

Improving Women's Labor Force Participation in Colombia Through Parent Sharing Groups

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1. Introduction

Although there has been significant progress in gender equality in the labor force participation, women still face constraints that prevent them from maximizing their contributions. The most commonly cited constraint for women is their traditional role as caretakers (Halim et al., 2021). This constraint can be even more restrictive in developing countries like Colombia, and is illustrated by the disparity between unpaid labor time performed by the two genders. According to Colombia's National Administrative Department of Statistics ("DANE"), men participate an average of three hours in unpaid labor per day while women undertake close to eight hours. This labor disparity is potentially influencing the slow increase of women's labor force participation since it is currently 43%, lower than both the global and regional rates which are 49.6% and 49.5% respectively (UN Women, 2015). In this project, we will investigate how mothers react if their time constraint is treated, and how this treatment leads to better economic life. Specifically, (i) does a parent-sharing program increase mothers' free time? (ii) will more free time lead mothers to be more engaged in income generating activities? and etc.

We will use a Randomized Control Trial ("RCT") on mothers who have one child enrolled in primary school, a context in which these experiments have been rarely conducted. This is an initial phase of a potentially larger research project given that at this time we are only observing mothers with one child. In the future, further studies can be done observing mothers with different amounts of children. In this regard, we will study output (direct impact), outcome (increased income) and detailed mechanisms of parent-sharing programs to explain mothers' job searching effort, type of job, or spending hours for working based on several surveys and tests.

2. Motivation and Conceptual Framework

2.1 Motivation

Our motivation for this project is to understand the non-wage barriers that restrict women from being more productive. Women want to be productive and want to spend more time in the labor force, as demonstrated in ILO data which indicates that 70% of women globally would prefer to be in paid jobs (ILO, 2017). According to the UN Women, \$28

trillion dollars are not being realized in the global economy due to the restrictions women continue to face in the labor force. The three main factors that motivate this project include:

- The gender employment gap remains wide despite the progress made globally on factors influencing the gap including education for girls and women, reducing racial bias and workforce discrimination, and fostering policies for gender equality.
- Women spend a disproportionate amount of time outside of the labor force in unpaid work. This is the case in Colombia, the first country to acknowledge unpaid household work as an economic contribution to the national economy in 2010(OECD, 2020). However, a national survey on time spent in the labor force revealed that women spend more time in unpaid labor, approximately seven hours compared to men who spent three hours.

2.2 Conceptual Framework

In the year 2000, 25% of women in Colombia were not in the labor force. Twenty-three years later, 18.2% of women are still not part of the workforce. Women's participation in the labor market is 52.2 % compared to men 74.1 % (Universidad Nacional de Colombia, 2020). Colombia has made considerable strides to foster gender-equality. National policies have been restructured to reflect gender equality that calls for fair treatment of women in the workplace, eradicating gender stereotypes and norms and creating fair working environments. Colombia has also moved to recognize the economic contribution of unpaid care work of women (UN Women). Despite this progress, stereotypes continue to restrict women's income earning potential (OECD, 2017).

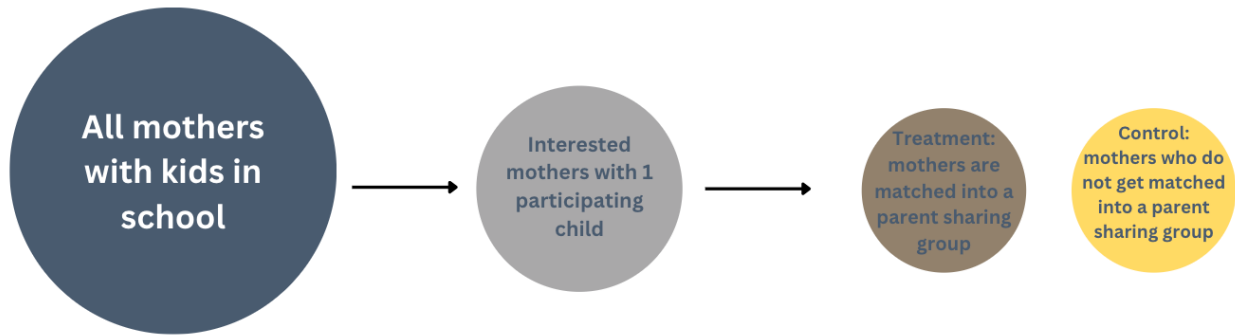
3. Sample and Interventions

3.1 Sample

We are interested in observing how women choose to utilize newly liberated time after taking away a portion of their unpaid labor. Our target population is thus comprised of women in Bogota who have one child. Our assumption is that younger children represent a higher amount of necessary care time, therefore, we will focus on mothers of children in elementary school, ages 5-12. In order to prevent placing a disproportionate child care burden on certain mothers by allowing multiple children to participate in the program, we limit the experiment to women with one child. This way every parent sharing group will have the same amount of mothers and children.

Selection bias is a potential threat for the project design since women who opt into a parent sharing group might be more likely to behave a certain way than the ones that do not opt in. Avoiding this leads us to our parent selection process outlined below:

- 1) Work in partnership with schools to inform mothers about the intervention
- 2) Interested mothers will complete an expression of interest form
- 3) Advertising efforts in schools will continue until 600 mothers express interest in the program
- 4) Interested mothers will be separated into groups: 250 mothers will be invited to participate in the program as part of the treatment group. If not all 250 mothers decide to sign up, invitations will be made in a random manner to the non selected mothers until the treatment group is 250 mothers. The rest of the mothers will be randomized so that there are 250 mothers in the control group and the rest of the mothers will no longer be part of the experiment.



3.2 Interventions

The intervention is to create parent sharing groups in partnership with the local schools to determine if women are constrained by asymmetry of information or coordination failure. We will observe if the additional time obtained by taking away the childcare obligations results in more labor force participation from women, especially entrepreneurial activity. This intervention works under the assumption that women value quality care for their children, which is why they spend time taking care of them instead of on other activities. Apart from this we assume that women's income generating potential is being limited because of their childcare responsibilities. To this end our last assumption is that if

women knew that their children were being well taken care of, they would have the option to spend time undertaking income generating activities.

The parent sharing groups are for mothers each with one child in elementary school and are meant to alleviate care time before and after regular school hours. The specific amount of time will be agreed upon by the parent sharing group. Even though mothers can carry out income generating activities during the time their children are at school, which is on average 5 hours per day, the parent sharing program can potentially change their income(Radinger et al., 2018). For instance, a mother might be constrained to accept a lower paying job because of the schedule flexibility or only having to work part time since she needs to take care of her child. We hypothesize that if this mother were in a parent sharing program that the newly liberated time can give her an incentive to find a higher paying job. However, we are interested in any action that mothers take with the newly liberated time.

3.3 Treatments

Treatment group: As outlined in the sample section, 250 mothers will receive treatment. Each group will have 5 mothers that rotate childcare responsibilities each day of the week. Each group will sign a contract binding them to the parent sharing group and the agreed upon responsibilities that best match that group's need. The content of the contract will be determined by each apparent group according to their needs and will be facilitated by school staff as a way to ensure the contract can further assign credibility and a sense of responsibility in the mothers.

Control group: 250 mothers will not receive treatment but will be surveyed to collect information about their occupation, goals, time constraints and other individual characteristics like work experience and education level.

3.4 Randomization

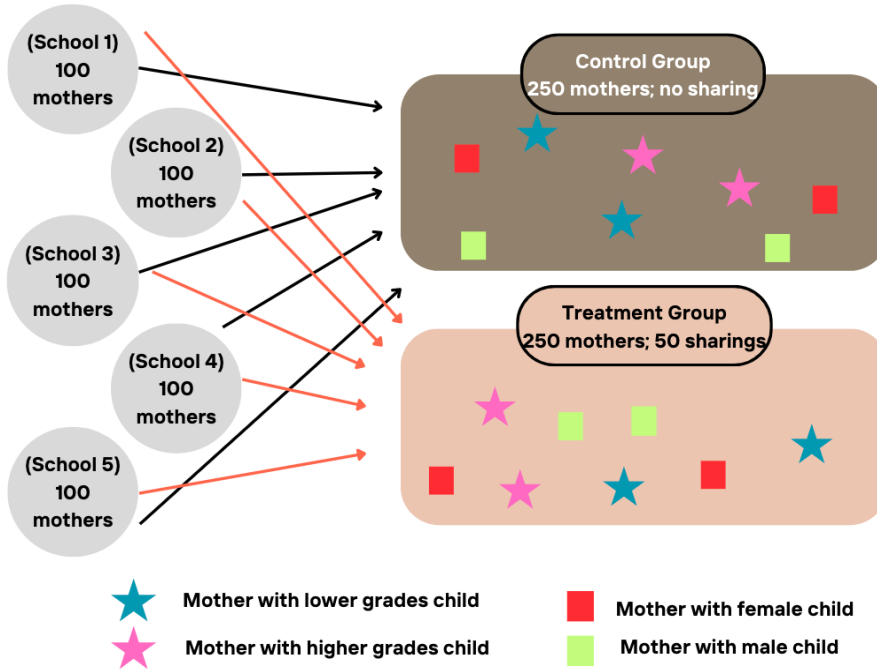
We will randomize both 'Parent sharing program provided' interventions at the level of the individual mother. We will assign half of the sample (about 250 of the 500 participating mothers) to pure control (no participation), and the other half of the sample to the program participants.

Randomization of mothers will happen according to a simple stratification rule. Each group contain identical portion of parents sharing units along the following dimensions:

1. Level of grades for kids (Lower grades vs Upper grades)
2. Gender of child (Boys vs Girls)

In other words, the same number of parents sharing units from schools, for lower and upper grades, and boys and girls will be assigned in each group (control and treatment). This stratification will help ensure balance in terms of school, level of grades and gender for kids.

Randomization



3.5 Risks to subjects

There are potential risks of this project to its participants. The program requires children to be in 5 different environments after school, considering that is the amount of mothers who will be required to share responsibilities over a period of 5 days. We anticipate the possibility that this may have adverse mental effects on children. According to the Urban Institute, changes in child care settings can adversely affect development outcomes in children, especially children between the ages of two to fourteen years old (Urban Institute, 2013). Additionally, children who experience child care instability in their formative years are more likely to exhibit disruptive behavior as indicated by their peers (Urban Institute, 2013).

Another risk to consider is the differences among parenting styles. These differ among mothers and we anticipate that the matching component of the intervention will eliminate the coordination issue. Matching will be done based on information disclosed by mothers. We expect some level of deceit when parental preferences are disclosed and this could lead to possible dangerous environments for children. If this is reported we would need

to immediately disassemble the group and address the issue. We also expect issues with cohesion for children. We expect that there is a possibility of them having difficulty getting along, especially if they are grouped with other children that they have poor relationships with at school. Children could express discomfort in the program and may not wish to continue participating. This is a possible threat to the intervention.

3.6 Data sources

We intend to gather information on schools from the Ministry of Education in Colombia which is the regulatory body responsible for the management of the public school system in Colombia.

Data will be collected from participating parents through baseline, midline and endline surveys. We will be gathering information about parenting style, number of students in more than one household who attend the same school, number of siblings each child has within each school and other demographic information. We will also collect information from mothers who have dropped out of the treatment group to seek feedback and inquire about the problems in that parent sharing group. The following are examples of possible questions for the baseline, midline and endline surveys.

Baseline survey questions

In the baseline survey we intend to collect basic demographic information about mothers and children.

- Are you currently employed ?
- Is your work full-time or part-time ?
- Do you like your current job ?
- Are you in search of full-time or part-time work ?
- Are you in need of additional child care assistance ?
- Would you trust other parents in your child's class to care for your child?
- How much time do you spend on childcare?
- How much time do you spend on paid work?
- How much is your household income ?

Midline survey questions

- Are you getting along with other mothers in your group?
- Have you been able to successfully coordinate a full week of rotation between all of the mothers in your group ? If not, please indicate why?

- How many hours was your child with the parent sharing group this past week?
- How many hours did you spend looking for income earning activities last week?
- How many job applications have you completed, if any?
- Have you found employment after becoming part of a parent sharing program?
- If the answer to the previous question is yes, what is your new salary?
- [IF PARENT SHARING GROUP DROPS OUT]What are some of the issues that caused the group to not facilitate a full week of rotation ?
- [IF PARENT SHARING GROUP DROPS OUT]Why did the group break up ?

Endline survey questions

- How many hours did you spend looking for income earning activities last week?
- How many job applications have you completed, if any?
- Have you found employment after becoming part of a parent sharing program?
- If the answer to the previous question is yes, what is your new salary?
- Are you employed in the formal or informal sector ?
- How much time do you spend on childcare after the program?
- How much time do you spend on paid work after the program?
- How much is your additional household income after the program?
- [IF PARENT SHARING GROUP DROPS OUT]What are some of the issues that caused the group to not facilitate a full week of rotation ?
- [IF PARENT SHARING GROUP DROPS OUT]Why did the group break up ?
- [IF PARENT SHARING GROUP DROPS OUT]Why did the group break up ?

3.7 Timeline

The entire project will have the duration of twelve months and will include one month of recruiting followed by one full academic school year, which begins in January and ends in November. The timeline is broken down as follows:

- Month 1:
 - Recruitment of mothers through information campaigns at schools
- Month 2:
 - Baseline Survey: Collecting data about mothers' regular amount of time spent on childcare, characteristics of the mother like education, eagerness to work, and household characteristics.
 - Selection of treatment and control groups
- Month 2-13: Implementation of parent sharing group experiment

- Month 6: Midline survey of mothers to observe the change in amount of time spent on childcare, check the participation and inquire about their experience thus far. Measure their effort in job search (if any).
- Month 13: Endline surveys of mothers to observe the change in amount of time spent on childcare, check the participation and inquire about their experience thus far. Through these surveys we will observe their effort in job search(if any), change in employment status, change in time spent undertaking paid labor, and income earned.

4. Hypothesis and Outcomes

4.1 Primary outcomes

Our main hypothesis is that the parent sharing program increased mothers' participation in income generation activities such as salary employee or self-employment. In the short-run, we expect mothers who gained more time will change their behavior and will try to search and apply for a job in the labor market, however, there is a possibility that employment rate does not change. This is because employment also depends on other factors which we will also observe in this experiment such as age and work experience. In this regard, we are also interested in whether these interventions actually help mothers finally reach an increased income, and what kind of work they get (e.g. salary employee or self-employment).

H_a: The parents sharing program will increase mothers' employment rates, and incomes

To study this hypothesis, we will investigate impacts on the following outcomes:

1. **Increased free-time:** Total available hours generated from the parent sharing program
2. **Form of employment:** Dummy variable for the mother engaged in work. Work may include formal salary employment, informal salary employment, or self-employment.
3. **Generated income:** Total income generated from the new work

We will measure each outcome at the midline and the endline survey.

4.2 Mechanisms

4.2.1. Effort on job search

We hypothesize that when mothers participate in a parent sharing program, they change their behavior from spending time taking care of their child to getting a job or trying to look for one.

Ha: Treated mothers will spend their time on job searching activities

We will test this hypothesis by studying impacts on the following outcomes

1. Number of hours searching/preparing for job
2. Number of applications submitted
3. Number of job offers

4.2.2. Working hours

We also hypothesize that when mothers participate in parent sharing program, they would spend their time on work proportionate to the amount of time they earned

Hb: Treated mothers will spend their time on income generating activities

We will test this hypothesis by estimating impacts on the following outcomes

1. Number of additional free time mother get from the parent-sharing program
2. Number of hours mothers spend on income generating activities

4.3 Downstream Outcomes

We expect that there are several spillover effects from our program, and if it is successful there are some important outcomes we hope to achieve. We hypothesized the following:

Ha: The parent-sharing program will continue after the invention

1. Level of interest in the program - Ranking the interest of mothers after the program. This would form part of the endline survey
2. Feedback from the program participants - Rating the program based on their satisfaction with it
3. Measure the effectiveness of coordination - How many mothers were satisfied with the arrangement specifically matching them up with mothers who have similar backgrounds

Hb: The national output from more women joining the workforce will increase

1. GDP indicators - Observe GDP indicators to identify a change in household expenditure and tax revenue
2. Employment indicators - The number of women that joined the workforce in the economic year and the number of women who left the workforce
3. Number of new jobs created in the economic/financial year and how many of them were occupied by women

Hc: Women's economic empowerment will increase

1. Economic independence - The number of women who are able to meet monthly consumption expenditure independent of partners
2. Women's participation in entrepreneurial activities - The number of women whose only income stream is from their entrepreneurship activities
3. Self-reliance - the number of women who are able to meet their monthly consumption needs without a partner

Overall, we expect this project to inspire additional research to explore barriers to women's participation in the labor force. This can be done through other RCTs or by assessing Colombia's gender equality policies. We advocate for a shift in gender attitudes towards women - Women should be recognized for their economic contributions that are not limited to domestic housework.

5. Estimation Methodology

In our study we will test a difference of two means for controlled and treatment groups. The main analysis of the data collected from the survey will be income (Outcome) with Parent sharing program (treatment) effect. To have a more precise estimation model, we will consider adding a confounder (such as mothers current working hours), which would affect both outcome and treatment. In addition, as covariates, there will be more variables such as mother's education level, household wealth, mother's work experience, and current working status. These are the most common variables observed in the already existing literature exploring women's income earning potential. (David. 1999 & Sina Mehdikarimi. et. al. 2015) The equation will be denoted as below:

$$Income = b_0 + b_1*treatment + b_2*mon_educ + b_3*hh_wealth + b_4*work_exp + b_5*hrs_working + b_6*working_status + u$$

5.1 Threats

The biggest threats to this project are attrition and social desirability bias. The parent sharing program is a volunteer based program that relies on the parents carrying out their outlined duties, however, they have the freedom to leave the program at any time. Attrition could happen if the educational context of the children in the program changes such as moving out of the community or transferring schools. In this case, the mother would have to leave the program since the responsibilities outlined in the parent sharing contracts cannot be fulfilled as initially agreed upon. Another reason why attrition could happen is if there is conflict among the mothers and they choose to leave the group.

If attrition happens, the entire group will be removed from the treatment group and the experiment. We acknowledge this can potentially weaken our experiment, but seeing the effect of an entire school year of parent sharing is crucial to understand if women would earn more income if their child care time was decreased. This is because we want to ensure the participants actions are not biased if they perceive that the group might exit the program. If a parent sharing group drops out of the experiment before the midpoint of the intervention, they will be asked to participate in the midline survey. If the parent sharing group drops out after the midpoint of the intervention, they will be asked to complete the endline survey. These survey results will only be used to provide feedback to the research team to understand their reasons for leaving the parent sharing group.

One of the main components of our research is obtaining data through the surveys at different stages of the project. There is a risk of obtaining inaccurate data if the mothers are dishonest with their answers because of social desirability bias. Some women might feel bad or would not want to disclose that they did not utilize their new free time in a productive

manner. If women are dishonest about their actual use of time, they will bias the results of the research.

6. Power Analysis

With 500 sample sizes with 250 treatment and 250 control groups, alpha 0.05, and power 0.8, our parent sharing program (treatment) showed Minimum Detectable Effect (MDE) of 0.2511 percentage points. If we assume standard deviation for our estimated income as 100, the difference in the mean of outcomes from control and treatment groups should be at least 25.11 (delta). We will develop our estimates and assumptions based on the data from the survey, and more concisely analyze MDE to secure at least 80% power.

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