Female Empowerment: Evidence from the National Program "Cuna Más"

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Abstract

We analyzed the effects of accessing public childcare services on female empowerment, measured through decision-making within the household. Exploiting geographical and temporal variation at the district level, using administrative data and sociodemographic and health surveys, we investigated the effect of the National Program "Cuna Más" on four relevant dimensions: health, family visits, contraceptive use, and major household purchases. We found that women belonging to districts where the Program was implemented generally increase their involvement in household decision-making. Specifically, we observed that the National Program "Cuna Más" has a positive and significant effect on peruvian women's participation in decisions related to major household purchases and family visits in the medium to long term. The results regarding heterogeneous effects also show that women older than their partners and those with a higher level of education have an additional positive effect on household decision-making. However, women with a higher salary income than their partners have an additional negative and significant effect on household decision-making.

JEL classification: D91 Role and Effects of Psychological, Emotional, Social, and Cognitive Factors on Decision Making

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1 Introduction

Traditionally, women have been seen as the ones in charge of unpaid care work (Elson, 2000; Folbre, 2006). Among these responsibilities, child care within the home imposes financial and time constraints on them, which translates into lost opportunities and wages (Atal, 2017; Folbre, 2006). Duflo (2012) proposes that the time a woman spends on child care negatively impacts her ability to participate in the labor market, her ability to generate autonomous income and, consequently, her bargaining power within the household. Even within a spousal relationship, after the birth of the first child, it is more common for mothers to tend to reduce their hours of paid work by opting for less time-intensive jobs (Goldin et al., 2022).

According to Marchbank (2004), in middle- and low-income countries, the gender gap in time use and wages persists with greater intensity, which could lead to marital dependency. In Peru, according to the last National Time Use Survey (2010), women spent 2.7 times more time on household chores and unpaid care compared to men. Moreover, by 2019, they earned 26.9% less than their male counterparts and spent 14.3 hours less on paid work (ILO, 2020). Faced with this disadvantaged situation, child care services are presented as a solution to the lack of time available to mothers and their unfavorable economic situation (Clark et al., 2019; Hojman & Boo, 2022; Martínez & Perticará, 2017; Nandi et al., 2020). By freeing up childcare time at home, female empowerment is favored as mothers' labor participation increases, albeit only in cases where there are no additional barriers to female employment (J-PAL, 2023). This increase in mothers' labor participation would in turn increase the bargaining power of mothers within the household (Doss, 1996; Heaton et al., 2005; Turon, 2019), which would allow them to gain the same access to and control over resources that men have in the household (Batliwala, 1993; Heaton et al., 2005; Turon, 2019).

The literature has highlighted the importance of empowering women due to their influence on the economic development of society (Banerjee et al., 2020; Bayeh, 2016; Doepke & Tertilt, 2019) through their labor contribution and the creation of future human capital. Duflo (2012) explains that women tend to make decisions with the welfare and education of their children in mind, who in the future will also contribute to society.

Our research aims to identify how the provision of child care services can influence female empowerment, manifested in greater decision-making power within the household.

In particular, we will evaluate the National Program "Cuna Más" that could serve as a strategy to increase female empowerment in Peru. Beyond the fact that this public policy aims to provide child care services, mothers who bring their children to this Program would have greater time availability which would increase their labor opportunities and productivity (Boyd & Rentería, 2016). In addition, child care services can serve to empower women users from daily interaction with other beneficiaries in similar situations. Mothers enrolled in care programs gain access to an additional network of social support, membership of which can potentially increase their self-esteem and confidence in negotiating within the household (Green, 1998; Hoffmann, 2019). The better economic position within the household, added to the contact networks generated with other beneficiary mothers, would lead to greater empowerment of women in the spousal relationship and greater influence within household decisions (Doss, 1996; Hoddinott & Haddad, 1995).

This study contributes to the economic literature on child care services by providing results on their influence on female empowerment calculated through decision-making power within the household. So far, the literature has mostly focused on freeing up women's available time so that it can be redistributed to more productive activities (Duflo, 2012; Gramm et al., 2020; Hoffmann, 2019).The influence of child care services on women's labor indicators (Bauernschuster & Schlotter, 2015; Becker, 1985; Boyd & Rentería, 2016; Cardona-Sosa & Morales, 2016; Clark et al., 2019); and the relationship between the decision-making power that each member can exercise and the resources they control within the total family resources (Abdullah Yusof & Duasa, 2010; Doss, 1996; Heaton et al., 2005; Turon, 2019).

Furthermore, although female empowerment has been recognized as an important factor that positively influences variables such as improved self-esteem (Friedemann-Sánchez, 2006; Mujahid-Mukhtar et al., 1991), a lower probability of suffering domestic violence, a lower probability of suffering domestic violence (Farmer & Tiefenthaler, 1997; Svec & Andic, 2018), and higher marital satisfaction (Orgill & Heaton, 2005); the indicator of women's decision making power has been little analyzed, especially in developing countries (Sultana, 2011). In Peru, the studies available on the National Program "Cuna Más" have usually focused on the effects on the beneficiary children and, to a lesser extent, on the economic empowerment of user mothers. In addition, these studies were conducted in 2016 and do not evaluate variables of female empowerment within the household.

In addition, unlike the identification strategy frequently used for the impact evaluation of the "Cuna Más" program, propensity score matching, we opted for a difference-in-differences estimator for multiple time periods which allows us to exploit the geographic and temporal variation in the progressive implementation of the program at the district level. The treatment group consists of women living in poverty with children under three years of age and residing in a district where the "Cuna Más" program was implemented in the year of the survey. The control group uses women with the same socio-demographic conditions, but who do not reside in districts where the program was implemented for the year of the survey. It should be noted that, unlike what has been done in previous literature, we match by propensity score to construct comparable groups but not to identify the impact of the Program. In addition, we evaluate possible heterogeneous effects of the Program for three specific subgroups of the sample: women who earn more than their partner, women who are older than their partner, and women who have more education compared to their partner.

Our results show positive effects on women's empowerment in beneficiary districts. Specifically, we observe significant improvements in women's participation in decision making related to family visits and large household purchases. These results are robust and consistent with bargaining models that link better economic position with greater influence of women in household decisions. It should be noted that our strategy has limitations due to the lack of panel data in the Demographic and Family Health Survey (DHS) base and the low coverage of the program. Improving the consistency of the databases would allow us to obtain greater internal validity of the results. Future research could explore other determinants of female empowerment and the impact of child care services in different contexts.

2 Literature review

The literature supports how the time and effort devoted to household chores has implications for the economic development of household members. Becker (1985) proposes a model in which households must decide between carrying out childcare at home or accessing childcare services in order to free up time to devote to work and/or leisure. From this model, the author concludes that the greater effort and time spent in unpaid work

translates into lower employment and wages. Traditionally, this situation has been more prevalent among mothers in the household who are engaged in unpaid care work (Elson, 2000; Folbre, 2006)). In fact, Goldin et al. (2022) conclude that both income and career paths diverge after the birth of the first child; even if both parents were in the same employment situation at the beginning. This could be because time spent in unpaid care may lead women to accept lower quality jobs with more flexible schedules and lower effort requirements (Goldin et al., 2022; Turon, 2019). In addition, Heckman (1974) postulates that the superior quality of childcare provided by formal institutions influences decision making regarding employment, the length of the workweek, and the choice between formal and informal childcare.

The literature has reported economic benefits for mothers using child care services measured by the probability of being employed, the number of hours worked, the probability of working in the formal sector and the proportion of their income within the household. Barros et al. (2013), take advantage of a randomized controlled experiment (implemented by the Government of Rio de Janeiro for a public policy) and together with the use of instrumental variables, find that there is a 9% to 17% increase in labor participation and a 16% increase in household income of Brazilian beneficiary mothers as a result of access to free child care services. Rosero and Oosterbeek (2011), using a regression discontinuity identification strategy, find an increase of 22 percentage points (pp.) in the probability that Ecuadorian mothers work, an increase of 7 working hours per week among beneficiary mothers, and a positive and significant effect on the income of the head of household as a result of access to free child care services. Medrano (2009), using a difference-in-differences estimator, reports that this type of child care services in Chile generates an increase of 2.6% to 10% in the labor participation of beneficiary mothers; however, this effect disappears when controlling for observable characteristics of the family and the individual.

In line with these results, through the use of instrumental variables, Attanasio and Vera-Hernandez (2004) find a positive effect of 12% to 37% on the probability that mothers using subsidized child care services find a job. In addition, these authors find that the program increases the working time of these Colombian women by 75 hours per month. Ángeles et al. (2011) use an ordinary least squares estimator as an identification strategy and find three important results of Mexican child care programs on beneficiary mothers.

First, the probability of being employed of this group increases by 18%; then, working hours increase by 6 hours per week; and, third, the hours dedicated to childcare within the home decreases by 7 hours per week. Calderón (2014), through the use of an empirical triple differences strategy, finds that there is an increase of 1.8 pp. in the probability of working for Mexican female beneficiaries and an increase of 4.5% in the average income of the urban population of eligible women.

For the Peruvian case, Boyd and Rentería (2016) report economic benefits for mothers who are users of the National Program "Cuna Más" by estimating a weighted regression with Entropy Balancing. The results show that "Cuna Más" increases the probability of belonging to the employed Economically Active Population (EAP) (14%) and decreases the probability of having an informal job in the informal sector (-6%) of beneficiary mothers.

This better economic position within the household, thanks to higher probability of employment, longer hours worked and higher wage income, can potentially lead to two divergent theories that study the effect of increased labor market participation on decision-making power within the household. The more developed theory, known as the bargaining and collectivity models, assumes that women's better economic or social position in the household leads to greater power in the relationship, and a greater ability to influence household decisions and resource allocation (Abdullah Yusof & Duasa, 2010; Doss, 1996; Heaton et al., 2005). Jianakoplos and Bernasek (2008) conclude that relative access to paid work, income and education could increase women's bargaining power within the household.

Models of bargaining in marriage theorize that decisions within the household are a cooperative game where spouses with different interests are assumed to work out these differences until a Nash equilibrium or other explicit form of bargaining is reached (Manser & Brown, 1980; McElory & Horney, 1981). However, a particular feature of this model is that the power that can be exercised by each member depends predominantly on the resources they control in the total family resources. Manser and Brown (1980) and McElory and Horney (1981) theorize that the connection between employment and autonomy exists because when women work they have control over their earnings. This reduces their economic dependence on a male partner and allows them to use credible threats to leave a relationship in which they are not allowed to become empowered (Ruiz-Bravo et al.,

2018). Along these lines, Grasmuck and Espinal (2000) find that individual income does play the most important role when making joint financial and business decisions.

Conversely, the stream of literature known as relative resources theory has established that factors assumed to empower women (such as income, increased labor participation, and education) are also related to a higher prevalence of partner dominance when these achievements "threaten" their status (Eggers Del Campo & Steinert, 2022; Hornung et al., 1981; Svec & Andic, 2018; Weitzman, 2014). In fact, Acharya et al. (2010) find that women with higher purchasing power are less likely to participate in health-related decision making; while Mulugeta and Amsalu (2014) find that the level of participation of rural women is low and independent of their level of income in the livestock sector.

Notwithstanding the two theories presented, for another study in Mexico, Hoffmann (2019) posits a potential peer empowerment effect generated from the daily interaction with the daycare team and the other beneficiary mothers with similar situations. Women enrolled in the Care Program gain access to an additional social support network, whose membership can potentially increase their self-esteem and confidence in negotiating within the household (Green, 1998; Hoffmann, 2019).

In summary, the empirical literature predicts positive results regarding the impact that child care services could have on the economic empowerment of female beneficiaries. However, as reviewed, this would not necessarily translate into greater participation of women in household decisions. On the one hand, bargaining and collectivity models argue that a better economic or social position of women increases their bargaining power and ability to influence household decisions and resource distribution. On the other hand, relative resource theory suggests that factors that supposedly empower women may also increase male partner dominance when these gains threaten their status.

3 Background

The National Program "Cuna Más" was officially created in March 2012 by Supreme Decree 003-2012-MIDIS, based on the National Program "Wawa Wasi" (which ceased to operate that year).

3.1 National Program "Wawa Wasi"

The National Program "Wawa Wasi" initially emerged in 1993 as a project that sought to provide comprehensive care to communal homes and the homes of the National Integral Program for Family Welfare (INABIF, its acronym in Spanish). This project has its origin in the framework of the Convention on the Rights of the Child and the National Plan of Action for Children under funding from the United Nations Children's Fund (UNICEF) (Chuquillanqui et al., 2010).

Between 1994 - 1995, thanks to funding from the Inter-American Development Bank (IADB), the European Union (EU), UNICEF and the World Food Program (WFP), the "Children's Home System" project was incorporated into Wawa Wasi. Later, in 1996, the Wawa Wasi National Program was transferred to the Ministry of Women and Human Development (PROMUDEH, its acronym in Spanish), which in 1997 recognized it as the "Program of Integral Attention to Children". Then, between 1999 - 2004, this program is financed by an IDB loan so that, finally, as of 2005, it becomes a permanent activity of the Vice Ministry of Women's Affairs within the Ministry of Women and Social Development (MIMDES, its acronym in Spanish) financed by resources from the Public Treasury through D.S. N°011-2004-MIMDES (Pérez, 2013). In general, there were two services provided by the program:

a. **"Wawa Wasi" Service:** provided comprehensive care to children from 6 to 47 months of age through two modalities:

   - **"Wawa Wasi" - Community Management:** care and attention services in nutrition, health and timely learning provided in the community management houses.
   - **"Wawa Wasi" - Institutional:** technical assistance and advisory services to public and private institutions within the framework of comprehensive care for beneficiary children.

b. **Qatari "Wawa" Service:** services to strengthen the capacity of families in high Andean areas in child-rearing.

Finally, the National Program "Wawa Wasi" offered services through 4 components: comprehensive health care, food and nutritional care, early childhood learning, and infrastructure and security. At the end of the implementation period (2012), the National

Program "Wawa Wasi" intervened in 319 districts distributed in 23 regions of the country (Pérez, 2013).

3.2 National Program "Cuna Más"

Unlike "Wawa Wasi", which sought to meet the day care needs of children under 48 months of age while their mothers were working or studying, "Cuna Más" broadens its focus and incorporates the purpose of improving the child development of a new target population in accordance with the provisions of Supreme Decree No. 003-2012-MIDIS. This population is composed of those families and/or pregnant mothers with children under three years of age living in urban or rural areas in poverty or extreme poverty. Although "Cuna Más" no longer explicitly states as an objective to increase the labor market participation of mothers (and/or fathers) while the children attend the Program, this effect is indirectly maintained (Boyd & Rentería, 2016).

The requirements for accessing the National Program "Cuna Más" within the district of residence are as follows:

- The beneficiary must be under 30 months of age at the time of enrollment.
- Present the National Identity Card (DNI, its acronym in Spanish) of the parents/guardians and of the minor or of the pregnant woman, or document that proves that it is being processed.
- Present a copy of the child's Comprehensive Health Care Card (CRED, its acronym in Spanish).
- Fill out an affidavit of affiliation of the child or pregnant woman to a health insurance system or that the affiliation is in process.
- Submit a hemoglobin screening result for the child.
- Express commitment to the prevention, diagnosis and treatment of anemia in the child.
- Present a Family Commitment Act, signed by the father, mother or responsible person in charge of the minor.

Once enrolled in the Program, beneficiaries can access one of the following services:

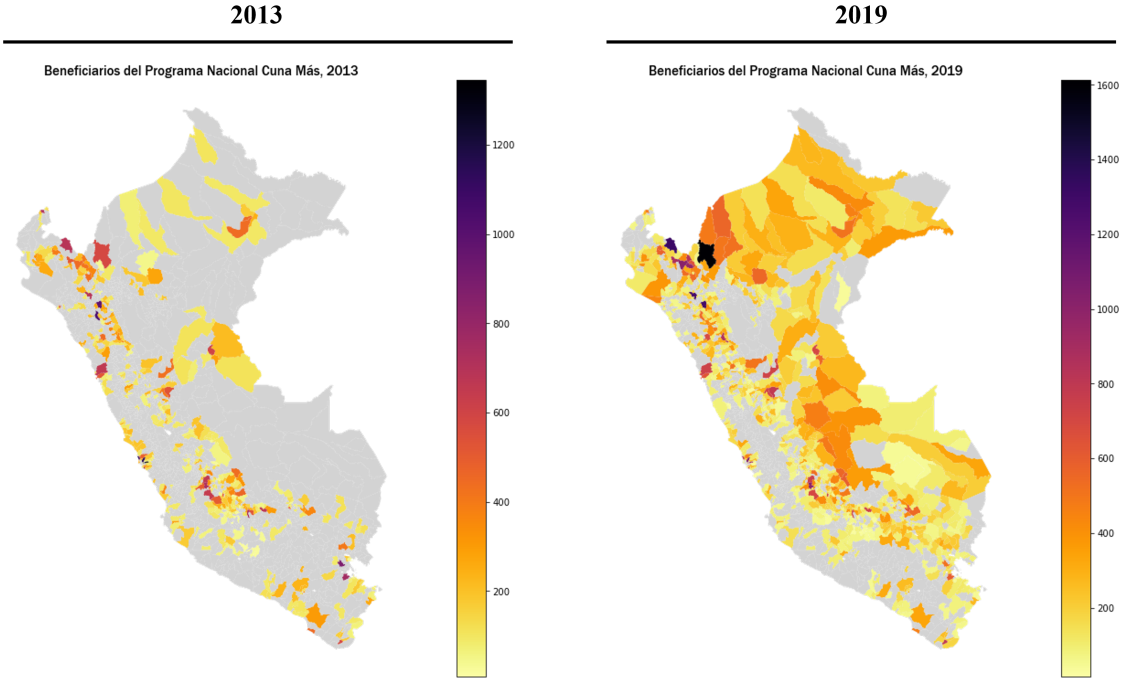
a. **Day Care Service:** provides comprehensive care for children between 6 and 36 months who live in urban areas of poverty and extreme poverty, and who require attention to their basic needs. Services include health, nutrition, learning and protection. The caregivers are mothers, trained in care techniques, who accompany the children in meaningful experiences that promote learning and skills development.

b. **Family Accompaniment Service:** seeks to improve and strengthen knowledge and practices of care, child learning and development of skills and capacities, focusing more on dispersed rural areas of the country. Services are provided through weekly one-hour home visits by trained community facilitators, and monthly group sessions with pregnant mothers and children under 36 months and their families.

It should be noted that, due to budgetary issues, the Program's expansion since its implementation in 2013 has been rather gradual in Peru's districts. The targeting criteria were divided into socioeconomic and categorical criteria at the district level (MIDIS, 2020). Regarding the socioeconomic criteria, districts with a total poverty incidence greater than or equal to 19% were prioritized for the Day Care Service, while this value had to be greater than or equal to 50% for the Family Accompaniment Service (as reported by the Household Targeting System). With respect to the categorical criteria, those districts with at least one urban population center were favored in the case of the Day Care Service. For the Family Accompaniment Service, the districts selected are those with a rate greater than or equal to 30% of chronic malnutrition in children under 5 years of age; and rural districts within the scope of intervention of the Juntos Program (MEF, 2016).

Geographically, the National Program "Cuna Más" initially covered 489 districts, with a beneficiary population of 56,431 children under the Day Care Service and 31,782 families under the Family Accompaniment Service. Annually, the Program's coverage is increased in accordance with the targeting criteria previously mentioned. By the end of 2019, "Cuna Más" expanded to 909 districts, the Day Care Service reached 59,738 children and the Family Accompaniment Service served 110,163 families. Figure 1 shows the coverage of "Cuna Más" for the years 2013 and 2019.

Figure 1: Coverage of National Program "Cuna Más", 2013 and 2019



Source: MIDIS

Elaboration: Own

3.3 Context

Gender roles have played an important role in determining women's status within the home and society (Grasmuck & Espinal, 2000). (Budlender, 2010) highlights that, worldwide, women dedicate more hours to unpaid care work than men. Women are assigned to household chores, while men are assigned to productive and financially rewarding activities (Qi & Dong, 2016). Despite the fact that in recent years there has been a reduction in this gender gap, women are still maintained as the primary caregivers of the household's children, even when they also contribute economically (Goldin et al., 2022; Kroska, 2003).

At the Latin American level, between the period 2010 - 2018, women have spent 3.4 times more time on household chores and unpaid care compared to their male counterparts (ILO, 2019). In general, these gender gaps are notorious and remain for both the population with their own income and the population without this type of income. In Latin America, the average woman without own income dedicates 59.7 hours per week to unpaid work, while for this subgroup of the male population the time allocation to this task is 23.3 hours. On the other hand, the population of women with their own income spends an average of 37.5 hours on these domestic tasks, compared to their male peers who allocate 16.2 hours (ECLAC, 2016). This gender gap, moreover, influences

the progress related to the autonomy of these women and particularly their economic autonomy (ECLAC/ILO, 2023). This is because the marked difference in hours dedicated to unpaid work means that women have less work experience, harms women's financial freedom and could create marital dependency. Specifically, as of 2019, Peruvian women earned 26.9% less than their male peers while in Latin America and the Caribbean the average of this gap was 20% for the same year (ILO, 2019; INEI, 2019).

Likewise, Peruvian women spend 2.7 times more time on domestic activities compared to their male counterparts (ILO, 2019). According to the latest National Time Use Survey (2010), while the average Peruvian woman spends 6.7 hours more time caring for babies, children and adolescents, the average Peruvian spends 14.3 hours more on paid work than women. This situation means that, in the end, women have a greater burden of work hours, both paid and unpaid. Moreover, the time dedicated by women to household chores and, particularly, to unpaid care, increases notoriously when there is a child under five years of age present within the household (Addati et al., 2018). Despite this, according to INEI (2016), the provision of care for children and adults is worth 21.3 billion soles in our country, where about 70% of this value is contributed by women.

4 Data and sample composition

4.1 Databases

The data for the main analysis come from two sources. First, we use the Demographic and Family Health Survey (DHS) conducted annually by the National Institute of Statistics and Informatics (INEI, its acronym in Spanish) since 2004. The DHS collects representative information on the demographic dynamics and health of mothers, children under five years of age, and persons 15 years of age and older residing in Peru. We use this cross-sectional database for the creation of our outcome and control variables, from 2008 to 2019.

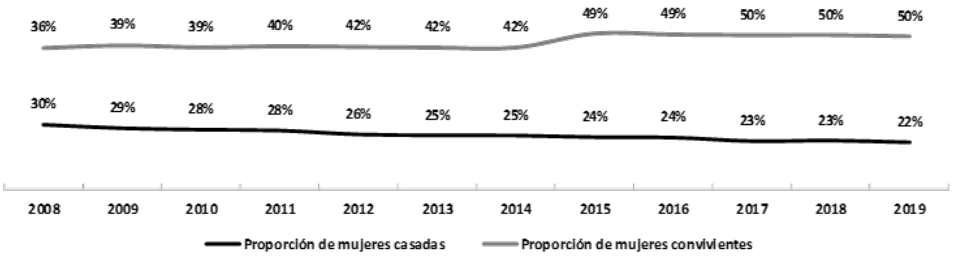
Given that the DHS does not collect information on women's participation in "Cuna Más" since its implementation, we prefer to identify membership in the Program through the district of residence. For this purpose, the second source of data comes from the Ministry of Development and Social Inclusion (MIDIS, its acronym in Spanish), which provides annual administrative information on the districts in which the Program is im-

plemented.

4.2 Sample

For our research, we used the DHS for the years 2008 to 2019. Although "Cuna Más" was implemented starting in 2013, we decided to include five previous years to evaluate the assumptions needed for our identification strategy. We excluded years prior to 2008 due to changes in DHS data collection, and years after 2019 as outliers due to the COVID - 19 pandemic. The sample used for the analysis includes women between 14 and 47 years old, married or cohabiting with their partner, to analyze only the working age population (WAP) and who are within the average limit of childbearing age (Ayala-Peralta, 2020). It should be noted that, according to statistics obtained from the DHS 2008 - 2019; in Peru, the evolution in the number of married women has maintained a downward trend, while the evolution of women living with their partner has grown over time. Regardless of this, as shown in Figure 2. To sum up, the proportion of married or cohabiting women has represented approximately two-thirds of the Peruvian female population.

Figure 2: Peruvian stylized facts



Source: DHS

Elaboration: Own

Finally, in order to have a homogeneous sample, we followed the selection criteria of the National Program "Cuna Más". The treatment group is made up of poor women with children under three years of age and residing in a district where the National Program "Cuna Más" was implemented in the year of the survey. The control group uses women with the same socio-demographic conditions, but who do not reside in districts where the Program was implemented for the year of the survey. Table 1 shows that the control and treatment groups are not statistically comparable in the relevant variables. Therefore, we opted to perform propensity score matching to determine the final sample for our

research. This strategy allows us to obtain a control group similar to the treatment group in its time-invariant observables. The final DHS base we used for our analysis is shown in Table 2 which contains 28,611 observations in 1,410 districts.

Table 1: Descriptive statistics: Pre-matching sample by propensity score

	(1) Treated (average)	(2) Controls (average)	(3) Difference
At the individual level			
Age	30.081	30.398	-0.317***
Age squared	957.830	979.310	-21.479***
Age at first marriage	18.860	18.687	0.173***
Years of study	7.615	6.546	1.069***
Extreme poverty (=1)	0.533	0.561	-0.028***
Ideal number of children	2.496	2.557	-0.061***
Head of household (=1)	0.097	0.059	0.039***
Married (=1)	0.238	0.287	-0.048***
Work (=1)	0.512	0.572	-0.061***
At the household level			
Place of residence (Large city)	0.199	0.079	-0.119***
Place of residence (Small town)	0.234	0.168	-0.066***
Place of residence (Town)	0.534	0.744	0.209***
Number of household members	4.924	5.179	0.255***
Rural (=1)	0.534	0.746	0.212***
Number of observations	16,423	13,187	29,610

*Note: ***p<0.01, **p<0.05, *p<0.1*

Table 2: Descriptive statistics: Post-matching sample by propensity score

	(1) Treated (average)	(2) Controls (average)	(3) Difference	(4) % reduction of bias
At the individual level				
Age	30.063	29.968	0.095	69.1%
Age squared	956.690	951.400	5.290	73.6%
Age at first marriage	18.859	18.789	0.070	96.8%
Years of study	7.615	6.546	1.069	95.7%
Extreme poverty (=1)	0.533	0.571	-0.039***	65.3%
Ideal number of children	2.496	2.500	-0.004	93.1%
Head of household (=1)	0.097	0.090	0.006**	94.6%
Married (=1)	0.238	0.238	-0.001*	99.2%
Work (=1)	0.511	0.509	0.003	89.0%
At the household level				
Place of residence (Large city)	0.199	0.204	-0.005	98.2%
Place of residence (Small town)	0.235	0.223	0.011	93.0%
Place of residence (Town)	0.534	0.544	-0.009	99.9%
Number of household members	4.921	4.908	0.013*	82.5%
Rural (=1)	0.534	0.544	-0.009	99.9%
Number of observations	12,250	16,372	28,611	

*Note: ***p<0.01, **p<0.05, *p<0.1*

4.3 Outcome variables and treatment variable

We analyze 5 main outcome variables. These variables are created using specific questions in the REC71 module of the DHS where women answer who has the final say in certain decisions, the options being: only the woman, the woman together with her partner, only the partner, another third person or no one. The first variable of interest is the female empowerment index, which weights with equal weight the participation of women within the following 4 dimensions of relevance (Malhotra, Schuler, et al., 2005).:

- **Control over the family environment:** Whether the woman participates with her partner in decisions regarding large household purchases. This variable is obtained from the question "Who has the final say in large household purchases?" provided by the DHS.
- **Characteristics of social relations:** Whether the woman participates with her partner in decisions regarding visits received in the home. This variable is obtained from the question "Who has the final say in family visits within the home?" provided by the DHS.
- **Physical integrity and security:** Whether the woman participates with her partner in decisions regarding contraceptive use. This variable is obtained from the question "Who has the final say in contraceptive use?" provided by the DHS.
- **Life and physical health:** Whether the woman participates alone in decisions regarding her own health. We obtain this variable from the question "Who has the final say in decisions regarding her health?" provided by the DHS.

The dimensions are evaluated by means of a dichotomous variable that takes the value of 1 if the woman participates in decisions for large purchases, visits and contraceptive use together with her partner or alone, and 0 otherwise. While, for the health dimension, the dichotomous variable takes the value of 1 if she participates in the decision about her health alone, and 0 otherwise.

The treatment variable, exposure to "Cuna Más", takes the value of 1 if the individual in the DHS belongs to the district where the program is implemented for that year and 0 otherwise.

4.4 Control variables

For the mother we created a vector of control variables from the DHS. These are:

- Age and age squared.
- Years of education: obtained from the sum of the years of basic education (initial, primary and secondary) and higher education (undergraduate and graduate).
- Extreme poverty status: we use the wealth index question where the poorest take the value of 1 and 0 if they are non-extreme poor.
- Salary higher than her partner: we use the question with the same name provided by the DHS where women who earn more than their partner take the value of 1 and 0 otherwise.
- Marital status: we use the marital status question where married women take the value of 1 and 0 if they are cohabiting.
- Head of household: we took the variable of relationship with the head of household where this variable takes the value of 1 if the respondent is also the head of household and 0 if she is the wife of the head of household.
- Access to insurance: we use the different questions in the survey about the insurance to which they are or are not affiliated, where women with any of these take the value of 1 and 0 otherwise.

Considering the characteristics of the couple, we create the following vector of control variables:

- Years of education of the couple: obtained from the sum of the years of basic education (initial, primary and secondary) and higher education (undergraduate and graduate).
- Age difference with respect to her partner's age: we subtract the woman's age minus the partner's age.
- Gap in the ideal number of children between the woman and her partner: we find the difference between the responses of the ideal number of children reported by the

respondent and the ideal number of children desired by the partner. This confounding variable allows us to control for a possible effect of whether the partner desires more or fewer children than the woman.

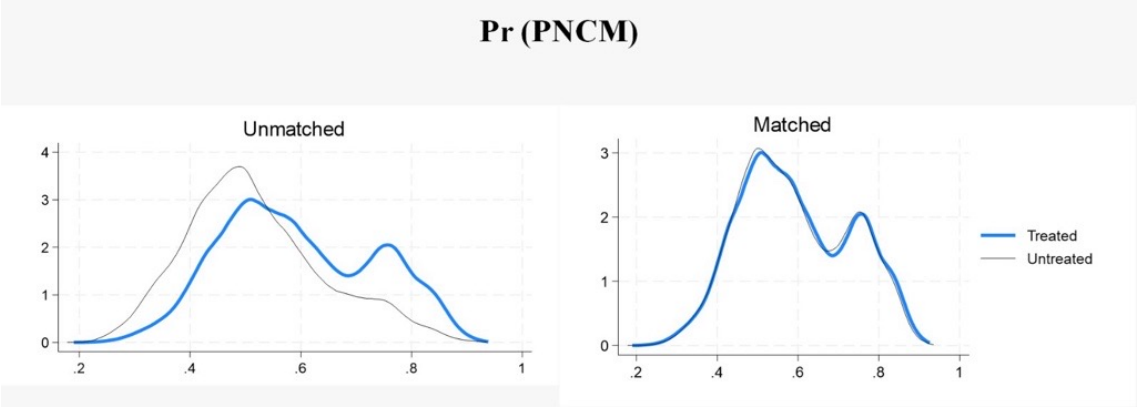
Finally, we create the following vector of control variables at the household level:

- Number of household members.
- Number of children under 5 years old.
- Household location: we use the place of residence variable, which takes the value of 1 if it is a city and 0 if it is a town.

4.5 Descriptive statistics

Because our initial sample was not comparable on the relevant control variables, propensity score matching was used to identify pairs of individuals similar in their observable characteristics (Rosenbaum & Rubin, 2023). We estimated the score (the probability of being eligible for the Program) from the observed women's sociodemographic characteristics and household characteristics. For matching we opted for a Kernel Epanechnikov function, considering only those observations within the common support. Kernel matching provides an efficient approach because it uses all the information available in the control group and weights the contribution of each individual within this group according to their level of matching with the treatment group (Berg, 2011). Figure 3 reports the Kernel density function of the score both before and after matching for the treated and control groups.

Figure 3: Kernel density of control and treatment groups, before and after matching



Likewise, in Table 2 shows that the control and treatment groups are statistically similar in the relevant control variables at the individual and household levels after matching. At the individual level, there are no significant differences for the variables except for extreme poverty status, married and head of household (significant differences at 1%, 5%, and 10%, respectively). At the household level, the difference in the number of household members between the control and treatment group is marginally different from 0. However, the differences at the individual level do not exceed 1 pp. in the case of being married or being head of household. Nor does it exceed 4 pp. if the woman is in extreme poverty. At the household level, the difference in the number of household members between the control and treated groups is 0.01 members. We consider that these differences do not affect our results since they are minimal and marginally significant.

5 Methodology

5.1 Identification strategy

The identification of the causal effect of "Cuna Más" on women's empowerment may present endogeneity problems, such as omitted variable bias, even after applying the propensity score matching technique. Omitted variable bias is due to unobservable characteristics of mothers that have an impact on women's participation in household decisions (such as the customs and traditions of the area in which the household is located, or the upbringing the woman has received). These variables are not found in the DHS and cannot be controlled for. Therefore, the Ordinary Least Squares method is not adequate to solve the problems mentioned above.

Instead of a classical regression, we considered the econometric method of differences-in-differences for multiple time periods that allows a double comparison: those women who are not beneficiaries compared to those who are beneficiaries, before and after 2013 (the date on which the National Program "Cuna Más" was implemented). This method allows us to create an "exogenous" scenario by considering an external event that only affects the treatment variable, but not other control variables that could affect the outcome variable. Due to the progressive implementation of the Social Program at the district level, we will use a modified version of the traditional difference-in-differences approach.

The difference-in-differences estimator with multiple time periods avoids the assignment of negative weights of the classic two-way fixed effects or TWFE (Goodman-Bacon, 2021) and provides a simple way to directly aggregate the group-time average treatment effects of group g at time t into average treatment effects over different durations of treatment exposure.

Finally, it is important to note that our estimates will not be ATT (average treatment effect on the treated) due to limited information in the DHS database regarding treatment allocation on an individual basis (self-reported variable). Consequently, our estimates should be interpreted as intention-to-treat (ITT) effects, i.e., the average effect on female empowerment of women belonging to a beneficiary district.

5.2 Difference-in-difference estimator with multiple time periods

We took advantage of the progressive implementation of the Program at the district level to estimate a difference-in-differences econometric model for multiple time periods (Callaway & Sant'Anna, 2021; Sun & Abraham, 2021). This method allows us to obtain unbiased estimates when: (i) there are multiple time periods (as is our case, 2008 - 2019), (ii) there is variation in the timing of the treatment (as the implementation of the Program was progressive at the district level), and (iii) the assumption of parallel trends potentially holds only after conditioning on the covariates (as we will present in the results section).

The following equation presents our main model for measuring the impact of "Cuna Más" on female empowerment:

$$Y_{(i,g,d,t)}(x) = E[Y_{(i,d,t)} - Y_{(i,d,g-1)}|X = x, G_i = g] - E[Y_{(i,d,t)} - Y_{(i,d,g-1)}|X = x, G_i = g'], \quad \forall g' > t \tag{1}$$

where $Y_{(i,g,d,t)}(x)$ is our female empowerment variable for women in the district. i in the district d for the year t (measured through the empowerment index or empowerment in each of the 4 dimensions mentioned above). g indicates the first year that the National Program "Cuna Más" was implemented in the district d, $G_i = g'$ indicates the absence of treatment, i.e., districts not yet treated in the sample; and t indicates a year in the period 2008 - 2019. X is a vector of control variables at the individual and household levels of the woman i in the district d for the year t. Finally, to obtain the results we include year

and district fixed effects. Standard errors are clustered at the district level. We use as a control group the observations not yet treated, i.e., we compare the change that passed with the change that would have passed at the cutoff g between $g-1$ y t. The following equation exemplifies the above:

$$\begin{aligned} Y_{(i,2013,d,2014}(x) = E[Y_{(i,d,2014)} - Y_{(i,d,2012)}|X = x, G_i = 2013] \\ - E[Y_{(i,d,2014)} - Y_{(i,d,2012)}|X = x, G_i = 2017] \end{aligned} \tag{2}$$

In this case, to assess the effect of the Program on short-term empowerment (years 2012 and 2014), we compared the change in empowerment of a woman residing in a district that did receive treatment in 2013 with the change in empowerment of a woman residing in a district receiving treatment in 2017, that is, a woman in a district not yet treated.

It is worth highlighting that our model assumes that treated women increase their participation in the labor market as a product of the greater time available (Bauernschuster & Schlotter, 2015; Becker, 1985; Cardona-Sosa & Morales, 2016; Clark et al., 2019). This implies that the greater participation in the labor market and the higher income of these women function as mechanisms to influence their empowerment within the household. However, if the above does not hold true and some women belonging to beneficiary districts decide not to work by choice (self-selection bias), our results would potentially be biased in a negative direction and could even decrease the significance of our estimates. This would imply that, should we find a positive effect of the National Program "Cuna Más" on female empowerment, this result would represent an underestimate of the true impact.

5.3 Heterogeneous effects

We will also evaluate an extension of the original model to analyze possible heterogeneous effects of the Program. We consider 3 cases: if the woman earns more than her counterpart, if she has higher education, and if she is older than her partner. For this analysis, we use the approach proposed by Wooldridge (2021), an extended and modified version of the classical two-way fixed effects, similar to the estimator proposed by Sun and Abraham (2021). Wooldridge (2021) relaxes the restrictions of the TWFE model that may produce inconsistent results in cases where the treatment has been implemented progressively,

and interacts the treatment indicator with time dummies. In the same way, the indicator can be interacted with dummies according to the heterogeneous effects (subgroups) to be studied: if the woman is older than her partner (equals 1), if she has more education (equals 1) and if her salary is higher (equals 1). The TWFE model with interactions can produce estimates of group-time ITT that are very similar to those produced by the Callaway and Sant'Anna (2021) estimator.

The following equation presents our heterogeneous effects model (Olden & Møen, 2022):

$$\begin{aligned} Y_{(i,g,d,t,f)}(x) = (&E[Y_{(i,d,t)} - Y_{(i,d,g-1)}|X = x, G_i = g, f = 1] \\ &- E[Y_{(i,d,t)} - Y_{(i,d,g-1)}|X = x, G_i = g', f = 1]) \\ &- (E[Y_{(i,d,t)} - Y_{(i,d,g-1)}|X = x, G_i = g, f = 0] \\ &- E[Y_{(i,d,t)} - Y_{(i,d,g-1)}|X = x, G_i = g', f = 0]), \qquad \forall g' > t \end{aligned} \tag{3}$$

where $Y_{(i,g,d,t,f)}(x)$ is our female empowerment variable for women in the district d for the year t and for the subgroup f (measured through the empowerment index or empowerment in each of the 4 dimensions mentioned above). f indicates membership or not in the subgroup of interest and standard errors are clustered at the district level.

6 Empirical Estimation and Results

6.1 Identification results

a. Parallel trends

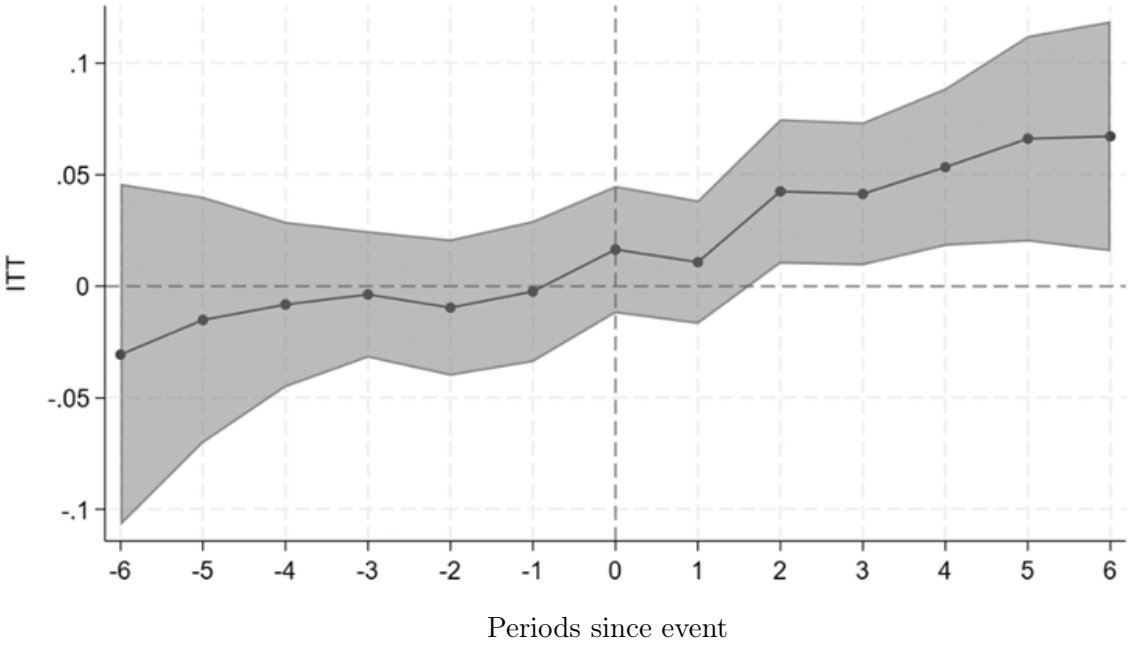
The main assumption to be tested is that of conditional parallel trends in observable covariates (Callaway & Sant'Anna, 2021). The effect of "Cuna Más" on pre-treatment female empowerment is close to zero. However, when we consider the female empowerment index as the outcome variable, we reject tests for trends where all coefficients prior to the start of the intervention are equal to zero. Test results hold even when controls and district-fixed effects are added.

To analyze why the prior trend test for the female empowerment index is rejected, we evaluate each dimension separately. Prior trend tests are rejected for all dimensions initially. Adding controls and/or district and year-fixed effects, the coefficients

prior to the start of the National Program "Cuna Más" are not significant for large purchase decisions, visits, and health, and we cannot reject the null hypothesis of the pre-trend tests. The pre-treatment coefficient for the contraceptive use dimension is the only significant one and the one that could potentially be affecting the significance of the pre-intervention coefficient of the empowerment index as well.

Notwithstanding this, Figure 4 shows that the trend of the multidimensional empowerment indicator for the control group (not yet treated) is similar to the trend that would have been observed in the treatment group if these districts had not received the intervention of the National Program "Cuna Más". Subsequently, we performed a sensitivity analysis to test for a possible violation of the parallel trends assumption (Roth et al., 2023).

Figure 4: Parallel trend test considering the female empowerment index as the outcome variable and considering controls, district fixed effects, and year fixed effects



b. Hazard model

Another key assumption of the model is the absence of changes in anticipated treatment behavior. To assess a potential problem of self-selection in the receipt of treatment we check whether district characteristics predict the initiation of access

to treatment. Specifically, we estimate a Hazard model considering seven possible determinants of access to the National Program "Cuna Más":

- Proportion of eligible women in poverty
- Average number of children of households eligible for the Program.
- Average number of household members eligible for the Program.
- Proportion of women eligible for the Program with access to insurance.
- Proportion of women eligible for the Program who are employed.
- Proportion of women eligible for the Program who are married.
- Proportion of women eligible for the Program with higher education.

The following equations present our Hazard model:

$$Y_{d,t}^{PNCM} = \alpha + X_{d,t-1} + \delta_t + \varepsilon_{d,t} \tag{4}$$

$$Y_{d,t}^{PNCM} = \alpha + X_{d,t-1} + X_{d,t-2} + \delta_t + \varepsilon_{d,t} \tag{5}$$

where $Y_{d,t}^{PNCM}$ is a dummy indicating treatment initiation for district d in the year t. $X_{d,t-1}$ and $X_{d,t-2}$ are vectors of the observable determinants of access to the National Program "Cuna Más" for the district d with one and/or two lags, respectively. δ_t are year fixed effects.

Table 3 presents our estimates where the independent variables are measured in lagged levels, either with one-year lags (column 1 of the Table) or with one- and two-year lags (column 2 of the Table). Our interest lies in testing whether the independent variables predict treatment initiation. We found no evidence of this, at least when we looked at the levels in the previous year and the previous two years. In this case, for each of the seven observed variables and the estimated coefficients no significant results are obtained. However, if we consider the variables in levels, but only one lag, we find that both the average number of children in eligible households and the proportion of women eligible for the Program with access to insurance would be positive explanatory variables for access to treatment in beneficiary districts by 6.4 pp. and 11.7 pp. respectively. Although these variables are significant in one

lag and are related to requirements to be eligible for the Program, we consider that, since we did not obtain significant results with one and two lags, we did not find conclusive evidence of a positive selection of districts to the National Program "Cuna Más".

Table 3: Potential determinants of treatment: lags of covariates

	Access to the National Program "Cuna Más"	
Backlog	**Estimation with a lag (L1)**	**Estimation with one (L1) and two lags (L2)**
L1. Extreme poverty (=1)	-0.059*	-0.084
	(0.036)	(0.092)
L1. Number of children	0.064**	0.037
	(0.032)	(0.049)
L1. Access to insurance (=1)	0.117*	0.124
	(0.069)	(0.140)
L1. Number of members	-0.009	0.019
	(0.014)	(0.022)
L1. Higher education (=1)	-0.0034	0.003
	(0.005)	(0.009)
L1. Married (=1)	-0.001	-0.063
	(0.037)	(0.071)
L1. Work (=1)	0.006	0.013
	(0.038)	(0.077)
L2. Extreme poverty (=1)		0.069
		(0.084)
L2. Number of children		0.047
		(0.046)
L2. Access to insurance (=1)		-0.078
		(0.104)
L2. Number of members		-0.029
		(0.022)
L2. Higher education (=1)		-0.008
		(0.009)
L2. Married (=1)		0.044
		(0.067)
L2. Work (=1)		-0.02
		(0.068)
Joint test (t)	114.18	37.03
Fixed effects of ubigeo	No	No
Year fixed effects	Yes	Yes
Number of observations	673	571

*Note. The first column refers to Equation 4 and the second column refers to Equation 5. Standard deviation in parentheses. ***p<0.01, **p<0.05, *p<0.1*

6.2 Results of the difference-in-difference estimator with multiple time periods

We initially analyzed how differences in empowerment between beneficiaries and non-beneficiaries evolve over time. Table 4 shows the coefficients of the main index and the 4 dimensions separately. Preliminary results without including controls and district fixed effects show that there is a positive effect of "Cuna Más" on the empowerment of women belonging to a beneficiary district after having received the intervention. In this case, the average ITT effect of "Cuna Más" on empowerment is 3.9 pp. Likewise, the analysis by dimension is congruent with the main index. There is a probability of increasing decision-making power with respect to large purchases and visits received at home in the medium term, and decision-making power in the use of contraceptives in the long term. Only in the health dimension no significant coefficients are shown.

Table 5 and Table 6 also present estimates of the effects of the Social Program on empowerment and its dimensions, with controls but without district-fixed effects and without controls but with district-fixed effects. In all cases, we consider year-fixed effects. The results are positive and significant for the medium and long term in the empowerment index and the dimensions of health and contraceptive use.

To avoid any bias, we control for observable covariates and calculate the full Callaway and Sant'Anna (2021) estimator. We add district-fixed effects to remove any unobservable constant characteristics. Table 7 shows our main results. We observe in the first column that the average ITT effect of the National Program "Cuna Más" on the empowerment index is 4.3 pp, which is significant at 1%. Women belonging to a beneficiary district have a higher probability of becoming empowered in the medium and long term, with a possible increase of 4.2 pp. to 6.8 pp. These estimates are reflected in 4.

Columns 2, 3, 4, and 5 of Table 7 present the coefficients for each of the dimensions. The average ITT is positive for all 4 types of decisions, but only significant for decision-making power in home visits. Concerning decision-making power in large purchases, women residing in a district where the Program is implemented have a higher probability of empowerment in this aspect. The increase ranges from 6.3 pp. to 7.8 pp. in the medium and long term and can be observed in Figure 5. Likewise, there is a probability of increase in the empowerment of women in the decision-making power of the visits also in the medium and long term; this effect ranges from 7.5 pp. to 11.2 pp. and is shown

in Figure 6. Finally, column 5 shows an effect of 4.4 pp. in the same year that the intervention was implemented on women's decision-making power in contraceptive use. The coefficients corresponding to the health dimension are positive in the years following treatment, but not significant.

Table 4: Effects of the National Program "Cuna Más" on the Female Empowerment Index, with year fixed effects

Variables	(1) Empowerment Index	(2) Large purchases	(3) Health	(4) Visit	(5) Contraceptives
Post-treatment	0.039**	0.043	0.002	0.054	0.057**
	(0.017)	(0.030)	(0.032)	(0.034)	(0.029)
Year in which "Cuna Más"	0.019	-0.004	0.010	0.018	0.053*
was implemented	(0.017)	(0.031)	(0.030)	(0.028)	(0.028)
1 year later	0.018	0.023	0.010	0.019	0.018
	(0.015)	(0.030)	(0.028)	(0.029)	(0.025)
2 years later	0.040**	0.055*	0.006	0.069*	0.032
	(0.018)	(0.033)	(0.033)	(0.036)	(0.030)
3 years later	0.044**	0.077**	-0.008	0.055	0.052
	(0.018)	(0.033)	(0.036)	(0.039)	(0.032)
4 years later	0.041**	0.037	-0.003	0.066*	0.063*
	(0.019)	(0.033)	(0.036)	(0.036)	(0.034)
5 years later	0.058**	0.060	0.028	0.068	0.076*
	(0.024)	(0.042)	(0.050)	(0.042)	(0.041)
6 years later	0.051*	0.050	-0.032	0.079	0.107**
	(0.028)	(0.048)	(0.052)	(0.052)	(0.046)
Parallel Trends Test	0.000	0.020	0.000	0.000	0.000
District fixed effects	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Controls	No	No	No	No	No
Number of observations	28,611	28,611	28,611	28,611	28,611

*Note: Clustered standard errors at the ubigeo level in parentheses. ***p<0.01, **p<0.05, *p<0.1*

Table 5: Effects of the National Program "Cuna Más" on the Female Empowerment Index, with controls and year-fixed effects

Variables	(1) Empowerment Index	(2) Large purchases	(3) Health	(4) Visit	(5) Contraceptives
Post-treatment	0.049***	0.058*	0.031	0.062**	0.045
	(0.015)	(0.031)	(0.030)	(0.028)	(0.032)
Year in which "Cuna Más"	0.018	-0.008	0.034	0.007	0.040
was implemented	(0.015)	(0.029)	(0.029)	(0.027)	(0.028)
1 year later	0.012	0.001	0.028	0.007	0.015
	(0.016)	(0.028)	(0.025)	(0.027)	(0.025)
2 years later	0.042**	0.048	0.026	0.069**	0.026
	(0.017)	(0.035)	(0.035)	(0.032)	(0.036)
3 years later	0.043**	0.072**	0.008	0.056*	0.036
	(0.017)	(0.035)	(0.035)	(0.033)	(0.036)
4 years later	0.060***	0.076**	0.019	0.090***	0.056
	(0.019)	(0.037)	(0.037)	(0.033)	(0.036)
5 years later	0.081***	0.106**	0.069	0.091**	0.057
	(0.024)	(0.046)	(0.051)	(0.046)	(0.050)
6 years later	0.086***	0.114**	0.034	0.112**	0.085
	(0.027)	(0.057)	(0.056)	(0.047)	(0.056)
Parallel Trends Test	0.000	0.460	0.890	0.610	0.000
Fixed effects of ubigeo	No	No	No	No	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Number of observations	28,611	28,611	28,611	28,611	28,611

*Note. Clustered standard errors at the district level in parentheses. ***p<0.01, **p<0.05, *p<0.1*

Table 6: Effects of the National Program "Cuna Más" on the Female Empowerment Index, with district and year-fixed effects

Variables	(1) Empowerment Index	(2) Large purchases	(3) Health	(4) Visit	(5) Contraceptives
Post-treatment	0.038**	0.035	0.011	0.054**	0.053**
	(0.015)	(0.026)	(0.028)	(0.027)	(0.026)
Year in which "Cuna Más"	0.010	-0.018	0.014	0.006	0.039
was implemented	(0.014)	(0.025)	(0.025)	(0.024)	(0.026)
1 year later	0.009	0.005	0.011	0.011	0.009
	(0.014)	(0.026)	(0.025)	(0.026)	(0.023)
2 years later	0.037**	0.039	0.020	0.058**	0.033
	(0.016)	(0.029)	(0.029)	(0.028)	(0.028)
3 years later	0.046***	0.068**	0.005	0.062**	0.050*
	(0.016)	(0.029)	(0.033)	(0.030)	(0.030)
4 years later	0.044**	0.036	-0.001	0.076**	0.064**
	(0.017)	(0.031)	(0.032)	(0.030)	(0.030)
5 years later	0.062***	0.063*	0.035	0.076*	0.074**
	(0.020)	(0.036)	(0.041)	(0.039)	(0.038)
6 years later	0.058**	0.050	-0.008	0.088**	0.102**
	(0.023)	(0.043)	(0.047)	(0.042)	(0.043)
Parallel Trends Test	0.000	0.000	0.000	0.000	0.000
Fixed effects of ubigeo	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Controls	No	No	No	No	No
Number of observations	28,611	28,611	28,611	28,611	28,611

*Note. Clustered standard errors at the district level in parentheses. ***p<0.01, **p<0.05, *p<0.1*

Table 7: Effects of the National Program "Cuna Más" on the Female Empowerment Index, with controls and district and year fixed effects

Variables	(1) Empowerment Index	(2) Large purchases	(3) Health	(4) Visit	(5) Contraceptives
Post-treatment	0.043***	0.043	0.022	0.065**	0.040
	(0.015)	(0.029)	(0.033)	(0.029)	(0.029)
Year in which "Cuna Más"	0.016	-0.017	0.027	0.012	0.044*
was implemented	(0.015)	(0.027)	(0.028)	(0.025)	(0.026)
1 year later	0.011	-0.003	0.023	0.012	0.013
	(0.014)	(0.027)	(0.026)	(0.026)	(0.024)
2 years later	0.042**	0.042	0.026	0.075**	0.026
	(0.017)	(0.030)	(0.032)	(0.032)	(0.031)
3 years later	0.042***	0.063**	0.009	0.059*	0.036
	(0.016)	(0.031)	(0.035)	(0.032)	(0.030)
4 years later	0.052***	0.057	0.009	0.095***	0.047
	(0.018)	(0.035)	(0.038)	(0.033)	(0.036)
5 years later	0.066***	0.078*	0.048	0.094**	0.045
	(0.024)	(0.047)	(0.052)	(0.044)	(0.047)
6 years later	0.068***	0.079	0.012	0.112**	0.069
	(0.026)	(0.054)	(0.062)	(0.050)	(0.050)
Parallel Trends Test	0.000	0.440	0.710	0.340	0.000
Fixed effects of ubigeo	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Number of observations	28,611	28,611	28,611	28,611	28,611

*Note. Clustered standard errors at the district level in parentheses. ***p<0.01, **p<0.05, *p<0.1*

Figure 5: Parallel trends test considering women's decision making in major household purchases as the outcome variable

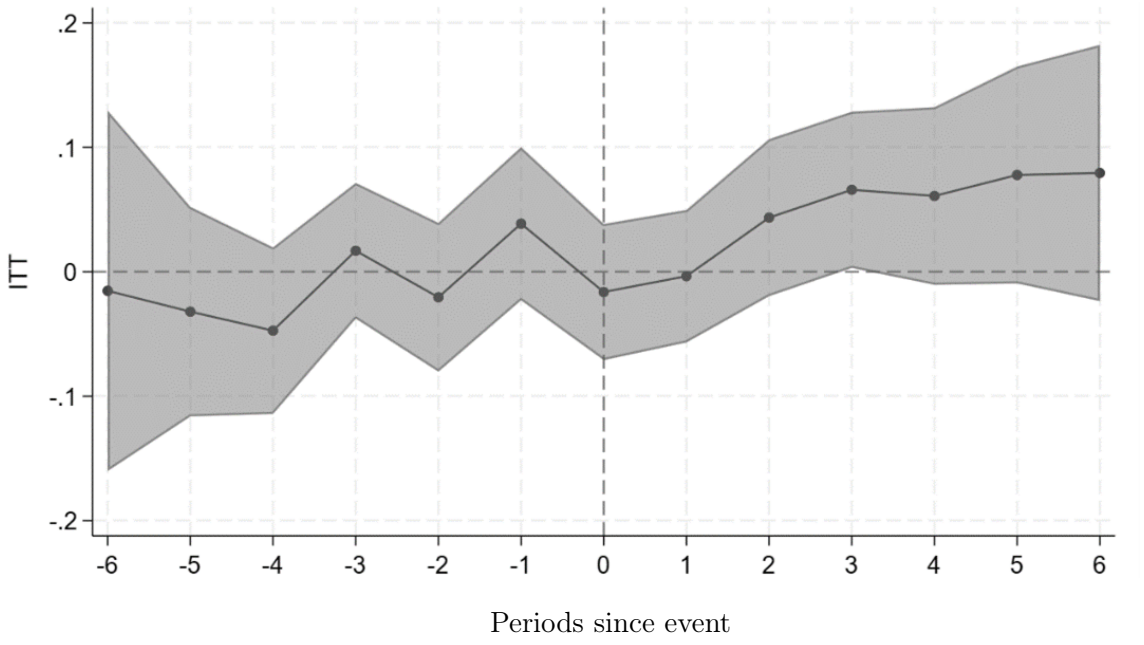
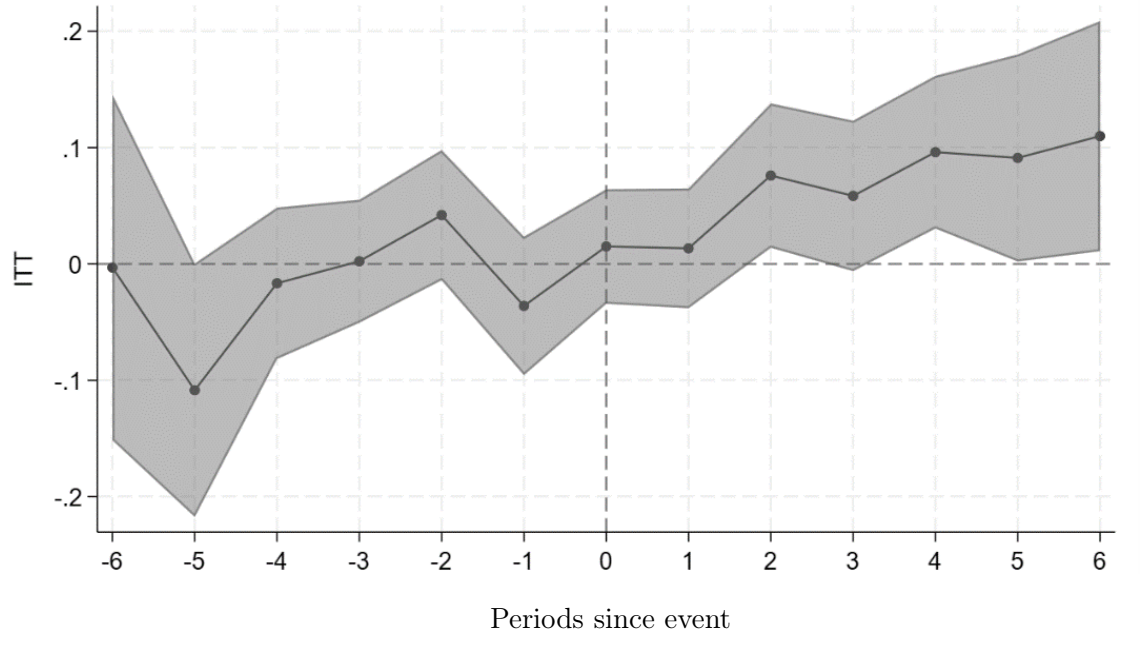


Figure 6: Parallel trends test considering as outcome variable women's decision making in family visits within the home



6.3 Potential mechanism: Employment

We start from the hypothesis that access to child care services frees up the time of beneficiary mothers who can now dedicate it to other productive activities. To identify the possible employment mechanism, we evaluated whether the National Program "Cuna Más" has any impact on women's labor variables.

Given that the DHS does not collect labor information on the women surveyed, we prefer to identify the validity of the employment mechanism based on the use of the annual National Household Survey on Living Conditions and Poverty (ENAHO, its acronym in Spanish). The ENAHO provides statistical, social, demographic and economic information to calculate indicators that allow us to know the evolution of poverty, welfare and living conditions of households. For the determination of the ENAHO sample, we followed the same process described for the DHS and used the same period of analysis (2008 - 2019). Likewise, the treatment group is made up of poor women with children under three years of age and residents in a district where the National Program "Cuna Más" was implemented in the year of the survey. The control group uses women with the same socio-demographic conditions, but who do not reside in districts where the Program was implemented for the year of the survey. We perform propensity score matching to determine the sample that is comparable in its observables. Our final ENAHO base contains 12,999 observations in 1,124 districts.

We analyze 2 outcome variables for the evaluation of the mechanism: weekly hours worked and the natural logarithm of annual labor income. These variables are created using the ENAHO employment and income module. The hours worked variable is reported individually and answers the questions "how many hours did you work last week in your main occupation?" and "how many hours did you work last week in your secondary occupation?". The labor income variable is also reported individually and answers the questions, "how much was the total income in your primary occupation, including overtime, bonuses, snack pay, mobility, commissions, etc.?" and "how much was the total income in your secondary occupation, including overtime, bonuses, snack pay, mobility, commissions, etc.?"

The control variables used for these estimations are also those defined in the control variables section for the main equation. In addition, we add the following variables:

- Study center: this variable is equal to 1 if the woman attended a state study center

and 0 otherwise.

- Illiteracy: takes the value of 1 if the woman is illiterate and 0 otherwise.

At the household level, we control for the same variables defined in the control variables section of the main model.

Formally, we test both characteristics from a difference-in-differences estimator for multiple time periods (Callaway & Sant'Anna, 2021) to maintain consistency with our results obtained from the main regression. Similar to this model, the difference-in-differences estimator for multiple time periods will allow us to estimate unbiased impacts, although our results should be interpreted as group-time ITT effects. Table 8 shows the average ITT results per event and Table 9 shows the average ITT results by year.

For the results of the employment mechanism measured through work hours, we obtain positive post-treatment effects, although not significant. Nevertheless, we identify a positive average ITT effect in the short term (1 year post-treatment), of 3.2 additional hours worked among women located in districts benefiting from the National Program "Cuna Más". In addition, when we test the employment mechanism through labor income, we obtain that there is an equally positive result, but not significant in aggregate. However, in the medium and long term (3, 4 and 5 years post-treatment) there would be a positive average effect of ITT and significant at 10% and 5% in the woman's annual labor income of 29.9%, 45.4% and 37.3%, respectively. These results lead us to determine that the better labor results of the beneficiary mothers, measured through work hours and income, would be functioning as a mechanism for their greater decision-making power in household matters.

Table 8: Effects of the National Program "Cuna Más" on women's labor variables (ITT per event)

Variables	(1) Hours worked	(2) Natural logarithm of labor income
Post-treatment (average)	0.692	0.183
	(1.468)	(0.135)
Year in which "Cuna Más"	-1.042	0.148
was implemented	(1.565)	(0.143)
1 year later	3.186**	-0.0680
	(1.617)	(0.168)
2 years later	-0.196	-0.0702
	(2.049)	(0.187)
3 years later	1.834	0.299*
	(1.981)	(0.174)
4 years later	1.790	0.454**
	(1.977)	(0.192)
5 years later	-1.949	0.373*
	(2.456)	(0.210)
6 years later	1.221	0.143
	(2.73)	(0.246)
Parallel Trends Test	0.000	0.874
District-fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Controls	Yes	Yes
Number of observations	10,231	3,980

*Note. Clustered standard errors at the district level in parentheses. ***p<0.01, **p<0.05, *p<0.1*

Table 9: Effects of the National Program "Cuna Más" on women's labor variables (ITT per year)

Variables	(1) Hours worked	(2) Natural logarithm of labor income
Average for the period (2013 - 2019)	0.560	0.166
	(1.424)	(0.130)
T2013	-3.164	0.212
	(1.954)	(0.184)
T2014	1.300	-0.0272
	(1.806)	(0.204)
T2015	-0.0977	0.0411
	(2.246)	(0.211)
T2016	0.346	0.0667
	(2.124)	(0.207)
T2017	2.525	0.343
	(1.853)	(0.214)
T2018	-0.104	0.271
	(2.243)	(0.204)
T2019	3.115	0.259
	(2.081)	(0.224)
Parallel Trends Test	0.000	0.874
District-fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Controls	Yes	Yes
Number of observations	10,231	3,941

Note. Clustered standard errors at the ubigeo level in parentheses.
****p<0.01, **p<0.05, *p<0.1*

6.4 Results of heterogeneous effects

Table 10 presents the heterogeneous effects for the three defined subgroups: women whose salary is higher than their partner's (Panel A), whose education level is higher (Panel B), and whose age is higher than their partner's (Panel C). From the results we find that, in aggregate, there is an additional effect on the female empowerment index as a function of her higher salary, education, and age relative to her partner. Specifically, we find an additional and significant effect of -4.3 pp, 2.3 pp and 0.3 pp, respectively.

The results obtained for the subgroup of women whose salary is higher than that of their male partner are in line with the theory of relative resources. Thus, even though factors such as income are supposed to empower women, it could at the same time negatively affect this outcome variable if this situation "threatens" the dominance status of men. This negative aggregate result would be mainly due to a heterogeneous effect on women's participation in household decision making in terms of health (-3.3 pp.) and contraceptive use (-6.8 pp.).

With respect to the subgroups of women belonging to Program beneficiary districts and whose level of education or age is higher than that of their partner, we found that there is an additional positive effect on the multidimensional empowerment index. This positive result would be mainly due to a heterogeneous effect on women's participation in household decision making in terms of health (16.6 pp. for women with more education than their partners) and family visits (6.3 pp. for women with more education than their partners and 4.8 pp. for women older than their partners). Both results would be in line with the bargaining and collectivity models, which assume that women's better economic or social position in the household leads to greater power in the relationship, and a greater ability to influence household decisions and the distribution of resources due to greater control over their earnings (Doss, 1996; Heaton et al., 2005; Turon, 2019).

Table 10: Heterogeneous effects on women's empowerment

Variables	**(1) Empowerment Index**	**(2) Large Purchases**	**(3) Health**	**(4) Visits**	**(5) Contraceptives**
Panel A. Salary higher than your partner					
Main results	0.132***	0.138*	-0.004	0.068	0.250**
	(0.046)	(0.087)	(0.091)	(0.487)	(0.132)
Heterogeneous effects	-0.043***	0.097***	-0.033***	0.010	-0.068***
	(0.003)	(0.005)	(0.006)	(0.009)	(0.008)
District-fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Number of observations	23,506	23,506	23,506	15,986	15,986
Panel B. Higher education than your partner					
Main results	0.136***	0.138*	0.004	0.068	0.250**
	(0.046)	(0.087)	(0.091)	(0.140)	(0.132)
Heterogeneous effects	0.023***	-0.110***	0.167***	0.063***	-0.047***
	(0.006)	(0.010)	(0.010)	(0.013)	(0.011)
District-fixed effects	Yes	Yes	Yes	Yes	Yes

Table 10: Heterogeneous effects on women's empowerment

Variables	**(1) Empowerment Index**	**(2) Large Purchases**	**(3) Health**	**(4) Visits**	**(5) Contraceptives**
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Number of observations	23,690	23,506	23,506	15,986	15,986
Panel C. Age older than your partner					
Main results	0.131***	0.138*	-0.004	0.068	0.250**
	(0.046)	(-0.087)	(0.091)	(0.140)	(0.132)
Heterogeneous effects	0.004***	-0.006**	-0.015***	0.048***	-0.014**
	(0.001)	(0.003)	(0.003)	(0.005)	(0.005)
District-fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Number of observations	23,506	23,506	23,506	15,986	15,986

*Note. Clustered standard errors at the ubigeo level in parentheses. ***p<0.01, **p<0.05, *p<0.1*

6.5 Robustness Test (Bravo et al., 2022)

As we present in the parallel trends section, pre-trend tests show that the empowerment of female beneficiaries and non-beneficiaries followed similar trajectories prior to receiving the Social Program intervention for the separate outcome variables of large purchase decisions, visits, and health. However, this evidence may not reject an existing different prior trend due to low power issues (Bravo et al., 2022). Even if parallel pretreatment trends are identified, subsequent trends could still be different even without the intervention. To address this problem, we use a robust inference and sensitivity analysis approach to test how violation of the parallel trend assumption might affect our estimates. As proposed by Bravo et al. (2022), the magnitude of the parallel trend violation following the Social Program intervention cannot exceed a constant M times the maximum pre-treatment violation. This method uses robust inference to compute new confidence intervals for the coefficient of interest and for each value of M assigned.

The sensitivity analysis is presented in Table 11 for four identification strategies:

- No controls and no year fixed effects (Column 1)
- With controls and without year fixed effects (Column 2)
- Without controls and with year fixed effects (Column 3)
- With controls and year fixed effects (Column 4)

We analyzed the empowerment index and two dimensions, visits and large purchases, as these are the significant estimates. We can also observe the analysis in Figure 7, Figure 8 and Figure 9 with the respective confidence intervals for each M value.

Thus, the average intention-to-treat effect of the National Program "Cuna Más" on multidimensional empowerment remains statistically significant even if the post-treatment trend violation is 0.8 times the maximum pre-treatment trend violation. The same happens when we analyze the significance of the effect of "Cuna Más" on decision-making power in home visits: the estimate is robust until M takes the value of 0.8. On the other hand, when analyzing the effect on the decision-making power of large household purchases we observe that, when we do not include controls, the estimate is robust until M is equal to 0.6. If we include controls, the estimate is not robust in any case, only in its original form. The sensitivity analysis, in general, suggests that the estimates found to be

significant are mostly robust to a possible violation of the assumption of parallel trends. One possible explanation for the case of the large household purchases dimension is that pre-existing differences in female beneficiaries matter more for having decision-making power in household budgeting than for having greater say in who can visit the household. This may also be related to data collection and sample composition.

Table 11: Sensitivity analysis under the assumption of parallel trends

	(1) DID without controls and without FE		(2) DID with controls and without FE		(3) DID with FE and without controls		(4) DID with FE and controls	
	LB	UB	LB	UB	LB	UB	LB	UB
Panel A. Empowerment Index								
Original	0.004	0.078	0.017	0.081	0.020	0.101	0.014	0.081
M=0.2	0.002	0.081	0.015	0.083	0.019	0.102	0.012	0.074
M=0.4	-0.004	0.089	0.011	0.087	0.015	0.106	0.009	0.076
M=0.6	-0.015	0.101	0.006	0.092	0.009	0.111	0.006	0.079
M=0.8	-0.027	0.114	0.000	0.098	0.002	0.118	0.000	0.084
M=1	-0.041	0.128	-0.008	0.105	-0.007	0.127	-0.006	0.092
M=1.2	-0.055	0.143	-0.015	0.113	-0.016	0.137	-0.013	0.099
Panel B. Large Purchases								
Original	0.010	0.144	0.010	0.149	0.010	0.126	0.001	0.126
M=0.2	0.010	0.144	0.006	0.150	0.008	0.129	-0.008	0.135
M=0.4	0.006	0.147	0.005	0.152	0.003	0.136	-0.024	0.149
M=0.6	0.001	0.153	0.001	0.154	-0.004	0.144	-0.044	0.171
M=0.8	-0.006	0.159	-0.004	0.157	-0.015	0.156	-0.068	0.195
M=1	-0.016	0.169	-0.011	0.163	-0.028	0.169	-0.094	0.221
M=1.2	-0.027	0.180	-0.018	0.170	-0.042	0.184	-0.120	0.247
Panel C. Visits								
Original	0.004	0.134	0.020	0.165	0.018	0.134	0.030	0.160
M=0.2	0.005	0.134	0.020	0.165	0.015	0.136	0.027	0.163
M=0.4	-0.001	0.138	0.016	0.168	0.009	0.141	0.021	0.168
M=0.6	-0.007	0.143	0.011	0.172	0.002	0.148	0.013	0.176
M=0.8	-0.018	0.154	0.004	0.178	-0.009	0.157	0.002	0.186
M=1	-0.030	0.164	-0.005	0.187	-0.021	0.169	-0.011	0.198
M=1.2	-0.043	0.178	-0.016	0.196	-0.033	0.181	-0.025	0.212

Note: Sensitivity analysis is shown for the empowerment index and the dimensions of large purchases and visits for the four difference-in-differences (DID) models with and without controls, and with and without fixed effects (FE). For each value of the constant M, the lower bound (LB) and upper bound (UB) are obtained.

Figure 7: Sensitivity analysis on the assumption of parallel trends for the index considering women's decision making in major household purchases as a result of empowerment variable

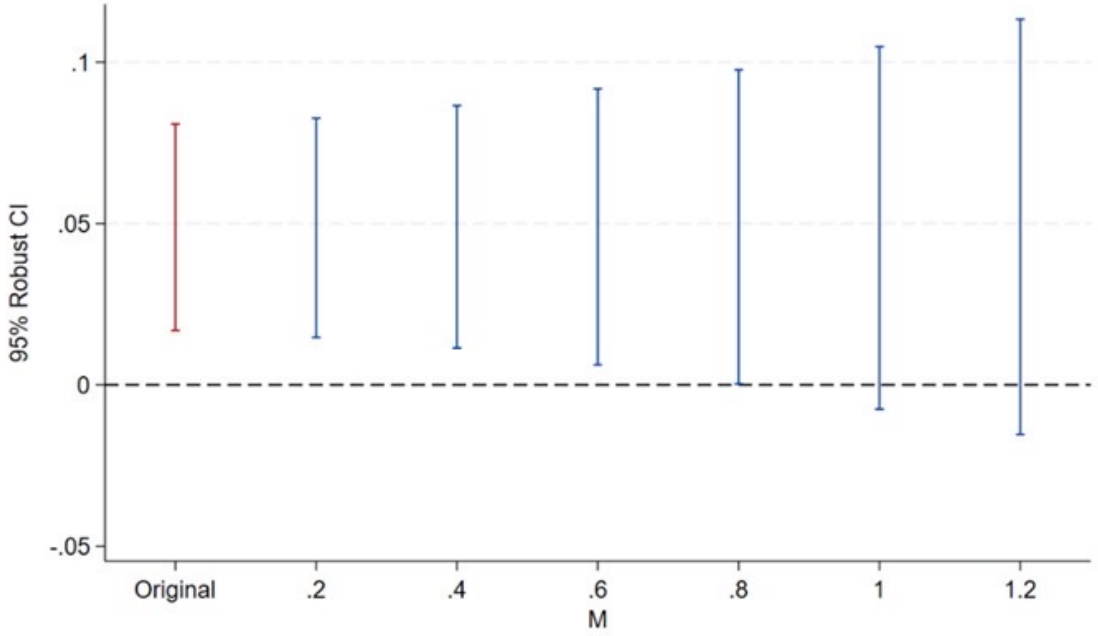


Figure 8: Sensitivity analysis under the assumption of parallel trends considering women's decision-making in large household purchases as the outcome variable

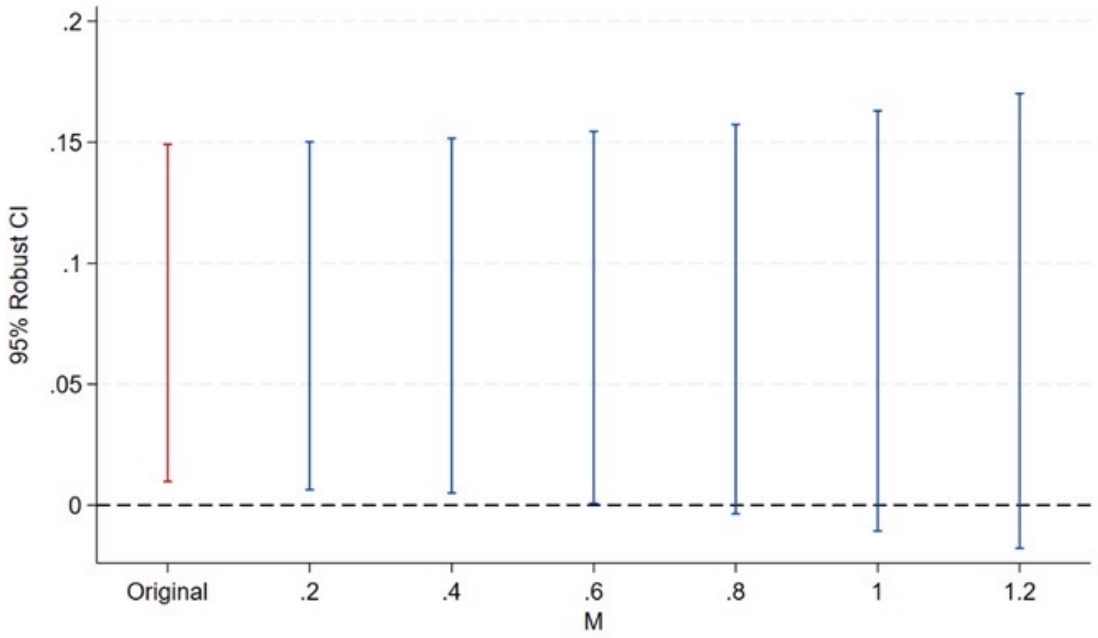
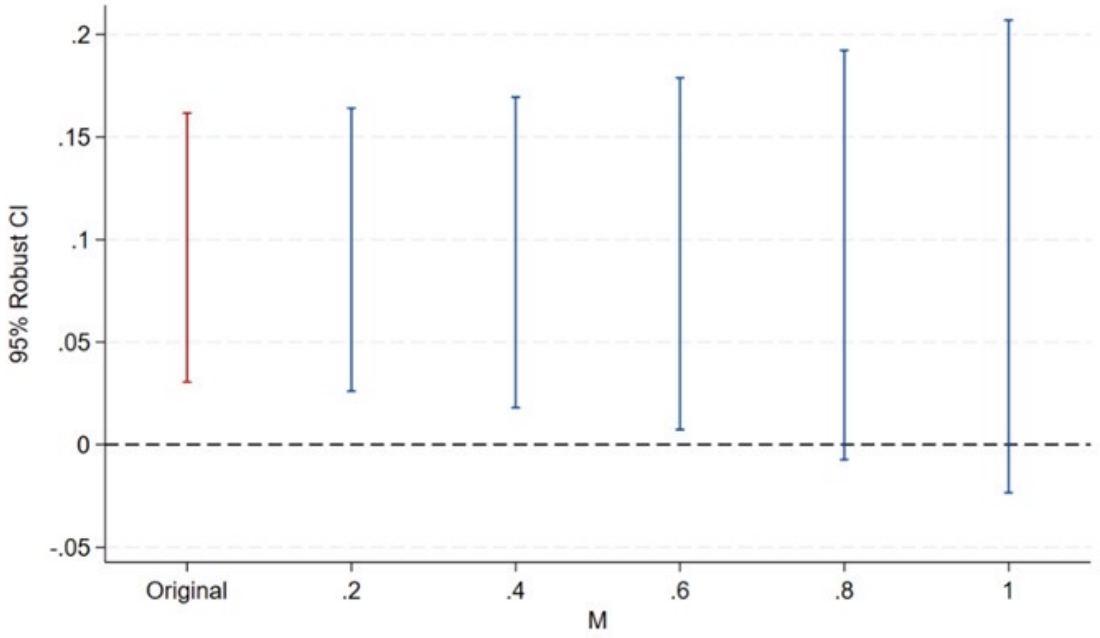


Figure 9: Sensitivity analysis under the assumption of parallel trends considering women's decision making in family visits within the home as the outcome variable



7 Conclusions

Using the National Program "Cuna Más", we investigated the effect of access to child care services on female empowerment measured through household decision making. We consider 4 dimensions: control over the family environment, characteristics of social relations, physical integrity and security, and life and physical health (Malhotra, Schuler, et al., 2005); which we derive from variables reported in the DHS for women's participation in intra-household decisions on large purchases, family visits, contraceptive use, and health, respectively. In addition to evaluating each dimension separately, we created a multidimensional empowerment index which weights women's participation within these 4 dimensions of relevance with equal weight. We took advantage of the progressive implementation of the Program at the district level to implement the difference-in-differences estimator for multiple time periods of Callaway and Sant'Anna (2021).

We find evidence that the National Program "Cuna Más" has positive effects in the medium and long term on the empowerment of women belonging to beneficiary districts. Controlling for observable covariates, year fixed effects and district fixed effects, we find

that the average effect of ITT is 4.3 pp. on the multidimensional empowerment index. Specifically, we find positive and significant effects in the medium and long run of "Cuna Más" on the decision-making participation of women belonging to beneficiary districts with respect to family visits (7.5 pp. to 11.2 pp.) and large household purchases (from 6.3 pp. to 7.8 pp.). In addition, we find that our results on the empowerment index and large household purchases are robust to the sensitivity analysis to the assumption of parallel trends proposed by Bravo et al. (2022). These results are aligned with bargaining models, which establish that better economic position (which we validate through the employment mechanism) positively influences women's participation in intra-household decision-making (Abdullah Yusof & Duasa, 2010; Doss, 1996; Heaton et al., 2005; Turon, 2019).

As for the estimates for the contraceptive use and health dimensions, the results obtained are positive, but not significant. The lack of significance in these variables could be due to the presence of other unobservable characteristics that affect the latter, but not the rest (for example, personal or religious beliefs). Likewise, the lack of significant results in the short term could be due to the fact that female empowerment is not an instantaneous event, especially in cases where the dominance of the male partner is marked. Basu (2006) explains that empowerment is a gradual result that arises in response to certain determinants, among them, obtaining a job or higher labor income.

To verify that the employment mechanism is fulfilled in our model, we evaluate the effect of the National Program "Cuna Más" on women's annual income and weekly hours worked using the ENAHO database. We identify evidence that the National Program "Cuna Más" has positive and significant effects in the short term for the weekly hours worked by women belonging to beneficiary districts (3.2 hours) and has positive effects in the medium and long term for the annual labor income of these women (with increases ranging from 29.9% to 45.4%). Our estimates on the employment mechanism are aligned with results obtained by national (Boyd & Rentería, 2016) and international (Baker et al., 2008; Barros et al., 2013; Bauernschuster & Schlotter, 2015; Cardona-Sosa & Morales, 2016; Clark et al., 2019; Rosero & Oosterbeek, 2011) empirical literature. These authors find that child care services have a positive impact on the employment opportunities, income and working hours of women beneficiaries of this type of program.

Finally, we find that, in aggregate, there is a significant additional effect on the female

empowerment index for the subgroups of women with higher salaries (-4.3 pp.), higher education (2.3 pp.) and older age (0.3 pp.) than their partners. The heterogeneous results obtained for those women whose salary is higher than their partner's are in line with the theory of relative resources. In other words, factors such as higher income could negatively affect women's empowerment if such a situation "threatens" their partner's dominance status. On the contrary, the results obtained for the subgroups of women belonging to Program beneficiary districts and whose level of education or age is higher than their partner's, are in line with the bargaining and collectivity models, which assume that women's better economic position in the household leads to a greater capacity to influence collective decisions thanks to greater control over their earnings (Doss, 1996; Heaton et al., 2005; Turon, 2019).

8 Discusion

We validate that our controls are "good", that is, that they explain the result variable and that they are not correlated with each other. We use the dagitty command (Cinelli et al., 2022; Textor et al., 2016) with which we obtain that the controls used are "good" for the main equation (Equation 1). However, it is important to highlight the limitations of this strategy in that this command works under an Ordinary Least Squares specification, so the inclusion of these control variables in the equation responds mainly to what is found in the literature. Future research could explore the impact of child care services on female empowerment by considering other relevant control variables.

Another of the main limitations we have comes from the database used. The DHS does not have panel data that would allow us to follow up on the self-treated units. This problem is even greater considering that our effects are group-time ITT because we cannot make use of the self-reported variable due to lack of information. Although the Program defines its target population, according to the Program's annual reports, the coverage of this population since its implementation until 2019 has been between 13% and 22%. A database with greater consistency would allow us to calculate a LATE (local average treatment effect) and obtain greater internal validity of our results. Finding out about the determinants that influence female empowerment and how public support services can contribute to its increase is relevant given that, in many cultures, many women still have

little say in decisions within the household.

Another interesting approach for future research would be to analyze the impact of child care services on the empowerment of single or widowed mothers. This implies taking as a reference other variables to measure female empowerment, such as civil participation, political participation, social status, among others. This would be based on literary currents other than the bargaining and collectivity models.

Finally, considering the results found in this research and what the empirical and theoretical literature refers to, it would be convenient for the National Program "Cuna Más" to include as part of its objectives the improvement of the labor and personal situation of the beneficiary women. For example, the "Programa de Estancias Infantiles" to support working mothers in Mexico has as part of its objectives "To improve the conditions of access and permanence in the labor market of mothers, single parents and guardians who work, seek employment or study, through access to child care and attention services, as a social security scheme" (Government of Mexico, 2018). As referred by the UN (2015), public policies focused on providing quality child care services can lead to a triple win by: improving education and health outcomes for marginalized and beneficiary children; facilitating female participation in the labor market; and creating job opportunities for workers in the care sector. Thus our main results together with our findings on the employment mechanism lead us to think that, potentially, including these goals as part of the Program's strategy could positively impact to a greater extent on the well-being and female empowerment variables within this beneficiary group in the country.

References

Abdullah Yusof, S., & Duasa, J. (2010). Household decision-making and expenditure patterns of married men and women in malaysia. *Journal of family and economic issues*, *31*, 371–381.

Acharya, D. R., Bell, J. S., Simkhada, P., Van Teijlingen, E. R., & Regmi, P. R. (2010). Women's autonomy in household decision-making: A demographic study in nepal. *Reproductive health*, *7*, 1–12.

Addati, L., Cattaneo, U., Esquivel, V., & Valarino, I. (2018). *Care work and care jobs for the future of decent work*. International Labour Organization.

Ángeles, G., Gadsden, P., Galiani, S., Gertler, P., Herrera, A., Kariger, P., & Seira, E. (2011). Evaluación de impacto del programa estancias infantiles para apoyar a madres trabajadoras. *Informe final de la evaluación de impacto, CIEE e INSP*.

Atal, V. (2017). Say at home, or stay at home? policy implications on female labor supply and empowerment. *Review of Economics of the Household*, *15*, 1081–1103.

Attanasio, O., & Vera-Hernandez, M. (2004). Medium-and long run effects of nutrition and child care: Evaluation of a community nursery programme in rural colombia.

Ayala-Peralta, F. D. (2020). Estrategias de manejo durante el climaterio y menopausia. guía práctica de atención rápida. *Revista peruana de investigación materno perinatal*, *9*(2), 34–41.

Baker, M., Gruber, J., & Milligan, K. (2008). Universal child care, maternal labor supply, and family well-being. *Journal of political Economy*, *116*(4), 709–745.

Banerjee, S., Alok, S., & George, B. (2020). Determinants of women empowerment as measured by domestic decision-making: Perspective from a developing economy. In *Advanced issues in the economics of emerging markets* (pp. 1–12). Emerald Publishing Limited.

Barros, R. P. d., Olinto, P., Lunde, T., & Caralho, M. (2013). The impact of access to free childcare on women's labor market outcomes: Evidence from a randomized trial in low-income neighborhoods of rio de janeiro.

Basu, K. (2006). Gender and say: A model of household behaviour with endogenously determined balance of power. *The Economic Journal*, *116*(511), 558–580.

Batliwala, S. (1993). Empowerment of women in south asia: Concepts and practices.

Bauernschuster, S., & Schlotter, M. (2015). Public child care and mothers' labor supply—evidence from two quasi-experiments. *Journal of Public Economics*, *123*, 1–16.

Bayeh, E. (2016). The role of empowering women and achieving gender equality to the sustainable development of ethiopia. *Pacific Science Review B: Humanities and Social Sciences*, *2*(1), 37–42.

Becker, G. S. (1985). Human capital, effort, and the sexual division of labor. *Journal of labor economics*, *3*(1, Part 2), S33–S58.

Berg, G. D. (2011). An application of kernel-based versus one-to-one propensity score matching for a nonexperimental causal study: Example from a disease management program evaluation. *Applied Economics Letters*, *18*(5), 439–447.

Boyd, C., & Rentería, J. M. (2016). Economía del cuidado, desigualdades de género y participación en el mercado laboral: El caso de cuna más. *Investigaciones*.

Bravo, M. C., Roth, J., & Rambachan, A. (2022). Honestdid: Stata module implementing the honestdid r package. *EconPapers*.

Budlender, D. (2010). What do time use studies tell us about unpaid care work? evidence from seven countries. In *Time use studies and unpaid care work* (pp. 23–67). Routledge.

Calderón, G. (2014). *The effects of child care provision in mexico* (tech. rep.). Working Papers.

Callaway, B., & Sant'Anna, P. H. (2021). Difference-in-differences with multiple time periods. *Journal of econometrics*, *225*(2), 200–230.

Cardona-Sosa, L., & Morales, L. F. (2016). Efectos laborales de los servicios de cuidado infantil: Evidencia del programa buen comienzo. *Capítulo 7. Efectos laborales de los servicios de cuidado infantil: evidencia del programa buen comienzo. Pág.: 207-229*.

Chuquillanqui, A., Delgado, A., & Vargas, M. (2010). Análisis del presupuesto y gasto 2008 – 2010: El caso del programa nacional wawa wasi.

Cinelli, C., Forney, A., & Pearl, J. (2022). A crash course in good and bad controls. *Sociological Methods & Research*, 00491241221099552.

Clark, S., Kabiru, C. W., Laszlo, S., & Muthuri, S. (2019). The impact of childcare on poor urban women's economic empowerment in africa. *Demography*, *56*(4), 1247–1272.

Doepke, M., & Tertilt, M. (2019). Does female empowerment promote economic development? *Journal of Economic Growth*, *24*(4), 309–343.

Doss, C. R. (1996). Testing among models of intrahousehold resource allocation. *World development*, *24*(10), 1597–1609.

Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic literature*, *50*(4), 1051–1079.

ECLAC, N. (2016). Equality and women's autonomy in the sustainable development agenda. *Economic Commission for Latin America and the Caribbean*.

ECLAC/ILO. (2023). Labour market inclusion of young people and redistribution of care work: Challenges and opportunities. *Economic Commission for Latin America and the Caribbean/International Labor Organization*.

Eggers Del Campo, I., & Steinert, J. I. (2022). The effect of female economic empowerment interventions on the risk of intimate partner violence: A systematic review and meta-analysis. *Trauma, Violence, & Abuse*, *23*(3), 810–826.

Elson, D. (2000). The progress of women: Empowerment and economics. *The Progress of the World's Women. New York: UNIFEM*, 1–165.

Farmer, A., & Tiefenthaler, J. (1997). An economic analysis of domestic violence. *Review of social Economy*, *55*(3), 337–358.

Folbre, N. (2006). Measuring care: Gender, empowerment, and the care economy. *Journal of human development*, *7*(2), 183–199.

Friedemann-Sánchez, G. (2006). Assets in intrahousehold bargaining among women workers in colombia's cut-flower industry. *Feminist Economics*, *12*(1-2), 247–269.

Goldin, C., Kerr, S. P., & Olivetti, C. (2022). *When the kids grow up: Women's employment and earnings across the family cycle* (tech. rep.). National Bureau of Economic Research.

Goodman-Bacon, A. (2021). Difference-in-differences with variation in treatment timing. *Journal of econometrics*, *225*(2), 254–277.

Government of Mexico, M. (2018). Programa de estancias infantiles para apoyar a madres trabajadoras.

Gramm, V., Dalla Torre, C., & Membretti, A. (2020). Farms in progress-providing childcare services as a means of empowering women farmers in south tyrol, italy. *Sustainability*, *12*(2), 467.

Grasmuck, S., & Espinal, R. (2000). Market success or female autonomy? income, ideology, and empowerment among microentrepreneurs in the dominican republic. *Gender & society*, *14*(2), 231–255.

Green, E. (1998). 'women doing friendship': An analysis of women's leisure as a site of identity construction, empowerment and resistance. *Leisure studies*, *17*(3), 171–185.

Heaton, T. B., Huntsman, T. J., & Flake, D. F. (2005). The effects of status on women's autonomy in bolivia, peru, and nicaragua. *Population research and policy review*, *24*, 283–300.

Heckman, J. J. (1974). Effects of child-care programs on women's work effort. *Journal of Political Economy*, *82*(2, Part 2), S136–S163.

Hoddinott, J., & Haddad, L. (1995). Does female income share influence household expenditures? evidence from côte d'ivoire. *oxford Bulletin of Economics and Statistics*, *57*(1), 77–96.

Hoffmann, M. (2019). Public childcare and female empowerment: Evidence from mexico.

Hojman, A., & Boo, F. L. (2022). Public childcare benefits children and mothers: Evidence from a nationwide experiment in a developing country. *Journal of Public Economics*, *212*, 104686.

Hornung, C. A., McCullough, B. C., & Sugimoto, T. (1981). Status relationships in marriage: Risk factors in spouse abuse. *Journal of Marriage and the Family*, 675–692.

ILO. (2019). Servicios de cuidado infantil de calidad para los trabajadores y las trabajadoras de la economía informal. *International Labor Organization*.

ILO. (2020). Servicios de cuidado infantil de calidad para los trabajadores y las trabajadoras de la economía informal. *International Labor Organization*.

INEI. (2016). Cuenta satélite del trabajo doméstico no remunerado. *Instituto Nacional de Estadística e Informática*.

INEI. (2019). Perú: "brechas de género, 2019: Avances hacia la igualdad de mujeres y hombres". *Instituto Nacional de Estadística e Informática*.

Jianakoplos, N. A., & Bernasek, A. (2008). Family financial risk taking when the wife earns more. *Journal of Family and Economic Issues*, *29*, 289–306.

J-PAL. (2023). Access to childcare to improve women's economic empowerment. *MA: Abdul Latif Jameel Poverty Action Lab*.

Kroska, A. (2003). Investigating gender differences in the meaning of household chores and child care. *Journal of marriage and family*, *65*(2), 456–473.

Malhotra, A., Schuler, S. R., et al. (2005). Women's empowerment as a variable in international development. *Measuring empowerment: Cross-disciplinary perspectives*, *1*(1), 71–88.

Manser, M., & Brown, M. (1980). Marriage and household decision-making: A bargaining analysis. *International economic review*, 31–44.

Marchbank, J. (2004). *Women, power and policy: Comparative studies of childcare*. Routledge.

Martínez, C., & Perticará, M. (2017). Childcare effects on maternal employment: Evidence from chile. *Journal of Development Economics*, *126*, 127–137.

McElory, M. B., & Horney, M. J. (1981). Nash-bargained household decisions: Toward a generalization of the theory of demand*. *International Economic Review*, *22*(2).

Medrano, P. (2009). Public day care and female labor force participation: Evidence from chile. *Documento de Trabajo*, *306*.

MEF. (2016). Evaluación de diseño y ejecución presupuestal – edep: Programa nacional cuna más. *Ministerio de Economía y Finanzas*.

MIDIS. (2020). Revisiones de evidencias n° 3 del fondo de estímulo al desempeño: Programa nacional cuna más. *Ministerio de Desarrollo e Inclusión Social*.

Mujahid-Mukhtar, E., Mukhtar, H., & Abbink, G. A. (1991). Female participation in household decision-making: An analysis of consumer durables' acquisition in pakistan [with comments]. *The Pakistan development review*, *30*(4), 953–964.

Mulugeta, M., & Amsalu, T. (2014). Womens role and their decision making in livestock and household management. *Journal of Agricultural Extension and Rural Development*, *6*(11), 347–353.

Nandi, A., Agarwal, P., Chandrashekar, A., & Harper, S. (2020). Access to affordable daycare and women's economic opportunities: Evidence from a cluster-randomised intervention in india. *Journal of Development Effectiveness*, *12*(3), 219–239.

Olden, A., & Møen, J. (2022). The triple difference estimator. *The Econometrics Journal*, *25*(3), 531–553.

Orgill, J., & Heaton, T. B. (2005). Women's status and marital satisfaction in bolivia. *Journal of Comparative Family Studies*, *36*(1), 23–40.

Pérez. (2013). La institucionalización del sistema de evaluación del programa nacional wawa wasi, del ministerio de la mujer y desarrollo social, entre los años 2003-2011.

Qi, L., & Dong, X.-y. (2016). Unpaid care work's interference with paid work and the gender earnings gap in china. *Feminist Economics*, *22*(2), 143–167.

Rosenbaum, P., & Rubin, D. (2023). Propensity scores in the design of observational studies for causal effects. *Biometrika*, *110*(1), 1–13.

Rosero, J., & Oosterbeek, H. (2011). Trade-offs between different early childhood interventions: Evidence from ecuador.

Roth, J., Sant'Anna, P. H., Bilinski, A., & Poe, J. (2023). What's trending in difference-in-differences? a synthesis of the recent econometrics literature. *Journal of Econometrics*, *235*(2), 2218–2244.

Ruiz-Bravo, P., Winstanley, S., & Lizárraga, J. (2018). Empoderar para incluir: Análisis de las múltiples dimensiones y factores asociados al empoderamiento de las mujeres en el perú a partir del uso de una aproximación de metodologıas mixtas.

Sultana, A. (2011). Factors effect on women autonomy and decision-making power within the household in rural communities. *Journal of Applied Sciences Research*, *7*(1), 18–22.

Sun, L., & Abraham, S. (2021). Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. *Journal of econometrics*, *225*(2), 175–199.

Svec, J., & Andic, T. (2018). Cooperative decision-making and intimate partner violence in peru. *Population and development review*, *44*(1), 63.

Textor, J., Van der Zander, B., Gilthorpe, M. S., Liśkiewicz, M., & Ellison, G. T. (2016). Robust causal inference using directed acyclic graphs: The r package 'dagitty'. *International journal of epidemiology*, *45*(6), 1887–1894.

Turon, H. (2019). Home production of childcare and labour supply decisions in a collective household model.

UN. (2015). Gender equality, child development, and job creation. *United Nations*.

Weitzman, A. (2014). Women's and men's relative status and intimate partner violence in india. *Population and Development Review*, *40*(1), 55–75.

Wooldridge, J. M. (2021). Two-way fixed effects, the two-way mundlak regression, and difference-in-differences estimators. *Available at SSRN 3906345*.