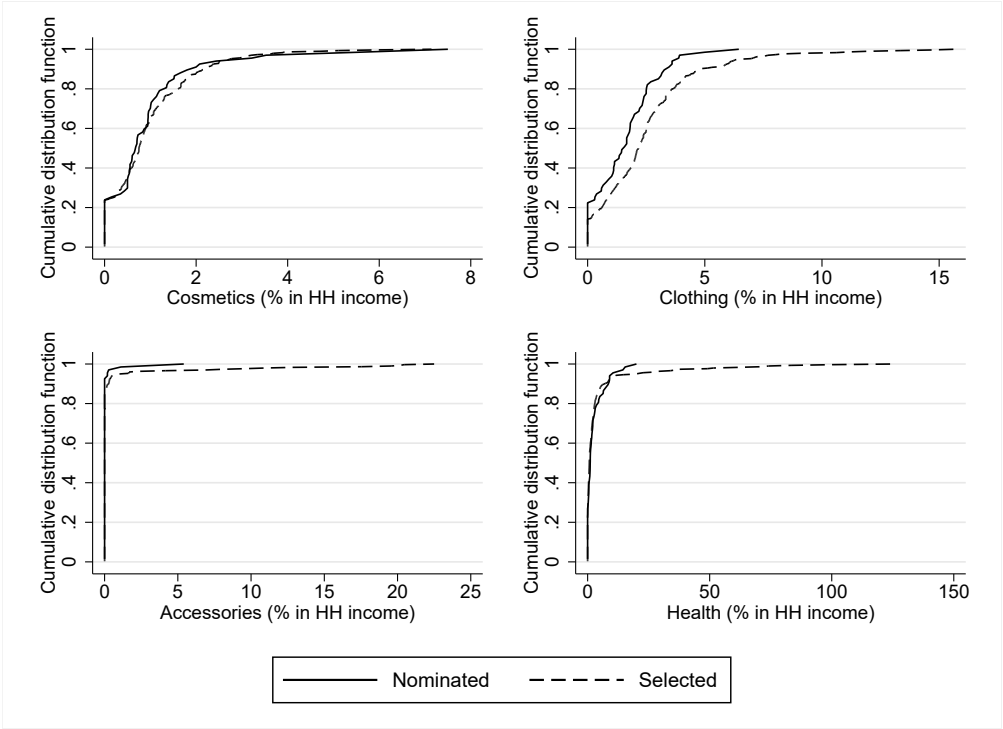


Figure B.7: Cumulative distribution functions of women's assignable goods expenditures for nominated and selected women



Note: Both waves of household surveys are pooled for this graph.

Figure B.8: Role model analysis: Effects on different components of the decision-making index

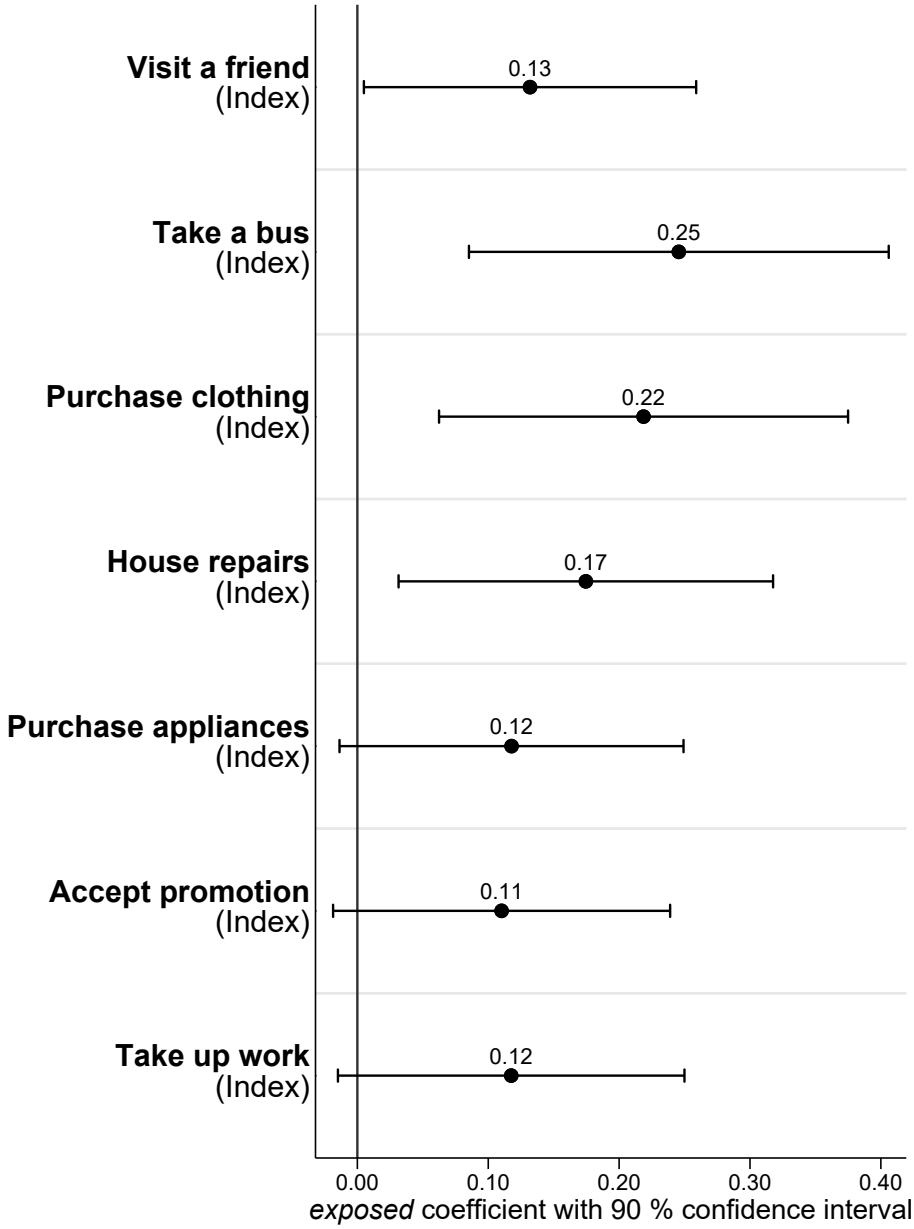


Figure B.9: Role model analysis: Effects on different definitions of the decision-making index

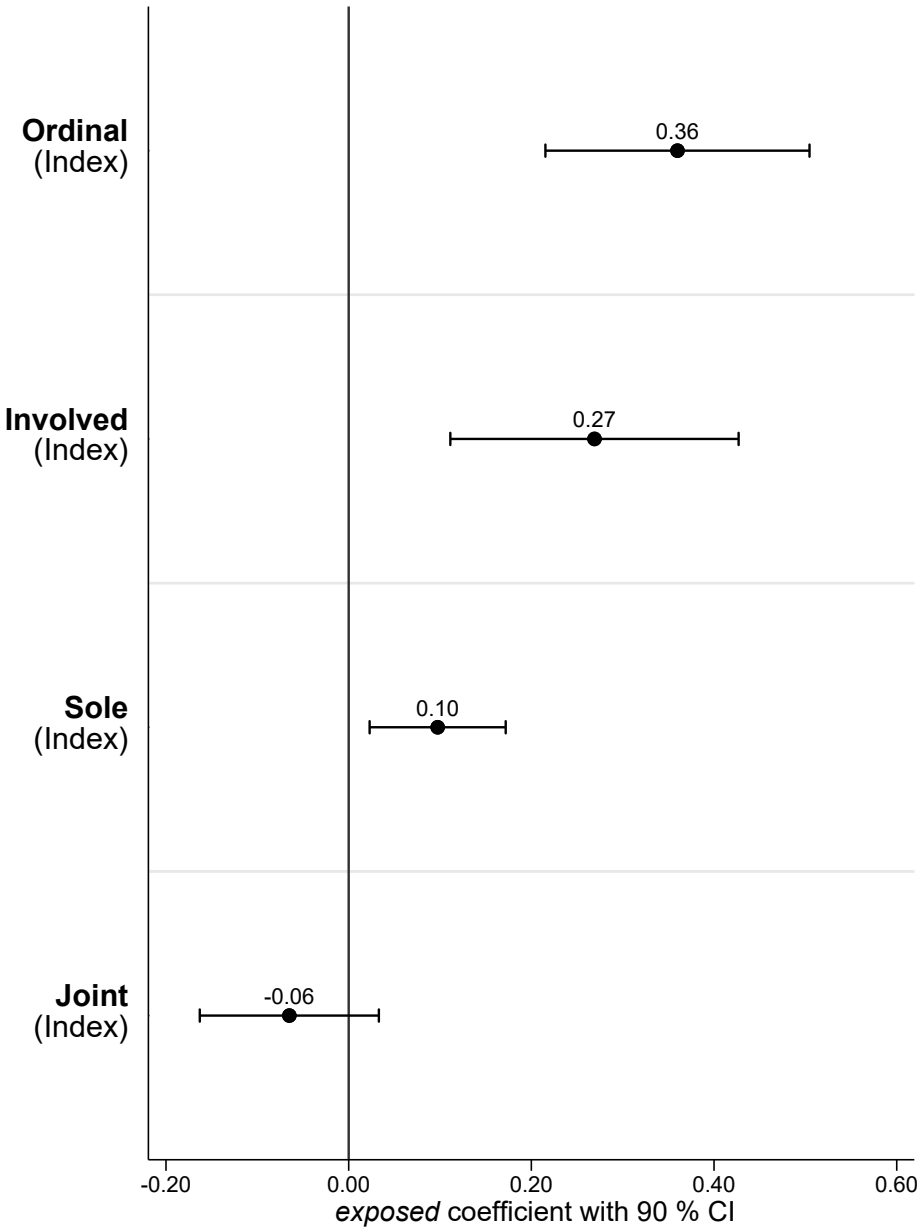
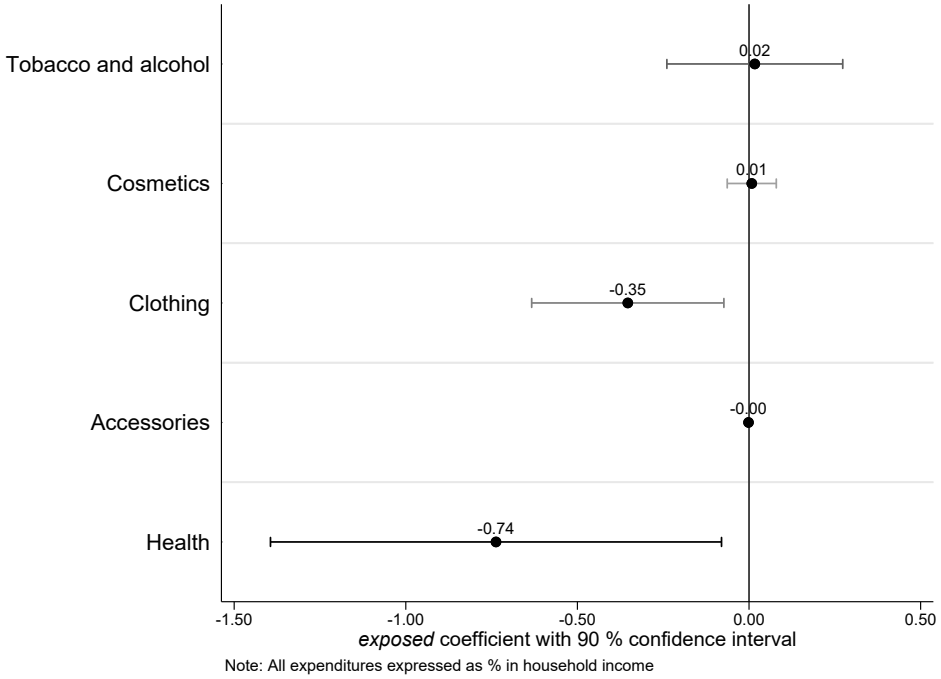


Figure B.10: Effects on different components of men's assignable expenditures



C Additional tables

Table C.1: Eligibility criteria for promotion program

Area	Criterion
Panel A: Selection criteria applied by factories	
Education	$\geq$ 8 years
Experience in garment industry	$\geq$ 2 years
Operator grade	Operator (grade 4) or Senior operator (grade 3)
Interest in supervisor position	Yes
Supportive family	Yes
Panel B: Exclusion criteria using diagnostic tests	
Literacy	Passed basic test
Numeracy	Passed basic test

Table C.2: Survey response rates

Panel A: Promotion analysis

	Selected	**Nominated**
Wave 1	93 %	91 %
Wave 2	91 %	77 %
Phone (ever reached)	94 %	95 %
Phone (avg. surveys | ever reached)	7.28	5.98

Panel B: Role model analysis

	Exposed	**Non-exposed**
Wave 1	84 %	83 %

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group.

Table C.3: Second respondents identified in pre-survey

Panel A: Promotion analysis (Wave 1)

	N	Percent
Husband	160	69.57
Father	11	4.78
Brother	4	1.74
Mother	4	1.74
Sister	5	2.17
Brother-in-law	1	0.43
No other adult	45	19.57
Total	230	100.00

Panel B: Role model analysis

	N	Percent
Husband	453	72.95
Father	22	3.54
Brother	6	0.97
Mother	19	3.06
Sister	9	1.45
Other from your family	1	0.16
Father-in-law	1	0.16
Mother-in-law	1	0.16
Sister-in-law	2	0.32
No other adult	107	17.23
Total	621	100.00

Table C.4: Variable definitions

Variable	Definition
Panel A: Outcome variables in main text	
Supervisor (Dummy)	Respondent reports working in a supervisory position in the garment industry. This includes the following positions: Quality Manager, Assistant Line Supervisor, Line Supervisor, Line chief/Floow-in-charge, Assistant production manager, Production Manager, IE Manager

(Table C.4 continued.)

Personal income (Taka)	Personal income last month. This includes income from economic activity, transfers and gifts, and other sources (e.g. government programs, prizes). Values are winsorised at a fraction of 0.01 in each tail before being summed up.
Household income (Taka)	Total household income last month. This includes income from economic activity, transfers and gifts, and other sources (e.g. government programs, prizes). Values are winsorised at a fraction of 0.01 in each tail before being summed up.
Decision-making (Index), Ordinal (Index)	Index of woman's involvement in seven decisions in the household: 1. Decision for her to take up work outside the home for income, 2. Decision for her to accept a promotion[83], 3. Decision to purchase large household appliances, 4. Decision about large house repairs, 5. Decision to purchase clothing and jewelry for herself, 6. Decision for her to take a bus to run an errand, 7. Decision for her to visit a friend in the neighborhood. For each decision, an ordinal variable was coded such that 4=Woman decides alone without needing permission, 3=Woman decides alone, but needs permission, 2=Woman is involved in joint decision-making, 1=Others decide, but need the woman's permission, 0=Woman is not involved. I create dummy variables for each ordinal category and decision, and then compute a standardized index following Anderson (2008) and O'Brien (1984).

[83]For the selected or nominated women who had been offered a promotion in the wave 2 survey, these questions refer to the decision-making about the actual offer instead of the generic question.

(Table C.4 continued.)

Women's assignable expenditures (% in household income)	Percent of household income spent on assignable expenditures for women, consisting of expenditures on 1. Cosmetics for women and girls in the last calendar month, 2. Clothing and footwear for women in the last three months, 3. jewelry and accessories for women in the last three months, 4. Health and medical expenditures for women in the last three months, Values are winsorized at a fraction of 0.01 in each tail. Expenditures are harmonized on the monthly level, summed up, divided by the household's total monthly income, and multiplied by 100.
Girls'/boys' assignable expenditures (% in household income)	Percent of household income spent on assignable expenditures for girls/boys, consisting of expenditures on 1. Clothing and footwear for girls/boys in the last three months, 2. Educational expenditures for female/male household members or female/male children living outside the household in the last three months, Values are winsorized at a fraction of 0.01 in each tail. Expenditures are harmonized on the monthly level, summed up, divided by the household's total monthly income, and multiplied by 100.
Men's assignable expenditures (% in household income)	Percent of household income spent on assignable expenditures for men, consisting of expenditures on 1. Tobacco and alcohol in the last 7 days, 2. Cosmetics for men and boys in the last calendar month, 3. Clothing and footwear for men in the last three months, 4. jewelry and accessories for men in the last three months, 5. Health and medical expenditures for men in the last three months, Values are winsorized at a fraction of 0.01 in each tail. Expenditures are harmonized on the monthly level, summed up, divided by the household's total monthly income, and multiplied by 100.

(Table C.4 continued.)

Remittances (% in household income)	Percent of household income spent on transfers to family or friends outside the household, including monetary and in-kind transfers, consisting of 1. Transfers to the sampled woman's family and friends 2. Transfers to the husband's family and friends, if the husband was the second respondent. Values are winsorized at a fraction of 0.01 in each tail, summed up, divided by the household's total monthly income, and multiplied by 100.
Confidence (Index)	standardized index following Anderson (2008) and O'Brien (1984) of women's confidence, computed from the following items: • 10 self-efficacy questions • 1 question whether feeling about self changed in last 5 months, recoded such that 1=Yes, for the better, 0=No, it is the same/Yes, for the worse. • 1 forced choice question about confidence at work, recoded such that =1 if respondent chooses "I hold my head high because I have done really well at work." over "With a bit of luck, things could have turned out better for me at work."

(Table C.4 continued.)

Negotiation (Index)	standardized index following Anderson (2008) and O'Brien (1984) of questions measuring negotiation behavior • 2 questions with vignettes where women were asked in an open-ended way to describe what the woman in the vignette should have done to convince her husband. These are coded as follows: 1=She should have behaved as she did, 2=She should have apologised to the husband, 3=She should have asked nicely again, in a soft tone, 4=She should have explained to him why she wants to make this decision, 5=She should have explained to him why she wants to make this decision, and acknowledged his concerns, 6=She should have explained to him why she wants to make this decision and acknowledged his concerns. She should then try to find a solution that allows for a compromise. • 1 forced choice question, recoded such that =1 if respondent chose "If I really want something, I can easily convince my family." over "At times, I find it hard to explain what I want."
Gender attitudes (Index)	standardized index following Anderson (2008) and O'Brien (1984) of questions measuring attitudes about gender. 3 vignettes describing situations in which women exercised mobility and independence in purchases. Respondents were asked to state their personal opinion. Questions will be recoded such that 1=Socially very inappropriate, 2=Socially somewhat inappropriate, 3=Socially somewhat appropriate, 4=Socially very appropriate.
Aspirations (Dummy)	Dummy variable =1 if respondent agrees more with "There is still much more I want to achieve in my work career." over "I am looking forward to enjoying a quieter life back home as soon as I have enough money."
Overall self-beliefs (Index)	standardized index following Anderson (2008) and O'Brien (1984) of Confidence (Index), Negotiation (Index), Gender attitudes (Index), Aspirations (Dummy)

Panel B: Demographic and control variables from surveys

Age	Age in completed years
Married	Dummy variable =1 if married

(Table C.4 continued.)

Household members	Number of household members
Household head	Dummy variable =1 if respondent is the household head
Migrant	Dummy variable =1 if respondent is not born in Dhaka
Education years	Highest educational attainment in years
Nr Children	Number of children (only available if ever married)
Child outside HH	Dummy variable =1 if any children live outside the household (only available if Nr Children $\geq$ 1)
Combined income of spouses	Sum of husband and wife's income from economic activities last month (if married). Only available for promotion sample.
Spousal education difference	Wife's - husband's education years (if married)
Age gap of spouses	Wife's - husband's age (if married)
Woman's spousal income share	Ratio of wife's income from economic activity and combined income of spouses last month (if married). Only available for promotion sample.
Woman's household income share	Ratio of wife's income and household income last month (if married)
Decision-making	See Panel A.
Supportive family	standardized index of the following 3 questions measuring support for female relatives working in garment industry, computed following Anderson (2008) and O'Brien (1984): 1. Whether the female relatives were ever asked to quit their jobs (=0 if Yes) 2. How supportive the family is towards female relatives working in the garment industry (categorical variable) 3. How supportive the family would be if a female relative received an offer for a promotion to supervisor (categorical variable)
Experience in garment sector	Number of completed years in the garment industry
Exposure	Dummy variable =1 if respondent has worked under a female supervisor or manager
Internal locus of control	standardized index following Anderson (2008) and O'Brien (1984) of 8 locus of control questions indicating whether nominee chooses the internal option, based on Rotter (1966)
Grit	standardized index following Anderson (2008) and O'Brien (1984) of 6 grit items, higher score means higher grittiness, based on Duckworth and Quinn (2009)

(Table C.4 continued.)

Self-efficacy	standardized index following Anderson (2008) and O'Brien (1984) of 10 self-efficacy items, higher score means higher self-efficacy, based on Schwarzer and Jerusalem (1995)
Emotional competence	standardized index following Anderson (2008) and O'Brien (1984) of 16 emotional competence items, higher score means higher competence, based on Mikolajczak et al. (2014)
Multi-factor Leadership	standardized index following Anderson (2008) and O'Brien (1984) of 3 multi-factor leadership items, higher score means higher leadership, based on Avolio and Bass (2014)
Life satisfaction	Rung chosen on Cantril ladder from 0-10, higher rung means higher satisfaction, based on Cantril (1965)
Self-assessment	Assessment of own performance as supervisor on a scale of 1-10 minus assessment of typical supervisor in factory
Ambition	Number of positions nominee would accept a promotion to (supervisor, line chief, assistant production manager)
Muslim	Dummy variable =1 if religion is Islam
Socioeconomic background	standardized index following Anderson (2008) and O'Brien (1984) of variables proxying nominee's socioeconomic background during youth: 1. Father's years of education 2. Mother's years of education 3. Type of house respondent lived in at 14 years of age 4. How often respondent went to bed hungry at 14 years of age
Marriage duration	Completed years of marriage (if married)
Assets into marriage	Dummy variable =1 if respondent brought assets into marriage (if married)
Age at marriage	Age - Marriage duration
Husband works in garment industry	Second respondent works in garment industry

Panel C: Variables from diagnostic tests

Numeracy score	Nominee's score on 10 numeracy questions, score out of 1 which represents a perfect score
Literacy score	Nominee's score on 20 literacy questions, score out of 1 which represents a perfect score
Processing speed score	Nominee's score on 193 processing speed questions, based on the Wechsler Adult Intelligence Scale, score out of 1 which represents a perfect score

(Table C.4 continued.)

Garment knowledge score	Nominee's score on 81 garment knowledge questions, score out of 1 which represents a perfect score
Family support score	Nominee's score on 8 family support questions, score out of 1 which represents a perfect score • 5 statements about family support, asks the respondent to respond on a four-point scale from agree to disagree • 3 questions about the level of support given to other women in the family who work in garment factories
Interest score	Nominee's score on 6 interest questions, score out of 1 which represents a perfect score • 2 questions about whether respondent would want to be promoted to supervisor or line chief • 4 questions that indirectly ask whether they are interested in the supervisor position, four-point scale from agree to disagree
Confidence score	Nominee's score on 4 confidence questions, score out of 1 which represents a perfect score • Question how respondent would rate their performance compared to a typical supervisor on a 5-point scale, if they were promoted to supervisor today • 3 forced choice questions between one statement that says "I am confident" using various words, and a dummy statement about the factory

Panel D: Production line statistics

Product complexity	Standard minute value (SMV) of garment. Time that the industrial engineers of each factory estimate a production line with qualified operators working at a standard pace would require to produce one piece of the garment

(Table C.4 continued.)

Efficiency	Measures how the daily output of each line in garment units, adjusted for the standard minute value of the garment, compares to the total output possible that day with the workers present on the line and the hours worked. Calculated as $$efficiency = \frac{(Pieces\,produced \cdot SMV)}{Workers\,on\,the\,line \cdot Hours\,operated \cdot 60} \cdot 100. \quad (3)$$
Alteration rate	Percentage of all garments that needs to be altered out of all produced units
Absenteeism rate	Percentage of workers absent amongst all workers (present and absent) on the line

Panel E: Additional outcome variables

Visit a friend (Index)	Index of woman's involvement in the following decision in the household: Decision for her to visit a friend in the neighborhood. For each decision, an ordinal variable was coded such that 4=Woman decides alone without needing permission, 3=Woman decides alone, but needs permission, 2=Woman is involved in joint decision-making, 1=Others decide, but need the woman's permission, 0=Woman is not involved. I create dummy variables for each ordinal category, and then compute a standardized index following Anderson (2008) and O'Brien (1984).
Take a bus (Index)	Index of woman's involvement in the following decision in the household: Decision for her to take a bus to run an errand. For each decision, an ordinal variable was coded such that 4=Woman decides alone without needing permission, 3=Woman decides alone, but needs permission, 2=Woman is involved in joint decision-making, 1=Others decide, but need the woman's permission, 0=Woman is not involved. I create dummy variables for each ordinal category, and then compute a standardized index following Anderson (2008) and O'Brien (1984).

(Table C.4 continued.)

Purchase clothing (Index)	Index of woman's involvement in the following decision in the household: Decision to purchase clothing and jewelry for herself. For each decision, an ordinal variable was coded such that 4=Woman decides alone without needing permission, 3=Woman decides alone, but needs permission, 2=Woman is involved in joint decision-making, 1=Others decide, but need the woman's permission, 0=Woman is not involved. I create dummy variables for each ordinal category, and then compute a standardized index following Anderson (2008) and O'Brien (1984).
House repairs (Index)	Index of woman's involvement in the following decision in the household: Decision about large house repairs. For each decision, an ordinal variable was coded such that 4=Woman decides alone without needing permission, 3=Woman decides alone, but needs permission, 2=Woman is involved in joint decision-making, 1=Others decide, but need the woman's permission, 0=Woman is not involved. I create dummy variables for each ordinal category, and then compute a standardized index following Anderson (2008) and O'Brien (1984).
Purchase appliances (Index)	Index of woman's involvement in the following decision in the household: Decision to purchase large household appliances. For each decision, an ordinal variable was coded such that 4=Woman decides alone without needing permission, 3=Woman decides alone, but needs permission, 2=Woman is involved in joint decision-making, 1=Others decide, but need the woman's permission, 0=Woman is not involved. I create dummy variables for each ordinal category, and then compute a standardized index following Anderson (2008) and O'Brien (1984).

(Table C.4 continued.)

Accept promotion (Index)	Index of woman's involvement in the following decision in the household: Decision for her to accept a promotion. For each decision, an ordinal variable was coded such that 4=Woman decides alone without needing permission, 3=Woman decides alone, but needs permission, 2=Woman is involved in joint decision-making, 1=Others decide, but need the woman's permission, 0=Woman is not involved. I create dummy variables for each ordinal category, and then compute a standardized index following Anderson (2008) and O'Brien (1984).
Take up work (Index)	Index of woman's involvement in the following decision in the household: Decision for her to take up work outside the home for income. For each decision, an ordinal variable was coded such that 4=Woman decides alone without needing permission, 3=Woman decides alone, but needs permission, 2=Woman is involved in joint decision-making, 1=Others decide, but need the woman's permission, 0=Woman is not involved. I create dummy variables for each ordinal category, and then compute a standardized index following Anderson (2008) and O'Brien (1984).

(Table C.4 continued.)

Involved (Index)	Index of woman's involvement in seven decisions in the household: 1. Decision for her to take up work outside the home for income, 2. Decision for her to accept a promotion[84], 3. Decision to purchase large household appliances, 4. Decision about large house repairs, 5. Decision to purchase clothing and jewelry for herself, 6. Decision for her to take a bus to run an errand, 7. Decision for her to visit a friend in the neighborhood. For each decision, an ordinal variable was coded such that 1=Woman decides alone without needing permission, OR Woman decides alone, but needs permission, OR Woman is involved in joint decision-making, OR Others decide, but need the woman's permission, OR 0=Woman is not involved. I create dummy variables for each ordinal category and decision, and then compute a standardized index following Anderson (2008) and O'Brien (1984).

[84]For the selected or nominated women who had been offered a promotion in the wave 2 survey, these questions refer to the decision-making about the actual offer instead of the generic question.

(Table C.4 continued.)

Sole (Index)	Index of woman's sole decision-making in seven decisions in the household: 1. Decision for her to take up work outside the home for income, 2. Decision for her to accept a promotion[85], 3. Decision to purchase large household appliances, 4. Decision about large house repairs, 5. Decision to purchase clothing and jewelry for herself, 6. Decision for her to take a bus to run an errand, 7. Decision for her to visit a friend in the neighborhood. For each decision, an ordinal variable was coded such that 1=Woman decides alone without needing permission, 0=Woman decides alone, but needs permission, OR Woman is involved in joint decision-making, OR Others decide, but need the woman's permission, OR Woman is not involved. I create dummy variables for each ordinal category and decision, and then compute a standardized index following Anderson (2008) and O'Brien (1984).

[85]For the selected or nominated women who had been offered a promotion in the wave 2 survey, these questions refer to the decision-making about the actual offer instead of the generic question.

(Table C.4 continued.)

Joint (Index)	Index of joint decision-making in seven decisions in the household: 1. Decision for her to take up work outside the home for income, 2. Decision for her to accept a promotion[86], 3. Decision to purchase large household appliances, 4. Decision about large house repairs, 5. Decision to purchase clothing and jewelry for herself, 6. Decision for her to take a bus to run an errand, 7. Decision for her to visit a friend in the neighborhood. For each decision, an ordinal variable was coded such that 1=Woman is involved in joint decision-making, 0=Woman decides alone without needing permission, OR Woman decides alone, but needs permission, OR Others decide, but need the woman's permission, OR Woman is not involved. I create dummy variables for each ordinal category and decision, and then compute a standardized index following Anderson (2008) and O'Brien (1984).
Cosmetics (% in household income)	Monthly expenditures on cosmetics, winsorized at a fraction of 0.01 in each tail. Two different variables are used capturing expenditures for different groups of respondents: 1. Women and Girls 2. Men and Boys

[86]For the selected or nominated women who had been offered a promotion in the wave 2 survey, these questions refer to the decision-making about the actual offer instead of the generic question.

(Table C.4 continued.)

Clothing (% in household income)	Expenditures on clothing and footwear, winsorized at a fraction of 0.01 in each tail and harmonized at the monthly level. Four different variables are used capturing expenditures for different groups of respondents: 1. Women 2. Girls 3. Men 4. Boys
Accessories (% in household income)	Expenditures on jewelry, accessories, and watches, winsorized at a fraction of 0.01 in each tail and harmonized at the monthly level. Four different variables are used capturing expenditures for different groups of respondents: 1. Women 2. Girls 3. Men 4. Boys
Health (% in household income)	Expenditures on health and medical expenditures, winsorized at a fraction of 0.01 in each tail and harmonized at the monthly level. Four different variables are used capturing expenditures for different groups of respondents: 1. Women 2. Girls 3. Men 4. Boys

(Table C.4 continued.)

Education (% in household income)	Expenditures on educational expenditures, winsorized at a fraction of 0.01 in each tail and harmonized at the monthly level. Two different variables are used capturing expenditures for different groups of respondents: 1. Male household members or male children living outside the household 2. Female household members or female children living outside the household
Tobacco and alcohol (% in household income)	Expenditures on tobacco and alcohol, winsorized at a fraction of 0.01 in each tail and harmonized at the monthly level.
Food	Expenditures on 7 food items (staple foods; pulses; vegetables; fruits and nuts; meat, fish, eggs, dairy; oils, spices, drinks; food outside the home). Each item is winsorized at a fraction of 0.01 in each tail, harmonized at the monthly level, and items are then summed up. Two variables are used capturing expenditures in Taka and as a share in household income.
Furnishing durables	Expenditures on household textiles, furnishings and goods such as bed sheets, curtains, furniture, furniture repairs, etc. Item is winsorized at a fraction of 0.01 in each tail, and harmonized at the monthly level. Two variables are used capturing expenditures in Taka and as a share in household income.
Entertainment durables	Expenditures on household durables and electronic appliances such as, radio, TV, fans, camera, etc. Item is winsorized at a fraction of 0.01 in each tail, and harmonized at the monthly level. Two variables are used capturing expenditures in Taka and as a share in household income.
Kitchen durables	Expenditures on household durables for the kitchen and household, such as fridge, cooker, plates, pans, dishes etc. Recreation, leisure and entertainment such as social activities, books, newspaper, magazines, theatre, concerts, movies, CD, VCR, DVD, etc
Housing	Expenditures on housing such as rent, maintenance, taxes, house-related services etc, and real estate such as buying land, house, redecorating existing house etc. Each item is winsorized at a fraction of 0.01 in each tail, harmonized at the monthly level, and items are then summed up. Two variables are used capturing expenditures in Taka and as a share in household income.
Savings	Savings of all kind, e.g. in bank, at home or with NGO. Item is winsorized at a fraction of 0.01 in each tail. Two variables are used capturing expenditures in Taka and as a share in household income.

(Table C.4 continued.)

Recreation	Expenditures on recreation, leisure and entertainment such as social activities, books, newspaper, magazines, theatre, concerts, movies, CD, VCR, DVD, etc. Item is winsorized at a fraction of 0.01 in each tail. Two variables are used capturing expenditures in Taka and as a share in household income.
Domestic work	Time spent on domestic work on last working/non-working day.
Leisure	Time spent on leisure on last working/non-working day.
Sleep	Time spent on sleep on last working/non-working day.
Work	Time spent on work on last working day.
Economically active	Dummy variable indicating whether respondent works as a paid employee, grows fruit, vegetables or tends animal that household members eat, or runs their own business.
Slapped or beaten by husband (5 months, Dummy)	Dummy variable indicating whether woman was beaten or slapped by the other respondent at least once. Two variables capture different recall periods: a) ever, b) in the last 5 months.
Hiding money (Dummy)	Dummy variable indicating whether woman chooses private option in any choice between receiving money privately or publicly in the game.
Controlling money (Taka)	Highest amount in Taka that woman is willing to give up to have money paid to herself instead of her husband (ignoring multiple switching).
Above median initial decision-making	Dummy variable indicating whether respondent's decision-making index is above the median at factory baseline. Only available for the promotion sample.
Starts earnings more	Dummy variable indicating that the respondent earns more than the spouse during household surveys, but did not earn more than the spouse at factory baseline. Only available for the promotion sample.
Earns more	Dummy variable indicating that the respondent earns more than the spouse during household surveys.
placebo	Placebo treatment coded as a dummy variable indicating whether a respondent in the selected group was in the top half of the ranking, equal to zero if in the bottom half. Only available for the selected group.

(Table C.4 continued.)

Involvement in decisions (Index)	From the phone surveys: Index of woman's involvement in seven decisions in the household: 1. Decisions about spending money on food, 2. Decisions about how woman spends leisure time, 3. Decisions about who does the household chores, 4. Decisions about medical or health care, 5. Decisions about woman visiting a friend in the neighborhood, 6. Decisions about woman taking a bus to run an errand, 7. Decisions about sending money or gifts to the family, For each decision, an ordinal variable was coded such that 1=Woman is involved, 0=Woman is not involved. I then compute a standardized index from these dummy variables following Anderson (2008) and O'Brien (1984).
softonly	Dummy variable indicating that woman in the selected group was assigned to the soft-skills only training group. Only available for the selected group.
hardsoft	Dummy variable indicating that woman in the selected group was assigned to the soft- & hard-skills training group. Only available for the selected group.

Table C.5: Summary statistics

Panel A: Promotion analysis

	N	Mean	SD	Min	Max
Age	198	25.80	3.53	19.00	38.00
Married	198	0.84	0.36	0.00	1.00
Household members	198	3.27	1.57	1.00	10.00
Household head	198	0.12	0.33	0.00	1.00
Migrant	198	0.66	0.47	0.00	1.00
Education years	198	8.33	1.76	0.00	15.00
Nr Children (if ever married)	180	1.04	0.79	0.00	5.00
Combined income of spouses (if married)	167	23630.19	6556.26	9500.00	44760.00
Education difference of spouses (if married)	167	−0.31	3.05	−10.00	9.00
Age gap of spouses (if married)	166	−4.64	2.75	−14.00	4.00
Husband works in garment industry (if married)	167	0.66	0.47	0.00	1.00
Woman's share in spouses' income (if married)	167	0.46	0.14	0.09	1.00

Panel B: Exposure analysis

	N	Mean	SD	Min	Max
Age	238	26.20	4.16	18.00	40.00
Married	238	0.89	0.31	0.00	1.00
Household members	238	3.09	1.42	2.00	8.00
Household head	238	0.01	0.11	0.00	1.00
Migrant	238	0.63	0.48	0.00	1.00
Education years	238	6.08	2.48	0.00	10.00
Nr Children (if ever married)	224	1.16	0.84	0.00	4.00
childoutsidehh	238	0.42	0.49	0.00	1.00
Total household income	238	21166.26	7325.44	6500.00	43000.00
Education difference of spouses (if married)	208	−0.35	3.74	−10.00	9.00
Age gap of spouses (if married)	208	−5.24	3.25	−23.00	−1.00
Husband works in garment industry (if married)	208	0.66	0.47	0.00	1.00
Woman's share in household income	238	0.48	0.18	0.00	1.00

Notes: Panel A uses data from the baseline survey of the promotion program, conducted in the factory. Because there is no baseline for the exposure analysis, Panel B uses data from the household surveys only from the non-exposed comparison group.

Table C.6: Joint orthogonality of observable characteristics for nominated and selected groups

	(1)	(2)	(3)
Age	0.00	0.01	0.00
	(0.01)	(0.02)	(0.01)
Married	-0.58	0.00	-0.06
	(0.57)	(.)	(0.10)
Household members	-0.02	-0.01	-0.01
	(0.02)	(0.03)	(0.02)
Household head	0.09	0.15	0.12
	(0.12)	(0.15)	(0.11)
Migrant	0.01	0.01	0.01
	(0.07)	(0.08)	(0.07)
Education years	0.01	0.02	0.01
	(0.02)	(0.02)	(0.02)
Decision-making	-0.02	-0.02	-0.02
	(0.04)	(0.04)	(0.04)
Supportive family	-0.01	-0.02	-0.01
	(0.04)	(0.04)	(0.03)
Experience in garment sector	-0.02	-0.01	-0.02
	(0.01)	(0.01)	(0.01)
Exposure to female SV	-0.05	-0.04	-0.05
	(0.07)	(0.07)	(0.06)
Internal locus of control	-0.08**	-0.06	-0.06
	(0.04)	(0.04)	(0.04)
Grit	0.05	0.07	0.04
	(0.04)	(0.04)	(0.04)
Self-efficacy	0.05	0.04	0.04
	(0.04)	(0.04)	(0.03)
Emotional competence	-0.01	-0.02	-0.01
	(0.04)	(0.04)	(0.04)
Multi-factor Leadership	-0.02	-0.02	-0.02

(Continued on next page.)

(Table C.6 continued from previous page.)

	(0.04)	(0.05)	(0.04)
Life satisfaction	0.01	0.01	0.01
	(0.02)	(0.02)	(0.02)
Self-assessment	-0.00	-0.00	-0.01
	(0.02)	(0.02)	(0.02)
Ambition	-0.00	-0.02	-0.01
	(0.04)	(0.04)	(0.04)
Literacy score	0.31	0.17	0.28
	(0.19)	(0.22)	(0.18)
Numeracy score	-0.04	0.03	-0.02
	(0.21)	(0.25)	(0.20)
Processing speed score	-0.49	-0.22	-0.65
	(0.48)	(0.54)	(0.45)
Garment knowledge score	-0.43	-0.44	-0.40
	(0.35)	(0.40)	(0.34)
Family support score	0.14	0.21	0.15
	(0.24)	(0.28)	(0.22)
Interest score	-0.03	-0.01	0.03
	(0.19)	(0.22)	(0.18)
Confidence score	0.01	-0.09	0.02
	(0.18)	(0.22)	(0.18)
Muslim	0.07	0.05	0.03
	(0.19)	(0.20)	(0.18)
Socioeconomic background	0.01	0.01	0.00
	(0.03)	(0.03)	(0.03)
Nr Children	0.03	0.04	
	(0.06)	(0.06)	
Combined income of spouses	0.00*	0.00	
	(0.00)	(0.00)	
Education difference	-0.02*	-0.02*	
	(0.01)	(0.01)	
Age gap of spouses	0.01	0.01	

(Continued on next page.)

(Table C.6 continued from previous page.)

	(0.01)	(0.01)	
Income ratio of spouses	0.77**	0.65	
	(0.36)	(0.39)	
Marriage duration	-0.00	-0.01	
	(0.01)	(0.01)	
Brought assets in marriage	0.04	0.08	
	(0.07)	(0.08)	
Constant	0.82	0.12	0.98**
	(0.70)	(0.66)	(0.46)
N	198	166	198
p-value of F-statistic	0.87	0.96	0.92
Missing indicators	Yes	No	No
Only married	No	Yes	No

Notes: Standard errors in parentheses. In column (1), to include the variables only defined for married women and include currently unmarried respondents, I follow two steps. First, I set these variables to zero if they are missing and, second, I include dummy variables in the regression that indicate whether the variables are missing. Column (2) does not make these adjustments and hence only includes married respondents. Column (3) includes only covariates defined for all respondents. * p<0.1, ** p<0.05, *** p<0.01

Table C.7: Role model analysis: Joint orthogonality of observable characteristics for exposed and non-exposed groups

	(1)	(2)	(3)
Age	0.01	0.02	0.00
	(0.01)	(0.01)	(0.01)
Married	0.40**	0.00	0.15*
	(0.17)	(.)	(0.09)
Household members	0.01	0.00	0.01
	(0.02)	(0.02)	(0.02)
Migrant	-0.06	-0.05	-0.06
	(0.05)	(0.05)	(0.05)
Education years	0.00	0.00	0.00

(Continued on next page.)

(Table C.7 continued from previous page.)

	(0.01)	(0.01)	(0.01)
HH income	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)
Muslim	-0.34	-0.54**	-0.31
	(0.23)	(0.25)	(0.23)
Socioeconomic background	-0.02	-0.03	-0.03
	(0.02)	(0.03)	(0.02)
Household head	0.14	0.07	0.21
	(0.17)	(0.30)	(0.17)
Wife's share in HH income	-0.05	-0.18	-0.04
	(0.14)	(0.16)	(0.14)
Nr Children	0.01	-0.01	
	(0.04)	(0.05)	
Age gap of spouses	-0.00	-0.00	
	(0.01)	(0.01)	
Marriage duration	-0.00	-0.01	
	(0.01)	(0.01)	
Brought assets in marriage	-0.12**	-0.11*	
	(0.06)	(0.06)	
Spousal education difference	0.00	0.00	
	(0.01)	(0.01)	
Constant	0.36	0.77**	0.56*
	(0.36)	(0.38)	(0.31)
N	488	427	488
p-value of F-statistic	0.41	0.28	0.32
Missing indicators	Yes	No	No
Only married	No	Yes	No

Notes: Standard errors in parentheses. In column (1), to include the variables only defined for married women and include currently unmarried respondents, I follow two steps. First, I set these variables to zero if they are missing and, second, I include dummy variables in the regression that indicate whether the variables are missing. Column (2) does not make these adjustments and hence only includes married respondents. Column (3) includes only covariates defined for all respondents. * p<0.1, ** p<0.05, *** p<0.01

Table C.8: Balance of exposed and non-exposed line characteristics

	(1) Efficiency	(2) Alteration rate, %	(3) Absenteeism, %	(4) Product complexity
exposed	−1.02	0.02	−0.34 **	−0.14
	(0.87)	(0.51)	(0.14)	(0.72)
N	18025	24960	21247	22148
Not exposed mean	48.16	8.52	4.23	17.28

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. All regressions include factory and day fixed effects, and are limited to the time before project start in each factory. Standard errors are clustered at the line level.

Table C.9: Main outcomes – Wave 1 only

Panel A: Effects on women's promotions, income and decision-making

	(1) Supervisor (Dummy)	(2) Personal income (Taka)	(3) Household income (Taka)	(4) IV Personal income (Taka)	(5) Decision-making (Index)
selected	0.28***	654.82	107.50		0.42*
	(0.06)	(574.56)	(1571.10)		(0.24)
supervisor				1078.52	
				(2021.36)	
N	181	181	181	181	181
Nominated mean	0.08	10119.92	24213.89	10119.92	−0.48
Nominated SD	0.28	3063.81	8502.81	3063.81	1.38

Panel B: Effects on assignable goods expenditures and remittances

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	1.92*	0.08	−0.27	−0.16	3.08*
	(1.02)	(0.92)	(0.79)	(0.82)	(1.68)
N	181	72	181	80	181
Nominated mean	5.19	2.19	4.18	2.54	5.08
Nominated SD	4.62	3.02	4.19	3.19	8.22

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso (ivlasso for Panel A, Column 4) from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies. Where available, the baseline outcome is included in the amelioration set. In Panel A, Column 4 Supervisor is being instrumented by selected, for which the first stage is shown in Panel A, Column 1. The sample in Panel B, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.10: Main outcomes – Wave 2 only

Panel A: Effects on women's promotions, income and decision-making

	(1) Supervisor (Dummy)	(2) Personal income (Taka)	(3) Household income (Taka)	(4) IV Personal income (Taka)	(5) Decision-making (Index)
selected	0.18***	428.73	507.52		−0.12
	(0.06)	(692.61)	(1542.20)		(0.11)
supervisor				−40.39	
				(3579.42)	
N	182	182	182	182	182
Nominated mean	0.10	9608.55	23230.52	9608.55	0.22
Nominated SD	0.30	3388.45	7390.32	3388.45	0.58

Panel B: Effects on assignable goods expenditures and remittances

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	3.02*	1.58***	0.71	−0.63	3.06
	(1.70)	(0.43)	(0.75)	(1.19)	(1.97)
N	182	74	182	81	181
Nominated mean	5.46	0.95	3.61	2.86	7.06
Nominated SD	4.39	0.97	3.79	4.22	9.10

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso (ivlasso for Panel A, Column 4) from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies. Where available, the baseline outcome is included in the amelioration set. In Panel A, Column 4 Supervisor is being instrumented by selected, for which the first stage is shown in Panel A, Column 1. The sample in Panel B, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.11: Effects on assignable goods expenditures and remittances

	(1) Women	(2) Girls	(3) Men	(4) Boys	(5) Remittances
	(All outcomes in Taka)				
selected	395.59 **	202.22	76.12	−45.49	954.15 ***
	(186.12)	(132.86)	(113.15)	(158.78)	(324.62)
N	363	146	363	161	362
Nominated mean	1201.99	391.78	861.67	566.15	1305.97
Nominated SD	1050.47	597.52	876.00	782.66	1986.61

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies.

Table C.12: Effects on other expenditures

Panel A: Outcomes in % of household income

	(1) Food	(2) Furnishing durables	(3) Entertainment durables	(4) Kitchen durables	(5) Housing	(6) Savings	(7) Recreation
selected	0.80	−0.01	−0.96	−0.82	0.33	−0.92	−0.08
	(5.53)	(0.30)	(0.59)	(1.67)	(2.82)	(2.03)	(0.09)
N	363	363	363	363	363	362	363
Nominated mean	7932.48	106.07	319.83	171.69	4005.68	1767.16	126.87
Nominated SD	5435.51	456.33	1152.81	1222.58	5121.33	2687.65	136.61

Panel B: Outcomes in Taka

selected	978.45	19.71	−230.44	37.67	−27.09	−86.23	−20.33
	(733.86)	(68.20)	(140.62)	(166.26)	(700.12)	(437.66)	(17.13)
N	363	363	363	363	363	362	363
Nominated mean	7932.48	106.07	319.83	171.69	4005.68	1767.16	126.87
Nominated SD	5435.51	456.33	1152.81	1222.58	5121.33	2687.65	136.61

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies.

Table C.13: Effects on remittances (% in HH income)

	All	Married couples with children					
	(1) Total	(2) Total	(3) Wife's family	(4) Husband's family	(5) Total	(6) Wife's family	(7) Husband's family
selected	3.48**	3.53**	0.87	3.03**	1.29	0.11	1.68
	(1.40)	(1.69)	(0.96)	(1.46)	(1.70)	(0.92)	(1.28)
selected*Child outside HH					3.60	1.11	2.00
					(3.20)	(1.87)	(3.08)
Child outside HH					4.07	1.74	2.42
					(2.78)	(1.66)	(2.89)
N	362	237	238	237	237	238	237
Nominated mean	6.00	6.46	2.73	3.73	6.46	2.73	3.73
Nominated SD	8.63	8.31	4.52	6.87	8.31	4.52	6.87

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies.

Table C.14: Effects on time use

Panel A: Women's time use (Hours)

	Last workday				Last non-workday		
	(1) Domestic work	(2) Leisure	(3) Sleep	(4) Work	(5) Domestic work	(6) Leisure	(7) Sleep
selected	0.09	−0.09	−0.20 *	0.19	−0.10	−0.01	−0.07
	(0.13)	(0.16)	(0.11)	(0.27)	(0.13)	(0.23)	(0.18)
N	336	336	336	336	363	363	363
Nominated mean	2.86	1.83	7.02	10.26	4.56	4.00	8.96
Nominated SD	1.02	1.26	1.03	1.86	1.48	2.29	1.22

Panel B: Husband's time use (Hours)

	Last workday				Last non-workday		
	(1) Domestic work	(2) Leisure	(3) Sleep	(4) Work	(5) Domestic work	(6) Leisure	(7) Sleep
selected	0.03	−0.12	−0.13	0.05	0.11	0.05	0.01
	(0.11)	(0.15)	(0.13)	(0.25)	(0.18)	(0.19)	(0.17)
N	330	330	330	330	350	350	350
Nominated mean	1.06	2.92	7.34	10.60	2.33	4.89	9.05
Nominated SD	0.82	1.71	0.84	1.47	1.25	2.47	1.18

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies.

Table C.15: Effects on other outcomes

	Economically active		Slapped or beaten by husband		Hiding money	Controlling money
	(1) Wife	(2) Husband	(3) Ever	(4) In last 5 months	(5)	(6)
selected	−0.02	−0.03	0.03	−0.03	0.03	−5.32
	(0.03)	(0.04)	(0.06)	(0.04)	(0.08)	(17.90)
N	363	350	363	363	181	182
Nominated mean	0.96	0.97	0.30	0.09	0.28	146.77
Nominated SD	0.21	0.17	0.46	0.29	0.45	147.72

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies. Column (2) uses data from the husband's surveys.

Table C.16: Heterogeneity by initial decision-making index

Panel A: Effects on women's promotions and income (Pooled waves)

	(1) Supervisor (Dummy)	(2) Personal income (Taka)	(3) Household income (Taka)
selected	0.20**	107.28	−1400.02
	(0.08)	(703.40)	(2196.25)
Above median initial decision-making	−0.01	−72.18	−2830.10
	(0.09)	(887.40)	(2440.35)
selected * Above median initial decision-making	0.10	−80.55	1812.82
	(0.11)	(1039.69)	(2709.12)
N	363	363	363
Nominated mean	0.09	9883.31	23758.90
Nominated SD	0.29	3203.56	7963.02

Panel B: Effects on women's decision-making power

	Decision-making (Index)		
	Pooled waves	Wave 1	Wave 2
selected	−0.15	0.08	−0.50 ***
	(0.21)	(0.31)	(0.16)
Above median initial decision-making	−0.16	−0.23	−0.21
	(0.27)	(0.46)	(0.20)
selected * Above median initial decision-making	0.35	0.45	0.37
	(0.30)	(0.49)	(0.23)
N	363	181	182
Nominated mean	−0.16	−0.48	0.22
Nominated SD	1.13	1.38	0.58

Panel C: Effects on assignable goods expenditures and remittances (Pooled waves)

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	2.05	−0.07	3.28	0.22	−0.27
	(1.44)	(0.95)	(2.17)	(0.33)	(0.59)
Above median initial decision-making	−0.76	−1.15	−1.31	−0.36	0.06
	(1.20)	(1.00)	(2.26)	(0.30)	(1.05)
selected * Above median initial decision-making	1.89	0.49	0.27	0.81*	−0.30
	(2.21)	(1.15)	(2.78)	(0.46)	(1.11)
N	363	363	362	182	182
Nominated mean	5.32	3.92	6.00	0.40	1.38
Nominated SD	4.48	3.99	8.63	0.78	3.23

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. The coefficients are from OLS regressions without additional control variables. The sample in Panel C, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.17: Heterogeneity by women earning more than husband

Panel A: Effects on women's promotions and income (Pooled waves)

	(1) Supervisor (Dummy)	(2) Personal income (Taka)	(3) Household income (Taka)	
selected	0.22***	−332.70	−848.06	
	(0.05)	(584.64)	(1666.61)	
Starts earning more	−0.06 *	1082.51	−6297.11	***
	(0.03)	(913.11)	(2400.89)	
selected* Starts earning more	0.33***	1307.70	3095.41	
	(0.10)	(1057.46)	(2833.04)	
N	301	301	301	
Nominated mean	0.05	10094.42	23900.81	
Nominated SD	0.23	2853.60	8316.42	

Panel B: Effects on women's decision-making power

	Decision-making (Index)			
	Pooled waves	Wave 1	Wave 2	
selected	−0.19	−0.07	−0.35 ***	
	(0.16)	(0.26)	(0.13)	
Starts earning more	−0.19	−0.11	−0.23	
	(0.24)	(0.32)	(0.25)	
selected* Starts earning more	0.11	−0.02	0.31	
	(0.30)	(0.41)	(0.28)	
N	301	153	148	
Nominated mean	−0.05	−0.23	0.19	
Nominated SD	0.94	1.13	0.55	

Panel C: Effects on assignable goods expenditures and remittances (Pooled waves)

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	3.94***	0.27	3.78**	0.67**	−0.27
	(1.37)	(0.63)	(1.57)	(0.28)	(0.79)
Starts earning more	1.01	0.77	4.08	−0.15	1.51
	(1.56)	(2.23)	(3.18)	(0.33)	(1.48)
selected* Starts earning more	−3.91 *	−1.13	−3.35	0.35	−1.35
	(2.09)	(2.32)	(3.92)	(0.86)	(1.63)
N	301	301	301	148	148
Nominated mean	4.99	4.12	6.21	0.47	1.52
Nominated SD	4.36	4.07	8.21	0.85	3.50

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, short-listed runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. The coefficients are from OLS regressions without additional control variables. The sample in Panel C, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.18: Results using a regression discontinuity approach

Panel A: Effects on women's promotions and income (Pooled waves)

	(1) Supervisor (Dummy)	(2) Personal income (Taka)		(3) Household income (Taka)	
selected	0.01	−2894.39	**	−7437.07	*
	(0.20)	(1430.16)		(4395.23)	
N	84	86		84	
Nominated mean	0.11	9835.71		24037.04	
Nominated SD	0.32	2921.09		8563.08	

Panel B: Effects on women's decision-making power

	Decision-making (Index)		
	Pooled waves	Wave 1	Wave 2
selected	−0.16	0.06	−0.33
	(0.44)	(0.53)	(0.40)
N	184	128	84
Nominated mean	−0.14	−0.48	0.25
Nominated SD	1.16	1.38	0.59

Panel C: Effects on assignable goods expenditures and remittances (Pooled waves)

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	4.94**	0.31	4.66***	−3.77	6.82*
	(2.00)	(1.68)	(1.44)	(2.58)	(3.98)
N	145	85	163	72	162
Nominated mean	4.37	1.70	4.11	2.70	5.45
Nominated SD	3.49	2.57	4.32	4.01	7.59

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. The sample in Panel C, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.19: Results using a matching approach

Panel A: Effects on women's promotions and income (Pooled waves)

	(1) Supervisor (Dummy)	(2) Personal income (Taka)	(3) Household income (Taka)
selected	0.27***	−542.68	−924.13
	(0.03)	(521.11)	(932.75)
N	363	363	363
Nominated mean	0.09	9883.31	23758.90
Nominated SD	0.29	3203.56	7963.02

Panel B: Effects on women's decision-making power

	Decision-making (Index)		
	Pooled waves	Wave 1	Wave 2
selected	0.32	0.66**	−0.10
	(0.20)	(0.29)	(0.14)
N	363	181	182
Nominated mean	−0.16	−0.16	−0.16
Nominated SD	1.13	1.13	1.13

Panel C: Effects on assignable goods expenditures and remittances (Pooled waves)

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	3.98***	1.23**	0.87*	−1.18	1.85
	(1.00)	(0.52)	(0.47)	(1.01)	(1.25)
N	363	146	363	161	362
Nominated mean	5.32	0.74	3.92	1.38	6.00
Nominated SD	4.48	1.80	3.99	2.90	8.63

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. The sample in Panel C, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.20: Placebo test—Comparing top and bottom half of selected group

Panel A: Effects on women's promotions and income (Pooled waves)

	(1) Supervisor (Dummy)	(2) Personal income (Taka)	(3) Household income (Taka)
placebo	0.03	216.24	427.10
	(0.06)	(532.25)	(1165.31)
N	296	296	296
Nominated mean	0.30	9799.68	23183.01
Nominated SD	0.46	4291.32	8744.07

Panel B: Effects on women's decision-making power

	Decision-making (Index)		
	Pooled waves	Wave 1	Wave 2
placebo	0.07	0.17	−0.03
	(0.10)	(0.18)	(0.09)
N	296	145	151
Nominated mean	−0.14	−0.23	−0.06
Nominated SD	1.02	1.25	0.72

Panel C: Effects on assignable goods expenditures and remittances (Pooled waves)

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
placebo	0.31	0.85	−0.47	0.56	0.60
	(1.93)	(0.71)	(0.55)	(0.51)	(1.62)
N	296	116	296	129	295
Nominated mean	8.13	2.29	4.46	2.00	9.25
Nominated SD	14.83	3.00	5.14	2.28	12.91

Notes: Table only includes women selected for the promotion program, where the upper half of the ranked list in each factory is assigned to a placebo treatment which is zero for the lower half. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso (ivlasso for Panel A, Column 4) from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies. Where available, the baseline outcome is included in the amelioration set. The sample in Panel C, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.21: Lee (2009) bounds

Outcome	Pooled waves			Wave 1			Wave 2		
	OLS estimate	Lower bound	Upper bound	OLS estimate	Lower bound	Upper bound	OLS estimate	Lower bound	Upper bound
Supervisor	0.29	0.26	0.29	0.34	0.30	0.33	0.24	0.21	0.24
Decision-making (Index)	0.13	0.04	0.23	0.44	0.34	0.55	−0.23	−0.27	−0.15
Women's expenditures	2.58	0.59	2.82	2.18	0.54	2.36	3.02	0.62	3.32
Girls' expenditures	0.82	0.42	0.88	0.54	0.58	0.72	1.17	0.62	1.29
Remittances	2.82	1.55	3.05	2.78	1.61	3.09	2.62	1.39	2.86

Table C.22: Main results using husband's data

Panel A: Effects on promotions and income (Pooled waves)

	(1) Wife is supervisor (Dummy)	(2) Husband's personal income (Taka)	(3) Household income (Taka)
selected	0.26***	287.84	475.79
	(0.05)	(778.84)	(1322.48)
N	350	350	350
Nominated mean	0.06	11427.69	23436.92
Nominated SD	0.24	5098.70	7692.13

Panel B: Effects on wife's decision-making power

	Decision-making (Index)		
	Pooled waves	Wave 1	Wave 2
selected	−0.03	−0.06	−0.14
	(0.09)	(0.18)	(0.11)
N	349	174	175
Nominated mean	0.09	0.06	0.13
Nominated SD	0.65	0.76	0.50

Panel C: Effects on assignable goods expenditures and remittances (Pooled waves)

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	2.21*	0.13	0.27	0.78*	5.13***
	(1.14)	(0.59)	(0.53)	(0.46)	(1.50)
N	350	109	350	100	349
Nominated mean	5.71	1.53	4.31	1.37	6.31
Nominated SD	4.52	1.63	3.58	1.51	9.39

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from wife's demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies. Where available, the baseline outcome is included in the amelioration set. The sample in Panel C, Column 2 (Column 4) is limited to those respondents with a daughter (son), or a female (male) child in the household.

Table C.23: Phone surveys—Effects on women's decision-making and expenditures

	(1) Involvement in decisions (Index)	(2) Women's and girls' expenditures (Taka)	(3) Remittances to wife's family (Taka)	(4) Men's and boys' expenditures (Taka)
selected	0.14*	518.90 **	884.20 **	−88.51
	(0.08)	(253.02)	(443.16)	(205.43)
N	1610	1610	1605	1610
Nominated mean	−0.25	1777.57	2322.79	946.42
Nominated SD	0.98	2511.91	4681.98	2206.44

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and survey round dummies.

Table C.24: Robustness to different specifications and variable transformations

Panel A: Women's decision-making power (Index, Wave 1)

	(1)	(2)	(3)	(4)	(5)	(6)
selected	0.42*	0.30	0.40*	0.25	0.40*	0.24
	(0.24)	(0.25)	(0.22)	(0.25)	(0.22)	(0.25)
N	181	181	181	181	181	181
Nominated mean	−0.48	−0.48	−0.48	−0.48	−0.48	−0.48
Nominee SD	1.38	1.38	1.38	1.38	1.38	1.38

Panel B: Women's assignable goods expenditures (% in household income)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
selected	2.71**	3.01***	1.96	2.67*	1.96	2.04**	0.26
	(1.07)	(1.10)	(1.53)	(1.40)	(1.53)	(1.03)	(0.22)
N	363	363	363	363	363	363	363
Nominated mean	5.32	5.32	5.32	5.32	5.32	5.32	7.28
Nominee SD	4.48	4.48	4.48	4.48	4.48	4.48	1.53

Panel C: Girls' assignable goods expenditures (% in household income)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
selected	1.22**	1.08*	1.12	1.38	1.12	0.73	0.84
	(0.62)	(0.55)	(1.19)	(0.87)	(1.19)	(0.67)	(0.52)
N	146	146	146	146	146	146	146
Nominated mean	1.65	1.65	1.65	1.65	1.65	1.65	5.17
Nominee SD	2.41	2.41	2.41	2.41	2.41	2.41	2.74

Panel D: Remittances (% in household income)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
selected	3.48**	3.47**	3.04**	3.35**	3.04**	3.48**	0.66
	(1.40)	(1.37)	(1.50)	(1.41)	(1.50)	(1.42)	(0.64)
N	362	362	362	362	362	362	362
Nominated mean	6.00	6.00	6.00	6.00	6.00	6.00	3.90
Nominee SD	8.63	8.63	8.63	8.63	8.63	8.63	4.26
Method	PDS	OLS	OLS	OLS	OLS	PDS	PDS
Controls	PDS	No	No	Linear	Theory	PDS with interactions	PDS
Factory F.E.	PDS	No	Yes	No	Yes	PDS	PDS
Enumerator F.E.	PDS	No	Yes	No	Yes	PDS	PDS
Month F.E.	PDS	No	Yes	No	Yes	PDS	PDS
Imbalanced controls	PDS	No	Yes	No	Yes	PDS	PDS
Transformation							IHS

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. IHS = Inverse hyperbolic sine transformation of the Taka amount.

Table C.25: Robustness to re-ranking effects

Panel A: Effects on women's promotions and income (Pooled waves)

	(1) Supervisor (Dummy)	(2) Personal income (Taka)	(3) Household income (Taka)
selected	0.35***	−641.04	−1513.18
	(0.07)	(611.34)	(2054.15)
N	160	160	160
Nominated mean	0.00	9932.62	24384.10
Nominated SD	0.00	1893.51	7292.15

Panel B: Effects on women's decision-making power

	Decision-making (Index)		
	Pooled waves	Wave 1	Wave 2
selected	−0.22	−0.03	−0.39 **
	(0.27)	(0.49)	(0.18)
N	160	78	82
Nominated mean	0.22	−0.15	0.56
Nominated SD	1.14	1.51	0.51

Panel C: Effects on assignable goods expenditures and remittances (Pooled waves)

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	3.20	2.00***	−1.02	−1.11	4.31*
	(2.18)	(0.60)	(1.09)	(1.36)	(2.31)
N	160	55	160	71	159
Nominated mean	6.98	1.52	5.42	3.50	5.23
Nominated SD	5.85	1.19	5.01	4.83	10.20

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies. Where available, the baseline outcome is included in the amelioration set. The sample is limited to the half of the factories that were not assigned to the selection experiment discussed in Section 3.1. The sample in Panel C, Column 2 (Column 4) is further limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.26: Robustness to training effects

Panel A: Effects on women's promotions and income (Pooled waves)

	(1) Supervisor (Dummy)	(2) Personal income (Taka)	(3) Household income (Taka)
selected	0.16**	78.84	−371.28
	(0.07)	(621.47)	(1556.63)
selected*softonly	0.16**	1037.16	1593.06
	(0.07)	(631.93)	(1362.50)
selected*hardsoft	0.09	833.10	−229.93
	(0.07)	(638.16)	(1412.45)
N	363	363	363
Nominated mean	0.09	9883.31	23758.90
Nominated SD	0.29	3203.56	7963.02

Panel B: Effects on women's decision-making power

	Decision-making (Index)		
	Pooled waves	Wave 1	Wave 2
selected	0.07	0.30	−0.08
	(0.16)	(0.29)	(0.11)
selected*softonly	−0.01	0.09	−0.10
	(0.12)	(0.22)	(0.11)
selected*hardsoft	0.13	0.26	−0.01
	(0.13)	(0.24)	(0.11)
N	363	181	182
Nominated mean	−0.16	−0.48	0.22
Nominated SD	1.13	1.38	0.58

Panel C: Effects on assignable goods expenditures and remittances (Pooled waves)

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
selected	3.32**	0.54	0.35	−0.49	3.29*
	(1.43)	(0.60)	(0.75)	(0.75)	(1.71)
selected*softonly	−2.60	0.75	−0.20	−0.17	0.80
	(1.77)	(0.62)	(0.75)	(0.49)	(1.92)
selected*hardsoft	0.78	1.06	0.10	0.82	−0.22
	(2.68)	(1.20)	(0.69)	(0.77)	(1.96)
N	363	146	363	161	362
Nominated mean	5.32	1.65	3.92	2.69	6.00
Nominated SD	4.48	2.41	3.99	3.65	8.63

Notes: Selected is a dummy variable indicating whether the female sewing-line operator is quasi-randomly selected for the promotion program. Nominated is a dummy variable indicating whether the female sewing-line operator is an eligible, shortlisted runner-up that was quasi-randomly not selected for the promotion program, and represents the comparison group for the selected group. Standard errors clustered at the individual level in parentheses. Controls chosen using pdslasso from demographic controls and baseline bargaining measures, their squares, and factory, enumerator and month dummies. Where available, the baseline outcome is included in the amelioration set. The sample in Panel C, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.27: Role model analysis: Effect on assignable goods expenditures and remittances

	(1) Women	(2) Girls	(3) Men	(4) Boys	(5) Remittances
	(All outcomes in Taka)				
exposed	−283.05 **	10.95	−228.85 ***	−26.02	−382.25 *
	(123.69)	(62.34)	(68.64)	(70.26)	(214.88)
N	488	255	488	262	483
Non-exposed mean	1306.69	2.41	939.44	2.35	1823.53
Non-exposed SD	1402.55	2.50	856.85	2.41	2485.34

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. Controls chosen using pdslasso from demographic controls and bargaining measures, their squares, and factory, enumerator and month dummies.

Table C.28: Role model analysis: Effects on other expenditures

Panel A: Outcomes in % of household income

	(1) Food	(2) Furnishing durables	(3) Entertainment durables	(4) Kitchen durables	(5) Housing	(6) Savings	(7) Recreation
exposed	−0.78	0.47*	0.28	−0.01	−0.01	−0.63	−0.21 ***
	(2.65)	(0.27)	(0.21)	(0.03)	(1.31)	(0.91)	(0.07)
N	488	488	488	488	488	486	488
Non-exposed mean	36.77	0.26	0.22	0.08	17.06	4.59	0.63
Non-exposed SD	26.60	1.35	1.62	0.33	15.23	9.74	0.82

Panel B: Outcomes in Taka

exposed	−176.80	92.68	59.99	1.61	173.35	−71.68	−24.55 **
	(479.27)	(61.50)	(46.35)	(5.28)	(263.43)	(191.04)	(9.90)
N	488	488	488	488	488	486	488
Non-exposed mean	7071.61	65.81	49.72	14.87	3264.08	961.86	115.13
Non-exposed SD	4419.98	394.59	343.51	52.67	2473.79	2004.59	120.92

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. Controls chosen using pdslasso from demographic controls and bargaining measures, their squares, and factory, enumerator and month dummies.

Table C.29: Role model analysis: Effects on time use

Panel A: Women's time use (Hours)

	Last workday				Last non-workday		
	(1) Domestic work	(2) Leisure	(3) Sleep	(4) Work	(5) Domestic work	(6) Leisure	(7) Sleep
exposed	0.08	0.03	−0.16 *	−0.05	−0.16 *	0.12	0.09
	(0.08)	(0.08)	(0.10)	(0.18)	(0.10)	(0.14)	(0.10)
N	465	465	465	465	488	488	488
Non-exposed mean	3.17	1.57	6.85	9.80	4.58	3.27	8.22
Non-exposed SD	0.97	0.98	1.08	1.20	1.06	1.80	1.31

Panel B: Husband's time use (Hours)

	Last workday				Last non-workday		
	(1) Domestic work	(2) Leisure	(3) Sleep	(4) Work	(5) Domestic work	(6) Leisure	(7) Sleep
exposed	0.05	−0.19 ***	0.03	0.16	0.20***	−0.11	−0.20 *
	(0.08)	(0.07)	(0.08)	(0.18)	(0.08)	(0.08)	(0.10)
N	414	414	414	414	449	449	449
Non-exposed mean	0.98	2.59	7.31	9.93	2.04	4.19	8.86
Non-exposed SD	0.64	1.32	0.75	1.37	0.94	1.99	0.93

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. Controls chosen using pdslasso from demographic controls and bargaining measures, their squares, and factory and enumerator dummies.

Table C.30: Role model analysis: Effects on other outcomes

	Economically active		Slapped or beaten by husband		Hiding money
	(1) Wife	(2) Husband	(3) Ever	(4) In last 5 months	(5)
exposed	−0.02	−0.03	0.03	0.02	0.07
	(0.02)	(0.02)	(0.05)	(0.02)	(0.04)
N	488	449	482	482	488
Non-exposed mean	0.97	0.93	0.30	0.02	0.12
Non-exposed SD	0.16	0.25	0.46	0.13	0.33

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. Controls chosen using pdslasso from demographic controls and bargaining measures, their squares, and factory and enumerator dummies.

Table C.31: Role model effects: Heterogeneity by women having brought assets into the marriage

Panel A: Effects on income and decision-making power

	(1) Personal income (Taka)	(2) Household income (Taka)	(3) Decision-making (Index)
exposed	−108.13	−269.54	0.24***
	(331.81)	(771.93)	(0.07)
exposed * Brought assets into marriage	811.39	167.52	−0.07
	(522.40)	(1384.68)	(0.16)
Brought assets into marriage	−733.82 *	−1013.59	0.45***
	(379.80)	(1082.34)	(0.11)
N	463	463	463
Non-exposed mean	9474.36	21059.47	−0.20
Non-exposed SD	2811.99	7145.19	0.77

Panel B: Effects on assignable goods expenditures and remittances

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
exposed	0.65	−0.20	−1.17 **	−0.16	−1.13
	(0.92)	(0.38)	(0.49)	(0.34)	(1.28)
exposed * Brought assets into marriage	−2.94 *	−1.05	0.27	−0.51	2.89
	(1.70)	(0.72)	(1.13)	(0.90)	(2.86)
Brought assets into marriage	0.91	0.49	0.65	0.88	−0.32
	(1.25)	(0.60)	(0.62)	(0.60)	(1.96)
N	463	248	463	251	458
Non-exposed mean	6.29	2.50	4.62	2.40	8.90
Non-exposed SD	6.68	2.50	5.26	2.43	11.99

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. Coefficients are from an OLS regression with no controls. The sample in Panel B, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.32: Role model effects: Heterogeneity by women earning more than husband

Panel A: Effects on income and decision-making power

	(1) Personal income (Taka)	(2) Household income (Taka)	(3) Decision-making (Index)
exposed	−9.23	−954.90	0.21**
	(380.63)	(879.29)	(0.09)
exposed * Earns more	249.93	1658.40	0.04
	(530.51)	(1246.35)	(0.19)
Earns more	1132.02 ***	−5317.80 ***	−0.07
	(368.94)	(865.59)	(0.16)
N	449	449	449
Non-exposed mean	9380.20	21235.56	−0.24
Non-exposed SD	2839.79	7414.98	1.08

Panel B: Effects on assignable goods expenditures and remittances

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
exposed	1.41	−0.57	−0.73 **	−0.46	0.55
	(1.14)	(0.42)	(0.37)	(0.43)	(1.46)
exposed * Earns more	−3.95 **	0.41	−1.65	0.21	−1.69
	(1.64)	(0.73)	(1.00)	(0.65)	(2.24)
Earns more	3.14***	−0.24	1.99**	−0.02	−1.20
	(0.94)	(0.55)	(0.84)	(0.45)	(1.63)
N	449	235	449	239	446
Non-exposed mean	6.55	2.49	4.80	2.36	8.51
Non-exposed SD	6.67	2.55	5.35	2.43	12.04

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. Coefficients are from an OLS regression with no controls. The sample in Panel B, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.33: Role model effects: Robustness to matching approach

Panel A: Effects on income and decision-making power

	(1) Personal income (Taka)	(2) Household income (Taka)	(3) Decision-making (Index)
exposed	102.65	−420.98	0.24***
	(231.02)	(634.76)	(0.08)
N	488	488	488
Non-exposed mean	9387.21	21166.26	−0.26
Non-exposed SD	2863.31	7325.44	1.08

Panel B: Effects on assignable goods expenditures and remittances

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
exposed	−0.44	−0.09	−1.17 ***	0.13	0.24
	(0.63)	(0.35)	(0.40)	(0.38)	(1.30)
N	488	255	488	262	483
Non-exposed mean	6.48	1.14	4.69	1.27	8.49
Non-exposed SD	6.63	2.09	5.25	2.11	11.81

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Heteroskedasticity-robust standard errors in parentheses. One-to-one nearest-neighbour matching with replacement implemented on all balance variables in Table 2 as well as factory, enumerator and month dummies. The weighting matrix for matching variables is the diagonal matrix of the inverse sample standard errors. The estimation in Panel A, Column 2 excludes the household income variable from the matching variables. The sample in Panel B, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.34: Role model effects: Robustness to operator sorting

Panel A: Effects on income and decision-making power

	(1) Personal income (Taka)	(2) Household income (Taka)	(3) Decision-making (Index)
exposed	599.23 ***	641.20	0.29***
	(139.32)	(608.54)	(0.08)
N	437	437	389
Non-exposed mean	9387.40	19069.09	−0.12
Non-exposed SD	2809.93	8054.61	1.13

Panel B: Effects on assignable goods expenditures and remittances

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
exposed	−1.12	0.46	−0.35	0.56	0.89
	(0.71)	(0.65)	(0.44)	(0.59)	(1.50)
N	437	207	437	200	435
Non-exposed mean	7.01	2.63	3.88	2.93	9.93
Non-exposed SD	7.22	2.71	5.07	3.65	14.27

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. Controls chosen using pdslasso from demographic controls and bargaining measures, their squares, and factory, enumerator and month dummies. The sample compares the subsample of exposed operators who joined the lines exposed to the new female supervisors before the start of the promotion program, comparing them to the previous sample of non-exposed operators. The estimation in Panel A, Column 2 excludes the household income variable from the set of possible controls. The sample in Panel B, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.35: Role model effects: Main results using husbands' data

Panel A: Effects on income and decision-making power

	(1) Husband's personal income (Taka)	(2) Household income (Taka)	(3) Wife's Decision-making (Index)
exposed	−203.58	−567.41	0.02
	(332.82)	(761.76)	(0.11)
N	449	449	449
Non-exposed mean	10304.84	21235.56	0.10
Non-exposed SD	5327.06	7414.98	1.17

Panel B: Effects on assignable goods expenditures and remittances

	Women	Girls	Men	Boys	Remittances
	(All outcomes as % in household income)				
exposed	0.41	0.16	−0.69	−0.32	−0.93
	(0.89)	(0.39)	(0.51)	(0.47)	(1.25)
N	449	144	449	146	449
Non-exposed mean	6.55	1.82	5.48	2.30	9.04
Non-exposed SD	6.51	2.22	5.32	2.52	12.80

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. Sharpened q-values in squared brackets. Controls chosen using pdslasso from demographic controls and bargaining measures, their squares, and factory, enumerator and month dummies. The estimation in Panel A, Column 2 excludes the household income variable from the set of possible controls. The sample in Panel B, Column 2 (Column 4) is limited to those respondent with a daughter (son), or a female (male) child in the household.

Table C.36: Role model analysis: Robustness to different specifications and variable transformations

Panel A: Personal income (Taka)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
exposed	235.54 **	135.37	249.89	171.59	249.89	84.09	−0.09
	(117.85)	(272.77)	(274.32)	(114.50)	(274.32)	(.)	(0.07)
N	488	488	488	488	488	488	488
Non-exposed mean	9387.21	9387.21	9387.21	9387.21	9387.21	9387.21	9.61
Non-exposed SD	2863.31	2863.31	2863.31	2863.31	2863.31	2863.31	1.45

Panel B: Women's decision-making power (Index)

	(1)	(2)	(3)	(4)	(5)	(6)
exposed	0.36***	0.23**	0.36***	0.21**	0.36***	0.30***
	(0.09)	(0.09)	(0.10)	(0.09)	(0.10)	(0.08)
N	488	488	488	488	488	488
Non-exposed mean	−0.26	−0.26	−0.26	−0.26	−0.26	−0.26
Non-exposed SD	1.08	1.08	1.08	1.08	1.08	1.08

Panel C: Men's expenditures (% in household income)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
exposed	−1.06 **	−1.19 ***	−1.15 ***	−1.32 ***	−1.15 ***	−1.22 ***	−0.74 ***
	(0.44)	(0.42)	(0.40)	(0.44)	(0.40)	(0.40)	(0.23)
N	488	488	488	488	488	488	488
Non-exposed mean	4.69	4.69	4.69	4.69	4.69	4.69	6.75
Non-exposed SD	5.25	5.25	5.25	5.25	5.25	5.25	2.05
Method	PDS	OLS	OLS	OLS	OLS	PDS	PDS
Controls	PDS	No	No	Linear	Theory	PDS with interactions	PDS
Factory F.E.	PDS	No	Yes	No	Yes	PDS	PDS
Enumerator F.E.	PDS	No	Yes	No	Yes	PDS	PDS
Month F.E.	PDS	No	Yes	No	Yes	PDS	PDS
Imbalanced controls	PDS	No	Yes	No	Yes	PDS	PDS
Transformation							IHS

Notes: Exposed is a dummy variable indicating whether the female sewing-line operator was working on lines to which the newly selected female supervisors were assigned to trial for the promotion program. The non-exposed group is a dummy variable indicating whether the female sewing-line operator was working on lines unrelated to the promotion program, and represents the comparison group for the exposed group. Standard errors clustered at the production line level in parentheses. IHS = Inverse hyperbolic sine transformation of the Taka amount.