Reshaping beliefs to promote higher female labor participation in Chile

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Executive Summary

Over the last 30 years the female labor participation rate (FLPR) in Chile has been consistently increasing, but there is still a significant gender gap remaining, mostly explained by married and low educated women. Moreover, the evidence also shows that these two characteristics are associated to “sexist” attitudes towards women’s work. In this paper, cultural factors - described as beliefs, preferences and social norms - interact to determine individual behavior or actions, that is, women’s decision to work. This study mainly focuses on the impact that changes in beliefs could have in individual behavior and consequently on the general equilibrium FLPR.

A randomized experiment, carried out in Santiago (Chile), shows that light interventions can change women’s beliefs, especially on our targeted groups. The study provides some evidence that inaccurate or biased beliefs could lead to a suboptimal equilibrium in the job market. By updating beliefs, it is possible to impact women’s actions motivating them to join the paid work force. This effect would be particularly important for those indifferent between working or not (“marginal women”), ultimately leading to changes in the associated social norms and on the female labor supply.

Considering the previous results, two policies, an informational and motivational campaign as well as including gender discussions in the secondary school curriculum are analyzed. Reshaping beliefs in the short run can change behavior and individual actions in the medium term, ultimately leading to movements in the FLPR and adjustments in the social norms and preferences in the long run. An increase in FLPR will have a larger and longer-term impact for the population as well as for the government. By improving women’s multidimensional development, reducing poverty and inequality and fostering productivity both stakeholders will be largely benefited and the cost of any program will be offset.
Introduction

Gender equality is today at the top of the international agenda as past decades have seen the emergence of diverse social movements claiming for the expansion of women’s rights in labor, education, violence and political spheres. As a result, in 2018 many countries have achieved important milestones towards gender parity across education, health, and economic and political systems.¹

In this context, in 2016, the former Chilean government created the Ministry of Women and Gender Equality (MWGE) aiming to establish a cross-state effort promoting a cultural change to provide women with full autonomy to exercise their rights.² This decision was taken in a context of increasing public awareness triggered by the domestic abuse cases that gave rise to the “Feminist Revolution” movement³. The movement demanded the need of state intervention to drive a more favorable environment to promote women multidimensional development and inclusion.

Some of the most relevant issues around gender inequality are the substantial differences between men and women in labor participation, remuneration and advancement. But although the gender labor gap is significant in almost every country; Chile stands out for its low female labor participation rate (FLPR), ranking 120 out of 149 countries in the Global Gender Gap Report in 2018. In that year, the FLPR was 58 percent, relatively low compared to an average 63 percent of Organization for Economic Co-operation and Development (OECD) countries.⁴

Nonetheless, over the last 30 years the male/female gap in Chile has been consistently narrowing down but there is still a significant gap of 27 percent remaining. This positive evolution has been driven by the inclusion of women that are married, have children or/and have low education⁵ to the paid labor force. However, married and low educated women still have participation rates below the rest.

¹ Global Gender Gap Report from the World Economic Forum (WEF)
² Source: www.minmujeryeg.cl
³ The feminist wave movement gained visibility and more power after the case of Nabila Rifo. Source: www.dw.com/es/la-ola-feminista-que-remece-a-chile/a-43918788
⁴ International Labor Organization Estimate from World Development Indicators (World Bank)
⁵ In this study, we consider low educated women as women with up to secondary school completed.
On the other side, attitudes towards women’s work in Chile have been improving in the last decades, which could explain the increase in FLPR. According to substantial evidence, cultural factors and “sexism” are key determinants of female labor participation. For this specific study, we use the concepts of beliefs, preferences and social norms to account for cultural factors.

This study aims to analyze how beliefs affect women’s decisions to participate in the labor market, particularly for those groups of women explaining the remaining labor gap. Additionally, we analyze and propose specific policy alternatives that address beliefs and preferences to promote women joining the labor force. We hypothesize that women’s beliefs about their role in society, what others believe on women’s work, the beliefs on their abilities and the economic returns to labor could be driving a low participation rate. If this is true, then changing or updating women’s beliefs could impact their actions, in particular for those indifferent between working or not (“marginal women”), ultimately leading to changes in the social norms regarding women’s role and movements in the FLPR.

We carried out a survey in Santiago (Chile) to understand the beliefs influencing women’s decisions to work and analyzed the effect of an intervention in those beliefs to predict a potential change in behavior. Section I explains our motivation to pursue this study and describes the international and national female labor market context. Section II summarizes the literature on the determinants of female labor participation and emphasizes the relevance of cultural factors in explaining it. Section III presents the conceptual framework that explains our hypothesis. Section IV describes the design and the results of the experiment carried out in Santiago. Section V introduces the policy proposals to tackle the problem and concludes.
Section I. The Problem: Low Female Labor Participation

Problem Motivation

This research project analyzes how do cultural factors affect women’s decisions to participate in the labor market, particularly for those groups of women whose participation is driving the poor performance. Additionally, we analyze and propose specific policy alternatives that address beliefs and preferences to promote more women to join the labor force.

In this sense, this study will contribute to the literature assessing the impact of cultural effects on economic decisions with new evidence from a developing country in Latin America. Additionally, the research has important public policy implications, if our hypothesis is correct, then the effect of cultural factors on labor participation should be considered as part of the public policy agenda when designing initiatives to reduce the gender gap.

More generally, behind this study is the central idea that fostering opportunities to include women in the labor force has several benefits for women’s independence and personal development as well as for the economic development of Chile. On one side, it improves women’s multidimensional welfare (Jensen, 2012; Heath et al., 2016 and Pande et al., 2015) and has positive externalities on personal and children’s health (Bennet et al., 2015; and Atkin, 2011), among others. On the other, it has potential positive economic effects on aggregate productivity (Wodon et al., 2018) and in reducing poverty and inequality (Contreras et al., 2010).

Chile’s FLPR in the International Context

The labor participation gender gap is highly significant in every country and the FLPR is typically u-shaped across the process of economic development (see Figure 1). However, Chile stands out as a middle-income country, within a strong path of development and constantly growing income, but with a low level of FLPR. While the country is already in an advanced stage of development, its FLPR was 58 percent in 2018, relatively low compared to an average 63 percent of

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6 While in low-income stages of development the participation is high due to women’s agricultural jobs; as income rises, women retreat to work in the house and the participation rate falls to move back to the paid force once female education improves (Goldin, 1994).
OECD countries\textsuperscript{7}, and the second lowest in South America according to International Labor Organization (ILO) estimations.

The problem is more evident when comparing Chile to other countries of the region with similar GDP per capita. **Despite a strong advantage in terms of education, having fewer children and more daunting macroeconomic transformations (Puga et al., 2018), the Chilean gender disparity is higher than benchmark countries as Peru, Bolivia, and Brazil.** Additionally, Chile lags behind its peers when analyzing its FLPR given other development indicators as education, democracy, as well as the support for women’s work in the country\textsuperscript{8}. In all these cases, the FLPR is positively correlated with the indicators (see Figure 1).

*Figure 1. Female Labor Participation and Other Variables, Chile and Others*

\textsuperscript{7} ILO Estimate from World Development Indicators (World Bank)

\textsuperscript{8} Using the World Value Survey (WVS) for the 2012-2014 period, an Index of “Attitudes Toward Women Work” was built based on Field et al. (2016). The index is composed of dummy variables on 4 questions (1)“Men should have more rights to jobs than women when jobs are scarce”; (2) “Men make better political leaders than women do”, (3) “Men make better business executives than women do”; (4)“Being a housewife is just as fulfilling as working for pay”.
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Evolution of the FLPR and Drivers

Over the last 30 years, the male/female gap in Chile has been consistently narrowing down due to an increase in FLPR, but the growth has decelerated in the last 5 years. Acemoglu (2002) supports this fact and argues that this was most certainly due to both supply-side factors, including changes in tastes, gender roles and technology of household production, and a greater demand for their labor services. In the case of Chile, only looking at the last 30 years, the FLPR has increased from 35 percent in 1990 to 40 percent after a decade. During the 2000s’ the growth rate spiked and reached a level of 53 percent of participation in 2010, but had a major slowdown since then (see Figure 2).

The evolution of the FLPR in the country was consistent with the pace of economic development and the improvement of other development indicators as inequality, school enrollment, urbanization and fertility rates. The change in FLPR is highly correlated with the favorable changes in macroeconomic conditions resulting in a constant increase of the GDP per capita (see Figure 2). Puga et al. (2018) argues that the turn to export-led growth models in developing economies has been accompanied by a stark feminization of the paid workforce, and in particular in Chile, such transformations have marked a radical increase of women’s participation in the labor force. Although that increase is largely explained by women’s access to low skilled jobs, mostly in the sectors with the lowest salaries like services (Carrillo et al., 2018).
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**Figure 2. Female Labor Participation and GDP Evolution, Chile 1990-2018**

Source: Own elaboration using World Development Indicators, World Bank, 2017.

*Women’s Groups Explaining the Evolution of FLPR*

The growth of the FLPR since 1990 has been partially driven by the inclusion of women in one of the following categories: married, have low education and/or have children. Still, there is a remaining gender gap of 27 percent, partially explained by the first two groups mentioned.

Married women have been joining the labor force at an increasingly high rate, but still today there is a significant participation gap between married and single women. While men’s participation in the labor force in Chile has been fairly stable since 1990, women’s rates have been increasing significantly. When segmenting women by marital status, it is clear that although single women have slightly increased their participation in the labor force, and even have similar rates of participation to men in Santiago, married women have been joining the labor force at a higher rate, but are still behind their peers with a participation rate of 67 percent compared to an 84 percent of single women (see Figure 3).

Additionally, during this period there seems to be a higher increase of participation for women with children, narrowing the gap with those without children. While the participation of women without children has slightly increased in the last 30 years, women with children appear to have been joining the paid force at a higher rate. During 2009-2011 there was a spike in participation probably stimulated by the successful implementation of Chilean policies like the full day school reform, the change in pre-and post-natal laws, the expansion of contraceptive methods and more
recently proposals to provide universal childcare provision. All these interventions have contributed to close the gap between women with and without children to 4 percentage point (66 percent and 70 percent respectively). It seems that marital status more than having children correlates with a bigger gap among the different groups (see Figure 3).

At last, women with low education have been increasing their participation in the labor force, but still are way below their peers with superior education. Low educated women, which are typically the one’s with lower levels of income, have had a higher rate of growth but have not been able to catch up with the rest (see Figure 3).

Figure 3: Labor Force Participation in Chile (1990-2018) and Santiago (1957-2018)

Source: Own elaboration using Household level survey, CASEN; and Unemployment Survey of Santiago (Chile).
Note: Uses three years centered moving averages.
Cultural Factors

Contreras et al. (2010) finds that cultural factors and “sexism” are critical in explaining changes in FLPR in Chile, even more important than education. In the same direction, results from the World Value Survey (WVS) show a positive strong correlation between FLPR and attitudes towards women’s work, and that women that support women’s work have higher growth rates of participation. More interesting this same survey reflects that since 2005 women that do not support female work seem to be less satisfied with their lives (see Figure 4).

Figure 4: Female Labor Participation and Attitudes Towards Women Work, Chile 1990-2018

Source: Own elaboration using World Value Survey and World Development Indicators, World Bank.

In order to analyze women’s characteristics associated with cultural factors and “sexism”, we use the WVS data and perform the following logistic regression:

\[ \text{Cultural factor}_i = \alpha + \beta_1 \text{Education} + \beta_2 \text{Marital status} + \beta_3 \text{Children} + \beta_4 \text{Religiosity} + \theta \text{year} + \epsilon \]
Where Cultural Factor_n represents the different types of beliefs\textsuperscript{9} including a general index of attitudes towards women’s work. The variables range between 1 and 4, the former being the most “sexist” and the latter being the least or more gender equal.

The results show that usually women that have lower levels of education, are not single, and have higher levels of religiosity are more prone to have more conservative/sexist views on women’s work, while having children does not seem to have significant impact on cultural factors (see Table 1). This information is aligned with the findings of Contreras et al. (2010), showing that lower educated female populations and married women tend to belong to more “machista” (male dominated/sexist) environments than more educated and single women do.

Table 1. Characteristics Associated with Cultural Factors

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Attitudes towards women’s work</th>
<th>(2) Belief University</th>
<th>(3) Belief Job Scarcity</th>
<th>(4) Belief Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has low education</td>
<td>0.538***</td>
<td>0.376***</td>
<td>0.489***</td>
<td>0.465**</td>
</tr>
<tr>
<td></td>
<td>(0.11)</td>
<td>(0.14)</td>
<td>(0.14)</td>
<td>(0.22)</td>
</tr>
<tr>
<td>Has children</td>
<td>-0.036</td>
<td>0.222</td>
<td>0.042</td>
<td>0.385</td>
</tr>
<tr>
<td></td>
<td>(0.16)</td>
<td>(0.21)</td>
<td>(0.19)</td>
<td>(0.33)</td>
</tr>
<tr>
<td>Is religious</td>
<td>0.398***</td>
<td>0.219**</td>
<td>0.043</td>
<td>0.493**</td>
</tr>
<tr>
<td></td>
<td>-0.099</td>
<td>-0.109</td>
<td>-0.11</td>
<td>-0.191</td>
</tr>
<tr>
<td>Is non-single</td>
<td>0.294**</td>
<td>0.495**</td>
<td>0.244</td>
<td>-0.396</td>
</tr>
<tr>
<td></td>
<td>(0.15)</td>
<td>(0.20)</td>
<td>(0.18)</td>
<td>(0.33)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.329**</td>
<td>-2.200***</td>
<td>-1.579***</td>
<td>-0.101</td>
</tr>
<tr>
<td>Year Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Observations</td>
<td>2,151</td>
<td>2,107</td>
<td>2,142</td>
<td>493</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: All variable represent the level of agreement to the following statements: Belief University represents “university is more important for a boy than for a girl”, Belief Job Scarcity represents “when jobs are scarce, men should have more right to a job than women”, Belief Earnings represents “if a woman earn more money than her husband, it is almost certain to cause problems”

\textsuperscript{9} The beliefs are represented by the answers to the following statements: “university is more important for a boy than for a girl”, “when jobs are scarce, men should have more right to a job than a woman”, “if a woman earn more money than her husband, it is almost certain to cause problems”
Section II. Literature Review

Factors Affecting FLPR

There are several supply-side factors affecting the FLPR related to demographics, barriers to entry the labor market, social and human capital and cultural elements. The first three are addressed in this sub-section, while the latter on is covered in the next one given its importance.

Demographic factors such as age, year, generation/cohort effects, marital status, having children and living in rural areas are some of the most discussed contributors of women’s labor supply decisions. In this line, Contreras et al. (2005) uses a Deaton decomposition (Deaton, 1997) and finds that age and year effects explain 30 percent of the change in female labor participation in Chile from 1957-1997. There is also substantial evidence that shows that the number of children that a woman has is also a relevant determinant of FLPR as it is negatively correlated to her decision to participate in the labor force (Contreras et al., 2010). It is also one of the main contributors to the lesser job experience, greater career discontinuity and shorter work hours for female, even for those holding postgraduate education (Bertrand et al., 2009). The particularities that make women prone to work fewer hours and in a less continuous pattern (leading to convex hours-learning relationships) is a clear disadvantage in a market where most firms disproportionately reward individuals who work long hours (Goldin, 2014). These “barriers to entry”, including supply but also demand factors, are especially relevant in the context of Chile where the evolution of legislation of gender issues has been slow and have tended to create pervasive incentives. Some studies have shown that female-specific policies as maternity regulations can have a negative impact on women because of other women’s beliefs of them. Therefore, some policy makers have argued that gender-neutral family policies might generate more equal opportunities in the workplace (Antecol et al., 2016).

On social and human capital factors, there is evidence that education is an important determinant in Chile, as the greater women’s education, the greater their labor participation (Contreras et al., 2010).

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10 In the case of childcare provision, for example, laws are very restrictive and discourage women’s full time employment by requiring firms that employ more than 20 women to provide free childcare, creating a big bunching effect where an important amount of small and medium firms give full time employment opportunities to only 19 women. In the case of maternity laws, Chile has one of the most benevolent regulations by securing 18 weeks of maternity leave, substantially higher than the 12 weeks recommended by the ILO.
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2010), whereas international evidence shows that on the job training only play a small role (Blau et al., 2016).

Cultural Factors and FLPR

More recent papers emphasize how cultural factors contributed to the gender’s gap historical evolution (Bernhardt et al., 2018) and how they might play a significant role towards a broader understanding of gender aspects, particularly in Chile (Contreras et al., 2010). This research will focus exclusively on this effect. As Contreras et al. (2010) argue, most of the evidence related to women’s choices in labor markets has been based on mainstream economics models, which do not take into account cultural variables including “models of the family and men and women’s social roles” and “the presence or absence of a working mother”.

Bordalo et al. (2016) argues that beliefs about the abilities of men and women are often found to be biased contributing to differences in financial decision-making, academic performance, and career choices, as beliefs about ourselves as well as about others are at the heart of many economic and social decisions. Other papers such as Sarsons (2017) show how a person’s gender influences the way others interpret information about his or her ability, shaping the belief updating process by gender.

The papers of Burztyn et al. (2018) and Pande et al. (2015) are informative on “other’s beliefs”. They show how husband’s beliefs about their wife’s participation can have long-term effects over their wife’s decisions. The also show how the updating process of the husband’s belief on what the community thinks that female participation rate is can have an effect on the subsequent likelihood that women apply to jobs, indicating that the misperception of social norms is a potentially important source of labor market frictions. Also, Antecol (2003) finds that women are more likely to participate in the labor market if their male partners exhibit greater cultural acceptance of such behavior. Moreover, according to Bernhardt et al. (2018) the impact of social norms on individual work behavior is likely mediated by intra-household dynamics. When men and women bear different costs of violating norms, intra-household bargaining will mediate the role that norms play in governing female labor supply. Therefore, characterizing how norms and beliefs vary across genders and within households is important for understanding the social forces that govern women’s labor market choices.
On social norms, Alesina et al. (2013) supports that social norms regarding division of labor between men and woman\textsuperscript{1} can have long persistent effects by shaping the norms about the appropriate role of women in society; which, even in the long run, affect their participation in activities performed outside the home, such as market employment, entrepreneurship, and politics. Fernandez (2007) and Fernandez et al. (2004) argue that social norms on being a “working mother” with less traditional views about the role of women can have an important impact on their daughters and daughters in law. In this line, Kuziemko et al. (2018) shows that there appears to be a significant and unanticipated change in preferences in a woman that works after she has a child (what they call the “Mommy effect”). But, more optimistic evidence shows how discussing gender roles in a “moldable but mature enough age” such as adolescence can lead to changes in beliefs and further change the predominant social action (Dahar et al., 2018).

According to Bertrand (2011), these new perspectives on gender - influenced by psychology and social-psychology literatures - can provide micro-foundations for women’s economic decisions. However, little is known about what factors might lead long-standing social norms to change, or even more so, to change quickly (Bursztyn et al., 2017).

Section III. Conceptual Framework: A Static Model of Female Labor Supply

For the purpose of this study we define cultural factors as women’s preferences, beliefs and social norms in relation to female labor participation, which combined shape women’s decisions to join the labor force. According to Bicchieri (2017), preferences are dispositions to act in a particular way in a specific situation, which are typically influenced by expectations and the behavior, beliefs, and outcomes of other people (social preferences). On the other side, beliefs account for an individual’s positive or negative evaluation of particular behaviors. This definition includes the cognitive and normative beliefs that shaped by the way people perceive the world, influenced by their reference network and responsive to experiences, therefore beliefs are constantly evolving or updating with new information (Fridman, 2008). At last, social norms are the standards describing desirable behavior or average beliefs held by a group, shaped though practices and adopted by the community (Bernhardt et al., 2018).

\textsuperscript{1}According to the authors, societies that traditionally practiced plough agriculture developed a specialization of production along gender lines - while men tended to work outside the home in the fields, women specialized in activities within the home.
In our model, preferences relate to women’s desire to work if they had the opportunity to choose freely between working or not, therefore they are strictly connected to women’s behavior. In addition, we consider four different types of women’s beliefs entrenched with their employment decision: (1) their role in society or outside the house, (2) what other people think on women’s role, including their partner, family and community (second-order beliefs), (3) their own capabilities at work, and (4) the economic returns to labor. The social norms in this context refer to the standards of women joining the paid labor force.

Individual preferences and different types of beliefs interact to determine individual behavior or actions, in this case women’s decision to work and that aggregates to a final labor supply equilibrium. This final equilibrium action will in turn influence the perceived social norm regarding female labor participation, and work as a self-fulfilling prophecy in which beliefs affect actions, which again reinforces beliefs. This way, there are two different channels by which behavior could be nudged\(^\text{12}\): one through changes in beliefs, and the other through changes in preferences (see Figure 5).

*Figure 5. Cultural Factor Interactions*

\(^{12}\) According to Thaler et al. (2008), to nudge is to influence people’s behavior without restricting their choices or imposing mandatory obligations.
Box 1. Conceptual Model

This section sets up a conceptual framework for analyzing women’s labor supply decisions. Equation (1) incorporates beliefs and preferences in the individuals’ utility function generated by participating in the labor market.

The utility for an agent $i$ will be given by:

$$U_i(a = 1) = \beta_i + \mu_i \mathbb{E}(w|a = 1) + \gamma_i \mathbb{E}(\alpha|a = 1) \quad (Eq. 1)$$

$$U_i(a = 0) = 0 \quad (Eq. 2)$$

Where $a$ refers to the action, and is equal to 1 if the individual is working and 0 if she isn’t working. $\beta_i$ represents the individual's preferences and the expected value terms reflect different type of beliefs. The first belief term, $\mathbb{E}(w|a = 1)$, depends on women’s belief of their expected wage ($w$) if they work, given their capabilities and own characteristics (race, age, education, among others). The second belief, $\mathbb{E}(\alpha|a = 1)$, represents non-pecuniary returns to the belief of what other’s believe if a woman works (community, partner or family). This could be a positive or a negative return. Finally, the parameters $\mu_i \geq 0$ and $\gamma_i \geq 0$ reflect the strength of the beliefs for each individual.

Women decide to work or “take-up” the behavior if they expect their utility to be non-negative, and do not take-up otherwise; that is, utility is defined net of the agent's best alternative (Coffman et al., 2015).

Given that preferences are harder to change than beliefs, this study mainly focuses on the impact of changes in beliefs in individual behavior and the general equilibrium of FLPR. If women’s beliefs are inaccurate, then the final equilibrium could be suboptimal and updating women’s beliefs could impact their actions, particularly for those women that are indifferent between working or not (“marginal women”), leading to changes in the female labor supply and the social norms associated.
Box 2. Multiple Equilibrium Model

We may represent the female participation problem as a game in which there are multiple equilibriums. The game is represented by two players, a woman and “society”, the latter accounting for the behavior of the woman’s husband, family, peers and community in general. Each of the players has two strategies, the woman can choose either to work (W) or not work (NW) and society can choose to judge positively (+) or negatively (-) women that work. In the good equilibrium society judges positively women that work and the woman decides to work, and that offers the highest utility for both players. On the other side, in the bad equilibrium, society judges negatively women that work and the woman decide not to work, as that strategy provides the woman with a higher utility than they would get if they work, leaving both players with a lower utility than in the good equilibrium. Therefore, both players could be stuck in a bad equilibrium if they do not coordinate.

How can we move to the optimal equilibrium?

An intervention that shapes women’s beliefs through information, by showing role model cases for example, can improve women’s expectations and increase their utility of working when society judges them negatively. By updating these payoffs, we could change women’s behavior leading to changes in social norms and therefore in how society perceives women that work moving to the good equilibrium.

| Woman | Society
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>+</td>
<td>+</td>
<td>a, b, d, b - e</td>
</tr>
<tr>
<td>NW</td>
<td>-</td>
<td>-</td>
<td>c, c - e, f, e</td>
</tr>
</tbody>
</table>

Where a, b, c, d, e, f > 0; a > c; f > d; a > f; b > e; and d + δ > f

---

13 Source: http://opim.wharton.upenn.edu/~sok/papers/g/ecscg.pdf
Mixed Strategy Equilibrium

Let “p” be the probability that society judges positively women that work and “q” the probability that women work (see the above diagram):

For the Woman:

\[ E(W) = pa + (1-p)d \]
\[ E(NW) = pc + (1-p)f \]

Then \( p = \frac{f-d}{a-d-c+f} \)

For Society:

\[ E(JP) = qb + (1-q) (e-\varepsilon) \]
\[ E(JN) = q(b-\varepsilon) + (1-q) e \]

Then q=1/2.

“P” represents how favorable society’s beliefs have to be in order for women to be indifferent between working and not working. If the women’s payoff for working is sufficiently high (see the effect of “a” and “d”) or if the payoff of not working decreases (see the effect of “c” and “f”), then “p” – the tipping point - does not have to be very high for women to be indifferent. Moreover, this tipping point represents the threshold or degree by which a woman’s belief has to change so that she decides to work. If a woman believes that the real probability is bigger than this “p”, she will decide to play a mixed strategy where the weight on working increases or even one where she plays a pure strategy with q=1.

Section IV. Empirical Strategy

Experimental Design

The goal of the study is to:

1. Better understand the most prevalent beliefs influencing women’s decisions to work in Chile;
2. Analyze the feasibility of updating those beliefs in order to induce a behavioral change through an informational and motivational intervention;
3. Identify features required for an effective informational policy design to tackle the problem of low female labor participation; and
As mentioned in the conceptual framework, we analyze four types of women’s beliefs: (1) their role in society, (2) what other people believe on women’s role (second-order beliefs), (3) their own capabilities at work, and (4) the economic returns to labor. To test which of them are more dominant in Chile and which ones can be changed, we designed an informational/motivational\(^\text{14}\) treatment and randomly selected women into one of four groups.

It is important to acknowledge that this is a light intervention focused on changes in beliefs and, given the short time span of the study, it does not capture long-term outcomes. We think of this as a pilot experiment that can be used as guidance for future research as it could be scaled up to address other behavioral outcomes.

**Interventions**

Treatment 1: Women selected to this treatment were showed an image of the interquartile range of labor income in the city of Santiago for 4 different profile of women separated by age and education (see Appendix I).

Treatment 2: Women selected to this treatment were also showed the same image as in Treatment 1 but also had the chance to see a motivational video of 3 representative women as “role models” cases speaking about the importance of working\(^\text{15}\).

Treatment 3: Women selected to this treatment saw the same as Treatments 1 and 2 but the video had and additional section where the role models gave their opinion about work and family balance.

Control: The control group had to complete the whole survey but was not exposed to any treatment.

**Sample Selection**

We carried out two strategies to collect data from women in order to have a more representative sample. The first strategy involved surveying women in strategic places over busy points of the city of Santiago (main market, business district and other commercial areas), to have a diverse pool of women in terms of income. The second one was working with 2 NGOs – “Soy Mas”

---

\(^{14}\) In this study, we use the term informational treatment to refer to an informational plus motivational intervention.

\(^{15}\) The 3 women have different socio-economic background (low, middle and high-income) as well as different occupations (service sector worker, education professional, NGO director).
and “Creer con Todos” - that are currently working with women in the field. The survey was implemented through Qualtrics and women had to complete it using an I-pad provided by the research team. All participants of the experiment were compensated, they could choose between receiving a 5,000 CHL pesos gift card (7.55 USD)\textsuperscript{16} or donating the money for a women empowerment program from the NGO “Comunidad Mujer”.

We also surveyed a small sample of married men in order to collect qualitative data to compare it with women’s results to analyze intra-household dynamics. Men were surveyed in the same places of the city of Santiago and were asked to complete the same questionnaire but without exposure to any treatment. Additionally, they had two answer a couple of questions regarding their partner’s education and employment status, which we later use to match them with women with the same characteristics as their wives in order to compare their beliefs.

**Data and Main Outcome Variables**

The survey was divided into 4 sections: (1) demographic information or baseline characteristics, (2) pre-intervention beliefs, (3) post-intervention beliefs and (3) results or actions. Section (1) collected demographic information to guarantee that the sample is heterogeneous in terms of age, marital status, income, level of education and employment status, among others. Section (2) replicated questions on different types of beliefs from the WVS in order to assess the representativeness of the sample by comparing to the WVS latest results. Section (3) included a vast amount of questions categorized according to the type of belief associated. Finally, Section (4) included questions in order to analyze potential action outcomes (see Appendix II). Although the latter results are self-reported and therefore they are prone to several biases, they could be useful in analyzing qualitatively the effectiveness of potential policies in driving behavioral changes in the short run.

**Descriptive Stats**

The sample is composed from a very diverse pool of women in terms of age, income, location, education, etc. The survey contains women that come from 36 out of 53 counties or

\textsuperscript{16} Exchange rate based on Statistics Data Base, Central Bank of Chile, March 2019.
municipalities in Santiago. A majority of women (56 percent) has superior education, compared to a 31 percent on the overall female population\textsuperscript{17}, and the mean monthly income of the sample is 735,714 CHL pesos or around 1,111 USD\textsuperscript{18} (approximately twice the minimum wage), with a very high variance among the sample. Additionally, the percentage of women employed (71 percent) is fairly similar to the latest data available from the Unemployment Survey of Santiago.

Table 2. Demographic Characteristics of the Sample

<table>
<thead>
<tr>
<th>Variables</th>
<th>Population</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>Age (years)</td>
<td>39.3</td>
<td>37.5</td>
</tr>
<tr>
<td>Has Superior Education (%)</td>
<td>31%</td>
<td>56%</td>
</tr>
<tr>
<td>Income (CHL pesos)</td>
<td>635,413</td>
<td>735,714</td>
</tr>
<tr>
<td>Household Income (CHL pesos)</td>
<td>1,434,828</td>
<td>1,058,803</td>
</tr>
<tr>
<td>Household Size</td>
<td>3.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Working Mother (%)</td>
<td>N.A.</td>
<td>61%</td>
</tr>
<tr>
<td>Employed (%)</td>
<td>67%</td>
<td>71%</td>
</tr>
<tr>
<td>Self-employed (%)</td>
<td>15.8%</td>
<td>13%</td>
</tr>
<tr>
<td>Child Number</td>
<td>2.16</td>
<td>1.1</td>
</tr>
<tr>
<td>Religious (%)*</td>
<td>59%</td>
<td>45%</td>
</tr>
<tr>
<td>Women think there is some or substantial difference between the labor participation rate for men than for women ** (%)</td>
<td>N.A.</td>
<td>77%</td>
</tr>
<tr>
<td>Women strongly agree that “On the whole, men make better business executives than women do” ** (%)</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Women strongly agree that “If a woman earns more money than her husband, it’s almost certain to cause problems” ** (%)</td>
<td>33%</td>
<td>44%</td>
</tr>
</tbody>
</table>


Note: Sample size is composed by 127 female individuals.

*Religious accounts for women that consider that religion is either important or very important in their lives.

** Belief questions are taken from Section (2).

\textsuperscript{17} Unemployment Survey of Santiago (2018).

\textsuperscript{18} Exchange rate based on Statistics Data Base, Central Bank of Chile, March 2019.
The baseline characteristics of the different groups within the sample are statistically balanced. The balance between the treatment and control groups’ characteristics shows that they are similar enough before the intervention to infer that the differences in post-intervention belief between them arise exclusively from the treatment itself (see Appendix III).

For the following analysis, we will merge what we initially called treatments 2 and 3 into one and call it treatment 2 to strengthen the power of the analysis.

**Baseline Beliefs**

A great majority of women think that there is a significant gender gap in the labor market participation (77 percent). Additionally, while most of them believe it is a “demand” problem based on the opportunities offered by the market, a significant proportion (21 percent) believes that women’s desire to participate is the main barrier that explain the low FLPR today.

Similarly to the WVS logit results (see Section I), certain groups of women - including those that are married, have low education or didn’t have a working mother - seem to have more sexist responses than the overall sample. While the overall results signal that women of Santiago do not seem to have sexist beliefs, there is heterogeneity in the sample as some particular groups have statistically significant differences with their comparisons. Married women agree more with the assertion that if a woman earns more money than her husband, it’s almost certain to cause problems, indicating that their careers could have a ceiling below the professional success of their husbands. Low educated women tend to agree more with statements that indicate that men are more capable than women such as “men make better business executives than women do”. Finally, women whose mothers worked during their childhood tend to consider that it is hard to achieve a work and family balance (Appendix IV).

**Treatment Effects on Beliefs**

**Reduced-Form Specification**

To estimate the effect of the intervention on beliefs we use the following OLS regression:

\[
\text{Post - treatment belief}_i = \alpha + \beta_1 \text{Treatment1}_i + \beta_2 \text{Treatment2}_i + \gamma \text{Controls}_i + \mu_i
\]
Reshaping beliefs to promote higher female labor participation in Chile

Where post-treatment belief \( n \) refers to belief index of type 1 to 4 (women’s role in society, other’s beliefs, capabilities and economic returns). The first three indexes are composed by several questions addressing each type of belief (see Appendix V). The index ranges between 1 and 4, the former being the most “sexist” and the latter being the least or more gender equal. The index for economic belief is represented by women’s wage estimation. Each treatment is represented by dummy variables. The regressions include controls for pre-intervention beliefs, age, household size, number of children and a binary variable for religiosity.

The results indicate that each treatment had different effects in updating women’s beliefs (see Table 3).

**Beliefs on women’s role in society:** both treatments seem to have a positive effect of similar magnitude on changing beliefs of the role of women in society by making them “less sexist” and also on improving women’s perception on the success of other women in their communities. However, although we cannot reject there is a difference between the two treatments, only treatment 2 generates a statistically significant effect in making women more prone to agree on the possibility of achieving a family and work balance, improving the index by 0.21 standard deviations (SD).

**Beliefs on others’ beliefs:** both treatments have positive effects on updating women’s beliefs on other’s beliefs regarding women’s work. Still, only treatment 1 has a statistically significant and a stronger effect on this belief, improving the perception of other people’s beliefs by 0.31 SD. One plausible explanation for this is that by updating beliefs on economic returns we are able to tackle an expectation mechanism that translates into a more positive view of women. When we mix the economic returns with the motivational video in treatment 2, the message may be diluted and there could be an information overload. Still, a more plausible explanation is that the study is underpowered, as the sample size is relatively small.

**Beliefs on capabilities:** both treatments have positive but very small and not statistically significant effects on women’s beliefs about their capabilities. There are different potential explanations for this, the first two already mentioned above, (1) the effect is small and the experiment is underpowered, (2) too much information could be generating a message overload problem so that women end up taking only part of it, but also (3) the intervention could actually not be sufficiently effective to move the more entrenched beliefs such as the ones related to capabilities for adult
women. The question that rises here is what would be the effect of similar interventions in younger women, teenagers for instance, which are in a period of life where beliefs are much more malleable.

**Beliefs on economic returns:** showing women information on economic returns to labor has a positive effect in updating their wage estimations by making them higher. Only treatment 1 has an effect that is statistically significant and also much higher in magnitude than treatment 2. Figure 6 shows the real income distribution and the shift in the wage estimation from the control group to the treatment group, the latter one has a more optimistic perception which a larger variance in the distribution. Again, the information crowd out and the lack of power could be affecting the final effect of the second treatment.

For both treatments, the effect is mainly driven by changing the proportion of women that responded they disagree with the statement, towards moving them to respond that they highly disagree. The intervention does not involve a change in the whole distribution of outcomes but just a change in how extreme the response is (see Appendix VI). According to the multiple equilibrium model described in Box 2, this shows how even a light information intervention can change the distribution of beliefs. **This represents how a higher degree of probability “p” that society judges positively women that work can lead to a better equilibrium outcome where more women choose to work.**

**Table 3: Effect of the Intervention on Beliefs**

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Belief Women’s Role</th>
<th>(2) Belief on Other’s Beliefs</th>
<th>(4) Belief on Capabilities</th>
<th>(3) Belief on Economic Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment 1</td>
<td>0.260</td>
<td>0.591***</td>
<td>0.075</td>
<td>194,913*</td>
</tr>
<tr>
<td></td>
<td>(0.172)</td>
<td>(0.207)</td>
<td>(0.152)</td>
<td>(105,973)</td>
</tr>
<tr>
<td>Treatment 2</td>
<td>0.281**</td>
<td>0.131</td>
<td>0.094</td>
<td>20,089</td>
</tr>
<tr>
<td></td>
<td>(0.147)</td>
<td>(0.221)</td>
<td>(0.123)</td>
<td>(65,567)</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>105</td>
<td>91</td>
<td>105</td>
<td>104</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.225</td>
<td>0.172</td>
<td>0.201</td>
<td>0.256</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Own elaboration using Own Survey Data
Treatment Effects on Targeted Women

In order to understand the effect of the interventions in the women that had lower participation rates according to the results shown in Section I, we used the following OLS regression:

$$Post – treatment belief_{n,i} = \alpha + \beta_1 \text{Treatment}_i \cdot \text{Characteristic}_{j,i} + \gamma \text{Controls}_i + \mu_i$$

Where Characteristic$$_{j,i}$$ represents dummy variables for the targeted groups: “sexist”, “non-single”, “low-education” and “mother-didn’t work” individually and all of the above together. Given that we cannot reject a difference between treatment 1 and 2, all treatments groups were merged to increase the power of the analysis.

Both treatments have a larger effect on women that are sexist, non-single, have low levels of education, or/and didn’t have a working mother. The effect of the treatment in the targeted group is always positive compared to the effect of non-targeted groups, but it is not always statistically significant probably due to the lack of statistical power (see Table 4 and Appendix VII). For future research, in order to obtain more robust results a longer term and more intensive strategy should be carried out.
Table 4: Effect of the Intervention on Different Sub-groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Belief on Women’s Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>0.27***</td>
</tr>
<tr>
<td></td>
<td>(0.14)</td>
</tr>
<tr>
<td>Treatment*Sexist</td>
<td>0.37</td>
</tr>
<tr>
<td></td>
<td>(0.32)</td>
</tr>
<tr>
<td>Treatment*Low education</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.35)</td>
</tr>
<tr>
<td>Treatment*Non-single</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>(0.28)</td>
</tr>
<tr>
<td>Treatment*Mother didn’t work</td>
<td>0.53***</td>
</tr>
<tr>
<td></td>
<td>(0.26)</td>
</tr>
<tr>
<td>Treatment*All of the Above</td>
<td>1.36***</td>
</tr>
<tr>
<td></td>
<td>(0.27)</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Own elaboration using Own Survey Data

Treatment Effects on Female Labor Participation

The intervention does not have statistically significant effects over actual behavior or actions. There are several plausible explanations but the most intuitive one is that the time intervention is too short or and the sample too small to change behavior. Additionally, changes in behavior are hard to measure in the short term, particularly given the connection between beliefs and actions (see Table 5). In order to see changes we should have done a follow up of the survey some months after the initial intervention.
Table 5: Effect of the Intervention on Actions

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Application Job Offer</th>
<th>(2) Policy Support</th>
<th>(3) Information</th>
<th>(4) Gift Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment 1</td>
<td>-3.370</td>
<td>0.326</td>
<td>-0.060</td>
<td>-0.010</td>
</tr>
<tr>
<td></td>
<td>(7.317)</td>
<td>(0.373)</td>
<td>(0.107)</td>
<td>(0.137)</td>
</tr>
<tr>
<td>Treatment 2</td>
<td>0.541</td>
<td>0.449</td>
<td>0.041</td>
<td>-0.082</td>
</tr>
<tr>
<td></td>
<td>(5.367)</td>
<td>(0.321)</td>
<td>(0.091)</td>
<td>(0.115)</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>97</td>
<td>105</td>
<td>104</td>
<td>105</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.029</td>
<td>0.064</td>
<td>0.133</td>
<td>0.159</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Own elaboration using Own Survey Data

Note: Outcome variables are interpreted as following: Application to Job Offer ranges from 0-100 and represents the probability that a woman applies to a job offer aligned with her interests. Policy Support ranges from 1-4 with 4 being that they strongly support more government policies related to gender equality even at the expense of higher taxes. Information and Gift Card are dummy variables that indicate the desire of women to receive information regarding work opportunities and, to receive a gift card over donating the money to a foundation, respectively.

Box 3. Impact Estimate

Given that the intervention does not show significant results for changes in behavior, we perform the following analysis to obtain an estimate of the upper-bound treatment effects in future participation status by using our experimental data:

\[ Belief_t = \alpha + \beta Treatment_t + \gamma Controls_t + \mu_t \]

\[ Participation_t = \alpha + \delta Belief_t + \gamma Controls_t + \mu_t \]

By using standardized values for all variables and constructing a general belief index with the average of each individual belief index, we obtain the following parameters:

\[ \frac{\Delta Belief}{\Delta Treatment} = \beta \]

\[ \frac{\Delta Participation}{\Delta Belief} = \delta \]

We then multiply them to obtain an estimation for the effect of the intervention on participation:

\[ \frac{\Delta Participation}{\Delta Treatment} = \beta \cdot \delta \]
The results indicate that $\beta = 0.44$ and $\delta = 0.14$ which means that $\beta \times \delta = 0.0616$. This means that even this extremely light intervention could increase female labor participation up to 6 percentage points. If this estimation is correct, it means that an informational treatment as the one used for this experiment would further close the gender gap up to 30 percent. These figures reflect the upper bound of the potential change, acknowledging that the $\delta$ coefficient could be over-stated as beliefs are endogenous variables.

**Intra-household bargaining**

As seen in Section I, female incorporation to the labor force in Chile has seen radical changes over the last 30 years. An important question that follows from this evolution is how intra-household dynamics have evolved for the same period and how do beliefs differ within a couple.

**Transformations in Intra-Household Income Dynamics**

Although labor supply decisions for married women are often made jointly with their husbands, married women’s decision to work is now less influenced by the husband’s income than what it was in 1990. Following the same strategy of Blau and Khan (2007) to estimate labor supply decisions based on income elasticity for married women, it could be shown that even though responses to women’s own wage does not vary between 1990 and today, the response to husband’s wage is significantly smaller now than in 1990. During the 1990-1999 period, women reduced their participation (weekly hours) in a 36 percent when husband’s wage was 1 percent higher but today that effect is 2.9 percent and not statistically significant. This reflects important transformations in intra-household bargaining process where old concerns and stigmatization of paid work of women disappears (Goldin, 2006) and today the income effect is small and not significant (see Appendix VIII).

**Intra-household Belief Mismatch**

We then use our survey to compare married women and men’s beliefs to analyze current intra-household dynamics and found that men have more sexist responses than women. Although we do not have information on married men and women from the same couple, we used men’s information on their wife’s demographic characteristics to match them with similar women.
from the large pool surveyed\(^{19}\). Men tend to disagree less with statements that women perform worse than men at work and are less inclined to believe that husband and wife should have the same share of household tasks. Additionally, they disagree more than women with the statement that earning less than their wives would cause them problems. Nevertheless, both groups mostly agree that there is an important participation gap (see Figure 7).

*Figure 7. Differences in Beliefs Between Married Men and Women*

1. On the whole, men make better business executives than women do
2. Men should take as much responsibility as women for home and children
3. If a woman earns more money than her husband, it’s almost certain to cause problems
4. There is a gender labor participation gap

Own elaboration using Own Survey Data

**The fact that husbands and wives’ opinions do not match could have important consequences for women’s decisions.** Qualitative information from interviews done along the experiment suggest that conservative Chilean men have strong opinions towards the role of women in the house:

“Still today there are women that cannot work as their husbands assign them the responsibility of raising the children and, look for other excuses to prevent them from working. We are still in a machista world” – *Self-employed women, Santiago.*

“I feel that nowadays men are staring to accept that women can be empowered and even have higher hierarchical positions at work than men” – *Women working in a commercial shop, Santiago.*

This is also relevant for questions related to capabilities were a significant proportion of men feel they are more able and should have more rights than their partner. As mentioned in Section II, Burztyn (2018) design is informative in this regard. Any public policy directed to men could also

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\(^{19}\) Variables used for the matching include women’s education, work status and household income.
have a big effect over their wives’ decisions. This is an area that needs to be further analyzed and where future research for Chile could be especially useful.

**Section V. Policy Alternatives**

During the last past decade, the Chilean government has done several efforts to progress towards a more equitable society, successfully reducing the existing gap between men and women. The government has aimed at tackling the labor gap through several programs across different areas including the right to universal childcare provision, reforms to the private health insurance scheme to end the current unjustified price differences in health plans, a bill to establish more flexible schedules that facilitates work from home or telework, protection for equal wages (Amendments to Law 20,348), etc. However, none of them was directly aimed at tackling the cultural factors behind the issue of low female labor participation.

Some cultural factors are going to be “easier” to change than others and will therefore have different policy implications. As we saw with our experiment, beliefs on the economic returns to labor can be easily updated by showing people information, but the beliefs on women’s capabilities or women’s preferences are less malleable in the short run and may require interventions with results only observable in the long term. In addition, the experiment has shown the sensibility of these changes to the amount and type of information shown and motivation, which would be a key feature of any policy design.

Taking into account that women’s beliefs about their own abilities and on their role in society are important constraints to female labor supply, we identified two possible policy concrete actions: (1) an informational and motivational campaign to foster the belief updating process, and (2) a change in the secondary education curriculum to incorporate gender equality discussions and re-shape the beliefs about the role of women in society.

**Policy Option 1: Informational Campaign**

The policy consists on developing a public campaign to raise awareness about the most relevant beliefs affecting women’s desire to participate in the labor market. The campaign will provide information and motivation about women’s economic returns to labor, their capabilities and how to manage a family-work balance by showing women’s stories, similar to the experiment
described in Section IV. The campaign should reflect different stories so that different women and men can see themselves represented and feel encouraged by the others’ success stories.

By changing women’s beliefs, it will be possible to disrupt their behavior and individual actions, leading to a change in the general equilibrium for female labor participation and therefore reshaping existing social norms and practices. Through the experiment described in Section IV we tested the reaction of women to information, and therefore we can suggest that, at least in the short run, the elasticity to change behavior by showing information is relatively high and that women empathize with other women’s stories and motivational messages.

The effectiveness of this policy lies in several assumptions but one of the most important is the capacity of the labor market to absorb more workers. We have provided evidence that supports that cultural factors are key determinants for women to join the paid labor force (supply side analysis). However, we have not analyzed the demand for women in the labor market, which is also a major constraint for women’s participation. Given the receptiveness of firms to hire women in the last decades, we will assume that, conditional on a favorable macroeconomic context, firms’ will hire more women if there were more female applicants willing to work. Still, the policy implementation will incorporate learning instances to further analyze the link between beliefs and women’s actions, as well as potential external barriers to those actions and adjust the campaign. The results of the evaluations will also shed light on the need to incentivize the demand to hire women and to involve the Ministry of Labor.
Stakeholder Analysis

An informational campaign is aligned to the Chilean government agenda of promoting gender equality. The campaign would be under the responsibility of the Ministry of Women and Gender Equality and will be supported by the Press Secretary of the Office of the President. Although the intervention alters the status quo by motivating women to work, the high awareness and public interest for this topic make it a quick win for the government by showing action upon a hot topic for the constituency.

Based on the prior, we assume that there will be no stakeholders with strong opposition to the policy; however, there might be some mild resistance from conservative groups as men or the church. Probably men would offer some resistance as their internal household bargaining dynamics might be altered by moving women out of their traditional domestic roles, so it is critical to target the message to the different audiences, including them.
On the contrary, the policy will have strong support of a large portion of the civil society particularly interested in promoting a gender-focused agenda (i.e. women, social media, NGOs, social movements). In this line, strong charismatic females from the public and private sector (i.e. Michelle Bachelet) could champion the initiative to strengthen its impact (see Appendix IX).

**Implementation Roadmap**

The design and implementation stages of the campaign are critical for its success. The experiment results showed that the type and amount of information to which people are exposed have a large impact over the results of the intervention, showing poor quality information or too much content can crowd out information and reduce the effectiveness of the treatment.

Given the relevance of the features of the policy design, we propose to carry on focus groups to test and define the exact message of the campaign. The content should be specifically targeted to the different groups that we defined in the previous section: married and low educated women, as well as married men. Although women that are “sexist” and “didn’t have a working mother” are also interesting groups to address though the campaign, they are harder to target specifically as the features that characterize them are not easily observable. The focus groups should include people from all the targeted subgroups, which will allow to measure and evaluate the impact on beliefs on different type of messages and to quickly design an effective intervention.

The distribution channel should also be analyzed in detail to enhance the impact of the campaign. This should also be assessed through the focus groups and most certainly will require the use of differentiated channels for the different targeted populations. The potential distribution channels include: TV campaign, which could be addressed to a larger pool of people but according to the type of channel and time frame could tackle different population segments; print media in Chile’s main newspapers; Facebook advertising, probably focused on the population with access to internet that spend most time with social media; etc.

**Cost Benefit Analysis**

Based on our calculations, the policy is highly cost-effective as the benefits largely outset the costs. This can be assessed from the fiscal side in terms of the cost and revenues for the
government of implementing the programs as well as from the social side in terms of the positive impact for women and society in general of more female labor participation. According to the results of the experiment, we can estimate an increase of up to 6 percentage points in the FLPR from this type of policy (see Box 3, Section IV).

**In terms of the fiscal expenses the cost of designing, implementing and evaluating the campaign would be around 6.6 M USD, less that 10% of the fiscal benefits calculated as the potential tax revenue collection from the new women joining the labor force (see Figure 9).**

With all this assumptions in place, the cost of the campaign is self-financed even with a FLPR increase of 0.6 percentage points.

**Nevertheless, this analysis does not consider the potential negative spillovers in terms of the general equilibrium wage as a consequence of an increase in the labor supply.** This could offset part of the fiscal earnings as general wages decrease and, more importantly, could have other potential intangible costs for female labor participation.

**On the social cost-benefit analysis, women’s benefits of working largely surpass their costs.** The opportunity cost of staying at home, the cost of transportation and of childcare services (if needed) are offset by the new income perception, the increase in the independence level and the improvement in multi-dimensional wellbeing.

**An increase in FLPR will have a larger and longer-term impact for the population as well as for the government.** By improving women’s multidimensional development, reducing poverty and inequality and fostering productivity both stakeholders will be largely benefited. Those results are harder to quantify as the effect in terms of reduction of fiscal expenditure for social programs and increase in GDP.

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20 The estimation is an upper-bound of the potential benefits as it considers the maximum estimated number of women that will be willing to work due to the intervention and lies in several assumptions. The first one is that the average female wage was used to calculate the total income. While the pool of women that will join the labor force is varied in term of education and professional experience and therefore will have substantially different salaries, we assume that the average wage is a close approximation of their potential earnings. A second assumption is that we chose the lower bound of the income tax rate to have a more conservative analysis, although it typically ranges between 2 - 6 percent depending on the income level of the individual.

21 Evidence for Chile shows that during the trade liberalization period 1960 – 1975 a large increase of the labor supply was associated with relatively large falls in relative wages. The elasticity of substitution ranges between 1 – 1.5 (Robbins, 1996).
Policy Option 2: Guided Gender Discussions in Secondary Schools

The incorporation of gender equality discussions to the secondary school curriculum of public and voucher schools of the country aims to articulate and strengthen the current educational framework by including discussion on topics such as gender stereotypes, gender roles at home, women’s employment outside the home and harassment. Secondary school students are in a “critical time” of their life in terms of the development of core values and formation of a moral criteria: “they are young enough to have malleable beliefs but mature to understand them and also experienced some topics so as to be able to reflect on issues” (Kohlberg, 1976; Markus and Nurius, 1986; Dhar et al. 2018). As with our previous policy proposal, by changing younger boys’ and girls’ beliefs, it will be possible to transform their future actions impacting the FLPR and leading to changes in social norms, but also resulting in the decision to pursue superior education, changes in college majors and occupational choices.

The effectiveness of this policy lies in several assumptions but the most important one relates to the teachers’ capabilities to promote an adequate environment to foster and guide

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productive discussions. The expected outcome is that students can engage, empathize and learn to build more equalitarian beliefs towards women. Additionally, it requires a high level of commitment from the Ministry of Education to coordinate the logistics to organize every district school to effectively create a public learning environment for the students despite the religious or ideological vision of the school or teacher (Alesina et al., 2018).

Figure 10. Theory of Change Policy Option 2

Stakeholder Analysis

This policy will require the action and coordination from both the Minister of Women and Gender Equality and the Minister of Education. Although the former will be in charge of the design of the program including the definition of the issues of the discussion sessions, the latter will be responsible and accountable for the implementation of the program in schools, overseeing and coordinating all the actors (from principals to pedagogical experts and teachers). The Ministry of Education’s buy in and support is fundamental for the policy success as its interest will be key in
determining the effectiveness of the program implementation. This should not represent a challenge as the Ministry has a demand from both the people and higher level of the government to address gender parity in schools. On the one side, there is public interest in discussing gender equality and women’s empowerment from the youth and, on the other, the president and his cabinet have this issue as a top priority in the government agenda.

In this context, it could be assumed that schools and teachers will be aligned with the government in complying with the education regulations and to adjust to curricular changes as proposed and interested in promoting the successful implementation of the program. Typically, this would not represent a major challenge in Chile where the educational system works effectively and recent reforms are being easily implemented.23 Even tough teacher unions have been historically powerful in Chile, there should not be backlash from their side as this policy does not require any extra effort from them (time or other resources). On the contrary, teachers would be only moderators in the discussions, which does not require an active role, implying that they will require just a short online training session which could be done at any time during their mandatory non-school hours, which should also aim to motivate them to foster more productive debates.

On the other hand, one possible detractor that the policy could create are children’s parents. Some parents may feel that household dynamics are changing and blame the school for this. We expect this problem to show up anytime and the iterative process should consider how to deal with it, being parent meetings or sessions an alternative to address it inside the school (see Appendix IX).

**Implementation Roadmap**

The implementation and scale up process of this policy is fundamental for its success. Training teachers on how to effectively guide the discussions does not involve that they learn new abilities but only inform them about key discussion topics and explaining how to effectively use protocols and support material. Using the implementation model of other programs in Chile, we estimate that this can be done effectively through an online course.24

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23 Education in Chile (2017), OECD Report.
24 See for example other NGO’s work in the education sector: http://www.fundacionerecer.net/es/como-lo-llevamos-a-cabo/#1545862423707-e14fd4b7-8aca
The scale up process of the program all along the country should have 5 phases in a 2-year time frame and it should always be closely tied to evaluation and monitoring. The following implementation scheme would allow obtaining short-term results after 6 months and also measuring long-term effects on actual student’s behavior after 2 years (see Figure 10).

The first step involves implementing the program in 20 schools of Santiago, while also measuring similar non-intervened schools to have a comparable set of control schools for the randomized control trial (RCT) evaluation. These schools must come from different counties so differences in pedagogical management practices could be measured. Before the beginning of year 1, teachers implementing the program must complete the online training course. During the first discussion class, students must be asked to complete a baseline survey on beliefs, attitudes, time spent in household chores and others (first survey). Throughout the first 6 months (T₀ to T₁ in the graph), qualitative evidence must be gathered: indicators such as time spent in discussions, quality of discussion and rate of participation among students, among others. After this 6-months period, the second qualitative survey must be done to compare before and after intervention indicators.

The first set of evaluation will allow the implementers to understand how the debate can be improved and what needs to be done to generate a better-quality class setting in order to expand the project to other 150 schools (Cohort 2). The second cohort will also be evaluated at baseline and qualitatively after 6 months, before the implementation in the rest of the schools of the city of Santiago (Cohort 3). In the following year, the program should be expanded to other regions to end up covering all schools (Cohorts 4 and 5).

At the end of the second year a proper impact evaluation would be performed to analyze the effects of the program and iterate the design to improve its effectiveness. The evaluation will allow to measure quantitative results on the first two cohorts of students graduating from schools. After this time, it will be possible to see results in standardized tests (“PSU” similar to the SAT in the US), decision to enter to graduate school and major decision.
Cost Estimation

The cost of the program is relatively low as it does not require a large investment in the design or implementation phases. The total cost is composed by three concepts: the capacity building, the new coordination team from the government to manage the project and the evaluation of the program.

The cost of building capabilities is composed by a fixed and a variable cost that account for 20-30 percent of the total cost of the program. The cost includes planning and designing the online training session to build the required skills in teachers and schools to lead the discussion sessions and a variable cost of reviewing the session periodically to improve it accordingly to the evaluation results and distributing material. The latter one increases on a yearly basis according to the schools included in the program until all schools are covered.

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On the other side, the program requires a small team in the Ministry of Education to coordinate and monitor its implementation, composed by a project manager and two analysts. The cost of their annual wages, which is adjusted yearly by inflation, accounts for 29 percent of the total cost in the first year and an 18 percent or less in the following years as the rest of the cost increase.

Finally, the cost of program evaluation is the largest one as it requires the development of a methodology to evaluate it in its different stages, the data collection, the analysis of results and the revision of the methodology on a rolling basis. The program is evaluated in three different stages – baseline, intermediate qualitative results and final quantitative results - as described in the previous section and, scaled up according to the Cohorts evaluated.

Table 6. Cost Estimation of Policy 2

<table>
<thead>
<tr>
<th>Concept</th>
<th>Detail</th>
<th>Cost (CHL Pesos)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Year 1</td>
</tr>
<tr>
<td>Capacity Building&lt;sup&gt;26&lt;/sup&gt;</td>
<td>Design and implementation of online course and materials</td>
<td>$50,000,000</td>
</tr>
<tr>
<td>Coordination Team (Min. Education)&lt;sup&gt;27&lt;/sup&gt;</td>
<td>Project Leader Annual Salary</td>
<td>$32,597,580</td>
</tr>
<tr>
<td></td>
<td>2 Analysts Annual Salary</td>
<td>$32,156,904</td>
</tr>
<tr>
<td>Project Evaluation&lt;sup&gt;28&lt;/sup&gt;</td>
<td>Evaluation methodology design, data collection and analysis</td>
<td>$110,000,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$224,754,484</td>
</tr>
</tbody>
</table>

Note: The budget was adjusted according to the implementation phase and schools reached. For year 2 and year 3 the budget is projected considering a 3 percent inflation rate.<sup>29</sup>

Final Recommendations

The informational campaign and the gender discussions in schools complement each other in terms of the type of beliefs that they address, the long-term effect sought and their

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<sup>26</sup> Budget was obtained from the Chilean NGO “Fundacion Crecer con Todos” that currently trains teachers to improve education outcomes.
<sup>27</sup> Source: http://transparencia.mineduc.cl/tabla_remuneraciones_2018.htm
<sup>28</sup> Budget based on a national evaluation program from JPAL-LAC.
targeted population (see Appendix X). The informational campaign tries to bring consciousness on the different beliefs that influence women’s decisions and motivate the society to rethink and update them, while a change in education curriculum has a much deeper impact in the long run in future generations, based on reshaping the beliefs about the role of women in society in a critical period of life. Even though the theories of change outlined in the previous section reflect a clear relation between the inputs and outcomes of each policy, in both cases there are strong assumptions that should be further evaluated during the implementation phase of each program.

Although both options are aligned with the current political agenda, the implementation strategy differs radically. The first option is highly cost effective, making it an appealing option for the government to pursue in the short run. The second one requires the involvement and support of several actors within the public sector as well as external stakeholders (including teachers, parents and children) to enhance its effectiveness, implying a more detailed implementation strategy.

Changing beliefs is not an easy task, but changing individual decisions and actions is even harder. This study has proven that simply showing information on economic returns and motivating women to join the labor force could have an impact on beliefs that could potentially translate to changes in action. At an aggregate level this could generate movements in the final FLPR and therefore reshape social norms and enhance beliefs to motivate more women to apply for jobs.

It is important to acknowledge that the length of the study did not allow us to measure longer-term effects in terms of outcomes and impact. Other questions remain on whether the labor market is able to absorb more women than it currently does (therefore the need for other government interventions to address incentives on the demand side), and the potential negative spillovers for the rest of the labor market on a sudden increase in the female labor supply. All this should be measured during the life of the policy implementation in order to adjust them under the light of new results.

Finally, as shown, cultural factors matter in decision making which supports the argument that they should be considered in every gender policy to start “leveling the field” for women.
References


Education in Chile (2017) Reviews of National Policies for Education, OECD.
Reshaping beliefs to promote higher female labor participation in Chile


Appendix

I. Intervention Treatment

Figure 1. Treatment 1: Economic Returns to Labor (Interquartile Range)

II. Survey Questionnaire

**Demographic information**

1. What is your gender?
2. How old are you?
3. In which district/commune do you live?
4. What is your marital status?
5. How many people live in your house, including yourself?
   a. How many of those are adults (18 years old and older), including yourself?
b. How many of those are adults work, including yourself?
6. How many children do you have?
7. How important are the following issues in your life?
   a. Religion: o Very important, o Rather Important, o Not very important, o Not at all important, o Don’t know
   b. Family: o Very important, o Rather Important, o Not very important, o Not at all important, o Don’t know
   c. Work: o Very important, o Rather Important, o Not very important, o Not at all important, o Don’t know

**Education and professional experience**
8. Did your mother worked when you were a kid? o Yes, she worked full time, o Yes, she worked part time, o Yes, she was self-employed, o No, she didn’t work, o N.A.

9. What is your highest educational level attained? o Did not study, o Basic education incomplete, o Basic education complete, o Middle education incomplete, o Middle education complete, o Superior/University incomplete, o Superior/University complete, o Master’s degree or higher incomplete, o Master’s degree or higher complete

10. What is your current employment status? o Full time employed, o Part time employed, o Self-employed, o Retired, o Housewife, o Student, o Unemployed (not employed but looking for a job)
   a. If you are full-time or part-time employed, which is your main occupation?
   b. If you are currently not employed, were you employed in the past?
   c. If you were previously employed, why did you stop working?

11. If you are currently employed: in a regular month, in what range does your wage fall?

12. In a regular month, in what range does the total income of all members of the household fall?

**Female Labor Participation Perception**

13. Do you think there is a difference between the labor participation rate for men than for women? o None, o Little, o Some, o Substantial

14. Which of these two factors do you think is more relevant at determining the female labor participation rate? o Labor opportunities offered by the market, o Number of women that desire to work

15. Please evaluate the relevance of the following factors in explaining women labor participation:

<table>
<thead>
<tr>
<th>Factor</th>
<th>1 – Not relevant</th>
<th>2</th>
<th>3 – Somewhat relevant</th>
<th>4</th>
<th>5 – Essential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of jobs (flexibility, wages and distance from home)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having children</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women’s education and experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women’s household role</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If women could choose freely, they prefer not to work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pre-treatment Beliefs**

For the following statements, please answer: o Strongly agree, o Agree, o Disagree, o Strongly disagree:

16. On the whole, men make better business executives than women do

17. Men should take as much responsibility as women for home and children

18. If a woman earns more money than her husband, it’s almost certain to cause problems

Treatment (Random)
Post-treatment Beliefs

Belief on capabilities
19. On the whole, men make better political leaders than women do
20. In a formal work setting, women often perform worse than men do

Belief on the role of women in society
21. University is more important for a boy than for a girl
22. Being a housewife is just as fulfilling as working for pay
23. A working mother can establish just as warm and secure a relationship with her children as a mother that doesn’t work
24. When jobs are scarce, men should have more right to a job than women
25. Most of my friends are: o Housewives, o Employed, o Self-employed, o Other
26. How many successful working women are there in your community? o An extreme amount, o Quite a bit, o Some, o None

Belief on others’ belief
27. My partner supports my professional career
28. If a woman earns more money than her husband, it’s almost certain to cause problems
29. One of my main goals in life has been to make my family proud
30. How do you think your community judge women than work? o Positively, o Neutral, o Negatively

Belief on economic returns
31. We would like you to think about other woman about your age and who have similar education. Think not just about the ones you know personally, but all women like you throughout the country. How much do you think they earn on average in a typical month?
32. Assume that a man has the same characteristics than a woman (race, age, education, professional experience). Do you think there is a wage gap between them?
   a. If yes, how large do you think the wage gap is?

Outcomes
33. Imagine that you are currently unemployed and you find an open position on a job aligned to your interests, what is the probability that you apply to it?
34. Would you support more policies to increase gender equality, such as education policies? Naturally, to finance an expansion of policies promoting equal opportunities it would have to be the case that either other policies are scaled down or taxes are raised. o I very strongly oppose, o I oppose, o I am indifferent, o I support, o I very strongly support
35. Would you be interested in receiving information about labor opportunities in Chile?
36. Would you like to receive a Gift card for 5.000 CHL pesos or donate the money to an NGO working with female labor participation?

**Additional questions for men**

37. What is your wife’s highest educational level attained? o Did not study, o Basic education incomplete, o Basic education complete, o Middle education incomplete, o Middle education complete, o Superior/University incomplete, o Superior/University complete, o Master’s degree or higher incomplete, o Master’s degree or higher complete

38. What is your wife’s current employment status? o Full time employed, o Part time employed, o Self-employed, o Retired, o Housewife, o Student, o Unemployed (not employed but looking for a job)

**III. Statistical Balance**

The baseline characteristics of the different groups within the sample are statistically balanced. The balance between the treatment and control groups allows us to show that before the intervention groups are comparable and to proceed with the analysis. Only one of the pre-treatment belief regarding the opinion on whether the fact that a “women earning more than her husband could be a problem” seems to be unbalanced, which means we will have to control for this question in the main specifications.
Reshaping beliefs to promote higher female labor participation in Chile

Table 1. Treatment and Control Baseline Balance

<table>
<thead>
<tr>
<th>Variable</th>
<th>Control Mean</th>
<th>Diff. Treatment 1</th>
<th>P-Value</th>
<th>Diff. Treatment 2</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>35.63</td>
<td>-3.23</td>
<td>0.34</td>
<td>-3.43</td>
<td>0.22</td>
</tr>
<tr>
<td>Single</td>
<td>0.45</td>
<td>-0.01</td>
<td>0.95</td>
<td>0.04</td>
<td>0.73</td>
</tr>
<tr>
<td>Household Size</td>
<td>3.50</td>
<td>0.19</td>
<td>0.65</td>
<td>-0.23</td>
<td>0.63</td>
</tr>
<tr>
<td>Religion</td>
<td>0.23</td>
<td>0.15</td>
<td>0.19</td>
<td>0.07</td>
<td>0.51</td>
</tr>
<tr>
<td>Family</td>
<td>0.92</td>
<td>0.04</td>
<td>0.52</td>
<td>0.06</td>
<td>0.3</td>
</tr>
<tr>
<td>Work</td>
<td>0.49</td>
<td>-0.17</td>
<td>0.19</td>
<td>-0.12</td>
<td>0.26</td>
</tr>
<tr>
<td>Mother Didn’t Work</td>
<td>0.65</td>
<td>-0.11</td>
<td>0.35</td>
<td>0.15</td>
<td>0.18</td>
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<tr>
<td>Education</td>
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<td>0.31</td>
<td>-0.2</td>
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<tr>
<td>Employed</td>
<td>0.73</td>
<td>0.47</td>
<td>0.37</td>
<td>0.6</td>
<td>0.15</td>
</tr>
<tr>
<td>Income</td>
<td>1,259,896</td>
<td>-22,434.78</td>
<td>0.87</td>
<td>-82,189.17</td>
<td>0.55</td>
</tr>
<tr>
<td>Household Income</td>
<td>1,459,402</td>
<td>-192,658.51</td>
<td>0.24</td>
<td>-13,269.79</td>
<td>0.92</td>
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<tr>
<td>Pre_belief_Gap</td>
<td>3.15</td>
<td>0.15</td>
<td>0.38</td>
<td>0.29</td>
<td>0.1</td>
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<tr>
<td>Pre_belief_Business</td>
<td>3.35</td>
<td>0.01</td>
<td>0.96</td>
<td>0.11</td>
<td>0.53</td>
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<tr>
<td>Pre_belief_House</td>
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<td>0.77</td>
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<td>Pre_belief_Earnings</td>
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</table>

Source: Own elaboration using Own Survey Data

IV. Baseline Beliefs

Table 2. Baseline Beliefs for Targeted Groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Belief Earnings</th>
<th>(2) Belief University</th>
<th>(3) Belief Job Scarce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is non-single</td>
<td>-0.571</td>
<td>-0.127</td>
<td>0.297</td>
</tr>
<tr>
<td></td>
<td>(0.38)</td>
<td>(0.43)</td>
<td>(0.4)</td>
</tr>
<tr>
<td>Has low education</td>
<td>-0.0324</td>
<td>-0.353</td>
<td>-1.031**</td>
</tr>
<tr>
<td></td>
<td>(0.42)</td>
<td>(0.47)</td>
<td>(0.43)</td>
</tr>
<tr>
<td>Mother didn’t work</td>
<td>-0.147</td>
<td>0.0384</td>
<td>0.218</td>
</tr>
<tr>
<td></td>
<td>(0.37)</td>
<td>(0.44)</td>
<td>(0.40)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.037</td>
<td>1.294***</td>
<td>0.731**</td>
</tr>
<tr>
<td></td>
<td>(0.29)</td>
<td>(0.33)</td>
<td>(0.3)</td>
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<tr>
<td>Observations</td>
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<td>126</td>
<td>126</td>
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</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Own elaboration using Own Survey Data
V. Belief Indexes Composition

<table>
<thead>
<tr>
<th>Type</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other's beliefs</td>
<td>Q.27. My partner supports my professional career</td>
</tr>
<tr>
<td></td>
<td>Q.28. If a woman earns more money than her husband, it’s almost certain to cause problems</td>
</tr>
<tr>
<td>Women’s Role in Society</td>
<td>Q.24. When jobs are scarce, men should have more right to a job than women</td>
</tr>
<tr>
<td></td>
<td>Q.30. How do you think your community judge women than work?</td>
</tr>
<tr>
<td>Capabilities</td>
<td>Q.21. University is more important for a boy than for a girl</td>
</tr>
<tr>
<td></td>
<td>Q.23. A working mother can establish just as warm and secure a relationship with her children as a mother that doesn’t work</td>
</tr>
<tr>
<td>Economic returns</td>
<td>Q.31. We would like you to think about other woman about your age and who have similar education. Think not just about the ones you know personally, but all women like you throughout the country. How much do you think they earn on average in a typical month?</td>
</tr>
<tr>
<td>Application Action</td>
<td>Q.33. Imagine that you are currently unemployed and you find an open position on a job aligned to your interests, what is the probability that you apply to it?</td>
</tr>
<tr>
<td>Policy Support</td>
<td>Q.34. Would you support more policies to increase gender equality, such as education policies?</td>
</tr>
<tr>
<td>Information</td>
<td>Q.35. Would you be interested in receiving information about labor opportunities in Chile?</td>
</tr>
<tr>
<td>Compensation Action</td>
<td>Q.36. Would you like to receive a Gift card for 5,000 CHL pesos or donate the money to an NGO working with female labor participation?</td>
</tr>
</tbody>
</table>

VI. Treatment Effects

The interventions do not result in a change in the whole distribution of outcomes but just a change in how extreme the responses are (see Figure 2). The upper right graph of Figure 2 represents the responses to the belief on capabilities, when asked about the level of agreement with “university is more important for a boy than for a girl”: 25 percent and 71 percent of the control group disagrees and totally disagrees respectively, while for Treatment 1 the numbers are 20 and 76 percent and, for Treatment 2, 15 and 79 percent respectively.
Figure 2. Survey Responses on Beliefs by Group

How many successful women are there in your community
Belief on women's role

Source: Own elaboration using Own Survey Data
VII. Treatment Effects in Targeted Groups

Table 3: Effect of the intervention on different sub-groups

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1) Belief on Women’s Role</th>
<th>(2) Belief on Others</th>
<th>(3) Belief on Capabilities</th>
<th>(4) Belief on Economic Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>0.27***</td>
<td>0.28</td>
<td>0.09</td>
<td>79,946</td>
</tr>
<tr>
<td></td>
<td>(0.14)</td>
<td>(0.2)</td>
<td>(0.12)</td>
<td>(-64,660)</td>
</tr>
<tr>
<td>Treatment*Sexist</td>
<td>0.37</td>
<td>0.17</td>
<td>0.66**</td>
<td>7,465</td>
</tr>
<tr>
<td></td>
<td>(0.32)</td>
<td>(0.43)</td>
<td>(0.23)</td>
<td>(125,249.6)</td>
</tr>
<tr>
<td>Treatment*Low education</td>
<td>0.00</td>
<td>1.01**</td>
<td>0.28</td>
<td>-173,017</td>
</tr>
<tr>
<td></td>
<td>(0.35)</td>
<td>(0.53)</td>
<td>(0.28)</td>
<td>(102,561.6)</td>
</tr>
<tr>
<td>Treatment*Non-single</td>
<td>0.21</td>
<td>0.26</td>
<td>0.00</td>
<td>212,199*</td>
</tr>
<tr>
<td></td>
<td>(0.28)</td>
<td>(0.37)</td>
<td>(0.24)</td>
<td>(129,396.7)</td>
</tr>
<tr>
<td>Treatment*Mother didn’t work</td>
<td>0.53***</td>
<td>0.23</td>
<td>0.43</td>
<td>148,909**</td>
</tr>
<tr>
<td></td>
<td>(0.26)</td>
<td>(0.44)</td>
<td>(0.23)</td>
<td>(78,767.65)</td>
</tr>
<tr>
<td>Treatment*All of the above</td>
<td>1.36***</td>
<td>0.64</td>
<td>0.65***</td>
<td>120,251.7</td>
</tr>
<tr>
<td></td>
<td>(0.27)</td>
<td>(0.99)</td>
<td>(0.29)</td>
<td>(164,929.4)</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Own elaboration using Own Survey Data

VIII. Slutsky Decomposition for Married Women in Chile

Following the strategy of Angrist (1991) and Blau and Kahn (2007), we estimate the elasticity of the hours worked for married women using grouped means (cells of year, education level and age). This allows to identify an effect that is less contaminated by individual choice.

The main equation is the following:

\[
\ln H = \alpha + \beta_1 \ln W + \beta_2 \ln W_S + \beta_3 \ln A + \gamma X + u
\]

where \(\ln H\) is the average of the logarithm of the weekly hours worked for a specific cell of year, education and age, \(\ln W\) is the mean of the logarithm of the women’s own wage and \(\ln W_S\) the mean of the logarithm of her husband’s wage. Finally, \(X\) represents the mean of individual characteristics, specifically a dummy that indicates having children under 18 years old and \(u\) is the error term.
Using the weighted means strategy and without eliminating zero incomes and using household cross sectional data from 1990-2017 (available every two years), the main results are the following:

**Table 4: Elasticity of Hours Worked for Chilean Married Women over Time**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Log_wage</td>
<td>0.192***</td>
<td>0.190***</td>
<td>0.184***</td>
</tr>
<tr>
<td></td>
<td>[0.043]</td>
<td>[0.063]</td>
<td>[0.031]</td>
</tr>
<tr>
<td>Log_Assets</td>
<td>0.063</td>
<td>-0.034</td>
<td>-0.074</td>
</tr>
<tr>
<td></td>
<td>[0.051]</td>
<td>[0.064]</td>
<td>[0.045]</td>
</tr>
<tr>
<td>Has_children</td>
<td>-0.082</td>
<td>-0.082</td>
<td>-0.011</td>
</tr>
<tr>
<td></td>
<td>[0.087]</td>
<td>[0.078]</td>
<td>[0.039]</td>
</tr>
<tr>
<td>Log_wage_husband</td>
<td>-0.358***</td>
<td>-0.127***</td>
<td>-0.029</td>
</tr>
<tr>
<td></td>
<td>[0.030]</td>
<td>[0.025]</td>
<td>[0.030]</td>
</tr>
<tr>
<td>Constant</td>
<td>4.943***</td>
<td>3.354***</td>
<td>2.699***</td>
</tr>
<tr>
<td></td>
<td>[0.237]</td>
<td>[0.302]</td>
<td>[0.221]</td>
</tr>
<tr>
<td>Observations</td>
<td>1,042</td>
<td>1,314</td>
<td>1,454</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.141</td>
<td>0.062</td>
<td>0.116</td>
</tr>
</tbody>
</table>

Robust standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1

Source: Own elaboration using cross section CASEN household

Notes: Cross-section data from 1990-2017 with data available every two years. Weighted averages for year, age and education for women ages 22-54.

**IX. Stakeholder Analysis**

There are several stakeholders related to female labor participation in Chile. On the one side the population can be segmented into women, men and society as a whole. Women are interested in promoting more and better opportunities for themselves, although those that are currently not working might not be interested in supporting any policy regarding employment, but could benefit from the impulse of those that have already joined the labor market. On the other side, men might have more resistance to support any policy that might alter their intra-household dynamics. For the society in general there is a strong international movement towards gender parity from which Chileans are not excluded. Still the social norms and practices regarding female labor participation in the country are somewhat conservative (in comparison with the region).

On the other side, the labor demand side is represented by firms which have high power in the Chilean arena but their interest in gender equality policies is generally low given the potential costs
that new policies could imply for them. Their support to specific policies would depend on the potential consequences for each industry, policies broadening the labor supply could be beneficial for firms but policies demanding more benefits for women could potentially impact negatively in their operations or financials.

Then, the government is split into the Presidential Cabinet, Ministry of Education, Ministry of Women and Gender Equality and the Ministry of Labor. The president is very interested in promoting a gender equality agenda given the public awareness of the issue at a national and international level. Although the previous government was the one that created the Ministry of Women and Gender Equality, the current government is giving substantially more power.\(^30\) Its commitment with the gender equality agenda is fundamental for future policy intervention and coordination efforts of other involved ministries. Moreover, the Ministry of Women and Gender Equality is new and un-experienced but it is slowly getting more power to support the incorporation of gender consideration in different types of policies (labor, health, among others). On the other hand, the Ministry of Education has an important role in Chile as education has been one of the priorities of the government. Although it does not have a gender specific agenda, the previous government did some explicit intents to incorporate it to the curricula (for example, incorporating sexual information or eliminating sexist novels and songs from K-3 grades curricula). Finally, the Ministry of Labor has a lot of power due to its economic importance. It has a very big agenda and currently involved in more than 10 types of reforms where two of them are in full coordination with the Ministry of Women and Gender Equality, what makes us think that other joint efforts would not be hard.

Last but not least, the civil society is composed by a variety of social movements, NGOs, Social Media, among others, addressing issues of gender equality. Although they have high interest in the issue, still their power is particularly low when compared to government agencies. The media is dedicating more space to gender issues such as violence against women which has become a hot topic for the media and is the cause of many protests nowadays.

\(^{30}\) To see very recent news on the case see the following links:
Figure 3. Stakeholder Map

Cultural Factors
1. Beliefs on their own abilities and economic returns to labor
2. Beliefs on the role of women in society
3. Beliefs on other’s beliefs on the role of women in society
4. Preferences on working
5. Firms preferences regarding employee gender
6. Social norms and practices about women’s role in society
7. Religious groups influence social norms

Social and Economic Interactions
1. Women decide to get into the labor force
2. Firms hire employees
3. Engagement and support on the field
4. Intra-household bargaining
5. Communal Interactions
6. Influence local practices
7. Offer support the recruiting process

Policy Interactions
1. Implement programs targeting specific populations
2. Coordinate the design and implementation of gender programs
3. Definition of government agenda and lines of action
X. Policy Analysis

*Figure 4. Policy Analysis Summary*

<table>
<thead>
<tr>
<th>Policy Option #1 Information Campaign</th>
<th>Technical Correctness</th>
<th>Political Support</th>
<th>Administrative Feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Policy Option #2 Secondary Education Curriculum</th>
<th>Technical Correctness</th>
<th>Political Support</th>
<th>Administrative Feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
</tr>
</tbody>
</table>