Cash is Queen

Impacts of conditional cash transfers on women's empowerment

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Abstract

This thesis investigates the causal effects of the Peruvian conditional cash transfer (CCT) program, Juntos, on women's empowerment defined along the psychological and familial dimensions. Usually, the main goal of CCTs is to reduce poverty. Women are key actors in the fulfillment of conditions and recipients of the transfer, and can thus also be affected by the program in terms of empowerment. This analysis is performed using data from three rounds of the Young Lives Study (YLS) between the years of 2006 and 2013. We estimate the effects by combining a Difference-in-Difference (DD) approach and the Propensity Score Matching (PSM) with Nearest Neighbor Matching (NNM). We look at the psychological dimension in terms of four aspects and construct the following outcome variables; *self-esteem*, *self-efficacy*, *outlook on future* and *value to others*. We also investigate the potential effect of the program on *domestic violence*. We find an increase in self-esteem and a reduction in domestic violence as a result of Juntos. We find some significant positive results for the remaining outcome variables but the findings are not robust. The results hold using the Inverse Probability of Treatment Weighting (IPTW) as an alternative way of matching.

Key words: *Conditional Cash Transfers, Women's Empowerment, Peru, Propensity Score Matching, Difference-in-Differences*

List of abbreviations

ATT - Average Treatment effect on the Treated

CCT - Conditional Cash Transfer

DD - Difference-in-differences

INEI - El Instituto Nacional de Estadística e Informática

IPTW - Inverse probability of treatment weighting

PROGRESA - Programa de Educación, Salud, y Alimentación

PSM - Propensity Score Matching

RCT - Randomized Control Trial

UN - United Nations

YLS - Young Lives Study

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1. Introduction

Peru is one of many Latin American countries that in recent years have implemented a conditional cash transfer program (CCT) with the purpose of reducing poverty. The programs consist of a conditional monthly transfer to mothers in poor households. The conditions are related to children's school attendance and health and have to be fulfilled in order to receive the money. Development economists have concluded that CCT programs can be seen as a successful tool in reducing poverty (Fizbein et al, 2009). A vast majority of development institutions also consider the empowerment of women to be a key issue in reducing poverty (Malhotra et al, 2002, UN Women, 2011). Thereto, the empowerment of women is seen as an important goal in itself to fight injustice (UN, 2017). Women in Juntos, the Peruvian CCT program, are directly given the transfers from the program. The conditionality of the program aims to achieve involvement of the beneficiary mothers in the decision-making of their living conditions (Molyneux, 2008). The extra income and the conditionalities give reason to look at the effects on women's empowerment. This thesis investigates the causal effects of the Peruvian CCT program Juntos on women's empowerment in terms of the psychological and familial dimensions. Our definitions of these dimensions, presented in detail in section 2.2, are drawn from the framework constructed by Malhotra and co-authors (2002). We look at the short-term effects on the beneficiary mothers.

Juntos has previously been evaluated in terms of fulfillment of the goals of the program, such as children's school attendance and nutrition level (Perova and Vakis, 2009). When evaluated in regards to women's empowerment, there have mainly been qualitative studies of Juntos (Valente, 2010, Molyneux, 2011). The effects of empowerment on the mothers receiving Juntos have only been investigated quantitatively by few researchers (Ritter 2014, Alcázar et al, 2016). Our thesis presents empirical results based on data never previously used in this context. Using multiple approaches, we provide robust findings on empowerment within the psychological dimension. This has to our knowledge previously never been done. Our findings could, together with existing literature on other countries

and settings, provide general understanding of the linkage between CCT programs and women's empowerment.

We construct outcome indicators for *self-esteem*, *self-efficacy*, *outlook on future*, *value to others* and *domestic violence* using longitudinal data from the Young Lives Study (YLS). The research question for our thesis is the following:

Does the Peruvian CCT program Juntos have a short-term effect on women's empowerment?

We estimate the effects by using a difference-in-differences (DD) approach, comparing the effects of the treated groups to a group that is not affected by the treatment over time. The targeting process of Juntos was not implemented with a randomized sampling. This poses a challenge establishing a proper control group in evaluations. To handle this, we use the algorithm of the targeting process of Juntos and take use of the Propensity Score Matching (PSM) approach to construct a proper control group. Due to lack of coverage, there could be potential beneficiaries that are eligible for Juntos but not enrolled (Linares Garcia IDR, 2009). Using PSM, we obtain a control group with similar probability of assignment to treatment as the treated group. The group of treated individuals is then compared to the control group using the DD approach. We look at both the effects of being a participant in the program in general as well as the effect of being a member for a certain period of time. We construct an additional model using the Inverse Probability of Treatment Weighting (IPTW) approach and perform ambitious robustness checks to validate our results.

We find positive results for women on the parameter self-esteem and a reduction in domestic violence as a result of being in Juntos. These results hold when performing several robustness checks. We also find that the program affects women differently depending on duration of time in the program. We find weakly significant positive results for the remaining indicators but they do not hold for all specifications so we are careful to draw conclusions based on this.

The outline of the thesis is as follows; section 2 provides the background for CCT programs, women's empowerment and the connection between the two concepts. Section 3 gives an overview of the Juntos program and its targeting process. Section 4 explains the data and empirical strategy. In section 5 we present the results and section 6 deals with robustness checks. In the final section, we discuss our findings and their implications.

2. Background

2.1 Conditional cash transfers (CCT)

The use of CCT programs has increased substantially since the first introduction in 1997, with Mexico implementing the program PROGRESA (Fizbein et al, 2009). Cash transfer programs target the poorest of society and contain requirements that need to be fulfilled by the beneficiaries in order to receive the transfer. Program design varies but the transfers are often paid to the mother of the household. The aim of CCT programs is to alleviate poverty in both the short run - offering monetary transfers to the beneficiaries, and the long run. Long run poverty is fought by raising the level of human capital among the children in the beneficiary households. By conditioning on health and education aspects, the programs can break intergenerational poverty patterns. Common education conditions are school enrollment and a certain amount of school attendance. Other common requirements are regular health check-ups and growth monitoring of young children. The mothers could also be required to attend regular information sessions and undergo prenatal health care.

Cash transfers programs exist both with and without conditions. One could justify conditionality if households are not investing enough in children's human capital or if human capital is valued too low. This argument could be divided into different aspects. Mainly, parents may have a lower expected value of the returns to schooling than the realized return. This has been shown in several studies (Fiszbein et al, 2009). Another argument put forward is that parents may discount future values more than they should, which also may lead to an underestimation of the returns to schooling. The conditionality of the transfer could be an incentive to break intergenerational patterns and put children to school.

As noted previously, the implementation design of CCTs differ among programs in several ways. CCT programs are often characterized by complex systems and are context specific. The beneficiary selection process varies between programs, though many use some sort of geographic targeting process. The routines of monitoring and evaluation of the programs

also vary among countries. Evaluating a CCT program could be challenging, depending on the construction of the program. Many programs are constructed in order to make evaluation with counterfactuals possible. Some of these programs use experimental methods (Fiszbein et al, 2009). The program Juntos was not implemented using a randomized selection process, which has impacts on the evaluation method used in this thesis. This is discussed later in section 4.

Evaluations performed on Juntos have shown that the program reduces poverty and increases health and education level, though there is room for improvement within the program (Perova and Vakis, 2012, Jones et al, 2008).

2.2 Women's empowerment

The concept of women's empowerment is by most institutions seen as a key element in the fight against poverty. One can find many reasons to why women's empowerment is important in this context. It is an important focus both because gender inequality in itself is a problem worth fighting for the sake of justice and because reducing gender inequality could lead to further gains, such as reduction of poverty (Malhotra et al, 2002). Women's empowerment is crucial for economic development, human rights, equality among all people and societies with strong institutions (UN Women, 2011).

There is a vast amount of definitions of women's empowerment and what to include in the concept. According to UN Women, empowerment implies the capacity to control one's own life, for instance through deciding on how to invest in one's human capital or the increase of self-confidence (UN Women, 2011). Malhotra and co-authors provide an overview of the empowerment literature. According to this overview, a common line of thought is that empowerment is a process of development. Further, they mean that empowerment consists of two components, agency and resources. A resource is something which enables empowerment, in other words, a tool. Agency, in this case refers to the fact that the women who are supposed to be empowered should be actors in the process

(Malhotra et al, 2002, Kabeer, 2005). The living conditions of women are of importance for empowerment to arise from these resources. Empowerment occurs when one goes from being deprived of making choices regarding their own life to being able to do so (Kabeer, 2005).

When measuring empowerment, one has to be aware of the contextual belonging. Empowerment is undoubtedly connected to the sociocultural context in the specific region or country. The meaning of empowerment in one country might not be empowerment in another country given different societal structures. Also depending on the specific society, efforts to empower will have different effects. Malhotra and co-authors exemplify this by the following ”[...] if investments in public health systems are strong, then women’s role as the intermediaries for their children’s health through better education or decision- making power in the household will be less important than when this is not the case.” (Malhotra et al, 2002: 17) Thus, when assessing women’s empowerment one has to include the factor of context (Malhotra et al, 2002).

Empowerment can be described through different dimensions. Gender inequality can differ between dimensions and empowerment in one dimension does not automatically imply empowerment in another. Malhotra and co-authors define these dimensions according to table 1. The dimensions are broad wherein one could find several sub-dimensions. When operationalizing these dimensions, one should keep in mind what level of aggregation the indicators regard. It is important to distinct between community, household and individual level. Furthermore, when measuring empowerment, it is important to note that it in practice could be hard to separate the different dimensions since they tend to overlap (Malhotra et al, 2002).

Table 1 - Dimensions of empowerment

Dimension	Description
Economic	Women's access to, control over and contribution of, money to the household. Female participation in the labor market. Female ownership of different assets, such as property or land. Female participation in economic policy debate
Socio-cultural	Freedom of movement Level of discrimination against women and girls Access to education for women and girls Participation in social spaces in society, female networks Positive visibility of women in media
Legal	Existence of laws supporting women's rights Communal efforts to enhance awareness of, and affect government's work on women's rights Women's knowledge of their own rights and the level of the domestic support for maintaining them
Familial	Participation in decisions made within the household Ability to affect decisions on sexual relations, fertility Domestic violence Ability to make own marital decisions Societal norms on marriage, divorce Legal and political rights on marriage and divorce Access to reproductive health care
Political	Knowledge of, and access to, the political system Participation in elections, voting as well as political candidacy Female representation in local and national government
Psychological	Individual sense of self-esteem, psychological health and self-efficacy Community awareness of injustice Societal acceptance of the inclusion of women

We will in this thesis use the definition above, drawn from the framework presented by Malhotra and co-authors (2002). The thesis mainly addresses the psychological dimension of women's empowerment and in a restricted manner also discusses the familial dimension as well. This is operationalized by investigating the sense of pride, ability, discrimination and outlook on future. We restrict the focus to empowerment on the individual level.

A common problem in measuring empowerment is the fact that it is a process. They claim that the best way to capture this process is to use data over time (Malhotra et al, 2002). We apply these guidelines in this thesis.

2.3 Conditional cash transfers and women's empowerment

The aim of cash transfer programs is primarily to reduce poverty, both in the short run and in the long run (de Janvry and Sadoulet, 2006). In most cases, the cash transfer programs are addressed to women, as is Juntos. The rationale behind this is that in a household, women tend to use resources in order to care for the children to a larger extent than men (Molyneux, 2008). The conditionality mechanisms of CCT programs are meant to incentivize beneficiaries to become active participants in decision-making regarding their living conditions, rather than being passive recipients of a benefit (Molyneux, 2008). Juntos follows the UN Millennium Goals, where the fourth goal regards women's empowerment (Juntos, 2017a). Increasing female empowerment is not the main reason for governments to implement cash transfer programs, however, since women are directly given extra resources there is reason to examine if their empowerment is affected.

Evaluations of the empowerment effects tend to be restricted to short term effects since data often is not available for a longer period of time (Molyneux, 2008). However, one should note that CCT programs have the possibility to affect women's empowerment both in the short run and in the long run. Short run effects are directly connected to the cash transfer - for example the increased amount of money controlled by the woman could raise her bargaining power within the household as well as raising her self-esteem (Soares and Silva, 2010, Valente, 2010). Long run effects refer to effects on the children, where the empowering effects come through educating daughters of the beneficiary mothers (Adato and Mindek, 2000). Due to data availability, this thesis focuses on the short-term effects.

The increased resources from a CCT program could possibly improve the beneficiaries' confidence level as well as give the beneficiaries opportunities to exchange experiences in networks created as results from these programs. These networks have the possibilities to strengthen women's participation in the community (Alcázar et al, 2016). Malhotra and co-authors stress that the psychological dimension of women's empowerment rarely has been researched (Malhotra et al, 2002) which might be due to lack of appropriate data. Regarding domestic violence, there are two different possible outcomes. The increased

amount of resources possessed by the woman could improve her bargaining power within the household and thus reduce the amount of domestic violence exposed to her. Another possibility is that a household member would use domestic violence as a way to obtain control over the woman's extra income (Perova, 2010).

It is important to note that CCT programs may have negative effects on women's empowerment depending on the pre-existing social conditions (Molyneux, 2008). When making women the sole beneficiaries of transfers meant to benefit children there is a risk of consolidating traditional gender roles within the household. Furthermore, these types of programs require time-consuming commitments from the beneficiaries. This means that women who receive the benefit have to disregard other daily tasks in order to fulfill the requirements of the program (Alcázar et al, 2016). Furthermore, one should differ between possible empowerment effects of an earned income and a benefit. Research has shown that the effect of increased earnings due to employment change the household status of women, but the effects of benefits are less clear (Molyneux, 2008).

As previously stated, though evaluation of CCT programs is common, there has been little research on their impact on women's empowerment. The research that has been done has to a large extent been qualitative, for example Molyneux (2008) and Adato and Mindek (2000). Research has often had a focus on bargaining power within the household, and this has shown mixed results (Molyneux, 2008). De Brauw and co-authors (2013) show that the Brazilian program Bolsa Familia has significant impact on women's empowerment in terms of decision-making. They also show that the effects are heterogeneous and mostly driven by households in urban areas. They do not find any significant increase in decision-making power in rural households. A quantitative evaluation of PROGRESA on rural families by Skoufias (2006) found that women experienced an increased level of empowerment in the terms of increased self-confidence and control over their movement and household resources. Quantitative research on Juntos has often been focused on domestic violence and decision-making, for instance by Ritter (2014). Alcázar and co-authors (2016) were first with a quantitative approach in evaluating effects of the Juntos

program on women's empowerment regarding the psychological dimension, also using the Young Lives database.

3. Juntos

3.1 Overview

The Peruvian CCT program Juntos was first launched in 2005 and rolled out during 2006. The program aims to reduce poverty in the short run as well as the long run. In the short run, poverty is reduced by the actual money transfer to the beneficiary household. The long run objective is to reduce intergenerational poverty by investing in the human capital of the children in the beneficiary households. Tackling child poverty is recognized as essential in order to reduce inequality and raising the living standard of the poorest of society. As many CCT programs, the transfer is directed to the mother of the household. As mentioned, this has been argued to be a successful approach since mothers more often than fathers use the money for children's care and needs (Fiszbein et al, 2009). The targeted households are poor with children under 14 years of age or with a pregnant mother. The mothers receive 100 Soles every month regardless of the number of children present in the household. The conditions consist of regular health visits for pregnant women and children less than 5 years old (including complete vaccinations for children). School attendance of at least 85 percent is required for children aged 6 to 14 that have not completed elementary education. Furthermore, the women need to attend different awareness-raising programs and complete identification documents for themselves and their children (Jones et al, 2008). The program was considered successful and today it covers communities all over Peru.

3.2 Program eligibility

Differing from other CCT programs, Juntos was not implemented with a randomized selection of beneficiaries. The targeting process of Juntos is extensive and performed in three stages; selection of beneficiary areas, selection of beneficiary households and lastly a community validation process. The targeting process has gone through small changes and improvements over the years but the main indicators remain the same (Linares Garcia IDR, 2009). In the first stage, areas are chosen based on previous exposure to violence, the percentage of households with two or more unsatisfied basic needs, poverty gap, the level

of child malnutrition and presence of extreme income poverty (Perova and Vakis, 2009). Some districts have been specifically targeted since poor rural areas were exposed to a lot of political violence between the years of 1980 and 2000. The indicators create a poverty index that determines which districts that are selected. In the first round of Juntos the implementation focused on rural households but was then expanded to households in various areas and today Juntos covers around 1300 districts (Juntos, 2017b). The second stage is performed at the household level, using an algorithm consisting of several indicators; the percentage of illiterate adult women within the household, percentage of minors attending regular education within the household, access to sources or fuel for cooking, number of artifacts absent in the household, provision of lighting, water and hygiene services in the household and indicators regarding the housing type and quality. The third stage consists of a community validation process. The eligible households are required to have a child younger than 14 years of age or a pregnant woman within the household. The household characteristics were collected in a survey conducted by Instituto Nacional de Estadística e Informática (INEI) and through this a proxy means formula was constructed to select the eligible households. However, the survey has experienced a large number of non-responses. This creates a potential loss of beneficiaries eligible for the Juntos program (Linares Garcia IDR, 2009). This can be seen as an advantage to this study since it enables us to construct a proper control group of the potential beneficiaries.

4. Empirical strategy

4.1 Data

The Juntos program does not provide public data on beneficiaries. We therefore use panel data from the YLS - a randomized longitudinal study following two cohorts, a younger born in 2001 and 2002 and an older born in 1994 and 1995, of children and their families over time. The study is performed in four countries where we use data from the Peruvian setting. This data provides information on whether the individual is a Juntos recipient or not. We use data from round two (2006), three (2009) and four (2013) to construct a pre- and post-treatment period of the Juntos program. We include only beneficiaries that received Juntos after 2006 to establish a pre-treatment period. Juntos was thus in force in two of our measuring points, in 2009 and 2013. The start of treatment varies between individuals, which imply that the post-treatment period starts at different times for different individuals. This has some implications for the construction of our regression equations and is addressed further in section 4.2. Furthermore, we only include respondents that are mothers and individuals that were included the whole sample period[1]. The focus of the YLS is to study the drivers of child poverty and generate information on how this can be addressed. Young Lives has therefore excluded the richest five percent of the districts in the sample to make it more pro-poor (YLS, 2011). This is an advantage to our study since the Juntos program is targeting the poorest of society. Questions are also asked to the mothers of the families, making it possible to follow them over the same period. They are asked about different aspects of empowerment such as self-esteem and self-efficacy. The variables are suited as outcome variables for the purpose of this study. Respondents are asked to react to statements and grade them according to a 5-point scale. The second round is conducted using a 3-point answer scale, making standardization necessary in order to analyze the data properly. We standardize the data both according to a 5-point scale and perform a robustness check by standardizing variables according to a 0 to 1 scale. The dataset contains information on whether the respondents were enrolled in Juntos at the time

[1] Some children fell out from the sample due to death, refusal to answer or that they were not

of the interview. The YLS also contains socio-economic variables suited for constructing the targeting process of Juntos (Boyden, 2006).

As stated in section 2.2 women's empowerment is a broad concept that can be divided into different dimensions. These consist of the economic, sociocultural, familial, legal, political and psychological dimensions (Malhotra et al, 2002). This thesis focuses on the effects on the psychological dimension of empowerment. We broaden the analysis by looking in a restricted manner at the familial dimension. This establishes a more comprehensive coverage of the different dimensions of empowerment. We create averages of the selected aspects within the dimensions. We then perform regressions on the outcome variables according to table 2;

Table 2 - Outcome variables of regression analysis[2]

PSYCHOLOGICAL DIMENSION				FAMILIAL DIMENSION
Self-efficiacy	***Self-esteem***	***Perception of one's value to others***	***Outlook on future life***	***Domestic violence***
If my child gets really sick I can do little to help him/her get better	I am proud of my clothes	When I am at the shops/market I am usually treated by others with fairness and with respect	I like to make plans for the future	If household member is drunk he becomes aggressive
I can do little to help my child do better in school, no matter how hard I try	The job I do makes me feel proud	Other people in my street/village look down on me and my family	If I try hard I can improve my situation in life	
	I feel proud of my children			
	I feel proud to show my friends or other visitors where I live			

[2] There was a change in the wording of the statement "I feel proud of my clothes" between rounds. The statement changed from being negative to affirmative. This is handled by reversing all answers from the first round. One should note that this might have affected the results, but since the change is made for all individuals we do not think that this would have biased our results. The two variables used to create the outcome variable "Perception of one's value to others" are asked differently, affirmative and negative respectively. In order for the outcome variable to show proper results, we reverse the data from "Other people in my street/village look down on me and my family" in order for the answers to go from negative to affirmative. We use a proxy for domestic violence, which is represented by the incidence of aggression within the household.

There are some data issues we need to consider. First of all, finding good data to measure women's empowerment is a challenge due to the complexity of the empowerment concept itself. As mentioned previously, empowerment contains many different dimensions that in practice often intertwine. Furthermore, it is hard to find panel data following same individuals over time, which is essential in order to measure the empowerment process. We use data that enables us to look at individuals over time and estimate the effects of some aspects of women's empowerment. The optimal setup for evaluation of women's empowerment would be to use indicators covering all dimensions but due to limitations in data resources, this is not possible for us.

Additionally, we use a dataset collected from interview surveys and thus risk encountering observational errors within the sample. Reasons for this could be respondents failing to remember the correct alternative, such as when a certain event occurred, or that questions of a sensitive nature are not responded to truthfully. The issue of observational errors could also arise from misinterpretation of questions asked during the interviews. Thirdly, the final round contains a large number of missing outcome values. This is handled by performing regressions both with and without the observations with missing outcome values and comparing the results to ensure robustness.

Lastly, The YLS alters research focus between the data collection rounds which causes some interview questions to stop being used from one round to another. This affected our study in the way that some of the data we used only was available for the years of 2006 and 2009. With data for these variables available for 2013 as well, we may have obtained different results than we do with the current data set.

4.2 Methodology

To calculate the treatment effects, we use a version of a DD approach. We perform the analysis in two steps. Due to the nature of the available data, we apply PSM in order to replicate the algorithm of the Juntos targeting process. After we establish a sample

including a treatment group and a control group we perform the DD analysis. By this, we estimate the average treatment effect on the treated (ATT).

4.2.1 Difference-in-Differences (DD) method

The DD method is a common approach to estimate treatment effects over time. It aggregates individuals into two groups, treatment and control group. The change in the outcome variable of the control group serves as a baseline to which the change in the outcome variable of the treatment group is compared. The difference between the change in the two groups is estimated - the difference in trends, which is the treatment effect (Angrist and Pischke, 2009). We obtain a DD estimator according to the following;

$$DD = \{[Y_{post}|Treat] - [Y_{pre}|Treat]\} - \{[Control] - [Y_{pre}|Control]\}$$

where Y represents different outcome variables, *Treat* identifies individuals in the treatment group. *Control* indicates individuals in the control group. Since the individuals in our sample receive treatment at different points in time we slightly alter our model from the standard DD model. We specify the regression according to equation 1:

$$y_{it} = \beta_0 + \beta_1 treatgr_i + \beta_2 pretreatment_t + \beta_3 Juntos_{it} + \alpha_i + \varepsilon_{it} \quad (1)$$

y_{it} represents different outcome variables related to women's empowerment. The variable $treatgr_i$ is a binary variable that indicates whether the individual belongs to the treatment group or not. Furthermore, $pretreatment_t$ is a dummy variable for whether or not the observation is in the pre-treatment period. The main variable of interest is the binary variable $Juntos_{it}$, which equals 1 if the individual belongs to the treatment group and is in the post-treatment period. We also include individual fixed effects, denoted by α_i. The pre-period varies for the beneficiaries. One person could feature more than once since we are pooling across different rounds. Therefore, we use individual fixed effect to ensure that our results do not pick up any unvarying feature of these women. To account for heteroscedasticity, we use clustered standard errors over districts (as defined by YLS),

assuming that standard errors are correlated within clusters but not between them. The DD estimator together with the constructed control group using PSM generates the average treatment effect on the treated (ATT).

The effects from enrollment in the Juntos program are likely to differ with time. To investigate this, we include another specification using year dummies representing the time period enrolled in the Juntos program. The regression for this estimation is specified according to equation 2.

$$y_{it} = \beta_0 + \beta_1 treatgr_1 + \beta_2 pretreatment_t + \beta_3 J_{it} + \alpha_i + \varepsilon_{it} \qquad (2)$$

The specification is similar to (1), but instead of the variable $Juntos_{it}$ we use J_{it} which denotes a set of dummies regarding the length of treatment time. The dummies range from receiving treatment one year to six years.

4.2.2 Propensity score matching (PSM)

The PSM method has experienced an increasing popularity the last decade. It was first introduced by Rosenbaum and Rubin (1983) and has been used in research in various fields using observational data (Caliendo and Kopeinig, 2008, Imbens, 2004). We use the technique of PSM to replicate the targeting process of Juntos to construct a proper control group and combine it with the DD method.

The targeting process of Juntos is not randomized, and the program was not implemented with a control group in order to enable evaluation with a randomized control trial (RCT) design. The nature of Juntos forces us to evaluate it as an observational study since the assignment of treatment can create biased results if not dealt with. We use the YLS data on characteristics of the individuals to create a control group. As Juntos is targeted to poor households, we expect beneficiary households to initially differ from non-beneficiaries even before treatment. If this is not handled, we risk assigning the differences in women's empowerment averages to the program falsely. The treatment group and the control group

will differ in essential characteristics and evaluations will give biased results if compared directly. PSM addresses the problem of selection bias and enables calculation of causal treatment effects (Austin, 2011). Furthermore, since the data available only has one measuring point for the pre-treatment period, we are unable to detect any positive pre-treatment trends. This would make it difficult to infer causality on differences detected by DD regressions. The PSM method deals with this by assuring that all individuals in the sample have similar characteristics before treatment. Thus, we are able to measure the treatment effect.

The propensity score estimates the probability of being assigned to a treatment given certain observed characteristics. It is defined as $p(X) \equiv E[X_i] = P[D_i = 1|X_i]$. Where D_i indicates treatment and X_i indicates the vector of covariates. The expected value of treatment equals the probability of being treated, given the set of covariates. Conditional on the observed covariates, potential outcome is independent of treatment (Angrist and Pischke, 2009, Imbens, 2004). For our model to hold and give unbiased results, the selection needs to depend solely on characteristics that can be observed. Secondly, all individuals have to hold a nonzero probability of being treated (Austin, 2011). We perform the matching using data from the pre-treatment period to avoid selection bias, ensuring that covariates included in the matching have not been affected by the treatment.

Our construction of the propensity score replicates the targeting process described in section 3.2. We create a probit model with covariates used to determine assignment to the Juntos program. These indicators include characteristics of the individual household, such as literacy, educational level, housing quality, access to water, sanitary facilities and what type cooking fuel that is used. Furthermore, we restrict our analysis to observations from the mountain region, excluding coastal and jungle regions. This because most of the beneficiaries of Juntos are located in the mountain region and due to the fact that the living conditions tend to differ substantially between different regions.

Table 3 display all variables used in the probit regression used to obtain propensity scores. The results of the propensity score regression are found in table A1 in the appendix.

Table 3 - Variables used to construct the propensity score

Targeting Process

Juntos	The outcome variable of the probit regression. Binary variable of whether the individual is (going to be) treated or not.
Services index	Based on household access to electricity, access to drinking water, sanitary facilities and whether cooking fuel is industrial or natural.
Consumer durables	Index regarding the number of assets owned by the household.
Access to electricity	Binary variable of whether or not the respondent has access to electricity
Access to drinking water	Binary variable of whether or not the respondent has access to drinking water
Building material of wall (adobe or mud)	Binary variable of whether or not the main building material of the walls contains adobe or mud
Building material of roof (natural)	Binary variable of whether or not the main building material of the roof is some kind of natural material, such as wood, bamboo or straw.
Toilet within household	Binary variable of whether or not the household has their own toilet facility
Cooking fuel (wood, cane or bamboo)	Binary variable of whether or not the main fuel used for cooking is wood, cane or bamboo.
Mother's literacy	Binary variable of whether the mother can read in her first language.
Education of child	Binary variable of whether or not the child has to some extent attended pre-school since the age of 3.

There are several different methods available for matching. We apply one of the most common methods, one-to-one nearest neighbor matching (NNM). Individuals in the treatment group are matched to the individual in the control group with the most similar propensity score. We perform the matching without replacement, meaning that the non-treated individuals can only serve as a control for one treated individual each. With replacement could result in one individual serving as a control for several treated individuals, if this is the best match to the treated individuals (Caliendo and Kopeinig, 2008). The main advantage of matching with replacement is that the variance is kept low at the cost of potential biases. However, matching with replacement keeps the bias low but

with a higher variance. Due to a fairly small available data set and a limited number of controls we apply the matching without replacement in order for the control group to be as large as possible. This since replacement may result a smaller sample of controls. We ensure that the order of matching is performed randomly to avoid biasedness (Caliendo and Kopeinig, 2008).

Furthermore, we confine the caliper distance of the pairing to 0.4 in order to avoid that the propensity scores of the matched individuals differ substantially. The caliper distance determines how different the propensity scores of two matched individuals are allowed to be (Austin, 2009). We set the caliper distance to maximize the size of the sample without having significant differences in characteristics between the treatment and control group. To ensure the robustness of this strategy we perform the propensity score matching with different caliper distances ranging from 0.36 to 0.44. The implication of this is further discussed in section 6. As can be seen in figures 1 and 2, the treated individuals differ significantly in baseline characteristics before matching. The density of the propensity score, representing the probability of treatment, is very different between the individuals that are receiving Juntos and the individuals in the control group before matching. After matching, our two groups are much more similar to each other. With matching, the observations that would potentially have biased our results are eliminated.

Figure 1 - Propensity scores of treatment group (Juntos) and non-treated before matching

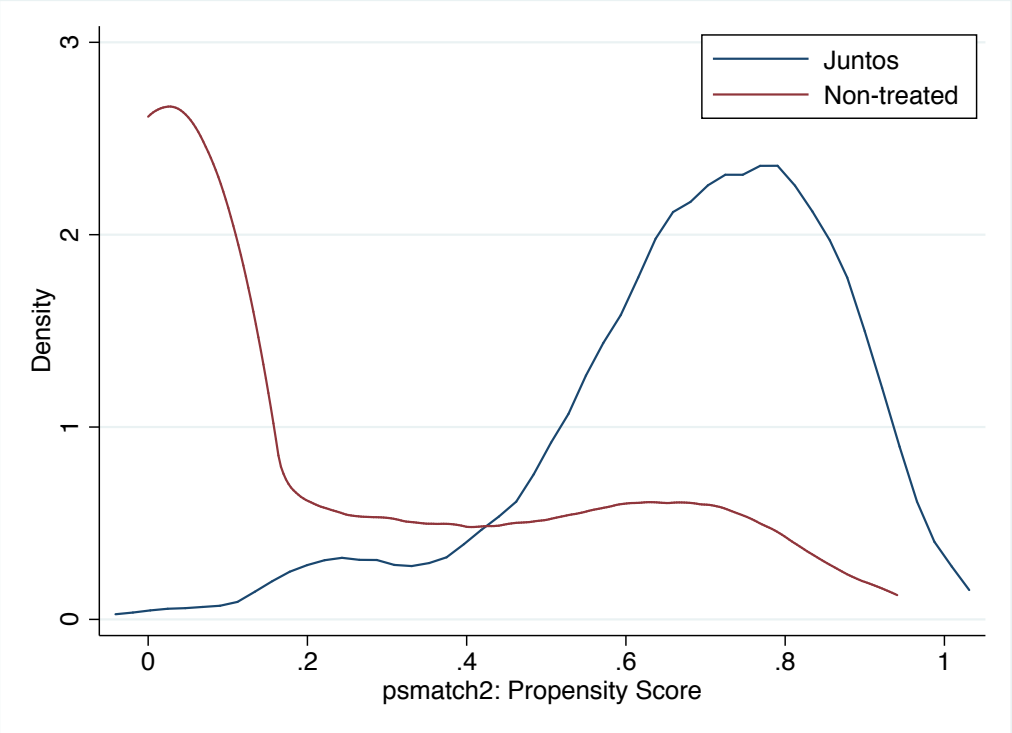
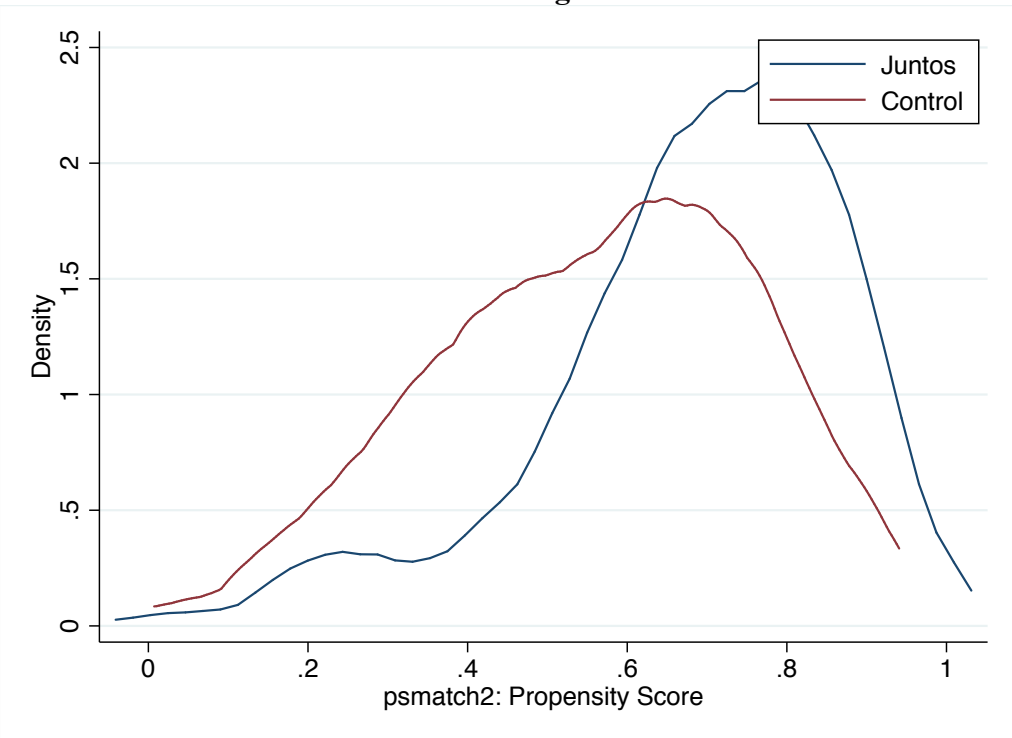


Figure 2 - Propensity scores of treatment group (Juntos) and control group after matching



We perform t-tests of the covariates to assure that the covariates are not significantly different after matching. The results can be found in table A2 in the appendix and show that before matching, several covariates differ between groups while our matched sample show no significant differences between the treated and the untreated individuals. T-tests on caliper distance of 0.36 and 0.44 can be found in table A3 in the appendix. The results from the tests show no significant difference between treatment and control group after treatment in these caliper distances either. To further ensure the robustness of our results we conduct regressions with the IPTW approach. Instead of creating a sample before performing the DD regression, as with NNM, we calculate propensity scores for each individual and assign the inverse as a weight when performing the DD regression (Austin, 2011).

5. Results

In this section we present our main results, presenting both the NNM and IPTW approaches. We find significant positive effect on *self-esteem* and a reduction in *domestic violence* using both equations. Thereto, we find weakly significant results for *outlook on future* and *value to others* as a result of participation in Juntos for one year. This result does not hold for both equations so we do not consider it to be very robust.

Table 4 shows the results for our main specification, equation (1), both with the NNM method as well as with the IPTW method. IPTW is performed to validate the results of our main approach (NNM). As previously mentioned, the variable of interest is Juntos. We find positive significant results on the *self-esteem* variable, which are found in columns (1) and (2). This is the case for both the NNM and the IPTW methods, and they are significant at the 5 % level. The results indicate that receiving Juntos increases the level of self-esteem, as defined in this thesis, of the beneficiaries. The extent of the effect varies between 2-5 percentage points using the two methods. The initial level of the beneficiaries is relatively high before treatment, 4,6, where 1 represents *Strongly disagree* and 5 represents *Strongly agree*. We also see a significant decrease in the incidence of domestic violence (column (9)). This indicates that being a Juntos beneficiary reduces the probability of experiencing domestic violence. The extent of the effect is large, around 30 percentage points. The average of the beneficiaries before treatment is at 2.0 on a scale of 1 to 5, where 1 indicates no incidence of aggression within the household and 5 represents frequent incidence of aggression. The results are only significant when using the NNM method and not the IPTW method, although one should note that the number of observations in the domestic violence regressions is quite low, below 500[3]. However, the shortfall is similar for treated and non-treated individuals so the number of individuals in each group is balanced. The regression performed on the variables *value to others* (column (3) and (4)), *self-efficacy* (column (5) and (6)) and *outlook on future* (column (7) and (8)) do not provide any significant results.

[3] We address this issue further by testing all empowerment indicators with a fixed sample in section 6.

Table 4 - Results of equation (1) using NNM and IPTW methods

VARIABLES	(1) NNM Self-esteem	(2) IPTW Self-esteem	(3) NNM Value to others	(4) IPTW Value to others	(5) NNM Self-efficacy	(6) IPTW Self-efficacy	(7) NNM Outlook on future	(8) IPTW Outlook on future	(9) NNM Domestic violence	(10) IPTW Domestic violence
Pre_treatment	0.666***	0.706***	0.545***	0.605***	0.181	0.0243	0.880***	0.888***	-0.389	0.0148
	(0.0460)	(0.0512)	(0.115)	(0.0919)	(0.179)	(0.129)	(0.0515)	(0.0402)	(0.328)	(0.406)
Juntos	**0.0747****	**0.217****	**0.0965**	**0.0113**	**0.208**	**0.292**	**0.0435**	**0.00524**	**-1.246***	**-0.841**
	(0.0287)	(0.0892)	(0.107)	(0.166)	(0.154)	(0.241)	(0.0338)	(0.0414)	(0.654)	(0.686)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,257	2,055	943	1,548	868	1,453	1,299	2,114	276	433
Number of individuals	473	776	475	780	473	776	475	780	212	333
R-squared	0.373	0.416	0.163	0.266	0.007	0.012	0.473	0.556	0.078	0.034

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5 shows results for equation (2), with both NNM and IPTW results. The results of these regressions are similar to those in table 4. When regressing on the variable *self-esteem*, columns (1) and (2), we find positive significant results for the variables *juntos_1_year* and *juntos_2_years* which indicate individuals who have been receiving Juntos for one and two years, respectively. We find positive significant results when using both methods. Once again, the extent of the effect varies. When using the NNM method, our main method, the results are significant at the 5 % level for the variable *juntos_1_year* and at the 10 % level for the variable *juntos_2_years*. When using the IPTW method both results are significant at the 5 % level. Using IPTW we also find significant positive results from being in Juntos for four years. However, this is not found in our main specification so we are careful to draw conclusions. We do not find significant results for the remaining three year groups when regressing on the variable self-esteem. These results indicate that receiving Juntos for one or two years positively affect self-esteem. It should be noted that the number of individuals who have received Juntos for more than two years is relatively few.

The data used to construct the variables *value to others*, *self-efficacy* and *domestic violence* is only available for 2006 and 2009. Therefore, since Juntos was first implemented in 2008, we can only calculate the effects of receiving Juntos for one or two years for these variables. When regressing on the variable *value to others* we find weakly positive significant results on receiving Juntos for one year using the NNM method. This result indicates that receiving Juntos for one year increases the beneficiary's perception of one's value to others. We do not find any other significant result when regressing on *value to others*, which indicates this finding is not very robust. Furthermore, we do not find any significant results when regressing on the variable *self-efficacy*.

We find weakly significant results of receiving Juntos for one year when regressing on the variable *outlook on future* using the NNM method. Since the results were not significant for any other variable or when using the IPTW method, and that the significance level on the *juntos_1_year* variable was 10 %, we do not consider this finding very robust.

When regressing on the *domestic violence* variable, we find negatively significant results on receiving Juntos for two years. The results from receiving Juntos for one year also show a reduction, but this is not significant. This indicates that the effects from being in the program, presented in table 1, are mainly driven by the women who have received Juntos for two years. This result is significant at the 5 % level for both the NNM and IPTW method, strengthening our findings.

Table 5 - Results of equation (2), NNM and IPTW methods

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	NNM	IPTW	NNM	IPTW	NNM	IPTW	NNM	IPTW	NNM	IPTW
VARIABLES	Self-esteem		Value to others		Self-efficacy		Outlook on future		Domestic violence	
Pre_treatment	0.660***	0.698***	0.545***	0.605***	0.181	0.0243	0.884***	0.895***	-0.389	0.0148
	(0.0509)	(0.0508)	(0.115)	(0.0919)	(0.180)	(0.129)	(0.0423)	(0.0343)	(0.328)	(0.406)
Juntos_1_year	**0.0557****	**0.209****	**0.287***	**0.0633**	**0.118**	**0.342**	**0.0721***	**0.00343**	**-0.889**	**-0.452**
	(0.0186)	(0.0853)	(0.154)	(0.230)	(0.176)	(0.300)	(0.0339)	(0.0423)	(0.869)	(0.897)
Juntos_2_years	**0.0832***	**0.189****	**-0.144**	**-0.126**	**0.328**	**0.140**	**0.0416**	**0.0395**	**-1.722****	**-1.393****
	(0.0426)	(0.0738)	(0.146)	(0.132)	(0.179)	(0.159)	(0.0426)	(0.0355)	(0.575)	(0.595)
Juntos_3_years	**0.118**	**0.198**					**-0.0689**	**-0.0342**		
	(0.178)	(0.143)					(0.140)	(0.136)		
Juntos_4_years	**0.00948**	**0.197****					**0.0884**	**0.175**		
	(0.0859)	(0.0671)					(0.146)	(0.193)		
Juntos_5_years	**0.0278**	**0.0979**					**0.0646**	**0.0194**		
	(0.137)	(0.147)					(0.173)	(0.143)		
Juntos_6_years	**0.0621**	**0.113**					**-0.00993**	**0.0589**		
	(0.0466)	(0.0861)					(0.211)	(0.200)		
Constant	3.983***	3.950***	3.743***	3.810***	2.088***	2.021***	3.895***	3.956***	2.605***	2.267***
	(0.0281)	(0.0291)	(0.0787)	(0.0667)	(0.117)	(0.0789)	(0.0215)	(0.0177)	(0.332)	(0.337)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,257	2,055	943	1,548	868	1,453	1,299	2,114	276	433
Number of individuals	473	776	475	780	473	776	475	780	212	333
R-squared	0.374	0.414	0.177	0.268	0.008	0.013	0.475	0.557	0.093	0.044

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6. Sensitivity analysis

We perform robustness checks to ensure that our results are not circumstantial. We include different models and specifications to make sure that the results are valid, performing five different robustness checks. First of all, the IPTW method presented in the previous section shows that the results hold using both the NNM and IPTW methods. Secondly, to account for the change in answering scale between rounds we perform regressions with two different answering scales to ensure that the results do not change between scale types. For the final three robustness checks, we validate our results by varying the sample sizes. Third, we perform the main regressions using both smaller and larger caliper distances for the NNM matching. Fourth, we perform standard DD regressions without fixed effects and using a smaller sample with the same individuals in all regressions. In the last robustness check we run the regressions only including observations from the younger cohort. This due to a substantial amount of missing values from the older cohort.

Since the answer scale changed between the years of 2006 and 2009, we had to standardize the scale for comparison. We calculate a standardized scale between 1 and 5 for our main regressions and perform a robustness check by standardizing the scale between 0 and 1 and performing the same regressions on these variables. The results are found in table A4 and A5 in the appendix and show the same effects on empowerment, regardless of what scale is used for the analysis.

The matching was performed using different caliper distances resulting in the sample size varying slightly. This is because we are able to match more treated individuals to non-treated individuals when the caliper distance is large rather than small. We perform equation (1) and equation (2), presented in section 4.2.1, for the caliper distances 0.36 and 0.44 and find that the results are very similar to our main results. These results are presented in table A6 in the appendix. This robustness check confirms our results that being a Juntos beneficiary has a significantly positive effect on *self-esteem* and decreases *domestic violence*. The latter result is only weakly significant, as in the main specification.

The results from regressing (2) using the NNM method with caliper distances 0.36 and 0.44 are found in table A7 in the appendix. Looking at the effects of being in Juntos during different time periods we find significant results for *self-efficacy* after two years in Juntos for both caliper distances. This is not found in our main specification. However, the significance is weak (p-value of 0.099) and not very different from our main results. We do not consider this to be a robust finding to address further. The results also show significant positive change in *outlook on future* at the 10%-level for being in Juntos for one year. This is valid for all caliper distances with the NNM method, however we do not find significant results when using the IPTW method. In line with our main results, we find significant decrease in *domestic violence* for individuals who have received Juntos for 2 years. We obtain significant positive results from the variable *value to others* after one year in Juntos in our main specification. This is not the case when performing the additional robustness checks (caliper 0.36) so we do not consider this result to be robust.

Our third robustness check includes using a standard DD equation without fixed effects for the years of 2006 and 2009. The equation is specified as follows:

$$y_{it} = \beta_0 + \beta_1 treatgr_i + \beta_2 post\_treatment_t + \beta_3 (treatgr_i * post\_treatment_t) + controls_{it} + \varepsilon_{it}$$

y_{it} represents the different outcome variables related to women's empowerment. The variable $treatgr_i$ is a binary variable, which indicates whether the individual belongs to the treatment or not. The variable $post\_treatment_t$ is a binary variable indicating if the observation is in the post-treatment period. Our variable of interest is $(treatgr_i * post\_treatment_t)$, a binary variable that equals 1 if the observation belongs to an individual in the treatment group in the post-treatment period. This variable shows the effect of the treatment. $controls_{it}$ indicates a vector of controls. We restrict the sample to those individuals who answered the question regarding domestic violence, since this is the variable with the least amount of observations. This enables us to analyze the effects on the same individuals on all aspects we are assessing. The results from these regressions are presented in table 6. The results are similar to those from our main regressions. The

significance levels differ from our main regressions but the direction of the results are all the same. The variable *self-esteem* is significant in line with our main results. The fact that the results are similar when the sample size changes strengthen our results.

Table 6 - Results from DD regressions of equation (1), small sample

VARIABLES	(1) Self-esteem	(2) Self-efficacy	(3) Value to others	(4) Outlook on future	(5) Domestic violence
treatgr*post_treatment	**0.115***	**0.307**	**0.0881**	**0.109***	**-0.319**
	(0.0684)	**(0.191)**	**(0.171)**	**(0.0583)**	**(0.452)**
treatgr	-0.153**	-0.171	0.0105	-0.105***	0.0241
	(0.0612)	(0.130)	(0.162)	(0.0349)	(0.314)
post_treatment	-0.715***	-0.370***	-0.442**	-0.904***	0.317
	(0.0416)	(0.143)	(0.192)	(0.0688)	(0.207)
Control for education	Yes	Yes	Yes	Yes	Yes
Control for ethnicity	Yes	Yes	Yes	Yes	Yes
Observations	272	252	276	275	276
Number of individuals	211	200	212	211	212

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In our main specification, we include both the younger and older cohorts of the YLS. Round three (2013) contains a large number of missing values from the older cohort since some questions were not asked that round. We conduct the DD analysis without the older cohort as well to further check the robustness of our findings. The results of these regressions are shown in table 7. Our findings are very similar to those of our main specification.

Table 7 - Results of equation (1) without older cohort

VARIABLES	(1) Self-esteem	(2) Self-efficiacy	(3) Value to others	(4) Outlook on future	(5) Domestic violence
Juntos	**0.0605****	**0.199**	**0.0769**	**0.0368**	**-0.882****
	(0.0266)	(0.199)	(0.117)	(0.0332)	(0.373)
pre_treatment	0.657***	0.105	0.577***	0.879***	-0.250
	(0.0444)	(0.209)	(0.105)	(0.0551)	(0.275)
Fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	1,088	689	764	1,121	212
R-squared	0.356	0.004	0.192	0.457	0.061
Number of individuals	385	383	385	385	169

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

7. Discussion

This thesis aims to estimate the effects of CCT programs on the psychological and familial dimensions of women's empowerment on an individual level. This is done by assessing the effects of the Juntos program in Peru. According to our findings, self-esteem increases when being a beneficiary of the Juntos CCT program. This is found through DD analysis together with a replication of the Juntos targeting process using PSM to find a control group that resembles our treatment group. We consider these results to be robust, as shown in our sensitivity analysis. Furthermore, in our main specification of equation (1) we find a significant decrease in domestic violence. Worth noting is that we use a proxy for violence. These results indicate that the psychological and familial dimensions of women's empowerment are positively affected by Juntos. On the other hand, we do not find significant results on several sub-dimensions of the psychological dimension. Therefore, we use caution when discussing the effects of CCT programs on women's empowerment on the psychological dimension.

The positive impact on self-esteem and the reduction in domestic violence could have several underlying causes. The increased level of income to the beneficiary might increase self-esteem since they are able to provide better for their family by buying food, clothes and improving their overall living conditions. The reduction in domestic violence could be a result of increased bargaining power of the woman, as stated in section 2.3. However, we did not find significant effects on several of our sub-dimensions within the psychological dimension of empowerment. The possible reasons for this are many. The fact that the increased resources come from a benefit rather than an earned income could be a reason to the weak significance of the increase in empowerment parameters such as self-efficacy, outlook on future and perception of one's value to others. How the beneficiaries use the transfer could possibly affect the level of empowerment within the psychological dimension. Whether the transfer is used for direct consumption or if it, for instance, is used to finance the start of a business could impact the level of self-efficacy or outlook on future.

Neither do we know if the conditionalities[4] attached to the program is the main driver of the impact, or if the woman's increased income is principal. How the transfer is used or how the conditions affect empowerment does not fall within the scope of this thesis, but our results indicate that CCT programs can function as tools for empowering women.

The results of equation (2), which assesses the effects of receiving Juntos for different length of time, show no significant results for being treated more than two years. The possible reasons for these are several. For instance, the number of individuals in the sample who received Juntos for three or more years are relatively few, so it is therefore hard to detect any significant change. Another possible reason is that beneficiaries are boosted when entering the program, but that the effect fades after a certain period of time. A third reason for this could be that the beneficiaries enrolled in Juntos for such a long time period were individuals among the first to receive Juntos. This implicates that they would be part of the absolute poorest of society. The living conditions for this group could thus be different. However, this is not a conclusion we can draw from our results.

As stated in section 2 the woman's participation in her empowerment process is key, so her decisions on how to use the transfer will most definitely affect the progression of empowerment. In section 2 we also noted that the socio-cultural context in which the CCT program exists will affect its impact on empowerment. The lack of significant results on some of our empowerment indicators could be due to the fact that the socio-cultural context of Peru in some way makes conditional cash transfers non-sufficient instruments for women's empowerment.

In order to capture the process of women's empowerment, the use of panel data including measuring points before treatment takes place is optimal. This limits us to use data previously collected, which is not perfectly customized to the requirements of our research. Our dataset was originally quite small and decreased as we adjusted it to meet the requirements of our research. A larger sample size would provide more accurate

[4] For instance educational programs and health visits

calculations, which of course would be preferable. However, the sampling of the YLS was performed to represent all of Peru, which indicates that the coverage of the data is good. Another reflection is that the program has been in use for four to eight more years after our analysis and it is likely that the effect of the program has changed since. More current data would therefore possibly have given different results.

There has not been much research performed on women's empowerment in the specific context of Juntos, nor the psychological dimension of women's empowerment in the context of CCT programs at large. Alcázar and co-authors (2016) find some positive impact on women's empowerment as a result of the Juntos program. They find positive significant results on self-esteem, but after being in Juntos for three years (Alcázar et al, 2016). These results are somewhat in line with our results. At the time of our study there were more data available than at the time of the study of Alcázar and co-authors, which might be a reason to the slightly different results. The methodology and the construction of the variable also differed between the two studies. Regarding our findings on domestic violence they are somewhat in line with the findings of Perova (2010) who conclude that the women who live in districts where Juntos is active experience a reduction in domestic violence. Ritter (2014) also finds a reduction in emotional and physical violence as a result of Juntos. Looking more broadly on the research of other CCT programs, there is some evidence of positive impact on women's empowerment, which our results are in line with. Soares and Silva (2010) provide a qualitative assessment and an overview of previous research on three CCT programs and gender inequalities. They conclude that there are some indications of positive impacts on women's empowerment, including on self-esteem, due to CCT programs. Skoufias (2006) who find that the Mexican CCT program PROGRESA positively affect women living in rural areas in regards of self-confidence.

As discussed in section 2 it is important to note that the study of CCT programs are complex since they tend to vary in program design and context they act in. Therefore, it can be somewhat difficult to draw conclusions on women's empowerment and CCT programs in a wider sense. We are thus hesitant to claim that these results have substantial external validity. However, the fact that previous research has shown similar results suggests that

our results are somewhat generally applicable. Additionally, it is worth mentioning that it is hard to conduct objective studies on women's empowerment. The responses are based on the respondents own subjective thoughts and it is hard to ensure objectiveness of the results. Questions are asked about parts of the women's lives that can be sensitive to the respondent. This is also a reason why empowerment is often evaluated quantitatively in terms of economic decision-making, since it is easier to quantify than subjective feelings and perceptions of self-esteem and self-efficacy. The structure of the data collected by the YLS provides the best currently available possibility to quantify the psychological dimension of empowerment. The findings of this thesis could thus be a contribution to the literature on empowerment in terms of the psychological dimension.

Juntos could possibly have heterogeneous effects depending on living areas or other factors. Due to data availability and limitation of time this is not further addressed in this thesis but there is some literature available on this from other CCT programs. This would be interesting to look at within the context of Juntos as well. Another aspect that would be interesting for further research is the long-term empowerment, which refers to the effects on the daughters of the mothers receiving the transfer.

In summary, we find significant positive results in several aspects of the psychological and in parts of the familial dimension. Juntos affects the self-esteem positively and we find evidence that Juntos reduces domestic violence, according to our definition. We find some positive results within other parts of the psychological dimension but these results vary between model specifications so we are hesitant to draw conclusions from these results.

References

Adato, Michelle, De la Briere, Benedicte, Mindek, Dubravka, and Quisumbing, Agnes (2000). The impact of Progresa on women's status and intrahousehold relations. Washington, DC: *International Food Policy Research Institute*.

Alcázar, Lorena and Espinosa, Karen (2016) 'Impacts of the Peruvian Conditional Cash Transfer Program on Women Empowerment: A Quantitative and Qualitative Approach' [Retrieved 2017-04-16] Available at: http://EconPapers.repec.org/RePEc:lvl:pmmacr:2016-25

Angrist, Joshua D. and Pischke, Jörn-Steffen (2009) 'Mostly Harmless Econometrics - An Empiricist's Companion' Princeton, NY: Princeton University Press

Austin, Peter C. (2009) 'The Relative Ability of Different Propensity Score Methods to Balance Measured Covariates Between Treated and Untreated Subjects in Observational Studies' *Medical Decision Making* Vol: 29 (6), pp 661-677 Article first published online: August 14, 2009; Issue published: November 1, 2009

Austin, Peter C. (2011) 'An introduction to propensity-score methods for reducing confounding in observational studies' *Multivariate Behavioral Research* Vol. 46, pp. 399-424

Boyden, J. (2014). Young Lives: an International Study of Childhood Poverty: Round 2, 2006. [data collection]. 2nd Edition. UK Data Service. SN: 6852, http://doi.org/10.5255/UKDA-SN-6852-2

Boyden, J. (2014). Young Lives: an International Study of Childhood Poverty: Round 3, 2009. [data collection]. 2nd Edition. UK Data Service. SN: 6853, http://doi.org/10.5255/UKDA-SN-6853-2

Boyden, J., Woldehanna, T., Galab, S., Sanchez, A., Penny, M., Duc, L.T. (2016). Young Lives: an International Study of Childhood Poverty: Round 4, 2013-2014. [data collection]. UK Data Service. SN: 7931, http://doi.org/10.5255/UKDA-SN-7931-1

Caliendo, Marco. and Kopeinig, Sabine. (2008). 'Some practical guidance for the implementation of propensity score matching'. *Journal of Economic Surveys*, Vol. 22(1), pp. 31□72.

De Brauw, Alan., Gilligan, Daniel O., Hoddinott, John, and Roy, Shalini. (2014). The impact of Bolsa Família on women's decision-making power. World Development, 59, 487-504. [Retrieved 2017-03-22] Available at: http://dx.doi.org/10.1016/j.worlddev.2015.02.001

De Janvry, Alain and Sadoulet Elisabeth (2006) ‘Making Conditional Cash Transfer Programs More Efficient: Designing for Maximum Effect of the Conditionality’ *World Bank Econ Rev* (2006) Vol. 20 (1): 1-29.

Fiszbein, Ariel, Schady, Norbert, Ferreira, Francisco H.G., Grosh, Margaret, Keleher, Niall, Olinto, Pedro, and Skoufias, Emmanuel. (2009). Conditional cash transfers : reducing present and future poverty. A World Bank policy 50 research report. Washington, DC: World Bank. [Retrieved: 2017-03-28] Available at: http://documents.worldbank.org/curated/en/914561468314712643/pdf/476030PUB0Cond101Official0Use0Only1.pdf

Imbens, Guido. (2004) ‘Nonparametric Estimation of Average Treatment effects under Exogeneity: A Review’ *The Review of Economics and Statistics,* 2004 Vol. 86(1) pp. 4-29

Jones, Nicola, Vargas, Rosana and Villar, Eliana (2008), ’Cash transfers to tackle childhood poverty and vulnerability: an analysis of Peru’s Juntos programme’ I*nternational Institute for Environment and Development (IIED)*. 255 Vol. 20(1): 255–273. [Retrieved 2017-05-24] Available at: http://journals.sagepub.com/doi/pdf/10.1177/0956247808089162

Juntos (2017a), ’Marco Normativo - Linieamientos De La Politica Social’ Ministerio de Desarollo y Inclusion Social. [Retrieved 2017-05-31] Available at: http://www.juntos.gob.pe/index.php/como-trabajamos/marco-normativo

Juntos (2017b), ‘Cobertura Geografica’ [Retrieved 2017-05-18] Available at: http://www.juntos.gob.pe/index.php/usuarios/cobertura-geografica

Kabeer, Naila. (2005). ‘Gender equality and women's empowerment: A critical analysis of the third millennium development goal’. *Gender & Development*, Vol. 13(1), pp. 13□24.

Linares Garcia IDR, 2009. Descripcion y diagnóstico de los instrumentos y ´ procesos vigentes de focalizacion y registro de beneficiaries del ´ programa Juntos. [Description and diagnosis of the existing instruments and processes of targeting and registration of Juntos program beneficiaries.] Washington (DC): Inter-American Development Bank; 2009 (in Spanish).

Malhotra, Anju, Schuler, Sidney Ruth and Boender, Carol (2002) ‘Measuring Women’s Empowerment as a Variable in International Development’ *World Bank*, Washington D.C. Available at: https://siteresources.worldbank.org/INTGENDER/Resources/MalhotraSchulerBoender.pdf

Molyneaux, Maxine (2008). Conditional cash transfers: A pathway to women´s empowerment? Pathways brief No 5. London, England: DFID. [Retrieved 2017-03-27] Available at: http://www.gsdrc.org/document-library/conditional-cash-transfers-a-pathway-to-womens-empowerment/

Molyneux, Maxine and Thomson, Marilyn (2011) 'Cash transfers, gender equity and women's empowerment in Peru, Ecuador and Bolivia' *Gender & Development* Vol. 19, No. 2, July 2011 ISSN 1355-2074 print/1364-9221 online/11/020195/18 – Oxfam GB 2011

Perova, Elizaveta. (2010). Buying out of abuse - how changes in women's income affect domestic violence. [Doctoral dissertation] [Retrieved 2017-06-01] Available at: http://escholarship.org/uc/item/2767982k

Perova Elizaveta and Vakis, Renos (2009) 'Welfare impacts of the "Juntos" Program in Peru: Evidence from a non-experimental evaluation' The World Bank [Retrieved 2017-06-01] Available at: http://www.juntos.gob.pe/modulos/mod_legal/archivos/Evaluacion_Cuasi-Experimental.pdf

Perova, Elizaveta, and Vakis, Renos. (2012). 5 years in Juntos: New evidence on short-term and long-term impacts of the program. *Economía*, Vol. 35(69) 53-82. [Retrieved 2017-04-23] Available at: http://revistas.pucp.edu.pe/index.php/economia/article/viewFile/2710/2654

Ritter, Patricia. (2014). ¿Más te quiero, más te pego? El efecto del programa Juntos en el empoderamiento de las mujeres dentro del hogar. Lima, Peru: *Instituto Nacional de Estadística e Informática* [Retrieved 2017-05-10] Available at: http://www.unfpa.org.pe/publicaciones/publicacionesperu/INEI-Efecto-Programa-Juntos-Empoderamiento-Mujeres.pdf

Rosenbaum, Paul R. and Rubin, Donald B. (1983) 'The Central Role of the Propensity Score in Observational Studies for Causal Effects' *Biometrika*, Vol. 70 (1). (Apr., 1983), pp. 41-55

Skoufias, Emmanuel (2006) 'PROGRESA y sus efectos sobre el bienestar de las familias rurales en Mexico', Washington, D.C, I*nternational Food Policy Research Institute (IFPRI)*, [Research report retrieved 2017-04-20] available at: https://www.ifpri.org/node/1952

Soares, Fabio Veras and Silva, Elydia (2010) 'Conditional cash transfer programmes and gender vulnerabilities in Latin America: Case Studies from Brazil, Chile and Colombia' London: *Overseas Development Institute* [Retrieved 2017-05-10] Available at: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6260.pdf

UN (2017), 'Gender Equality: Why it matters', United Nations [Retrieved 2017-07-10] Available at: http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/5_Why-it-Matters_GenderEquality_2p.pdf

UN Women (2011) 'Women's empowerment principles - equality means business' [Retrieved 2017-03-29] Available at: http://www.unwomen.org/-

/media/headquarters/attachments/sections/partnerships/businesses%20and%20foundations/women-s-empowerment-principles_en%20pdf.pdf?vs=1445

Valente, Rosana Vargas. (2010) ´Gendered risks, poverty and vulnerability in Peru. A Case Study of the Juntos Programme' *Overseas Development Institute*. [Retrieved 2017-05-30] Available at https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6246.pdf

YLS (2011) 'Young Lives Methods Guide Sampling' UK Data Archive Study Number 6852 - Young Lives: an International Study of Childhood Poverty: Round 2, 2006 [Retrieved 2017-04-10] Available at: http://doc.ukdataservice.ac.uk/doc/6852/mrdoc/pdf/6852methods_guide_sampling.pdf

Appendix

Table A1 - Results of propensity score regression

VARIABLES	(1) Juntos
Services index	-0.416
	(0.429)
Consumer durable index	-3.526***
	(0.517)
Access to electricity	0.301*
	(0.180)
Access to drinking water	0.103
	(0.121)
Building material of walls (adobe and/or mud)	0.807***
	(0.268)
Building material of roof (wood, bamboo or straw)	0.808***
	(0.284)
Toilet within household	0.00795
	(0.184)
Cooking fuel (wood, cane or bamboo)	1.088***
	(0.249)
Mother's literacy	-0.257***
	(0.0745)
Education of child	0.278**
	(0.126)
Constant	-0.648
	(0.425)
Observations	780

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A2 - T-test of propensity score covariates, caliper distance 0.4

Covariates		Mean		T-test
		Treated	Control	
Services index	Unmatched	0.43533	0.76566	-16.98
	Matched	0.50949	0.49367	0.58
Consumer durable index	Unmatched	0.1459	0.41433	-20.10
	Matched	0.20411	0.19198	0.95
Access to electricity	Unmatched	0.68139	0.88337	-7.16
	Matched	0.72152	0.72152	0.00
Access to drinking water	Unmatched	0.5205	0.35421	4.68
	Matched	0.4557	0.44937	0.11
Building material of walls (adobe and/or mud)	Unmatched	0.98107	0.64363	12.20
	Matched	0.96835	0.94304	1.09
Building material of roof (wood, bamboo or straw)	Unmatched	0.09464	0.03672	3.36
	Matched	0.01899	0.01899	0.00
Toilet within household	Unmatched	0.66562	0.88337	-7.66
	Matched	0.75949	0.75949	0.00
Cooking fuel (wood, cane or bamboo)	Unmatched	0.97476	0.42981	18.93
	Matched	0.94937	0.96835	-0.85
Mother's literacy	Unmatched	1.9811	2.6004	-11.11
	Matched	2.3924	2.3165	0.85
Education of child	Unmatched	0.69716	0.65011	1.37
	Matched	0.67089	0.65823	0.24

Note: The table shows the means of the characteristics of the matched and unmatched sample. The results from the t-tests are shown before and after matching.

Table A3 - T-test for propensity score covariates, caliper 0.36 (left) and 0.44 (right)

Covariates		Mean Treated	Mean Control	T-test
Services index	Unmatched	0.43533	0.76566	-16.98
	Matched	0.50812	0.48539	0.82
Consumer durable index	Unmatched	0.1459	0.41433	-20.10
	Matched	0.20725	0.18939	0.95
Access to electricity	Unmatched	0.68139	0.88337	-7.16
	Matched	0.71429	0.71429	0.00
Access to drinking water	Unmatched	0.5205	0.35421	4.68
	Matched	0.46104	0.45455	0.11
Building material of walls (adobe and/or mud)	Unmatched	0.98107	0.64363	12.20
	Matched	0.96753	0.94156	1.09
Building material of roof (wood, bamboo or straw)	Unmatched	0.09464	0.03672	3.36
	Matched	0.01948	0.01948	0.00
Toilet within household	Unmatched	0.66562	0.88337	-7.66
	Matched	0.75325	0.75325	-0.00
Cooking fuel (wood, cane or bamboo)	Unmatched	0.97476	0.42981	18.93
	Matched	0.94805	0.97403	-1.18
Mother's literacy	Unmatched	1.9811	2.6004	-11.11
	Matched	2.3766	2.3247	0.57
Education of child	Unmatched	0.69716	0.65011	1.37
	Matched	0.66234	0.66234	-0.00

Note: The table shows the means of the characteristics of the matched and unmatched sample. The results from the t-tests are shown before and after matching.

Covariates		Mean Treated	Mean Control	T-test
Services index	Unmatched	0.43533	0.76566	-16.98
	Matched	0.50613	0.49693	0.34
Consumer durable index	Unmatched	0.1459	0.41433	-20.10
	Matched	0.1999	0.19734	0.20
Access to electricity	Unmatched	0.68139	0.88337	-7.16
	Matched	0.72393	0.73006	-0.12
Access to drinking water	Unmatched	0.5205	0.35421	4.68
	Matched	0.44785	0.44172	0.11
Building material of walls (adobe and/or mud)	Unmatched	0.98107	0.64363	12.20
	Matched	0.96753	0.94156	1.32
Building material of roof (wood, bamboo or straw)	Unmatched	0.09464	0.03672	3.36
	Matched	0.01948	0.01948	-0.38
Toilet within household	Unmatched	0.66562	0.88337	-7.66
	Matched	0.75325	0.75325	-0.00
Cooking fuel (wood, cane or bamboo)	Unmatched	0.97476	0.42981	18.93
	Matched	0.94805	0.97403	-0.54
Mother's literacy	Unmatched	1.9811	2.6004	-11.11
	Matched	2.3766	2.3247	1.12
Education of child	Unmatched	0.69716	0.65011	1.37
	Matched	0.66234	0.66234	0.23

Note: The table shows the means of the characteristics of the matched and unmatched sample. The results from the t-tests are shown before and after matching.

Table A4 - Results of equation (1), standardized outcome variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	NNM	IPTW	NNM	IPTW	NNM	IPTW	NNM	IPTW	NNM	IPTW
VARIABLES	Self-esteem		Value to others		Self-efficacy		Outlook on future		Domestic violence	
Pre_treatment	0.167***	0.176***	0.136***	0.151***	0.0452	0.00608	0.220***	0.222***	-0.0972	0.00369
	(0.0115)	(0.0128)	(0.0287)	(0.0230)	(0.0449)	(0.0324)	(0.0129)	(0.0100)	(0.0819)	(0.101)
Juntos	**0.0187****	**0.0543****	**0.0241**	**0.00283**	**0.0521**	**0.0730**	**0.0109**	**0.00131**	**-0.312***	**-0.210**
	(0.00716)	(0.0223)	(0.0269)	(0.0414)	(0.0385)	(0.0603)	(0.00844)	(0.0104)	(0.164)	(0.171)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,257	2,055	943	1,548	868	1,453	1,299	2,114	276	433
Number of individuals	473	776	475	780	473	776	475	780	212	333
R-squared	0.373	0.416	0.163	0.266	0.007	0.012	0.473	0.556	0.078	0.034

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A5 - Results of equation (2), standardized outcome variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	NNM	IPTW	NNM	IPTW	NNM	IPTW	NNM	IPTW	NNM	IPTW
VARIABLES	Self-esteem		Value to others		Self-efficacy		Outlook on future		Domestic violence	
Pre_treatment	0.165***	0.151***	0.136***	0.151***	0.0452	0.00608	0.221***	0.224***	-0.0972	0.00369
	(0.0127)	(0.0230)	(0.0287)	(0.0230)	(0.0449)	(0.0324)	(0.0106)	(0.00858)	(0.0820)	(0.102)
Juntos_1_year	**0.0139****	**0.0522****	**0.0717***	**0.0158**	**0.0296**	**0.0856**	**0.0180***	**0.000857**	**-0.222**	**-0.113**
	(0.00466)	(0.0213)	(0.0385)	(0.0575)	(0.0439)	(0.0751)	(0.00848)	(0.0106)	(0.217)	(0.224)
Juntos_2_years	**0.0208***	**0.0472****	**-0.0360**	**-0.0316**	**0.0820**	**0.0350**	**0.0104**	**0.00987**	**-0.431****	**-0.348****
	(0.0106)	(0.0185)	(0.0366)	(0.0329)	(0.0448)	(0.0397)	(0.0107)	(0.00887)	(0.144)	(0.149)
Juntos_3_years	**0.0294**	**0.0496**					**-0.0172**	**-0.00855**		
	(0.0444)	(0.0358)					(0.0349)	(0.0339)		
Juntos_4_years	**0.00237**	**0.0493****					**0.0221**	**0.0437**		
	(0.0215)	(0.0168)					(0.0364)	(0.0482)		
Juntos_5_years	**0.00694**	**0.0245**					**0.0162**	**0.00486**		
	(0.0343)	(0.0368)					(0.0433)	(0.0356)		
Juntos_6_years	**0.0155**	**0.0282**					**-0.00248**	**0.0147**		
	(0.0117)	(0.0215)					(0.0527)	(0.0500)		
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,257	2,055	943	1,548	868	1,453	1,299	2,114	276	433
Number of individuals	473	776	475	780	473	776	475	780	212	333
R-squared	0.374	0.414	0.177	0.268	0.008	0.013	0.475	0.557	0.093	0.044

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A6 - Results of Equation (1) using caliper distances 0.36 and 0.44

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Caliper 0.36	Caliper 0.44	Caliper 0.36	Caliper 0.44	Caliper 0.36	Caliper 0.44	Caliper 0.36	Caliper 0.44	Caliper 0.36	Caliper 0.44
VARIABLES	Self-esteem		Value to others		Self-efficacy		Outlook on future		Domestic violence	
Pre_treatment	0.664***	0.665***	0.537***	0.562***	0.198	0.190	0.879***	0.879***	-0.389	-0.389
	(0.0462)	(0.0445)	(0.116)	(0.114)	(0.181)	(0.177)	(0.0502)	(0.0494)	(0.328)	(0.328)
Juntos	**0.0728****	**0.0740****	**0.0888**	**0.114**	**0.225**	**0.218**	**0.0469**	**0.0427**	**-1.246***	**-1.246***
	(0.0283)	(0.0280)	(0.108)	(0.107)	(0.155)	(0.152)	(0.0350)	(0.0321)	(0.654)	(0.654)
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,250	1,269	937	953	862	878	1,291	1,311	275	278
Number of individuals	470	478	472	480	470	478	472	480	211	214
R-squared	0.371	0.375	0.160	0.169	0.008	0.007	0.474	0.475	0.078	0.078

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A7 - Results of Model 2 using caliper distances 0.36 and 0.44

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Caliper 0.36	Caliper 0.44	Caliper 0.36	Caliper 0.44	Caliper 0.36	Caliper 0.44	Caliper 0.36	Caliper 0.44	Caliper 0.36	Caliper 0.44
VARIABLES	Self-esteem		Value to others		Self-efficacy		Outlook on future		Domestic violence	
Pre_treatment	0.657***	0.659***	0.537***	0.562***	0.198	0.190	0.888***	0.883***	-0.389	-0.389
	(0.0512)	(0.0493)	(0.116)	(0.114)	(0.181)	(0.177)	(0.0436)	(0.0400)	(0.328)	(0.328)
Juntos_1_year	**0.0538****	**0.0551****	**0.279**	**0.304***	**0.135**	**0.128**	**0.0752***	**0.0713***	**-0.889**	**-0.889**
	(0.0184)	(0.0184)	(0.154)	(0.154)	(0.176)	(0.174)	(0.0352)	(0.0327)	(0.869)	(0.869)
Juntos_2_years	**0.0811***	**0.0825***	**-0.152**	**-0.127**	**0.345***	**0.338***	**0.0450**	**0.0406**	**-1.722****	**-1.722****
	(0.0423)	(0.0417)	(0.147)	(0.147)	(0.181)	(0.176)	(0.0434)	(0.0411)	(0.575)	(0.575)
Juntos_3_years	**0.116**	**0.117**					**-0.0656**	**-0.0698**		
	(0.178)	(0.177)					(0.140)	(0.139)		
Juntos_4_years	**0.00745**	**0.00883**					**0.0918**	**0.0875**		
	(0.0861)	(0.0851)					(0.146)	(0.146)		
Juntos_5_years	**0.0256**	**0.0271**					**0.0681**	**0.0637**		
	(0.137)	(0.137)					(0.173)	(0.173)		
Juntos_6_years	**0.0599**	**0.0614**					**-0.00629**	**-0.0109**		
	(0.0463)	(0.0461)					(0.211)	(0.210)		
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,250	1,269	937	953	862	878	1,291	1,311	275	278
Number of individuals	470	478	472	480	470	478	472	480	211	214
R-squared	0.371	0.375	0.174	0.183	0.010	0.009	0.475	0.476	0.093	0.093

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1