

Unintended Consequences of CCT Programs on Gender Role Attitudes*

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Abstract

This paper explores the impact of conditional cash transfer (CCT) programs on children's gender role attitudes, with a focus on *Juntos*, the largest program in Peru. Using data from the Young Lives Survey and employing the fuzzy regression discontinuity design, I find that the program reinforces traditional gender role attitudes among children in beneficiary households. These attitudes align notably with children's behaviors, particularly among girls. Beneficiary girls allocate more daily time to caregiving and unpaid household labor, which is associated with their lower test scores in reading and mathematics. Investigating potential mechanisms reveals that beneficiary mothers are more likely to prioritize their time on home production over paid work or self-employment. This shift in mother's time priority serves as a channel for perpetuating traditional gender role attitudes among children. By offering novel insights into the impact of social policies in a developing context, this paper contributes to our understanding of the complex relationship between policies and gender norms.

JEL CODES: J16, J22, I38

Keywords: Cash Transfer, Gender Role Attitudes, Parental Role Model, Regression Discontinuity

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1 Introduction

Gender norms, which refers to beliefs about roles and behaviors for men and women, pose significant challenges to gender equality (Bursztyn et al., 2023).^{1,2} These norms have been shown to be persistent and resistant to change (Fernández et al., 2004; Alesina et al., 2013; Farré and Vella, 2013). Therefore, understanding the factors that contribute to the formation and evolution of gender norms is of paramount importance. In recent years, a growing body of literature has emerged to explore how policies, especially those with the potential to alter gender specialization patterns within households, can influence gender norms. Policies such as tax reforms and paternity leave initiatives have demonstrated their capacity to reshape gender norms in developed contexts, as exemplified by the 1975 Earned Income Tax Credit in the United States (Bastian, 2020) and paternity leave in Spain (Farré et al., 2022). However, little attention is devoted to the connection between policies and gender norms in developing countries, where these norms continue to be among the most significant drivers of gender inequality (Jayachandran, 2015).

This study aims to bridge this gap by providing novel evidence that policy can influence gender norms within a developing context. To this end, I focus on the impacts of conditional cash transfer (CCT) programs on gender role attitudes of beneficiary children. Starting in the late 1990s, CCT programs in Latin America aim to reduce poverty by making the transfer to poor households conditional upon meeting conditions. The common conditions include school enrollment and attendance, regular health check-ups of children and their vaccinations. These programs often designate mothers as the cash recipients (Fiszbein et al., 2009), and in response, mothers bear the responsibility for meeting these program requirements. The act of targeting mothers can have dual effects on their roles and behaviors, either enhancing their participation in decision-making or reinforcing traditional gender roles through added responsibilities.³ Moreover, previous research consistently demonstrates that maternal roles and behaviors play a pivotal role in shaping their children’s gender

¹For more details about the concept of gender norms, see Akerlof and Kranton (2000), Pearse and Connell (2016).

²The related literature documents adverse effects of gender norms on female employment rate, gender pay gaps and other aspects of women’s lives (Fernández et al., 2004; Fortin, 2005; Bertrand et al., 2015).

³CCT programs can impact women’s decision-making in contraception, household spending on children’s health and education (Attanasio and Lechene, 2002; de Brauw et al., 2014; Bergolo and Galván, 2018), but may also reinforce traditional gender roles by imposing time and resource demands on female recipients to fulfill program conditions (Cookson, 2018; Margolies et al., 2023).

role attitudes.⁴ Therefore, in this paper, I argue that CCT programs may influence children’s gender role attitudes by triggering changes in the roles and behaviors of their mothers.

To establish *causality*, I study the effects of the largest-scale CCT program in Peru, *Juntos*, which has been in operation since 2005. Peru serves as an interesting context for the study for several reasons. First, despite some progress in economic development in recent decades, gender inequality poses a significant concern in Peru. On average, Peruvian women devote 24 more hours weekly to unpaid tasks than men, while men allocate 21 extra hours to paid work compared to women (OECD, 2022). Moreover, approximately 60% of Peruvian women report lifetime experiences of intimate partner violence.⁵ Second, initially serving with only 70 districts, *Juntos* gradually expanded to cover more than 700,000 families in 1,305 districts as of 2017.⁶ As per the Government of Peru’s records in 2023, 96.1% of the program recipients were mothers. Third, within the cultural context of Peru, parents have a profound influence on their offspring. Generally, Peruvian children are brought up to be respectful of their parents, obedient, and firmly committed to their parents’ decisions (Ember and Ember, 2001).

The study utilizes the Young Lives panel data to track the lives of around 2,000 Peruvian children over a span of 15 years. This dataset provides rich information on children’s demographics, education, attitudes toward gender roles, and household data, including participation in *Juntos*, household composition, and housing characteristics.⁷ My identification strategy relies on the *Juntos* eligibility rules, in which a household is *eligible* if (i) it resides in an eligible district, (ii) it includes pregnant women or children up to 19 years old, and (iii) it has a poverty score exceeding a predetermined threshold. This eligibility framework enables a comparison between children in households that were barely eligible and those who were barely ineligible. Specifically, I employ a non-parametric fuzzy regression discontinuity (RD) design to exploit the institutional rules.

My results fall into four categories. The first set of results focuses on *Juntos*’

⁴See Serbin et al. (1993), Cunningham (2001), Halpern and Perry-Jenkins (2016).

⁵Instituto Nacional de Estadística e Informática. *Perú: Encuesta Demográfica y de Salud Familiar 2019 - Nacional y Departamental* [website]. https://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales/Est/Endes2019/

⁶Out of a total of 1,943 districts in Peru, *Juntos* has covered almost 70% of them.

⁷The outcome variable of interest is gender role attitudes, which was measured when the Young Lives children reached approximately 15 years old. This aspect is particularly significant because at this age, children have achieved a notable level of maturity, enabling them to engage in reflection and contemplation on complex moral questions.

impact on the gender role attitudes of children in beneficiary households.⁸ I measure these attitudes using a composite index, where a score of 0 signifies a non-traditional attitude, and 1 represents an extremely traditional attitude. The findings indicate that the program leads to more traditional gender role attitudes in children. Juntos children exhibit a 27.7 percentage point increase in agreement with traditional attitudes, representing more than 85% over the comparison group’s mean. I further analyze the gender attitude index by breaking it down into three thematic sub-indices: power, equality, and behavior dimensions.⁹ The results suggest that the effect is most pronounced in the power dimension, which captures the relative power of girls and women compared to boys and men.

The second set of results reveals heterogeneous treatment effects of Juntos. Concerning child gender, taken at face value, the point estimates suggest that boys exhibit a larger effect compared to girls, indicating a more pronounced impact on boys. However, the estimate within the female subsample is only statistically significant at the 10 percent level, whereas the estimate within the male subsample lacks statistical significance. Regarding the maternal educational level, I provide supporting evidence that Juntos has a significant effect on children whose mothers have an educational level below secondary school.

The third set of results documents the impact of Juntos on children’s behaviors and test scores. An important consideration in this study is the potential for social desirability bias in measuring gender role attitudes through sensitive questions. To tackle this issue, I examine whether the impact on gender role attitudes is in line with children’s actual behaviors using detailed daily activity data from Round 5. The results reveal that girls in beneficiary households allocate more time to caregiving and unpaid household labor, aligning with traditional views, especially related to the power dimension. I further investigate the impact of the Juntos program on children’s performance in reading comprehension and mathematics achievement tests. My findings show that beneficiary girls perform significantly less accurately than non-beneficiary girls in both tests, while no statistically significant effects are observed in boys. This suggests that behaviors aligned with traditional gender role attitudes are associated with lower academic performance among girls.

⁸Gender role attitudes encompass perceptions regarding the desirability or undesirability of behaviors, abilities, and interactions among boys and girls.

⁹Following [Jaruseviciene et al. \(2014\)](#), the power dimension assesses the relative power of girls and women compared to boys and men, the equality dimension measures the aspiration for increased gender equality, and the behavior dimension evaluates social expectations regarding the conduct of boys and girls.

Finally, I show that my estimates of the impact of *Juntos* remain stable to a broad set of robustness checks. These checks encompass different selections of local polynomial degree, kernel, and bandwidths in the non-parametric method, estimations from a parametric model and wild cluster bootstrap, and different approaches to measure the main outcome variable. Additionally, I provide the findings derived from a placebo cutoff exercise to validate the fuzzy RD design. Lastly, I estimate the treatment effect with an expanded sample size, and find qualitatively similar evidence, reinforcing the reliability of the main findings.

Moving on to the mechanism behind the main results, I employ the information capturing mothers' the most important job or occupation in terms of time that they have done in the last 12 months. This allows me to assess *Juntos*' impact on mothers' time priority and working behaviors. I find that beneficiary mothers are more likely to prioritize their time on home production over regular or stable income-generating work. To gain further insight into mothers' working behaviors, I examine the extensive margin as it is possible for a mother to choose household chores or being a housewife as their most important job in terms of time spent, while still engaging in work. The results suggest that there is no significant effect on mothers' unemployment or labor supply. While *Juntos* does not appear to directly alter mothers' employment status, the noteworthy shift towards traditional gender roles in terms of time priority offers a plausible explanation for the emergence of traditional gender role attitudes in children.

This study contributes to several strands of literature. First and foremost, it builds on the nascent literature concerning the relationship between policies and cultural practices and/or attitudes. One pioneering research in this field is [Beaman et al. \(2009\)](#), which show that female leadership quotas alter voter perceptions of female leaders in India. In a more recent work, [Bau \(2021\)](#) provides evidence that government pension plans reduce matrilineal and patrilineal practices in Ghana and Indonesia.¹⁰

In the realm of gender norms, there are only two noteworthy papers that examine the effects of public policies, exclusively within developed contexts. [Bastian \(2020\)](#) shows that the introduction of the Earned Income Tax Credit (EITC) in the United States contributes to a rise in working mothers, fostering greater acceptance and support for women in the workforce within the same generation. [Farré et al. \(2022\)](#), the closest paper to mine, investigate Spain's paternity leave impact

¹⁰[Bau \(2021\)](#) defines that matrilineal refers to daughters living with their parents after marriage and supporting them in their old age, while patrilineal pertains to sons in a similar living arrangement.

on inter-generational gender role attitudes, showing children of eligible fathers adopt more progressive views. On the contrary, my study focuses on a child-targeted social program in a developing country, with mothers serving as the channel for implementation. Moreover, while the aforementioned studies offer evidence of reshaping gender norms and promoting gender equality, my research reveals a contrasting result in the Peruvian context. These distinctions highlight the unique dynamics at play in a developing country setting. Therefore, this paper advances our comprehension of the complex interplay between policies and gender norms, which are intrinsic components of broader cultural norms.

Second, this paper adds to the extensive literature on CCT programs and their effects on beneficiary children in Latin America. While numerous studies in this field predominantly focus on the direct effects of such programs on child health (Gertler, 2004; Barber and Gertler, 2008; Reis, 2010; Amarante et al., 2016), child education (Paul Schultz, 2004; Attanasio et al., 2010; Baird et al., 2013) and child labor (Edmonds and Schady, 2012; Del Carpio et al., 2016), my paper goes beyond the conventional scope. Specifically, I shed light on an often-overlooked and indirect aspect: the impact of CCT programs on gender role attitudes of beneficiary children. This analysis is grounded in the prevalent practice of CCT programs designating mothers as the recipients of cash transfers. By doing so, I contribute to this body of literature by presenting novel evidence of unintended consequences that can arise from CCT programs.

Third, this paper speaks to the literature concerning the responses of adult labor supply to CCT programs, which has yielded mixed evidence. For instance, Banerjee et al. (2017) reanalyze data from seven cash transfer programs in developing countries. The authors report that these programs had no impact on female and male labor supply, both in terms of the extensive margin (employment) and the intensive margin (working hours). Similar findings are observed in other studies such as Rubio-Codina (2010) in Mexico and Bosch and Schady (2019) in Ecuador.¹¹

On the other hand, contrasting results are found by Fernández and Saldarriaga (2014), who document that cash recipients from the *Juntos* program in Peru reduced their work hours by approximately 6 to 10 hours in the week following the payment date. Similarly, De Brauw et al. (2015) show that Brazilian rural women receiving

¹¹Rubio-Codina (2010) finds limited effects of *Oportunidades* on adult time allocation in Mexico, with adult women substituting for children in non-remunerated activities. Bosch and Schady (2019) provide evidence that the *Bono de Desarrollo Humano* program does not reduce adult labor supply over 4 or 5 years in Ecuador.

transfers from *Bolsa Família* experience a reduction in their labor supply. This paper contributes to the existing research by examining a new outcome variable related to the intensive labor supply margin, which represents the primary job or occupation based on time spent. The findings suggest that CCT programs impact mothers' time priority, reducing their likelihood of dedicating time to stable income-earning activities.

Finally, this paper contributes to the literature that explores parental influences, particularly maternal influences, on their children's gender role attitudes. Previous research mainly focuses on mothers' behaviors and gender role attitudes in developed countries, such as: [Serbin et al. \(1993\)](#) in Canada, [Cunningham \(2001\)](#) in the United States or [Cano and Hofmeister \(2023\)](#) in Australia. In contrast, the developing world remains relatively understudied. Only two papers investigate the inter-generational transmission of gender role attitudes in India ([Dhar et al., 2019](#)) and Ethiopia ([Leight, 2021](#)). This paper complements the existing literature by providing evidence that when mothers prioritize traditional gender roles, their children exhibit more traditional gender role attitudes in a Latin American setting.

The remainder of the paper proceeds as follows. Section 2 provides the conceptual framework that guides the study. Section 3 offers the context of study. Section 4 presents the data source and measurement of the outcome variable. Section 5 introduces the empirical approach. Section 6 provides the empirical results, followed by the mechanism behind the main findings in Section 7. Finally, Section 8 concludes the paper.

2 Conceptual Framework

In this section, I construct the conceptual framework that guides this study, drawing upon several key theoretical perspectives and empirical evidence regarding how CCT programs may influence gender role attitudes of children within beneficiary households. The principal avenue for this effect involves the intermediary mechanism of altering maternal roles. Firstly, my analysis focuses on the impact of CCT programs on women's empowerment in decision-making within households, alongside potential additional burdens imposed on mothers. Secondly, I delve into gender socialization theory and the influence of mothers' gendered behaviors on their children's gender role attitudes.

Women's Empowerment in Decision-Making. CCT programs predomi-

nantly target women with the explicit goal of empowering them and improving outcomes for children. By providing income support to women, women may increase their involvement in household decisions through a better control over the allocation of funds. The related empirical literature documents the positive effect of CCT programs on the standing of women within households. For instance, by examining the *Progresa* program in Mexico, [Attanasio and Lechene \(2002\)](#) reveals a noteworthy shift in household decision-making dynamics. The program's implementation leads to a transformation from traditional male-dominated decision-making to a more equitable structure, where decisions are jointly made by both men and women across various domains, including household expenditures, children's health, and education.

Similarly, in the context of the Brazil's *Bolsa Família* program, [de Brauw et al. \(2014\)](#) find that beneficiary women experience increased decision-making power concerning contraceptive use. Furthermore, particularly in urban areas, the program empowers women by augmenting their influence over children's school attendance, health expenses, and household durable goods purchases. In line with aforementioned studies, [Bergolo and Galván \(2018\)](#) provide suggestive evidence that the cash transfer program *Asignaciones Familiares-Plan de Equidad (AFAM-PE)* in Uruguay leads to increased female (perceived) involvement in making decisions related to specific aspects of household expenditures. Moreover, by employing the collective household model and constructing a new measure of women's empowerment, [Almás et al. \(2018\)](#) show that the cash transfer program in Macedonia improves women's household-decision making power.¹² Overall, CCT programs have been shown to have a positive contribution in empowering women and promoting more gender-equitable decision-making within households across different countries.

Additional Burdens and Impacts on Mothers' Labor Supply. Despite showing a positive effect on women's control within households, CCT programs have been criticized on putting additional burdens on mothers. This arises from the prerequisite for mothers to fulfill conditions to receive the transfers. Drawing from a qualitative analysis, [Nagels \(2016\)](#) shows that CCT programs in Bolivia and Peru contribute to the reinforcement of maternalistic and coercive practices. In line with this finding, [Cookson \(2018\)](#) argues that the CCT program in Peru can lead to additional burdens

¹²[Almás et al. \(2018\)](#) introduce a new measure of women's empowerment, which is the amount of money that a woman is willing to pay to obtain control over an amount that would otherwise be given to her husband. Within the framework of intra-household allocation models, the authors prove that this measure is responsive to shifts in women's bargaining power, and targeted transfers to women enhance their bargaining power within the couple.

on female recipients in time and resource investments, thereby exacerbating existing gender inequalities. Building upon this body of literature, by combining both quantitative and qualitative methods, [Margolies et al. \(2023\)](#) report that engagement in a nutrition-based CCT program in Malawi leads to a significant increase in caregiving time for participating women, particularly during the lean season. In terms of labor force participation, empirical evidence suggests that CCT programs can reduce maternal working hours ([Fernández and Saldarriaga, 2014](#)) and employment ([De Brauw et al., 2015](#); [El-Enbaby et al., 2019](#)). Taken together, these studies demonstrate one significant concern of potential adverse effects of CCT programs on women that can actually perpetuate traditional gender roles.

Gender-socialization Theory and Maternal Influences on Children’s Gender Role Attitudes. The parental influences on children’s gender role attitudes can be explained through various approaches, with the most influential theory in the literature being the gender socialization theory ([Perales et al., 2021](#)). According to this theory, children acquire knowledge about gender roles from an early age by observing their parents’ actions and behaviors ([Martin et al., 2002](#)). This phenomenon is referred to as the process of role modeling. In this process, children absorb the rules and underlying structure behind their parents’ gendered activities to form their gendered beliefs and specific patterns of gendered behavior that align with structural properties ([Bussey and Bandura, 1999](#)).

Aligning with the gender-socialization theory, empirical literature documents that mothers’ behaviors have a pronounced impact on shaping gender role attitudes of their children. For instance, [Serbin et al. \(1993\)](#) reports that children whose mothers engage in more traditionally male household chores have less traditional ideas about gender roles. Similarly, [Cunningham \(2001\)](#) finds that daughters who have mothers who dedicated more time to paid employment during their first year of life are less likely to engage in traditionally feminine household chores as adults. [Fernández et al. \(2004\)](#) show that men whose mothers worked have wives with a significant higher likelihood of being employed. Expanding on the existing body of literature, [Halpern and Perry-Jenkins \(2016\)](#) document that mothers play a crucial role in imparting knowledge about feminine behavior to girls and masculine behavior to boys. More recently, [Bertrand \(2019\)](#) confirms that children raised in families where mothers held greater economic power exhibit more egalitarian attitudes.

Expected Impact. Taken as a whole, CCT programs, which provide financial support to mothers upon meeting specific program requirements, have the potential to

alter the roles and status of mothers within households. Consequently, such changes may impact the gender role attitudes of children as they observe and internalize shifts in their mothers' roles and involvement in various aspects of family life. Nonetheless, due to the diverse findings in the empirical literature, where CCT programs can either empower women in decision-making or add more burdens and reduce mothers' labor supply, the direction of influence on the gender role attitudes of children remains uncertain.

3 Institutional Context

In this section, I briefly provide the background of the Peruvian Juntos program and some features related to its eligibility rule, conditions and responsibilities.

In April 2005, the Peruvian Government created the National Direct Support Program for the Poorest – *Juntos*, which is a conditional cash transfer program focusing on poor households with children or pregnant women. The objectives of the program are to reduce the current poverty, and to break the inter-generational transmission of poverty by human capital investments on education and health. The Juntos program stands as the largest program in the country with a budget of US\$308 million for the year 2016, which constitutes 26.1% of the total budget of the Ministry of Development and Social Inclusion (MIDIS) and 0.16% of Peru's gross domestic product (GDP).¹³ Prior to 2009, the program provided a monthly payment of 100 soles (roughly 30\$ or approximately 10% of poor households' monthly consumption and over 50% per capita households' expenditure). Since 2010, the transfer has been made bimonthly with 200 soles (Sánchez et al., 2020). This change was implemented due to the low rate of transfer withdrawals from bank accounts, attributing to the long distances that beneficiaries must travel to collect their transfer. According to official sources, the program had already supported an estimated 72% of all eligible households by 2015 (MIDIS 2015).¹⁴

In terms of the eligibility rule, the Juntos program carried out the selection process in two stages. The first stage was conducted at the district level, where districts were chosen based on five criteria, including exposure to violence, high levels of economic inequality, chronic child malnutrition, high rates of extreme poverty, and a high proportion of the population with unsatisfied basic needs. The second stage

¹³<https://www.iadb.org/en/toolkit/conditional-cash-transfer-programs/peru-juntos>

¹⁴Ministerio de Desarrollo e Inclusión Social - MIDIS. 2015. JUNTOS: "Memoria Anual 2014." Gobierno del Perú.

involved selecting eligible households within eligible districts. Since the objective of the program is to support poor groups in the population, household eligibility should be based on the precise documentation of individual or household income. However, such information is typically not available or difficult to obtain in developing countries because a large part of the population work in the informal sector. Household eligibility for the Juntos program was therefore determined by the poverty score, which was formulated using household-level data obtained from a census conducted in each district.

In principle, the poverty score is a linear combination of household characteristics using an official algorithm created by the program’s administration. Prior to 2012, the Peruvian government implemented a universal threshold value across all regions. From 2012 and beyond, following the integration of all social protection programs under MIDIS, a new poverty score denoted as the *Indice de Focalizacion de Hogares (IFH)* and 15 regional-specific thresholds were established. Households in eligible districts with pregnant women or children up to 19 years old, whose poverty score exceeds the cutoff value, qualify for the program.¹⁵ Finally, a commission consisting of community members and local and national representatives verified the list of eligible households in the checked stage. In Appendix B, I describe the algorithms and variables used to compute the poverty score in two periods.

The program enrolls all eligible members of a household selected as beneficiaries, and a representative, typically the mother, signs an agreement form with the program¹⁶. Upon enrollment, the mother becomes responsible for fulfilling the program conditions for each and every one of her children (in case of having children up to 19 years old), with no exceptions. There are several conditions that a beneficiary household must meet to receive the transfers. Firstly, children up to 59 months old must receive the comprehensive health and nutrition care (including growth monitoring and complete vaccinations). Secondly, pregnant women must receive the comprehensive health care (including monthly pre-birth check-ups from the day that the pregnancy is identified). Thirdly, children aged 6 and above must be enrolled in school and maintain an attendance rate of at least 85% until they reach the age of 19 or complete their education (including allowance for up to three absences per month). Lastly, it is necessary for children to have a national identification number.

Whether or not the households meet conditions of the program relative to health

¹⁵Before 2014, the age limit of the children was 14.

¹⁶For more details of the agreement form, see Appendix D.

and education services are monitored by local managers. In particular, health visits are verified by attendance (pre-birth checkup) and check-up records (growth and development controls) while the educational condition is verified by school attendance records. Disaffiliation from the program occurs when a household cannot meet conditions frequently or when all household members no longer belong to the targeted population or when the household loses eligibility according to their poverty score. Note that disaffiliation could also be voluntary.¹⁷

4 Data and Measures

In this section, I first describe the data source used in this paper with descriptive statistics of key variables. I then introduce the approach to measure the main outcome variable - gender attitude index.

4.1 Young Lives

The dataset in this paper comes from the Young Lives panel data led by Oxford University during five rounds in 2002, 2006, 2009, 2013 and 2016. The Young Lives study is a longitudinal research initiative that aims to examine the evolving landscape of childhood poverty. Over a period of 15 years, the study has been employing both qualitative and quantitative research methods to track the development of 12,000 children across four countries: Ethiopia, Peru, India (Andhra Pradesh), and Vietnam. The project has been following two cohorts in each country since 2002. In each country, the younger cohort, comprising approximately 2,000 children, was between 6 and 18 months old in 2002, while the older cohort, consisting of around 1,000 children, was between 7.5 and 8.5 years old in 2002.

In this study, I use data from the younger cohort of the Peruvian Young Lives survey. Focusing on the younger cohort offers several advantages, including: (i) it allows for the examination of the long-term effects of Juntos on children's outcomes, as the younger cohort has been followed from childhood to adolescence, and (ii) it provides a large enough sample size of Juntos recipients to allow for meaningful analysis, as compared to the older cohort which has less than 100 beneficiary children.

The sampling procedure of Young Lives in Peru began with the district level that the sentinel sites were chosen using a multi-stage, cluster-stratified, random sampling approach. Based on the poverty map developed by *Fondo Nacional de Compensación*

¹⁷For detailed explanation, see [Huerta and Stampini \(2018\)](#).

y Desarrollo Social (FONCODES) in 2000, the Peruvian research team excluded the richest 5% of districts, and subsequently selected surveyed districts from the remaining pool. Once the districts were chosen, households within each district were selected randomly. For the younger cohort, all selected households were visited by a fieldworker to identify eligible households with at least one child aged between 6 and 18 months in 2002.

Young Lives sample in Peru is pro-poor, but comparable to nationally representative samples. Escobal and Flores (2008) compare the Young Lives sample with two nationally representative samples including the Living Standard Measurement Survey 2001 (ENAHO 2001) and the Demographic and Health Survey 2000 (DHS 2000). The authors conclude that Young Lives households are very similar to the average household in Peru, and Young Lives sample captures the full range of diversity in Peruvian children in terms of their varied attributes and experiences. Table A1 in the Appendix A presents the comparison of some key variables between the Young Lives first round data and the DHS 2000 adapted from the Appendix 5 in Escobal and Flores (2008). In this comparison, the authors take into consideration the different sample frames, the results indicate that two samples are comparable in several aspects, including household, respondent and child characteristics.

For the research purpose, I mainly use the child survey and the household survey, with a specific focus on households located in eligible districts.¹⁸ The household survey covers a wide range of topics such as participation in Juntos, household composition, housing quality and asset, access to basic services, jobs and education of household members. From the child survey, I obtain rich information on Young Lives children along the following dimensions: demographic characteristics (e.g., gender, age, religion, ethnicity, mother’s education), child health (e.g., vaccination, health long term issues), cognitive abilities (e.g., maths test result, reading test results), and attitudes toward women’s role.

Given that my primary outcome variable of interest, gender role attitudes, is observed only in the fifth round, I construct a cross-sectional dataset that combines key information from the fifth round with data from previous rounds. This combined dataset is then merged with information regarding household participation in the Juntos program and other relevant data from the household survey. My constructed sample comprises 1,119 children, including 596 beneficiary children and 523

¹⁸Note that the information regarding the eligibility period of districts is obtained from the official website of MIDIS. For detailed information, see <http://www2.juntos.gob.pe/infojuntos/>.

non-beneficiary children. It is important to note that *beneficiary children* in this paper refers to children who are members of beneficiary households that have ever participated in the program at any point between 2002 and 2016.

Table 1 summarizes some key variables for the sample. Over the 15-year study period, 596 children, or 53% have ever benefited from the Juntos program. Moreover, the sample is characterized by a balance in terms of child gender, with the majority identifying as Mestizo (94%) and Catholic (81%). At baseline, the average age of mothers was approximately 27 years old, and 63% of them have the education level below secondary school. Additionally, the table reports that the average household size is six individuals, and most children have female or male siblings. The caregiver gender preferences before the child was born was equally distributed with the mean of 0.51. This indicates that there should be no overall bias in caregiver gender preference towards male or female offspring in the analysis sample.

4.2 Measurement of Gender Role Attitudes

In this study, the main outcome variable of interest is gender role attitudes of children aged 15. To construct an index, I combine 12 gender attitude variables that are exclusively obtained from the fifth round of the survey. These variables are based on the Attitudes toward Women Scale for Adolescents (AWSA), a widely recognized tool for assessing gender role attitudes among adolescents.¹⁹ The 12 variables are gathered by asking children whether they agree with statements about the attributes, expectations, roles and rights acceptable for each gender. Following Dhar et al. (2019), I transform the variables from a 4-Likert scale into binary values. In this case, the corresponding indicator equals 1 if children answer ‘Agree’ or ‘Strongly agree’ (‘Disagree’ or ‘Strongly disagree’) when the statement is in favour of (opposed to) traditional views. Gender attitude index (unweighted index) is the average of the twelve indicators. In principle, the value of the constructed index ranges from 0 to 1, where a score of 0 signifies an extremely non-traditional attitude, while 1 denotes an extremely traditional attitude.^{20, 21}

One potential concern pertains to the representativeness of the gender attitude

¹⁹The Attitudes Toward Women Scale for Adolescents (AWSA) is derived from the short form of the Spence-Helmreich Attitudes Toward Women Scale (Galambos et al., 1985). AWSA has been used widely to capture gender belief in the psychology literature, for instance: Caso et al. (2020), Puzio and Best (2020) and Coyne et al. (2022).

²⁰In Figure A1, I present the distribution of the gender attitude index.

²¹The full sentences of all statements are presented in Appendix C.

Table 1. Descriptive Statistics of Key Variables

	Mean	Standard Deviation	Min	Max	Count
Juntos (Yes=1)	0.53	0.50	0.00	1.00	1,119
Female (Yes=1)	0.50	0.50	0.00	1.00	1,119
Urban (Yes=1)	0.48	0.50	0.00	1.00	1,119
BMI-for-age z-score	0.70	1.30	-4.91	11.34	1,111
Weight-for-age z-score	-0.47	1.13	-5.54	5.33	1,112
Height-for-age z-score	-1.64	1.29	-9.50	4.79	1,112
Polio vaccination (Yes=1)	0.97	0.16	0.00	1.00	1,113
BCG Vaccination (Yes=1)	0.96	0.19	0.00	1.00	1,113
Measles vaccination (Yes=1)	0.35	0.48	0.00	1.00	1,101
Age of child (months, 2002)	11.68	3.56	5.00	22.00	1,119
Health long term issues (Yes=1, 2002)	0.22	0.41	0.00	1.00	1,119
Catholic (Yes =1)	0.81	0.39	0.00	1.00	1,119
Mestizo (Yes = 1)	0.94	0.24	0.00	1.00	1,119
Mother education (<secondary school = 1)	0.63	0.48	0.00	1.00	1,111
Age of mom (years, 2002)	27.13	6.91	15.00	49.00	1,108
Caregiver's gender preference for the child (Male=1)	0.51	0.44	0.00	1.00	1,110
Household size (members, in 2002)	5.81	2.33	2.00	18.00	1,119
Reading test in 2016 (accuracy rate)	0.60	0.15	0.07	1.00	1,077
Maths test in 2016 (accuracy rate)	0.34	0.15	0.00	0.81	1,119
Male sibling (Yes=1)	0.76	0.43	0.00	1.00	1,119
Female sibling (Yes=1)	0.76	0.43	0.00	1.00	1,119
Coastal area (Yes=1)	0.21	0.41	0.00	1.00	1,119
Mountainous area (Yes=1)	0.61	0.49	0.00	1.00	1,119
Observations	1119				

Note: Descriptive statistics is computed from the estimating sample to examine the effect of Juntos on gender role attitudes. The variables, including *Juntos*, *Female*, *Urban*, *Polio vaccination*, *BCG vaccination*, *Measles vaccination*, *Health long term issues*, *Catholic*, *Mestizo*, *Mother education*, *Caregiver's gender preference for the child*, *Male sibling*, *Female sibling*, *Coastal area*, *Mountainous area* are indicators. The z-scores for Weight-for-age, Height-for age and BMI-for-age are calculated based on the World Health Organization (WHO) reference tables and software ([Briones, 2018](#)). Note that the body mass index (BMI) is the ratio between a child's weight in kilograms and their height in metres squared. The formula proposed by WHO is $z\text{-score} = (X-m)/SD$, where X is the observed value of the child (height, weight or BMI), m and SD are the mean and standard deviation value of the distribution corresponding the reference population. Reading test and maths test in 2016 are measured by the rate of correct answers.

index due to the lack of national representativeness in the Young Lives Sample. In order to address this concern, I present descriptive evidence in Appendix A, comparing the responses to gender attitude statements in this survey with those from other surveys in Peru and some other Latin American countries.

Figure A2 compares the average response to the statement "Men make better political leaders than women do" in the World Values Survey in Peru and other Latin American countries with the average response to the statement "Men are better leaders than women" in the Young Lives Survey.²² Generally, Peru exhibits a more progressive stance compared to neighboring countries, with approximately 20% of respondents strongly agreeing/agreeing with the statement. Furthermore, despite the age difference of respondents (ranging from 18 to 88 years old) in the World Values Survey, the mean responses of the Young Lives Survey and the Peruvian World Values Survey are highly similar. Considering gender, the mean responses of female respondents in both surveys are closely aligned, while male respondents in the Young Lives Survey display more regressive views compared to the other survey.

In Figure A3, a comparison between two cohorts in the Young Lives Survey is presented. In Round 5, the older cohort consists of individuals around 22 years old. By employing identical questions for both cohorts, the mean responses on a 1-to-4 scale for all 12 gender attitude items are compared. The results indicate a high degree of similarity in the mean responses of the two cohorts across the 12 items. In conclusion, through comparisons with other surveys and different cohorts within the same survey, I am able to proceed with confidence that the responses of the younger cohort are reasonably representative of Peru.

Following Jaruseviciene et al. (2014), I then classify gender role attitudes into three dimensions: (i) power dimension: measures the level of power held by girls and women in comparison to boys and men, (ii) equality dimension: captures the desire for greater gender equality, such as expectations around sharing housework or the same freedoms for boys and girls, and (iii) behavior dimension: measures social expectations for the behaviors of boys and girls.²³ The three sub-indices are obtained

²²The World Values Survey (www.worldvaluessurvey.org) is an international scholarly endeavor aimed at investigating the dynamics of changing values and their influence on social and political realms. Commencing in 1981, the survey employs robust research methodologies tailored to individual countries, encompassing almost 100 nations, which collectively represent nearly 90 percent of the world's population. Employing a standardized questionnaire, this non-commercial, cross-national, longitudinal investigation boasts the participation of nearly 400,000 respondents, making it the most extensive academic study encompassing the entire spectrum of global variations, from impoverished to affluent countries, across all major cultural zones.

²³Jaruseviciene et al. (2014) conduct a factorial analysis of the AWSA using a sample of 3,518

using the same procedure as the gender attitude index.

Table 2 describes the attitudes towards gender roles of children in the sample. I report descriptive statistics of all twelve statements, three sub-indices and the aggregated index. Overall, the attitudes are quite regressive among youth in the behavior dimension and power dimension. For example, 58% believe that swearing is worse for women than men, while 57% support the idea that it is more important for men than women to do well in school. With respect to the equality dimension, there is significantly less support for traditional norms. For instance, only 13% believe that women should not have the same freedom as men.

Table 2. Descriptive Statistics of Attitudes towards Gender Roles (Young Lives Round 5, Age 15)

Agree/Strongly Agree with...	Mean	SD	Min	Max
Behavior dimension	0.51	0.28	0.00	1.00
Women should not swear	0.58	0.49	0.00	1.00
Men pay for date expenses	0.54	0.50	0.00	1.00
Women cannot ask men out	0.42	0.49	0.00	1.00
Equality dimension	0.15	0.20	0.00	1.00
Women are not smart as men	0.18	0.39	0.00	1.00
Women should not play rough sports	0.11	0.32	0.00	1.00
Husband should not share housework duties with wives	0.16	0.37	0.00	1.00
Women should not have the same freedom as men	0.13	0.33	0.00	1.00
Power dimension	0.34	0.29	0.00	1.00
Incentivize college attendance more for sons than daughters	0.26	0.44	0.00	1.00
Fathers should have greater authority than mothers in family decisions	0.35	0.48	0.00	1.00
Men's academic success is more significant than women's	0.57	0.50	0.00	1.00
Men are better leaders than women	0.23	0.42	0.00	1.00
Women's priority should be good homemakers and mothers	0.27	0.44	0.00	1.00
Gender attitude index	0.32	0.16	0.00	0.83
Observations	1119			

Note: All variables, except Gender attitude index and three sub-indices related to behavior, equality and power dimensions, are indicators taking value 1 if children answer 'Agree' or 'Strongly agree' ('Disagree' or 'Strongly disagree') when the statement is in favour of (opposed to) traditional views. Gender attitude index and three sub-indices (unweighted indices) are as the averages of their respective component indicators.

5 Empirical Approach

This section presents the empirical approach. To estimate the causal effect of the Juntos program on gender role attitudes of beneficiary children, I explore the eligibility rules, which identify that a household is eligible if it resides in an eligible district, includes pregnant women or children up to 19 years old, and has a poverty score exceeding a predetermined threshold. In my analysis sample, since all households reside

adolescents in Bolivia and 2,401 adolescents in Ecuador, revealing three distinct factors: the power dimension, the equality dimension, and the behavioral dimension.

in eligible districts and surveyed children was approximately 15 years old, therefore, the eligibility of households is identified solely based on their poverty score. First, I introduce the approach for calculating household poverty scores based on surveyed data. Despite that I do not observe the government’s eligibility-determining score, I show that measurement error would not pose a concern since there is a clear jump in the share of participating households at the threshold. I then provide the identification strategy - a fuzzy RD design following [Battistin et al. \(2009\)](#). Moreover, I conduct several validation tests to show the robustness of the design.

5.1 Household Poverty Score

My identification strategy exploits the assignment rule of the program, whereby households with poverty scores equal to or exceeding the corresponding thresholds are selected as eligible. To implement the identification strategy, I need to observe household poverty scores, which condition eligibility. Utilizing extensive data from the household survey conducted in five rounds, I recompute the poverty scores using the official formulas implemented in the Juntos program. The beneficiary households are defined as households that have received cash transfers at any point in time between 2002 and 2016.

The approach for calculating poverty scores relies on the time that the district, where the household lived in, became eligible for the Juntos program, spanning from 2002 to 2016. As discussed in [Section 3](#), the Juntos program updated its poverty score computation approach in 2012. Therefore, I employ the former method, utilizing a universal threshold value, for districts that became eligible between 2005 and 2011. For districts that became eligible between 2012 and 2016, I apply the current method, which employs the IFH index and regional-specific thresholds.

In principal, the poverty scores are calculated using data from the previous round corresponding to the eligibility time for households in eligible districts. For Juntos beneficiary households, poverty scores are determined based on data from their previous round corresponding to the time of enrollment, indicating the initial program entry. Given that the poverty scores in the former method are on a scale from 0 to 1, with higher scores indicating greater poverty, and the current method uses a scale from 0 to 100 with higher scores indicating greater wealth, I re-scale the scores obtained from the current method by a factor of 100 and adjust their direction to align with the former method. This transformation is necessary to maintain consistency in the poverty scores across the two methods and ensure that the direction of the scores

accurately reflects the level of poverty. Subsequently, the poverty scores are centered with their corresponding eligibility cutoff values, and then the threshold is 0 in this setting. A non-negative centered poverty score implies that households are eligible for the program if they reside in eligible districts.

In my identification, an issue arises due to potential differences between Young Lives Study data and administrative data used for household poverty score calculation, potentially resulting in measurement error. The calculation result indicates that 25% of households have centered poverty scores below 0, but reported receiving the benefit. Moreover, 23.9% of households have centered poverty scores greater than 0, but did not take part in the program, which can be explained because participation in the program is not mandatory.

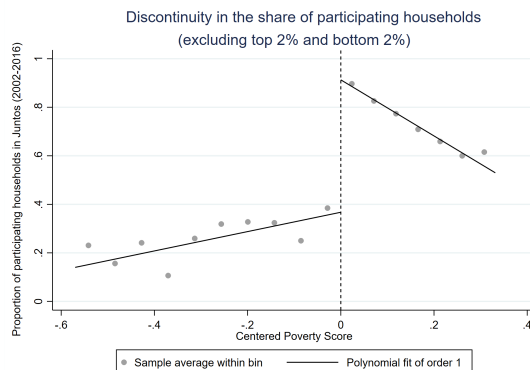
In general, this evidence is also consistent with measurement error in the reporting of the participating status. However, the inaccuracy in participating status is unlikely to happen. This is because households are asked whether they are beneficiaries of the Juntos program from the third to the fifth round, and there is no inconsistency in their report during the whole study period. Therefore, I make an assumption that the participating status is not misreported. All inconsistencies in the data between the poverty score and the observed participating status are presumed to come from measurement error in the poverty score.

Measurement error would pose a major issue if it had smoothed out any discontinuity in the share of participating households at the threshold (Davezies and Le Barbanchon, 2017). However, as shown in Figure 1, this is not the case. For the sake of brevity, I plot the share of participating households by excluding the top 2% and the bottom 2% of the running variable. The figure shows a clear jump at the threshold. Therefore, following Battistin et al. (2009), I can refer that the measurement error in the eligibility variable arises due to *contaminated data*, in which the observed distribution of poverty scores includes both accurately measured values and those reported with some degree of error.

In this study, a direct assessment of the correlation between my computed household poverty score and the government’s eligibility-determining score is not feasible. However, to provide suggestive evidence about the quality of the computed poverty score, Table A2 in Appendix A presents a positive correlation between my computed poverty score from Young Lives and the poverty score from ENAHO.²⁴ It is essential

²⁴In order to facilitate an appropriate comparison, two sub-samples are drawn from the ENAHO dataset. Specifically, the ENAHO 2004 dataset is confined to households with children aged between 3 and 4 years, while the ENAHO dataset for the year 2009 includes households with children aged

Figure 1. Discontinuity in the share of participating households (excluding top 2% and bottom 2%)



Note: In this graph, the support of the running variable (centered poverty score) is divided into disjoint bins. The observations situated to the right of the vertical line are considered eligible for Juntos.

to note that ENAHO’s questions provide precise information for identifying the variables used in the algorithms to calculate the poverty score. Additionally, the Peruvian government utilized ENAHO data from 2001 to 2004 to establish coefficients in the algorithm used for the previous method and data from ENAHO 2009 to determine the set of variables for the IFH computation.

In Panel A of Table A2, when employing the former method with a universal threshold value, the correlation rate is 0.875. This correlation is derived from the average poverty scores in 14 departments in Young Lives 2002 and ENAHO 2004. In Panel B, the current method is employed to compute the IFH index. A moderate and positive correlation (0.562) is observed between the computed IHF index in Young Lives 2009 and the IFH index from ENAHO 2009 based on the average indices in 13 clusters. More importantly, the average poverty scores or IHF indices are very similar in several departments and clusters, which supports the claim that the household poverty score is partially observed with errors.

5.2 Identification Strategy

In the presence of measurement error due to contaminated data, following Battistin et al. (2009), I employ the fuzzy regression discontinuity design, where the eligibility

between 7 and 9 years. Notably, the ENAHO surveys lack information on children under three years old, rendering a comparison between ENAHO 2002 and Young Lives 2002 unfeasible. Detailed explanations of the calculation methods can be found in Appendix B.

status is used to solve the endogeneity of the participating status. In the RD design framework, it is assumed that households near the eligibility cutoff on either side share similar characteristics, except for their program eligibility status. The specific estimating equations are as follows:

$$Juntos_{ij} = \alpha + \beta \mathbb{1}_{[X_{ij} \geq 0]} + h(X_{ij}) + \lambda_j + \epsilon_{ij} \quad (1)$$

$$Y_{ij} = \mu + \gamma \mathbb{1}_{[X_{ij} \geq 0]} + h(X_{ij}) + \kappa_j + v_{ij} \quad (2)$$

where $Juntos_{ij}$ is a binary variable that takes the value of one if the household of child i in district j participated in Juntos at any point between 2002 and 2016. The variable Y_{ij} represents my measure of gender role attitudes for child i in district j . X_{ij} is the centered poverty score of the household of child i in district j . $\mathbb{1}_{[X_{ij} \geq 0]}$ is an indicator variable that equals 1 if the centered poverty score is greater than or equal to 0. $h(X_{ij})$ captures the relationship between the outcome and running variable X_{ij} . λ_j and κ_j are district fixed effects, which account for time-invariant factors specific to each district. In this setting, it is important to control for district fixed effects in the first stage due to variations in how household poverty scores are calculated across different districts. Moreover, as described in Appendix B, some components of household poverty scores are influenced by district-specific factors, such as household access to water, electricity, and drainage systems. Intuitively, I compare the gender role attitudes of children within the same district. ϵ_{ij} and v_{ij} are error terms. Following [Abadie et al. \(2022\)](#), standard errors are clustered at the district level.

The relevant parameters include $\hat{\beta}$ in Equation 1, the intention-to-treat (ITT) estimate $\hat{\gamma}$ from Equation 2, and the ratio $\tau_{FRD} = \hat{\gamma}/\hat{\beta}$, which represents the local average treatment effect (LATE) given some additional assumptions.²⁵ To estimate the causal effect, I employ a non-parametric RD design strategy, focusing solely on observations near the threshold where a discontinuous change in the probability of treatment assignment occurs. This approach does not impose any assumptions regarding the functional form of the running variable. However, as highlighted by [Calonico](#)

²⁵According to [Hahn et al. \(2001\)](#), there are three additional assumptions for identification, which allows τ_{FRD} to be interpreted as LATE. The first assumption is monotonicity, that is having a non-negative centered poverty score does not decrease the probability of receiving cash transfer for any household (which seems plausible). The second assumption is the existence of the first stage. The third assumption - local independence - indicates that in a neighborhood around the threshold, household treatment effects and treatment status are jointly independent of the centered poverty score.

et al. (2014), the traditional bandwidth selecting procedure of the non-parametric method often leads to bias in the distributional approximation of the estimator. To overcome this challenge, I adopt the local polynomial non-parametric RD design with data-driven bandwidth selectors and bias-correction techniques proposed by Calonico et al. (2014) and Calonico et al. (2019b).

In this paper, I primarily use the mean square error (MSE) optimal bandwidth (\hat{h}_{MSE}), which optimizes point estimates by minimizing the asymptotic mean square error (Calonico et al., 2019a). In my baseline regression specification, I use the MSE optimal bandwidth, triangular weights and linear local polynomial. In all RD specifications, I report the conventional point estimators and the corresponding robust p-values.

5.3 Threats to Identification and Assessment of Validity

Within the RD design framework, the assignment of households to the Juntos program can be viewed as locally randomized around the threshold of the centered poverty score, which serves as the running variable. While it is challenging to directly assess the randomness assumption, there are several methods available to evaluate its validity. This subsection presents the tests for discontinuity in both the running variable and other covariates near the threshold.

5.3.1 Testing Discontinuities in the Running Variable Density

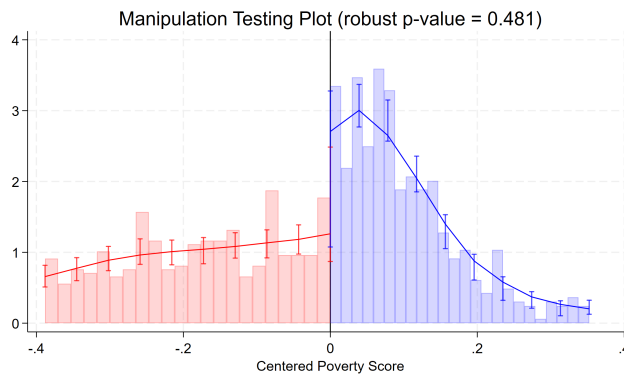
In the Juntos program, manipulation of household poverty scores might occur at different levels, including household level and district level. Manipulation behaviors often require knowledge of the formulas to calculate poverty scores before applying to the program. At the household level, it is hard to believe that households could precisely manipulate their poverty scores. First, the targeted population of the program is the poor households, who are less likely to know the formulas. Second, those formulas are quite complicated with several different variables and coefficients corresponding with those variables. Moreover, it is very unlikely that the households know the cutoff value. The households only know the result of the eligibility evaluation, but not the value of their poverty scores.

Another concern related to manipulation is that districts might somehow "adjust" the poverty score of households in their districts to obtain as much benefit as possible from the program. However, it is unlikely to happen since the Juntos program implemented the checked stage with a commission of both local and national

representatives to verify the list of eligible households.

Taking a statistical perspective, one can examine the density of the running variable around the threshold of eligibility as a means to assess potential manipulation. I employ the manipulation test, utilizing a local-polynomial density estimator based on the observed sample’s cumulative distribution function, to estimate the probability density function of the centered poverty score following [Cattaneo et al. \(2018\)](#). The null hypothesis is that the density of the centered poverty score variable is continuous at the centered zero threshold. The result of the test in [Figure 2](#) suggests that I fail to reject the null hypothesis of no manipulation of the density at the threshold when the value of the statistics is 0.7052 and the associated p-value is 0.481. Therefore, there is no statistical evidence to support the manipulation of the running variable’s density at the threshold.

Figure 2. Manipulation Testing Plot



Note: This paragraph presents the manipulation testing based on density discontinuity following [Cattaneo et al. \(2018\)](#). The observations situated to the right of the vertical line are considered eligible for Juntos. On both sides of the vertical line, I also plot the confidence intervals. Note that the lack of centering of the confidence intervals around the point estimates may arise due to the robust bias-correction procedure.

5.3.2 Testing Discontinuities in Covariate Distributions Around the Threshold

To provide additional evidence regarding the exogeneity of the running variable, I examine characteristics of children and their households close to the threshold. The RD design is valid when other factors are smooth through the cutoff value. To test for discontinuity, I run the estimating equations 1 and 2 with the dependent variable replaced by the characteristics of interest. I focus on two categories of characteristics,

including child characteristics (such as: gender, vaccination, health issues in 2002) and household characteristics (such as: baseline household size, age of moms, mother’s education).

Table 3 presents the estimates of τ_{FRD} when characteristics of interest are outcome variables. The results suggest that there is no significant discontinuity in observable characteristics at the cutoff when all robust p-values are larger than 0.1. Note that in all regressions conducted on equation 1, the estimates of β are strongly significant with an approximate magnitude of 0.21.

Table 3. Covariate Discontinuity Test Around the Threshold

Variable	MSE-Optimal Bandwidth	RD Estimator	Robust Inference p-value	Conf. Int.	Eff.Number Observations
Child characteristics					
Female	0.128	-0.011	0.981	[-0.545, 0.531]	554
BMI-for-age z-score	0.094	-0.916	0.248	[-2.403, 0.620]	451
Weight-for-age z-score	0.136	-0.511	0.517	[-2.681, 1.349]	580
Height-for-age z-score	0.171	0.414	0.537	[-1.301, 2.496]	685
Age of child (months, 2002)	0.130	-3.134	0.493	[-9.159, 4.411]	557
Polio vaccination (Yes=1)	0.150	0.161	0.284	[-0.171, 0.584]	630
BCG Vaccination	0.126	0.063	0.621	[-0.221, 0.369]	549
Measles vaccination	0.109	0.331	0.263	[-0.425, 1.556]	490
Health long term issues (Yes=1, 2002)	0.129	0.451	0.241	[-0.267, 1.060]	555
Mestizo (Yes = 1)	0.126	0.182	0.439	[-0.293, 0.674]	551
Catholic (Yes =1)	0.131	0.223	0.172	[-0.145, 0.813]	561
Household characteristics					
Age of mom (years, 2002)	0.123	-9.059	0.206	[-24.353, 5.258]	534
Household size (members, in 2002)	0.123	-1.071	0.576	[-6.258, 3.478]	539
Mother education (<secondary school = 1)	0.123	-0.626	0.175	[-2.016, 0.367]	536
Caregiver’s gender preference for the child (Male=1)	0.143	0.501	0.155	[-0.210, 1.321]	611

Note: This table presents the LATE estimates when I replace the dependent variable in equation 2 by the characteristics of interest. The estimates are obtained by utilizing the MSE optimal bandwidth, triangular weights and linear local polynomial. The p-values and 95% confidence intervals reported are constructed using robust bias correction. Standard errors clustered at district level are shown in parentheses.

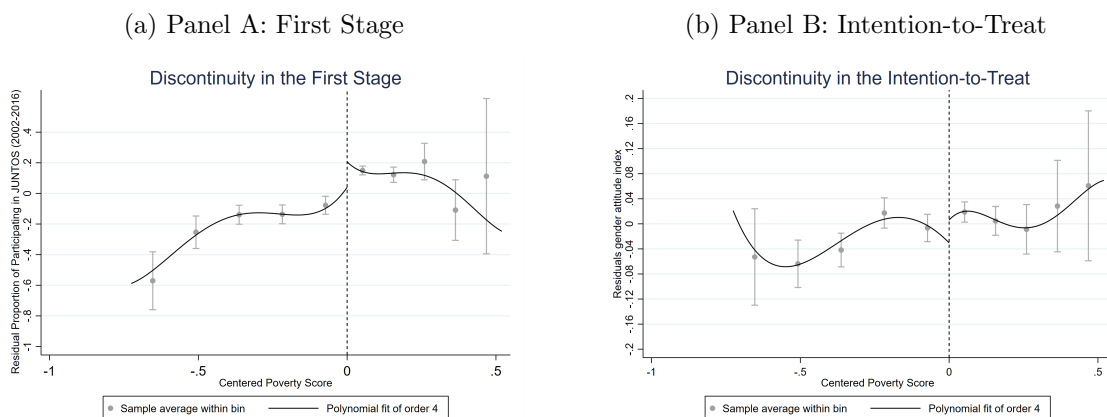
6 Results

In this section, I present four key categories of results. First, I document the effects of Juntos on gender role attitudes of beneficiary children and which dimensions of attitudes are particularly affected. Second, I provide evidence on heterogeneous treatment effects of Juntos. Third, I discuss how Juntos influences children’s daily activity time use and their achievement test scores. Finally, I show that my estimates of Juntos’ effects on gender role attitudes are robust to a rich battery of robustness checks.

6.1 Effects on Gender Role Attitudes

I first present the RD graphical evidence to intuitively illustrate the discontinuous changes at the threshold. Figure 3 shows the discontinuities in both the proportion of Juntos participating households and the gender attitude index. In particular, Panel A plots the residual proportion of participating in the Juntos program as a function of the running variable (centered poverty score). Residuals are obtained from a regression of $Juntos_{ij}$ on the district fixed effects. The circles present the sample average within bin over disjoint bins of the running variable. The solid lines represent separate fourth-order global polynomial fits on each side of the threshold, while the error bars indicate the 95 percent confidence intervals for the local means. The figure reveals a jump in the proportion of participating in the Juntos program at the threshold level. Transitioning from barely below to barely above the threshold level results in an approximate 0.2 increase in the proportion of households receiving the cash transfer.

Figure 3. First Stage and Intention-to-Treat



Note: Each graph plots the outcome as a function of the running variable (centered poverty score). In both graphs, the support of centered poverty score is divided into disjoint bins. The circles illustrate the outcome's local mean at the midpoint of individual bins. The solid lines depict distinct fourth-order global polynomial fits on either side of the threshold. The error bars are the 95 percent confidence intervals for the local means. The observations situated to the right of the vertical dashed line are considered eligible for Juntos.

Analogously, Panel B plots the residual gender attitude index, which is obtained by regressing gender attitude index on the district fixed effects, as a function of the running variable. The figure shows a clear jump at the threshold level, in which the gender attitude index of beneficiary children is roughly 0.05 points higher than

non-beneficiary children.

Next, I provide the results of my main regression using the local polynomial approach. Table 4 presents the results of estimating the coefficients β and τ_{FRD} from equations 1 and 2 using nonparametric local polynomial methods proposed by Calonico et al. (2014) and Calonico et al. (2019b). The estimates in row (1) confirm my observation in Figure 3 that I have a significant first stage when all estimates of β are statistically significant at the 5% level. Regarding the estimates of τ_{FRD} , the results suggest that the Juntos program makes gender role attitudes more regressive. In terms of the effect size, when quantifying gender role attitudes as an unweighted index, children in beneficiary households show a 27.7 percentage point increase in favor of traditional gender role attitudes compared to those in non-beneficiary households (robust p-value <0.05), as reported in column (2). The magnitude of the effect is very large, which presents 85% over the control group’s mean within the optimal bandwidth.

Table 4. Effects on Gender Role Attitudes

	Gender Attitude Index		Power Dimension		Equality Dimension		Behavior Dimension	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. First stage (β)	0.209 (0.066)	0.201 (0.066)	0.209 (0.066)	0.201 (0.066)	0.209 (0.066)	0.201 (0.066)	0.209 (0.066)	0.201 (0.066)
Robust p-value	0.007	0.010	0.007	0.010	0.007	0.007	0.007	0.010
Panel B. LATE (τ_{FRD})	0.278 (0.110)	0.277 (0.110)	0.457 (0.179)	0.454 (0.184)	0.233 (0.154)	0.225 (0.147)	0.077 (0.164)	0.086 (0.174)
Robust p-value	0.033	0.030	0.027	0.029	0.157	0.160	0.973	0.920
District FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Control Group Mean (optimal BW)	0.323	0.323	0.329	0.329	0.174	0.174	0.548	0.548
Observations	527	522	527	522	527	522	527	522

Note: Panel A presents estimates of equation 1, where the dependent variable is participation in the Juntos program. Panel B report the LATE estimate of participation in Juntos on gender role attitudes computed as the ratio of the ITT estimate to the first-stage coefficient. The optimal bandwidth is 0.120. Several control variables are included in the analysis, such as the age of mothers (years) in 2002, dummy variables for gender of the child, mother education, location (urban), and child’s religion. In columns (2), (4), (6) and (8), to include control variables in the non-parametric estimation, I employ a two-stage approach following Lee and Lemieux (2010). Initially, the outcome variable is residualized by absorbing control variables through the Ordinary Least Squares (OLS) method. Subsequently, the local linear RD approach is applied to the residualized outcome. The estimates are obtained by utilizing the MSE optimal bandwidth, triangular weights and linear local polynomial. The robust p-values reported are constructed using robust bias correction. Standard errors clustered at the district level are shown in parentheses.

Building upon the main result, I further investigate which dimensions of gender role attitudes are particularly affected. To do so, I decompose the gender attitudes index into thematic sub-indices, including the power dimension, equality dimension, and behavior dimension, as outlined in Section 4.2. I present the results from estimating equations 1 and 2 when the dependent variables are three sub-indices in columns (3) to (8) of Table 4. The findings suggest that Juntos has a significant impact on the power dimension, reflecting the extent of power women hold in comparison to men. However, no significant effects are observed in the domains of equality and behavior. It is important to note that when considering the coefficient values at face value, the

influence on the equality dimension closely mirrors the estimated effect on the gender attitude index.²⁶

In brief, the results suggest that the Juntos program leads to more traditional gender role attitudes in beneficiary children. Based on the discussion of gender-socialization theory and maternal influences on children’s gender role attitudes in Section 2, this finding can be explained by the program’s potential impact on mothers that reinforces their traditional roles. I will delve deeper into this hypothesis in Section 7.

6.2 Heterogeneous Effects by Child Gender and Maternal Educational Level

In this subsection, I explore whether the impact of the Juntos program on gender role attitudes varies along two dimensions: child gender and maternal educational level.

First, I conduct a separate analysis to examine the impact of the Juntos program on boys and girls in columns (1) and (2) of Table 5. While the coefficients are nosily estimates, taking the point estimates at face value, I find that the impact on girls is smaller than the effect on boys, with values of 0.233 and 0.280, respectively. However, it is important to note that the estimated coefficient τ_{FRD} demonstrates weak statistical significance in the girls’ sample, with a robust p-value just below 0.1. In contrast, the estimated coefficient in the boys’ sample is statistically indistinguishable from zero. The inconclusive results could be attributed to the relatively small number of observations in both the female and male subsamples near the threshold.

Next, I delve into whether the impact of Juntos on children’s gender role attitudes is differential among maternal educational levels. Specifically, I provide a distinct analysis of program impacts on children, distinguishing between those whose mothers have an educational level less than secondary school and those with at least a secondary school education. This analysis is presented in columns (3) and (4) of Table 5. Column (3) offers insights into the impact of the Juntos program on the gender role attitudes of children whose mothers have an educational level below secondary school. The point estimate of τ_{FRD} (0.192) is statistically significant at a robust p-value level of 0.05. Shifting focus to column (4), I turn to children whose mothers have at least a secondary school education. The estimated coefficient of τ_{FRD}

²⁶In figures A4 and A5, I present the RD graphical evidence of the first stage, along with the intention-to-treat estimates, utilizing the optimal bandwidth for the gender attitude index and three sub-indices, including: power dimension, equality dimension and behavior dimension.

is positive but insignificant, indicating no clear evidence of the program’s effect in this sub-sample. However, it is essential to interpret this result cautiously due to the small number of observations (163) in this particular sub-sample.

Table 5. Heterogeneous Effects by Child Gender and Maternal Educational Level

	Gender Attitude Index			
	<i>Child Gender</i>		<i>Mother’s Educational Level</i>	
	Girls (1)	Boys (2)	< secondary school (3)	≥ secondary school (4)
Panel A. First stage (β)	0.250 (0.086)	0.185 (0.077)	0.227 (0.064)	0.283 (0.125)
Robust p-value	0.020	0.062	0.002	0.029
Panel B. LATE (τ_{FRD})	0.233 (0.129)	0.280 (0.206)	0.192 (0.083)	0.328 (0.196)
Robust p-value	0.098	0.236	0.047	0.178
District FEs	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Control Group Mean (optimal BW)	0.316	0.326	0.331	0.297
Observations	237	301	337	163

Note: Panel A presents estimates of equation 1, where the dependent variable is participation in the Juntos program. Panel B report the LATE estimate of participation in Juntos on gender role attitudes computed as the ratio of the ITT estimate to the first-stage coefficient. Several control variables are included in the analysis, such as the age of mothers (years) in 2002, dummy variables for location (urban) and child’s religion. In columns (2) and (4), I employ a two-stage approach, as detailed in Table 4, to include control variables in the non-parametric estimation. The estimates are obtained by utilizing the MSE optimal bandwidth and linear local polynomial. The robust p-values reported are constructed using robust bias correction. Standard errors clustered at the district level are shown in parentheses.

6.3 Effects on Time Use and Test Scores

One crucial focal point within this investigation revolves around the measurement of the gender attitude index through sensitive questions, thus giving rise to the predicament of social desirability bias (Yan, 2021). That is, societal expectations dictate certain behaviors and attitudes as socially desirable while designating others as socially undesirable. Therefore, children might exhibit a bias towards responding in a socially desirable manner. In other words, children might not actually change their views towards gender role attitudes. To surmount this concern, I test whether the main results are aligned with children’s actual behaviors.

Relying on detailed information on the time use of daily activities during a typical day in Round 5, I examine the effect of the Juntos program on time use across five key categories: caring for others, domestic tasks and chores, paid work, non-paid work (labor force work for the household), and leisure.²⁷ Table 6 presents the results

²⁷It is noteworthy that a "typical day" in this context refers specifically to weekdays, excluding

for male and female sub-samples. The results in columns (1) to (5) of Panel A indicate that girls significantly allocate more time to care-giving and unpaid labor (1.614 and 1.141 hours, respectively, robust p-value <0.05). Moreover, girls also spend more time on domestic tasks (0.418 hours) and less time on leisure activities (-1.628), though these estimates are statistically insignificant. In Panel B, there is no statistically significant impact of the Juntos program on boys' time allocation. However, taking the coefficients at face value, it appears that boys spend less time on activities traditionally associated with femininity, such as caregiving (-0.289) and domestic tasks (-0.151).

Table 6. Effects on Time Use of Daily Activities

	Caring (1)	Domestic Tasks (2)	Paid work (3)	Non-paid work (4)	Leisure (5)
Panel A: Girls					
LATE (τ_{FRD})	1.614 (0.701)	0.418 (0.877)	0.072 (0.114)	1.141 (0.518)	-1.628 (1.003)
Robust p-value	0.031	0.788	0.500	0.044	0.179
Control Group Mean (optimal BW)	0.738	1.194	0.035	0.169	3.640
Observations	204	290	208	244	236
Panel B: Boys					
LATE (τ_{FRD})	-0.289 (0.647)	-0.151 (0.630)	-0.686 (0.815)	0.053 (1.223)	-2.734 (2.394)
Robust p-value	0.811	0.681	0.426	0.780	0.265
Control Group Mean (optimal BW)	0.476	1.029	0.317	0.362	3.721
Observations	262	274	277	240	271
District FEs	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

Note: All specifications replicate the specification in Table 4's Column (2) by replacing the dependent variable by variables representing time use of daily activities in Round 5. Time use is measured in hours during a typical day (not weekends, holidays or national holidays). *Caring* (time) indicates time that children spend on caring for others (younger siblings, ill household members). *Domestic tasks* (time) denote time that children spend on domestic tasks and chores (fetching water, firewood, cleaning, cooking, washing, shopping, etc.). *Paid work* (time) indicates time that children spend on activities for pay/sale outside of household or for someone not in the household. *Non-paid work* (time) denotes time that children spend on tasks on family farm, cattle herding, other family business, shepherding, piecework or handicrafts done at home. *Leisure* (time) indicates time that children spend on playing or general leisure (including time taken to eating, drinking and bathing). Several control variables are included in the analysis, such as dummy variables indicating whether the child is the first-born in the household, the presence of male and female siblings, the presence of younger sibling(s) aged below 6 years and/or the existence of elderly family members or family members with long-term health issues, and the household size. In all columns, I employ a two-stage approach, as detailed in Table 4, to include control variables in the non-parametric estimation. The estimates are obtained by utilizing the MSE optimal bandwidth and linear local polynomial. The robust p-values reported are constructed using robust bias correction. Standard errors clustered at district level are shown in parentheses.

The increase in time devoted on caring and non-paid work among female children are aligned with some traditional views, particularly in the power dimension. These traditional views are characterized by two statements: (i) women's priority should be good homemakers and mothers, and (ii) men's academic success is more significant weekends, holidays, and national holidays.

than women.²⁸ It is essential to exercise caution when interpreting the estimated coefficients related to time use variables, as the recorded hours are rounded to the nearest integer.²⁹ In summary, the findings indicate that the Juntos program’s influence on gender role attitudes mirrors real-world behaviors, especially among girls.³⁰

Next, I investigate the impact of the Juntos program on children’s performance in reading comprehension and mathematics achievement tests. These tests were meticulously crafted by the Young Lives team to assess children’s intellectual and cognitive abilities and have been administered since the second round of the survey. During the fifth round, the mathematics test consisted of 31 questions, with some questions drawn from the Programme for International Student Assessment (PISA) tests. Students were allocated 50 minutes to complete the mathematics test. Furthermore, the reading comprehension test comprised 24 questions, and students were provided with 30 minutes to complete it.

Table 7 presents the estimation results of Juntos’ impact on children’s accuracy in reading and mathematics tests. In Panel B, columns (1) and (2) show that beneficiary girls perform significantly less accurately than non-beneficiary girls in both reading (25.5% lower) and math (29.6% lower) tests. In contrast, there are no statistically significant effects for boys in columns (3) and (4), both in reading and math tests. Importantly, the decrease in achievement test scores among girls appears to be in line with the notable increase in time they allocate to caring for others and non-paid work. This suggests that the behaviors associated with traditional gender roles may be influencing their academic performance negatively.

6.4 Robustness Checks

In this subsection, I show that my estimates of Juntos’ effects on gender role attitudes are robust to a rich battery of robustness checks.

Different Selections of Local Polynomial Degree, Kernel, or Bandwidth.

In Table A4 in the Appendix A, I show that the main results are not sensitive to the

²⁸Power dimension of gender attitude index measures the level of power held by girls and women in comparison to boys and men.

²⁹The number of hours is recorded in the following way: if the time is less than 30 minutes, enter 0; and if it is 30 minutes or more, enter 1 (1 hour).

³⁰In Table A3 in Appendix A, I provide the results of Juntos’ impacts on other daily activities, including study time, school time, and sleep duration. Although the statistical significance of these results is lacking, when considering the estimated values at face value, it becomes apparent that male beneficiaries allocate less time to caregiving, domestic chores, and leisure pursuits. Conversely, they invest more time in after-school studies, be it at home or through extra tuition

Table 7. Effects on Test Scores

	Girls		Boys	
	Reading Test	Maths Test	Reading Test	Maths Test
	(1)	(2)	(3)	(4)
Panel A. First stage (β)	0.253	0.258	0.193	0.195
	(0.082)	(0.079)	(0.083)	(0.080)
Robust p-value	0.018	0.007	0.066	0.065
Panel B. LATE (τ_{FRD})	-0.255	-0.296	0.372	0.276
	(0.098)	(0.138)	(0.242)	(0.246)
Robust p-value	0.009	0.048	0.127	0.235
District FEs	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Control Group Mean (optimal BW)	0.637	0.329	0.625	0.375
Observations	251	208	304	323

Note: All specifications replicate the specification in Table 4’s Column (2) by replacing the dependent variable by reading test scores and maths test scores. Several control variables are included in the analysis, such as the age of mothers (years) in 2002, dummy variables for mother education, location (urban), and child’s religion. In all columns, I employ a two-stage approach, as detailed in Table 4, to include control variables in the non-parametric estimation. The estimates are obtained by utilizing the MSE optimal bandwidth and linear local polynomial. The robust p-values reported are constructed using robust bias correction. Standard errors clustered at district level are shown in parentheses.

selection of local polynomial degree, kernel, or bandwidth. Following [Gelman and Imbens \(2019\)](#), in column (1), I present the result when replacing the local linear polynomial by a quadratic polynomial, but selecting a different optimal bandwidth \hat{h}_{MSE} . The result indicates that the point estimate of the RD LATE is very similar with those estimated with the linear specification in Table 4. Crucially, the point estimate remains consistent in direction and statistical significance at the 5 percent level. Shifting the focus to columns (2) and (3), I use the uniform and epanechnikov kernels. In column (4), I follow the common practice in the RD design by employing the \hat{h}_{MSE} for the ITT only. Moving to columns (5) and (6), I allow for different bandwidths on each side of the centered zero threshold when recalculating h_{MSE} and h_{CER} . In general, the estimates from columns (2) to (6) remain statistically significant at the 5 percent level, and the estimating results consistently mirror the sign and magnitude of the baseline results.

Parametric Model and Wild Cluster Bootstrap. Table A5 in Appendix A presents the parametric fuzzy RD results using the two-stage least squares (2SLS) technique. In all columns, the optimal bandwidths are obtained through the methodology proposed by [Imbens and Kalyanaraman \(2011\)](#). One concern in this study is the relatively small number of clusters (12 districts), which may violate the asymptotic

assumption of an infinite number of clusters. To address this challenge, I employ the cluster-robust wild bootstrap procedure following [Cameron et al. \(2008\)](#) and report the corresponding p-values in all specifications. Overall, the results suggest positive and statistically significant estimated treatment effects, which are consistent with the findings obtained from the nonparametric fuzzy RD technique.

Different Approaches to Measure the Outcome Variable. In [Table A6](#) in the [Appendix A](#), I further show that the estimates are robust when using different approaches to construct the outcome variable. In columns (1) and (2), I construct the weighted gender attitude index following [Anderson \(2008\)](#). The weighted gender attitude index represents the average value of twelve binary variables, with weights derived by normalising the variables to have the same standard deviation and subsequently calculating weights based on the inverse covariance matrix. In columns (3) and (4), following the method of [Kolenikov and Angeles \(2009\)](#), I conduct the polychoric principle component analysis (PCA) using the twelve Likert scale variables and use the resulting first component as an index for gender role attitudes.

Furthermore, I normalise these gender attitude indices to be mean zero with standard deviation one for the control group within the optimal bandwidths. Across all specifications, even with a lower level of statistical significance, the RD estimates consistently align with the baseline findings in [Table 4](#) in terms of direction, suggesting that the Juntos program is associated with the cultivation of more traditional gender role attitudes among beneficiary children.

Placebo Cutoffs. One useful falsification exercise to validate the fuzzy RD design is to examine the treatment effect at the placebo cutoffs. In this test, the true threshold value is replaced with alternative values at which the treatment status remains unchanged. Estimation and inference are then conducted using those artificial cutoff point. The expected outcome is the absence of significant effects at the placebo cutoff values. I present the results of this falsification test in [Table A7](#) in [Appendix A](#), utilizing six artificial cutoffs (-0.15, -0.1, -0.05, 0.05, 0.01, and 0.15). Following [Cattaneo et al. \(2020\)](#), I use only treated observations for artificial cutoffs exceeding the true cutoff, while only control observations are employed for artificial cutoffs falling below the true cutoff. Overall, the results reveal no evidence of significant treatment effects at the placebo cutoffs. Therefore, I conclude that the poverty score only exhibits a discontinuous change at the centered zero threshold.

Estimation through An Expanded Sample Size. One concern in this study is the relatively small sample size around the eligibility threshold, which could af-

fect the precision of my estimates. To address this concern, I take the approach of incorporating household data from ineligible districts into my analysis sample to estimate the impact of the Juntos program on children’s gender role attitudes.³¹ This approach assumes that households near the eligibility threshold, whether in eligible or ineligible districts, are comparable, with the exception of their eligibility status. It is important to acknowledge that this assumption is strong. However, my primary objective in including households from ineligible districts is to bolster the sample size and enhance the robustness of my main findings.

Given that all households in ineligible districts do not receive the cash transfer, including district fixed effects regression specifications might not be suitable. To address this, I choose to control for the district poverty index from the year 2000, a comprehensive index developed by FONCODES. This index covers various factors related to access to essential services, such as health facilities, classrooms, availability of piped water, sanitation facilities, and electricity. It also considers factors like road accessibility, school attendance, and child malnutrition. Additionally, I incorporate department fixed effects into the model to account for time-invariant characteristics specific to each department. While the eligibility criteria are determined at the district level, it is crucial to recognize the significant role that departments play in designating eligible districts. [Carpio et al. \(2019\)](#) highlight that logistical and budgetary constraints can lead the Juntos program to exclude very poor districts in remote and isolated regions or departments with only a few poor districts. The specific estimating equations are as follows:

$$Juntos_{ijd} = \alpha_1 + \beta_1 \mathbb{1}_{[X_{ijd} \geq 0]} + h(X_{ijd}) + \delta District\ poverty\ index_j + \eta_d + \zeta_{ijd} \quad (3)$$

$$Y_{ijd} = \mu_1 + \gamma_1 \mathbb{1}_{[X_{ijd} \geq 0]} + h(X_{ijd}) + \theta District\ poverty\ index_j + \iota_d + \nu_{ijd} \quad (4)$$

where $Juntos_{ijd}$ is a binary variable that takes the value of one if the household of child i in district j of department d participated in Juntos at any point between 2002 and 2016. The variable Y_{ijd} represents my measure of gender role attitudes for child i in district j of department d . X_{ijd} is the centered poverty score of the household of child i in district j in department d . $h(X_{ijd})$ captures the relationship between the outcome and running variable X_{ijd} . $District\ poverty\ index_j$ is the poverty index of district j in 2000 from FONCODES. η_d and ι_d are department fixed effects. ζ_{ijd} and

³¹In ineligible districts, I apply the current method that will be used once they become eligible after 2016 to calculate household poverty scores. I primarily use data from rounds 4 and 5 for these calculations.

ν_{ijd} are error terms.

Table 8 displays the estimation results. When comparing these results to those in Table 4, the LATE estimates show similar signs and statistical significance across two dependent variables: the gender attitude index and power dimension. In terms of magnitude, the estimated coefficients are closely aligned between the household sample in eligible districts and the household sample from both eligible and ineligible districts. Specifically, for the gender attitude index, the coefficients are 0.278 and 0.243, for the power dimension, they are 0.457 and 0.402, and for the equality dimension, they are 0.233 and 0.221. Despite the imperfections in the replication, the comparison of results suggests that the main findings of the study remain robust when the sample size increases.

Table 8. Effects on Gender Role Attitudes through An Expanded Sample Size, Robustness

	Gender Attitude Index	Power Dimension	Equality Dimension	Behavior Dimension
	(1)	(2)	(3)	(4)
Panel A. First stage (β_1)	0.257	0.257	0.257	0.257
	(0.061)	(0.061)	(0.061)	(0.061)
Robust p-value	0.000	0.000	0.000	0.000
Panel B. LATE (τ_{FRD})	0.243	0.402	0.221	0.035
	(0.092)	(0.153)	(0.103)	(0.132)
Robust p-value	0.015	0.007	0.052	0.768
District Poverty Index	Yes	Yes	Yes	Yes
Department FEs	Yes	Yes	Yes	Yes
Observations	944	944	944	944

Note: Panel A presents estimates of equation (3), where the dependent variable is participation in the Juntos program. Panel B report the LATE estimate of participation in Juntos on gender role attitudes computed as the ratio of the ITT estimate to the first-stage coefficient. The optimal bandwidth is 0.174. The estimates are obtained by utilizing the MSE optimal bandwidth, triangular weights and linear local polynomial. The robust p-values reported are constructed using robust bias correction. Standard errors clustered at the district level are shown in parentheses.

7 Mechanisms

So far, it has been shown that the Juntos program leads to more traditional gender role attitudes among children. This section delves into an in-depth exploration of the underlying factors contributing to the main results observed in the study.

As highlighted in Section 2, the argued channel for this effect involves the potential intermediary process of changing maternal roles and behaviors.³² To explore this pathway, I utilize data from Round 4 of the household survey, specifically focusing on the question that captures mothers' most important job or occupation

³²By using the third, fourth and fifth rounds of the household survey, I can identify Juntos recipients in beneficiary households, which reveals that approximately 93% of the recipients are mothers.

in terms of time that they have done in the last 12 months.³³ Initially, I classify jobs into three categories: (i) household chores/housewife, (ii) self-employment in various sectors and regular salaried or wage employment, and (iii) other working activities characterized by nonsalaried, irregular, or unstable income or part-time work, for instance, housemaid. Subsequently, I create three indicators to represent these three aforementioned groups (Household chores/Housewife, Self-employment/Wage employment, and Other working activities). I then estimate equations 1 and 2 with the dependent variable in the intention-to-treat stage replaced by three dummy variables.

The estimated results in Table 9 reveal important insights. Column (1) suggests that beneficiary mothers around 53.2% more likely to prioritize their time on household chores or housewifery compared to non-beneficiary mothers (robust p-value <0.01). This finding aligns with Nagels (2016), who demonstrates that the Juntos program reinforces maternalistic and coercive behaviors. Turning to column (3), the finding indicates that mothers have a 46.2% lower likelihood of choosing self-employment or wage employment as their most important activity in terms of time use (robust p-value <0.05). The last two columns show no significant evidence of the program’s effect on mothers’ time priority of other working activities.³⁴

The results suggesting that mothers tend to prioritize household chores and home-making over earning a regular or stable income can be interpreted through various channels. First, from the theoretical standpoint, this finding is line with the standard economic model of labor supply, which predicts that individuals should work less when they receive a non-work income, such as: Becker (1965). In these models, individuals determine the amount of work they perform by weighting the benefits of working more hours against the costs. With the additional financial resource, mothers may choose to prioritize their time on activities they find personally fulfilling, such as taking care of their homes and families. This phenomenon reflects the persistence of traditional gender roles, where women are often expected to bear primary responsi-

³³Survey question: "For each household member 10 years old or above, ask for the 3 most important jobs / occupations (in terms of time) that he/she has done in the last 12 months, including SALARIED and NON-SALARIED jobs, INSIDE and OUTSIDE home. If the household member has had less than 3 occupations or he/she did not work (e.g., too old), enter 88 = N/A."

³⁴In Figure A6 in Appendix A, I present a discontinuity test of Household chores/Housewife and Self-employment/Wage employment around the threshold in Round 2 in 2006. To ensure robustness, all households that reported receiving the cash transfer before Round 2 were excluded from the analysis. The findings from this analysis indicate that there is insufficient evidence to support the existence of systematic differences between the treatment and control groups near the threshold before the intervention took place.

Table 9. Effects on Maternal Time Priority

	Household chores/ Housewife	Self-employment/ Wage-employment	Other working activities
	(1)	(2)	(3)
Panel A. First stage (β)	0.285 (0.064)	0.226 (0.050)	0.293 (0.064)
Robust p-value	0.000	0.000	0.000
Panel B. LATE (τ_{FRD})	0.532 (0.185)	-0.462 (0.273)	-0.277 (0.292)
Robust p-value	0.004	0.038	0.320
District FEs	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Control Group Mean (optimal BW)	0.376	0.278	0.325
Observations	430	581	404

Note: The specifications in all columns replicate the specification Table 4's Column (2) by replacing the dependent variable by variables representing jobs/occupations. I employ a two-stage approach, as detailed in Table 4, to include control variables in the non-parametric estimation. *Household chores/Housewife* equals 1 if a mother selects household chores or being housewife as the most important job in terms of time spent, and 0 otherwise. *Self-employment/Wage employment* equals 1 if a mother selects self-employment in agriculture, animal husbandry, fishing, forestry, manufacturing, and services, or regular salaried or wage employment as the most important job in terms of time spent, and 0 otherwise. *Other working activities* equals 1 if a mother selects jobs with nonsalaried, irregular, or unstable incomes or part-time work as the most important job in terms of time spent, and 0 otherwise. Controls include the age of mothers, a dummy variable for their education (equals 1 if the level is less than secondary school and 0 otherwise), dummy variables indicating whether they live with a partner, whether they have a health long-term issue, whether they live in urban areas, whether they have a job/occupation related to agriculture, animal husbandry, fishing and forestry in 2006, and household size. The estimates are obtained by utilizing the MSE optimal bandwidth and linear local polynomial. The robust p-values reported are constructed using robust bias correction. Standard errors clustered at district level are shown in parentheses.

bility for domestic duties. This observation is particularly relevant within the context of Peru, which is recognized as a patriarchal society (Flake, 2005).

Second, it is essential to consider the implications of women’s participation in cash transfer programs, particularly in relation to their role in meeting program conditions. The existing body of literature indicates that when women are specifically targeted as beneficiaries of cash transfers, it reinforces their traditional roles as caretakers and domestic workers (Cookson, 2018). This happens because mothers typically take on responsibilities like ensuring their children attend health check-ups and school. These additional tasks also reduce their available time and opportunities to work. Within the context of Peru, there is also evidence on the impact of the Juntos program on the time use of female cash recipients. For instance, Fernández and Saldarriaga (2014) show that mothers reduce their hours of labor supply in the week following the pay date of Juntos. Similarly, Cookson (2016) reports that meeting the conditions of the Juntos program entails an additional workload for beneficiary women to spend time on attending services, on seeking care, and on collecting the cash transfer. The household survey in Round 5 suggests that on average, mothers spend more than 50 minutes and pay 5.3 soles on traveling from their home to the Juntos center to cash the money.

To gain further insight into the extensive margin of mothers’ working behaviors, the household survey includes questions that capture the second and third most important jobs or occupations in terms of time spent.³⁵ This enables an examination of the extensive margin of mothers’ labor supply, as it is possible for a mother to choose household chores or being a housewife as their most important job in terms of time spent, while still engaging in work.

Table 10 presents the estimate results. Generally, in terms of the extensive margin, there is no significant evidence of Juntos’ impacts on unemployment or labor supply of mothers in beneficiary households. This finding is consistent with previous studies on the relationship between cash transfers and labor supply in developing countries, such as: Alzúa et al. (2013), Banerjee et al. (2017), and Bosch and Schady (2019).

³⁵In the survey, there are questions that inquire about the number of hours per day spent on various activities, with respondents ranking their most important, second most important, and third most important activities in terms of time spent in the last 12 months. While it can be challenging to accurately gauge the time mothers spend on household chores or fulfilling their roles as homemakers, the data shows that working mothers, when considering *working* as their primary activity, allocate an average of 7.12 hours to it. For those who prioritize *working* as their second most important activity, they dedicate an average of 5.39 hours, and for those who rank *working* as their third most important activity, they allocate an average of 5.20 hours.

One possible explanation might be due to the low level of transfer. In Peru, the cash transfer amount per month is 100 soles which accounts for 10% of the minimum wage and less than one third of the national poverty line (352 soles per capita per month).³⁶

Table 10. Effects on Maternal Working Behaviors

	Household chores/ Housewife	Self-employment/ Wage-employment	Other working activities
	(1)	(2)	(3)
Panel A. First stage (β)	0.296 (0.064)	0.306 (0.062)	0.295 (0.064)
Robust p-value	0.000	0.000	0.000
Panel B. LATE (τ_{FRD})	0.313 (0.212)	0.108 (0.237)	-0.163 (0.282)
Robust p-value	0.252	0.415	0.492
District FEs	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Control Group Mean (optimal BW)	0.242	0.313	0.431
Observations	388	340	394

Note: The specifications in all columns replicate the specification in Table 4's Column (2) by replacing the dependent variable by variables representing jobs/occupations. *Household chores/Housewife* equals 1 if a mother selects household chores or being housewife as their job, and 0 otherwise. *Self-employment/Wage employment* equals 1 if a mother selects self-employment in agriculture, animal husbandry, fishing, forestry, manufacturing, and services, or regular salaried or wage employment as their job, and 0 otherwise. *Other working activities* equals 1 if a mother selects jobs with nonsalaried, irregular, or unstable incomes or part-time work as their job, and 0 otherwise. Controls include the age of mothers, a dummy variable for their education (equals 1 if the level is less than secondary school and 0 otherwise), dummy variables indicating whether they live with a partner, whether they have a health long-term issue, whether they live in urban areas, whether they have a job/occupation related to agriculture, animal husbandry, fishing and forestry in 2006, and household size. The estimates are obtained by utilizing the MSE optimal bandwidth and linear local polynomial. The robust p-values reported are constructed using robust bias correction. Standard errors clustered at district level are shown in parentheses.

In summary, while the Juntos program may not directly influence mothers' employment status, it does lead to a shift in their time allocation towards domestic activities at the expense of regular income-generating pursuits. This shift suggests that the program reinforces traditional gender roles among women. This alteration in maternal roles has the potential to impact children's gender role attitudes, as mothers play a pivotal role in shaping their children's perceptions of gender. Moreover, a recent study by [Díaz and Saldarriaga \(2022\)](#) reports no evidence on the impact of Juntos on changes in women's empowerment or male partners' responses to women's empowerment.³⁷ Therefore, children's exposure to their mothers' traditional gender

³⁶In Table A8 in Appendix A, I investigate the impact of the Juntos program on paternal working behaviors, considering both time prioritization and extensive margin. The findings indicate that the cash transfer program has no significant effect on paternal working behaviors.

³⁷Using the data from Peruvian DHS from 2000 to 2015, [Díaz and Saldarriaga \(2022\)](#) do not find any statistically significant effects of Juntos on several dimensions of women's empowerment, including: decision-making autonomy, justification of (tolerance to) wife beatings, and working for payment, or their male partners' responses to marital control, and emotional support.

roles may explain the observed traditional gender role attitudes in this study.

8 Conclusion

This paper examines the influence of CCT programs on the gender role attitudes of children in beneficiary households. To the best of my knowledge, this study is the first to explore this specific research avenue. Drawing from the context of the Juntos program, which is the largest social protection program in Peru, my findings indicate that the program leads to the development of more traditional gender role attitudes among children. When I break down the gender attitude index into three sub-indices, the results suggest that the most pronounced effect is in the power dimension, which captures the relative power dynamics between girls and women compared to boys and men.

Furthermore, I investigate the connection between attitudes and behaviors by utilizing detailed data on children's daily activities. The results highlight a correlation between children's attitudes and their behaviors, with this relationship being particularly significant among female children. Additionally, I explore the impact of the Juntos program on reading and math test scores, revealing that beneficiary girls exhibit lower accuracy rates in both tests. These findings suggest that the decrease in achievement test scores among girls aligns with the notable increase in the time they allocate to caregiving and non-paid work.

To elucidate the mechanisms driving these results, I investigate the impact of the Juntos program on mothers' time priority. The findings indicate that mothers are more inclined to prioritize their time for household chores and traditional homemaking roles, while they are less likely to engage in paid work or self-employment. Furthermore, I delve into the extensive margin of mothers' working behaviors, exploring the possibility that a mother may prioritize household chores or homemaking as their primary time commitment while still participating in some form of employment. The results reveal no significant effect on mothers' unemployment or labor force participation. While the Juntos program does not appear to alter mothers' employment status, the shift towards more traditional gender roles in their time allocation could potentially serve as a pathway for reinforcing regressive gender role attitudes among children.

My findings carry a significant implication regarding the connection between policies and gender norms in developing countries. Policies have the potential to influence

the gender role attitudes of the next generation; however, their design plays a pivotal role. The unintended consequences on children's gender role attitudes resulting from shifts in mothers' roles within households challenge the reliance on mothers as tools for enhancing children's human capital. Therefore, it is of paramount importance that policymakers meticulously deliberate on policy design to avert the reinforcement of gender stereotyping patterns.

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A Appendix Tables and Figures

Appendix Table A1. Comparing Young Lives and DHS 2000: Sample Frame and Wealth Index Groups (using sample frame, wealth index groups (T1-T3), at national level, in %)

Variables	T1 (Poorest)		T2 (Moderately poor)		T3 (Least poor)		Full sample	
	DHS	Young Lives	DHS	Young Lives	DHS	Young Lives	DHS	Young Lives
Household assets								
Own fridge	0.0	0.4	5.0	5.0	42.0	38.3	15.5	14.5
Own radio	55.3	62.0	88.5	77.7	93.1	84.2	78.0	74.3
Own TV	8.3	14.3	58.0	57.7	94.3	91.9	52.0	53.8
Own car	0.4	0.0	2.5	1.9	14.9	8.6	5.8	3.5
Own phone	0.0	0.0	0.5	0.6	26.4	20.1	8.9	6.9
Type of cooking fuel:								
gas or electricity	1.2	0.4	11.9	16.3	62.6	72.6	24.8	29.5
Wealth index	0.0568	0.1010	0.2451	0.2970	0.6753	0.6753	0.3021	0.3541
Respondent characteristics								
Average age (years old)	27.6	26.6	27.1	27.3	27.9	27.3	27.5	27.1
<i>Level of education</i>								
None	16.8	17.4	6.6	9.7	1.9	0.5	8.8	9.4
Primary school	61.9	61.3	50.1	45.7	16.8	14.6	43.3	40.8
Secondary school	17.8	18.9	36.8	36.4	53.1	52.1	35.3	35.5
Higher	3.5	2.0	6.5	7.1	28.1	32.3	12.6	13.7
<i>Marital status</i>								
Single	5.5	11.4	7.2	7.3	10.2	9.4	7.5	9.5
Married	33.4	39.3	37.6	41.8	37.9	28.6	36.2	36.5
Living together	53.7	45.2	49.8	46.4	46.5	55.4	50.1	49.0
Child characteristics								
Sex - male	52.8	46.4	49.1	52.6	52.7	49.3	51.6	49.3
Average birth weight (gram)	3142.4	3062.1	3122.3	3182.2	3295.9	3273.2	3187.2	3170.3
Stunting	31.4	38.8	25.7	28.7	6.2	11.4	21.3	26.5
Underweight	12.3	17.0	9.4	12.9	2.6	3.5	8.2	11.2

Note: Source: Young Lives and INEI 2001b. This table is adapted from the Appendix 5 of Escobal and Flores (2008). The wealth index is a composite measure evaluating whether households can access to services such as water and sanitation, possess consumer durables like refrigerators, and the quality of materials used for floors, roofs, and walls in their dwelling. The wealth index is characterized by a continuous scale representing household wealth, where higher values indicate greater levels of wealth. To classify the sites into categories of the poorest, moderate poor, and least poor, arbitrary thresholds of 0.2 and 0.4 are implemented on the wealth index. All other variables, except average age and average birth weight, are measured as percentages at the national level.

Appendix Table A2. Comparing Poverty Scores/IFH Index: Young Lives vs. ENAHO

Department/Cluster	Young Lives	ENAHO
Panel A: Former method (YL 2002 & ENAHO 2004)	<i>Poverty score</i>	<i>Poverty score</i>
Tumbes	0.146	0.236
Piura	0.535	0.535
Amazonas	0.688	0.661
San Martin	0.389	0.220
Cajamarca	0.192	0.520
La Libertad	0.148	0.229
Ancash	0.448	0.433
Huanco	0.752	0.687
Lima	0.076	0.148
Junin	0.495	0.470
Ayacucho	0.707	0.636
Apurimac	0.708	0.711
Arequipa	0.238	0.237
Puno	0.119	0.316
<i>Correlation</i>		<i>0.875</i>
Panel B: Current method (YL 2009 & ENAHO 2009)	<i>IFH index</i>	<i>IFH index</i>
2	48.843	38.436
3	43.580	43.774
4	37.100	43.407
5	47.224	41.550
6	63.971	47.218
7	48.173	42.124
8	51.190	57.150
9	62.292	52.540
10	61.840	52.476
11	50.328	46.900
12	33.466	43.847
13	48.030	43.601
15	56.667	56.476
<i>Correlation</i>		<i>0.562</i>

Note: The table presents the comparison of the poverty score and IHF index between Young Lives data and ENAHO data. The algorithms used to compute the poverty score and IFH index are described rigorously in Appendix B. The value range of the poverty score in the former method is between 0 and 1, while the corresponding value of the IFH index is between 0 and 100.

Appendix Table A3. Effects on Time Use of Daily Activities, other activities

	Study time (1)	School time (2)	Sleeping time (3)
Panel A: Girls			
LATE (τ_{FRD})	-1.022 (0.674)	-1.633 (1.343)	0.184 (1.267)
Robust p-value	0.169	0.210	0.958
Control Group Mean (optimal BW)	2.173	6.808	8.642
Observations	279	237	222
Panel B: Boys			
LATE (τ_{FRD})	1.137 (0.947)	0.139 (3.329)	-0.257 (1.442)
Robust p-value	0.317	0.957	0.969
Control Group Mean (optimal BW)	1.758	6.747	8.725
Observations	252	245	215
District FEs	Yes	Yes	Yes
Controls	Yes	Yes	Yes

Note: All specifications replicate the specification in Table 4's Column (2) by replacing the dependent variable by variables representing time use of daily activities in Round 5. Time use is measured in hours during a typical day (not weekends, holidays or national holidays). *Study time* indicates time that children spend on studying outside of school time (at home, extra tuition). *School time* denote time that children spend at school (including travelling time to school). *Sleeping time* indicates time that children spend on sleeping. Several control variables are included in the analysis, such as dummy variables indicating whether the child is the first-born in the household, the presence of male and female siblings, the presence of younger sibling(s) aged below 6 years and/or the existence of elderly family members or family members with long-term health issues, and the household size. In all columns, I employ a two-stage approach, as detailed in Table 4, to include control variables in the non-parametric estimation. The estimates are obtained by utilizing the MSE optimal bandwidth and linear local polynomial. The robust p-values reported are constructed using robust bias correction. Standard errors clustered at district level are shown in parentheses.

Appendix Table A4. Effects on Gender Role Attitudes, Robustness

	Local Polynomial Degree	Kernel		Alternative bandwidths		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. First stage (β)	0.211 (0.082)	0.194 (0.070)	0.201 (0.068)	0.208 (0.055)	0.225 (0.055)	0.215 (0.058)
Robust p-value	0.018	0.015	0.015	0.013	0.001	0.001
Panel B. LATE (τ_{FRD})	0.280 (0.132)	0.274 (0.122)	0.286 (0.115)	0.272 (0.089)	0.254 (0.088)	0.287 (0.093)
Robust p-value	0.049	0.039	0.035	0.020	0.007	0.004
Bandwidth selection	\hat{h}_{MSE}	\hat{h}_{MSE}	\hat{h}_{MSE}	ITT \hat{h}_{MSE}	\hat{h}_{MSE2}	\hat{h}_{CER2}
Local Polynomial Degree	2	1	1	1	1	1
Observations	679	499	542	709	584	516

Note: The dependent variable is the gender attitude index as defined in Table 4's columns (1) and (2). In each column, the specific local polynomial degree and the algorithm for optimal bandwidth selection are indicated. The \hat{h}_{MSE} bandwidth selection algorithm is optimal for point estimation; the \hat{h}_{CER} selection algorithm is optimal for inference of confidence intervals. The use of subscript 2 in the description of the bandwidth selection algorithm indicates that distinct bandwidth lengths have been chosen on each side of the threshold. The p-values and 95% confidence intervals reported are constructed using robust bias correction and clustering at the district level. Asterisks denote significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A5. Effects on Gender Role Attitudes (parametric method and wild cluster bootstrap), Robustness

2SLS	Gender attitude index			
	(1)	(2)	(3)	(4)
LATE (τ_{FRD})	0.206*** (0.067) [0.016]	0.184** (0.078) [0.014]	0.206*** (0.064) [0.016]	0.181*** (0.069) [0.016]
Controls	No	Yes	No	Yes
First stage				
Z	0.253*** (0.071)	0.243*** (0.070)	0.216** (0.088)	0.217** (0.085)
X	0.436** (0.227)	0.473* (0.247)	1.909 (1.076)	1.753 (1.055)
Z × X	-0.754* (0.349)	-0.724** (0.326)	-3.039** (1.319)	-2.877** (1.302)
X ²			5.327 (3.476)	4.535 (3.443)
Z × X ²			-1.805 (5.146)	-0.793 (4.983)
District FEs	Yes	Yes	Yes	Yes
1st stage F	11.33	10.60	12.63	12.07
1st stage R ²	0.51	0.52	0.51	0.52
Regression type	Linear	Linear	Quadratic	Quadratic
Observations	885	882	885	882

Note: The dependent variable is the gender attitude index as defined in Table 4's columns (1) and (2). In all columns, the optimal bandwidths are selected following the methodology of [Imbens and Kalyanaraman \(2011\)](#). Standard errors, shown in parentheses, are clustered at the district level. Inference is also conducted using a cluster robust wild bootstrap procedure following [Cameron et al. \(2008\)](#), and the corresponding p-values are reported in brackets. Asterisks denote significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A6. Effects on Gender Role Attitudes (different measures), Robustness

	Weighted Gender attitude index		Polychoric PCA Gender attitude index	
	(1)	(2)	(3)	(4)
Panel A. First stage (β)	0.217 (0.067)	0.209 (0.067)	0.230 (0.059)	0.224 (0.059)
Robust p-value	0.007	0.001	0.001	0.001
Panel B. LATE (τ_{FRD})	1.263 (0.586)	1.271 (0.578)	1.011 (0.466)	0.966 (0.464)
Robust p-value	0.076	0.064	0.066	0.054
District FEs	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
Control Group Mean (optimal BW)	0	0	0	0
(SD)	(1)	(1)	(1)	(1)
Observations	525	520	672	646

Note: The dependent variable in columns (1) and (2) is the weighted gender attitude index constructed as in [Anderson \(2008\)](#). In columns (3) and (4), following the method of [Kolenikov and Angeles \(2009\)](#), I conduct the polychoric principle component analysis (PCA) using the twelve Likert rating scale variables and use the resulting first component as an index for gender role attitudes. The estimates are obtained by utilizing the MSE optimal bandwidth, triangular weights and linear local polynomial. The p-values and 95% confidence intervals reported are constructed using robust bias correction and clustering at the district level.

Appendix Table A7. Placebo Cutoffs

Alternative cutoffs (1)	RD Estimates (2)	<i>p</i> -value (3)	CI 95% (4)	Bandwidth (5)	Obs Left (6)	Obs Right (7)
-0.15	-0.357	0.635	[-1.815, 2.977]	0.064	69	76
-0.10	-0.001	0.977	[-0.818, 0.843]	0.038	42	59
-0.05	-0.635	0.899	[-3.625, 4.129]	0.067	85	69
0	0.278	0.033	[0.022, 0.535]	0.120	155	372
0.05	-1.247	0.690	[-6.327, 4.185]	0.015	49	58
0.10	-1.395	0.479	[-4.387, 2.060]	0.025	77	61
0.15	1.143	0.998	[-7.204, 7.188]	0.033	67	38

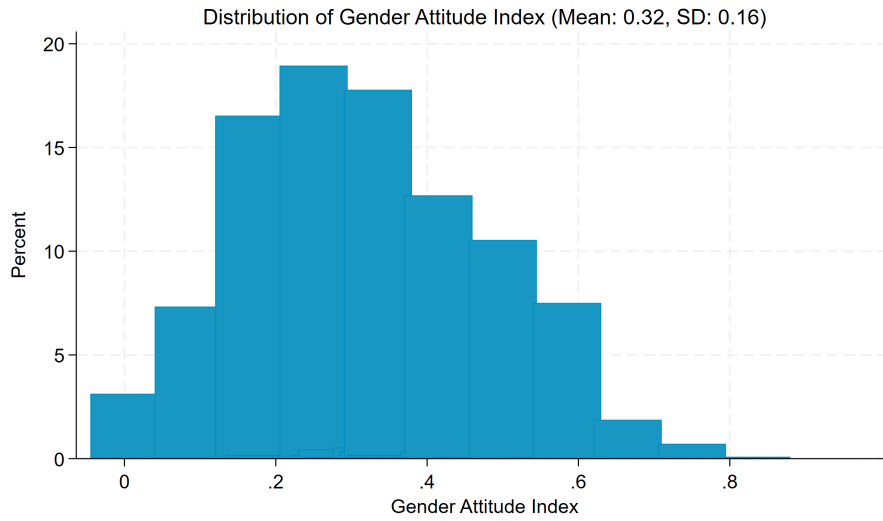
Note: The dependent variable is the gender attitude index as defined in Table 4's columns (1) and (2). The LATE estimates are calculated at the centered zero threshold and across different placebo thresholds. For the artificial cutoffs below the true threshold in the first three rows, I use the sample with negative values of the running variable. The sample in the last 3 rows (with artificial cutoffs above the true threshold) is restricted to non-negative values of the running variable. Estimates are obtained through the utilization of a triangular kernel, a local linear polynomial, and a \hat{h}_{MSE} optimal bandwidth. The robust *p*-values reported are constructed using robust bias correction. Standard errors clustered at district level are shown in parentheses.

Appendix Table A8. Effects on Paternal Working Behaviors

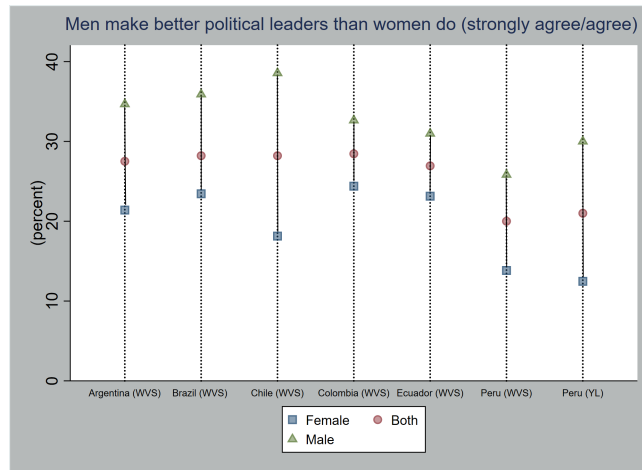
	Time Priority		Extensive Margin	
	<i>Self-employment/ Wage-employment</i>	<i>Other working activities</i>	<i>Self-employment/ Wage-employment</i>	<i>Other working activities</i>
	(1)	(2)	(3)	(4)
Panel A. First stage (β)	0.279	0.279	0.279	0.279
	(0.062)	(0.062)	(0.062)	(0.062)
Robust p-value	0.000	0.000	0.000	0.000
Panel B. LATE (τ_{FRD})	-0.066	0.066	-0.066	0.066
	(0.220)	(0.220)	(0.220)	(0.220)
Robust p-value	0.671	0.671	0.671	0.671
District FEs	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Control Group Mean (optimal BW)	0.910	0.090	0.910	0.089
Observations	371	371	371	371

Note: This table presents the impact of the Juntos program on paternal working behaviors, considering both time priority and extensive margin. The specifications in all columns replicate the specification in Table 4's Column (2) by replacing the dependent variable by variables representing jobs/occupations. *Self-employment/Wage employment* equals 1 if a father selects self-employment in agriculture, animal husbandry, fishing, forestry, manufacturing, and services, or regular salaried or wage employment as the most important job in terms of time spent or as their job (extensive margin), and 0 otherwise. *Other working activities* equals 1 if a father selects jobs with nonsalaried, irregular, or unstable incomes or part-time work as the most important job in terms of time spent or as their job (extensive margin), and 0 otherwise. Controls include the age of fathers, a dummy variable for their education (equals 1 if the level is less than secondary school and 0 otherwise), dummy variables indicating whether they live with a partner, whether they have a health long-term issue, whether they have a job/occupation related to agriculture, animal husbandry, fishing and forestry, and household size. Standard errors clustered at district level are shown in parentheses.

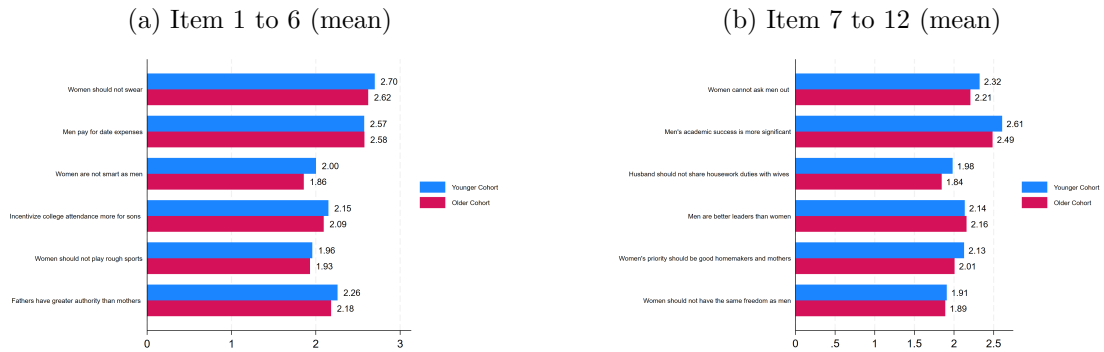
Appendix Figure A1. Distribution of Gender Attitude Index



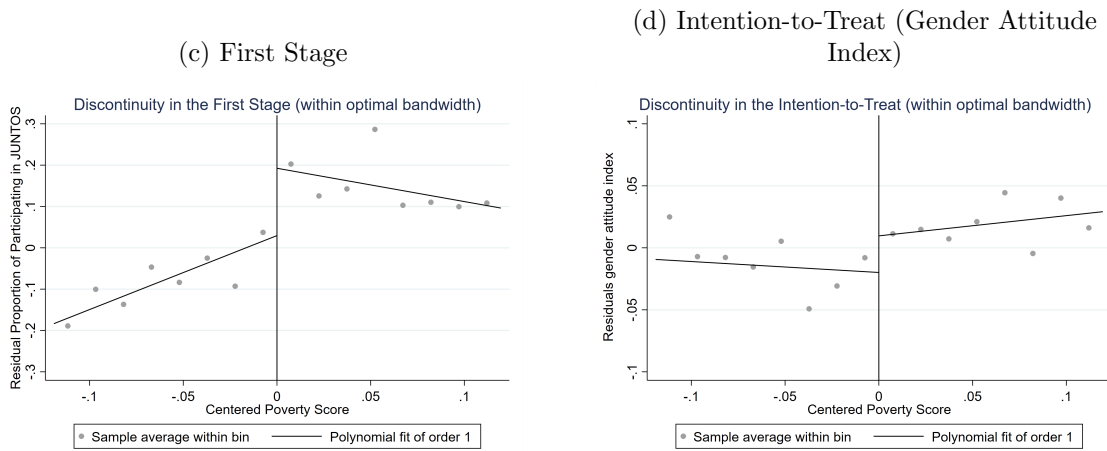
Appendix Figure A2. Comparison of Young Lives study's question with World Value Surveys in Peru and other Latin American countries



Appendix Figure A3. Comparison of Younger Cohort and Older Cohort in Round 5 - Young Lives (1: Strongly Disagree - 4: Strongly Agree)

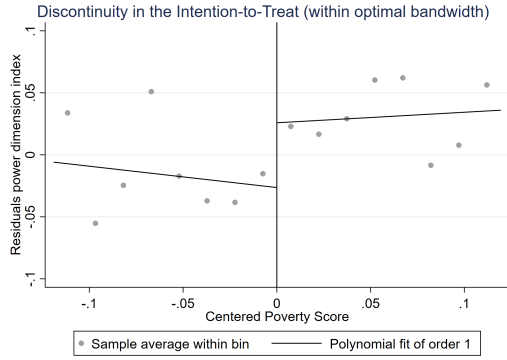


Appendix Figure A4. First Stage and Intention-to-Treat of Gender attitude index (within the optimal bandwidth)

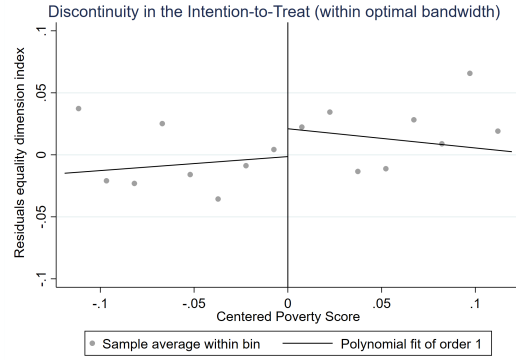


Appendix Figure A5. Intention-to-Treat of Power Dimension, Equality Dimension and Behavior Dimension (within the optimal bandwidth)

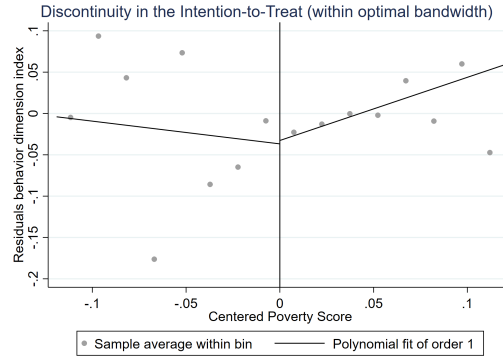
(a) Intention-to-Treat (Power Dimension)



(b) Intention-to-Treat (Equality Dimension)

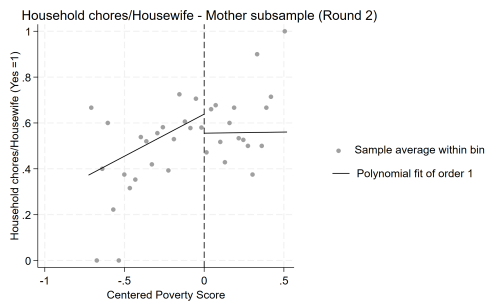


(c) Intention-to-Treat (Equality Dimension)

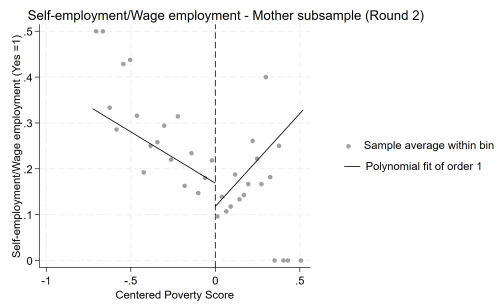


Appendix Figure A6. Discontinuity Test of Maternal Time Priorities Around the Threshold in Round 2

(a) Household chores/Housewife (Robust p-value: 0.137)



(b) Self-employment/Wage employment (Robust p-value: 0.229)



B Further Details on Constructing the Household Poverty Score

B.1 Household Poverty Score (2005-2011)

From 2005 to 2011, the Peruvian government conducted logistic regression analysis using household data sourced from the National Household Survey, specifically covering the period between 2001 and 2004:

$$Y = \alpha + \beta X + \mu \quad (5)$$

where $Y = 1$ if the household was consider as poor, and $Y = 0$ if the household was not poor. α is the constant, μ is the error term. X are explanatory variables including: `analf_m`, `edu_men`, `combust0`, `no_equip`, `serv3`, `tipom2`, `tipom3`, `tipom4`.

Below is the result of the regression:

Appendix Table B1. Result of the Logistic Regression

Variable	Coefficient
<code>analf_m</code>	1.1832 [12.66]***
<code>edu_men</code>	0.2276 [5.13]***
<code>combust0</code>	-0.7624 [12.84]***
<code>no_equip</code>	0.4446 [27.40]***
<code>serv3</code>	-0.3769 [3.23]***
<code>tipom2</code>	-0.2593 [5.55]***
<code>tipom3</code>	-0.8584 [14.86]***
<code>tipom4</code>	-1.3172 -1.3172
Constant	-1.3461 [12.48]***

The steps involved in producing the household poverty score are as follows:

1. Identifying the variables in the equation:

Appendix Table B2. The list of variables used to produce household poverty score

Variable	Definition
Total illiterate female adults	The sum of all female adults (over 18 years of age) in the household who do not know how to read and write
Total adults	The sum of all household members aged over 18
Total minors in school	The sum of all minors (below the age of 18) in the household who currently attends a regular educational center or program
Total minors	The sum of all minors (below the age of 18) in the household
analf_m	The ratio between total illiterate female adults and total adults
edu_men	The ratio between total minors in school and total minors
combust0	Equals 1 if the primary fuel used for cooking in the household is of industrial origin (gas, electricity, kerosene), and 0 otherwise.
no equip	The quantity of equipment unavailable within a household. The value ranges from 1 to 7, corresponding to the following appliances: black and white television, color television, refrigerator, electric iron, gas stove, motorized vehicle, and pedal-powered vehicle
serv3	The value ranges from 1 to 3, depending on whether the household has access to electricity connected to the grid, public network water supply, and sanitary toilet facilities.

The dummy variables tipom2, tipom3, and tipom4 correspond to housing type groups 2, 3, and 4, respectively, which result from distinct combinations of wall, roof, and floor materials. From an initial pool of 294 material combinations, 22 selections (91.1%) were chosen and organized into the subsequent variables:

Appendix Table B3. Housing type groups

Variable	Type	Wall material	Roof material	Floor material
Group 1	102	Adobe	Tiles	Land
	126	Adobe	Straw	Land
	294	Mat	Straw	Land
	210	Stone with mud	Straw	Land
	114	Adobe	Woven cane	Land
	168	Rushes covered with mud	Straw	Land
Group 2	108	Adobe	Calamine	Land
	150	Rushes covered with mud	Calamine	Land
	252	Wood	Straw	Land
	276	Mat	Calamine	Land
	113	Adobe	Woven cane	Concrete
	101	Adobe	Tiles	Concrete
Group 3	192	Stone with mud	Calamine	Land
	234	Wood	Calamine	Land
	107	Adobe	Calamine	Concrete
	250	Wood	Straw	Planks
	106	Adobe	Calamine	Planks
Group 4	24	Brick	Calamine	Land
	232	Wood	Calamine	Planks
	23	Brick	Calamine	Concrete
	5	Brick	Concrete	Concrete
	233	Wood	Calamine	Concrete

2. All the variables previously generated are multiplied by their corresponding coefficients obtained in the regression in Table B1. The result signifies the probability that a household is poor. Considering that poverty in the rural area stands at 65.9% in the household pool of 2001-2004, the threshold associated with that percentage is 0.7567447.

B.2 Household Poverty Score - IHF Index (2012 on-wards)

As described in Section 3, from 2012 and beyond, a new poverty score - *Indice de Focalizacion de Hogare (IFH index)* and 15 regional-specific thresholds were established following the integration of all social protection programs under MIDIS. The IFH index has a scale from 0 to 100, with higher scores indicating greater wealth. Below, I explain how the index is calculated.

Initially, the responsible entity utilized data from ENAHO 2009 to determine the collection of factors involved in the computation. They applied the Sommers test to assess the correlation between potential explanatory variables and a poverty measurement. Subsequently, they chose significant variables and implemented a Principal Component analysis targeting discrete variables. The selected variables, which were statistically significant at the 10% level in the Sommers test, fall into five categories, including: household assets, education, housing characteristics, labor and social security characteristics. Finally, they calculated the weights of each component variable in the equation. The method was applied separately across three geographic zones: the Lima Province, other urban areas, and all rural areas.

The equation to calculate the IFH index is as follows:

$$IFH_{ij} = v_{j1}X_{i1j} + \dots + v_{jp}X_{ipj} \quad (6)$$

where IFH_{ij} is the poverty score of household i in cluster j , X_{inj} is the n th selected variable in the computation in cluster j , v_{jn} is the corresponding weight of the variable X_{inj} in cluster j .

Table B4 provides the list of selected variables and their corresponding weights in three geographic areas. Using those weights, I can calculate the raw index IFH_{ij} and then I standardize the index to obtain the standardized index. The value range of the standardize index is between 0 and 100 in each cluster. The formula to standardize the raw index is as follows:

$$IFH'_{ij} = 100 * \frac{IFH_{ij} - IFH_j^{\min}}{IFH_j^{\max} - IFH_j^{\min}} \quad (7)$$

where IFH'_{ij} is the standardized IFH of household i in cluster j , IFH_j^{\min} and IFH_j^{\max} are the minimum and the maximum values of the raw IFH index in cluster j , respectively.

Appendix Table B4. Variables and weights to construct IFH index

Variables	Metropolitan Lima	Remaining urban areas	Rural areas
<i>Fuel used to cook</i>			
Do not cook	-0.49	-0.67	-0.76
Other	-0.40	-0.50	-0.38
Firewood	-0.37	-0.33	0.05
Carbon	-0.33	-0.22	0.36
Kerosine	-0.29	-0.19	0.37
Gas	0.02	0.12	0.52
Electricity	0.43	0.69	0.52
<i>Water supply in the home</i>			
Other	-0.78	-0.58	
River	-0.65	-0.42	
Well	-0.62	-0.37	
Water tanker	-0.51	-0.34	
Pipe	-0.41	-0.32	
Outside	-0.35	-0.25	
Inside	0.10	0.12	
<i>Wall material</i>			
Other	-0.70	-0.80	
Wood or mat	-0.48	-0.55	
Stone with mud	-0.44	-0.46	
Rushes covered with mud	-0.41	-0.43	
Clay	-0.39	-0.38	
Sun-dried brick or adobe	-0.37	-0.20	
Stones, lime or concrete	-0.33	-0.07	

Brick	0.10	0.25	
<hr/>			
<i>Type of drainage</i>			
None	-0.89	-0.68	
River	-0.75	-0.49	
Sinkhole	-0.59	-0.40	
Septic tank	-0.46	-0.30	
Drainage system outside the house	-0.39	-0.21	
Drainage system inside the house	0.10	0.20	
<hr/>			
<i>Number of members with health insurance</i>			
None	-0.26	-0.25	-0.10
One	-0.04	0.06	0.50
Two	0.06	0.17	0.59
Three	0.14	0.27	0.66
More than three	0.32	0.48	0.86
<hr/>			
<i>Goods that identify household wealth</i>			
None	-0.47	-0.35	-0.11
One	-0.17	0.05	0.64
Three	0.15	0.40	0.90
Four	0.25	0.52	1.09
Five	0.47	0.75	1.09
<hr/>			
<i>Has fixed phone</i>			
Yes	-0.32		
No	0.20		
<hr/>			
<i>Roof material</i>			
Other	-0.86	-0.90	
Straw	-0.74	-0.72	
Mat	-0.67	-0.62	
Woven cane	-0.38	-0.23	
Tiles	-0.23	0.03	
Wood or mat	-0.21	0.07	
Concrete	0.17	0.32	
<hr/>			
<i>Education of the Household head</i>			
None	-0.51	-0.57	-0.59

Preschool	-0.43	-0.25	-0.08
Primary	-0.28	0.01	0.35
Secondary	-0.06	0.19	0.59
Vocational education (VET)	0.10	0.33	0.68
Undergraduate	0.22	0.55	0.88
Postgraduate	0.40	0.55	0.88
<hr/>			
<i>Floor material</i>			
Other	-0.97	-1.12	
Land	-0.60	-0.47	
Concrete	-0.16	-0.01	
Wood	0.08	0.30	
Tiles	0.16	0.40	
Vinyl sheets	0.28	0.51	
Parquet	0.51	0.71	
<hr/>			
<i>Overcrowding</i>			
More than six	-0.68		
Between four and six	-0.51		
Between two and four	-0.31		
Between one and two	-0.07		
Less than one	0.24		
<hr/>			
<i>Highest level of education in the house</i>			
None			-0.35
Primary			0.11
Secondary			0.41
Vocational education (VET)			0.62
Undergraduate			0.83
<hr/>			
<i>Electricity</i>			
No			-0.29
Yes			0.22
<hr/>			
<i>Floor made of earth</i>			
Yes			-0.17
No			0.47
<hr/>			

Note: Taken from [SISFOH \(2010\)](#).

To determine whether a household is eligible, there are specific cluster thresholds. The households that have an index below or equal to the threshold are eligible for the Juntos program. Table B5 present the cluster-thresholds. The 15 clusters were obtained by combining areas with similar monetary poverty in 2009. Generally, each of these clusters comprises multiple geographically distinct areas that are not connected to each other.

Appendix Table B5. Eligibility Thresholds by Cluster (Taken from [SISFOH \(2010\)](#))

Cluster	Threshold	Population	Per capita income (soles)	Per capita spending (soles)	Poverty status
1	33	208,101	2,184	1,815	0.5159
2	36	1,907,122	2,116	1,697	0.5994
3	34	2,284,876	2,332	1,937	0.5404
4	38	2,646,680	2,282	1,916	0.5389
5	35	634,472	2,067	1,595	0.6410
6	34	212,723	5,941	4,045	0.2606
7	52	2,544,448	5,141	4,260	0.2565
8	42	2,134,993	5,667	4,428	0.2397
9	44	3,740,611	6,403	5,050	0.1352
10	50	2,229,638	5,997	4,673	0.1620
11	44	490,207	5,498	4,015	0.2725
12	43	101,993	8,632	4,638	0.1645
13	43	1,636,740	5,045	4,024	0.2116
14	33	93,527	8,961	6,178	0.0261
15	55	9,342,700	8,712	6,612	0.1546
Peru	-	30,208,831	5,793	4,501	0.2764

Note: Taken from [SISFOH \(2010\)](#).

C Variables Description

In this appendix, I provide further details on the list of items used to measure gender role attitudes (taken from Round 5 of the Child Survey).

Gender role attitudes. Indicate whether a child: Strongly disagree, disagree, agree, or strongly agree about each statement.

- (i) Swearing is worse for a girl than for a boy.
- (ii) On a date, the boy should be expected to pay all expenses.
- (iii) On the average, girls are as smart as boys.
- (iv) More encouragement in a family should be given to sons than daughters to go to college.
- (v) It is all right for a girl to want to play rough sports like football.
- (vi) In general, the father should have greater authority than the mother in making family decisions.
- (vii) It is all right for a girl to ask a boy out on a date.
- (viii) It is more important for boys than girls to do well in school.
- (ix) If both husband and wife have jobs, the husband should do a share of the housework such as washing dishes and doing the laundry.
- (x) Boys are better leaders than girls.
- (xi) Girls should be more concerned with becoming good wives and mothers than desiring a professional or business career.
- (xii) Girls should have the same freedoms as boys.

D Household Agreement with Juntos

Appendix Figure D1. Affiliated Household and Juntos Program Agreement Form (Adapted from Appendix E, Pages 77-78, [Huerta and Stampini \(2018\)](#))

Acuerdo de Compromiso

El/La representante del hogar

Señor / Señora																										
DNI n°									N° Celular																	
Dirección																										
Comunidad / Centro Poblado																										
Distrito																										
Provincia																										
Departamento																										

Y el PROGRAMA NACIONAL DE APOYO DIRECTO A LOS MÁS POBRES-JUNTOS, debidamente representado por su Jefe(a) de Unidad Territorial acuerdan asumir lo siguiente:

Representante del Hogar:

- Se compromete a participar en el Programa JUNTOS, y aceptar y cumplir las Condiciones Generales que se explican en este documento.
- Se compromete a asegurar que las gestantes, los niños, niñas y jóvenes de 0 hasta 19 años que integran su hogar, asistan y hagan uso de los servicios de salud y educación, según su edad.
- Se compromete a comunicar al Programa Juntos, cualquier cambio que sucediera en la información de su hogar y sus miembros.

JUNTOS:

- Se compromete a realizar la transferencia del incentivo monetario al hogar que cumpla con sus compromisos en salud y educación, y tenga la información actualizada de su hogar y sus miembros que la componen.

El representante del hogar declara que antes de firmar este Acuerdo de Compromiso, un intérprete o trabajador del Programa JUNTOS le ha explicado las Condiciones Generales en su lengua materna.

_____ Jefe (a) de Unidad Territorial Programa Nacional de Apoyo Directo a los más Pobres - JUNTOS		_____ Representante de Hogar		_____ Huella Digital
DNI	_____			
Fecha	____ / ____ / ____			

CONDICIONES GENERALES

Conste por el presente documento, el **Acuerdo de Compromiso** entre el Programa Nacional de Apoyo Directo a los Más Pobres-JUNTOS (en adelante Programa JUNTOS); y el representante del hogar elegido (en adelante EL/LA TITULAR), quien manifiesta su decisión de participar de manera voluntaria del programa, contar con DNI y aceptar las condiciones que se detallan a continuación:

Miembro objetivo del hogar:

El hogar debe contar con al menos un miembro objetivo. Los miembros objetivos son:
Gestantes,

Niños, niñas, adolescentes y jóvenes hasta que culminen la educación secundaria o cumplan diecinueve (19) años, lo que ocurra primero.

* El hogar debe informar al programa sobre la presencia de gestante en el hogar así como sobre el nacimiento de una niña, el ingreso o salida de un miembro objetivo del hogar.

Corresponsabilidades:

El / la TITULAR, asume el compromiso de asegurar que todos los miembros objetivos del hogar, asistan obligatoriamente a los servicios de salud y educación:

La gestante, debe asistir a todos los controles pre-natales, según como lo indica las normas del sector salud.

La gestante menor de 19 años, que no haya culminado la educación secundaria o primaria, debe además asistir a una Institución Educativa, para continuar educándose.

Los niños y niñas de 0 a 3 años, deben ser llevados a sus controles de Crecimiento y Desarrollo en el establecimiento de salud.

Los niños y niñas de 3 a 5 años, deben asistir a una institución educativa de nivel inicial o Programa No Escolarizado de Nivel Inicial (PRONOEI).

Los niños y niñas de 6 años hasta los 19 años de edad, deben asistir a una Institución Educativa hasta que culminen la educación secundaria.

El /la TITULAR autoriza al Programa JUNTOS, para efectuar visitas a su hogar y/o solicitar información a las instituciones públicas o privadas, para comprobar la información proporcionada por el hogar.

Transferencia del incentivo monetario

El incentivo monetario es un abono que recibe el /la titular al momento del ingreso al Programa por única vez y luego por cumplir las corresponsabilidades en salud y educación de todos los miembros objetivo del hogar. Este abono es de libre disponibilidad, por lo que no se exigirá a el/la TITULAR dar cuenta de ello.

Cuenta Bancaria para recibir el Incentivo Monetario

El/la TITULAR, autoriza al Programa JUNTOS a abrir una cuenta de ahorros a su nombre en una entidad financiera, para poder depositar el incentivo monetario y mantenerla hasta que el hogar se desafilie y presente saldo cero. **Todo titular tiene la obligación de mantener en reserva la clave secreta de su cuenta personal y no entregar a ninguna persona.** Así mismo, el/la titular autoriza a la entidad financiera a vigilar su cuenta de ahorros y/o revertir a favor del Programa Juntos, aquellas transferencias monetarias que hubiesen sido abonadas a su favor sin que le correspondiera.

Revaluación de la Clasificación Socioeconómica del Hogar

El Programa JUNTOS solicitará a la Unidad de Empadronamiento Local, la actualización o revaluación de la clasificación socioeconómica del Hogar Afiliado para comprobar su condición de pobreza, a fin de determinar su permanencia o articulación con otros programas sociales.

El Programa JUNTOS se reserva el derecho de dar por finalizado el presente acuerdo de compromiso con el/la TITULAR, en caso de que se verifique que el hogar ya no cumple con las condiciones y requisitos establecidos por el Programa.

Actualización de datos de hogar

El/la TITULAR, es responsable de comunicar inmediatamente al Gestor Local del Programa JUNTOS, a la plataforma de atención al usuario o línea 1880, cualquier información del hogar que haya cambiado, respecto de lo informado al momento de su afiliación. Esto incluye: 1. el hogar se trasladó a otro distrito o ya no reside en el mismo, 2. al menos, uno de sus miembros objetivo tiene alguna modificación en sus datos personales y/o cambió el lugar donde cumplirá su corresponsabilidad en salud o educación, 3. el titular del hogar falleció; 4. hubo un nacimiento reciente; 5. Hay una mujer gestante en el hogar; 6. El miembro objetivo deja de residir en el hogar.

Autorización al Programa:

El/la TITULAR, autoriza al Programa JUNTOS para que le envíen mensajes de texto y/o de voz a su celular relacionado a temas de salud, educación, nutrición, identidad, pagos y otros relacionados con el programa.

Servicio de Atención al Usuario:

El/la TITULAR, en caso tuviera alguna duda, consulta o queja sobre el Programa JUNTOS, puede comunicarse por teléfono a la Línea gratuita 18 80. También puede acudir al gestor Local de JUNTOS de su localidad, o la Unidad Territorial de JUNTOS de su Región o a las oficinas de Orienta MIDIS.