Welfare impacts of the "Juntos" Program in Peru: Evidence from a non-experimental evaluation

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Executive summary

This study presents the first quantitative impact evaluation of the Juntos conditional cash transfer program in Peru using non-experimental evaluation techniques. Overall, the analysis suggests that Juntos is improving a number of key welfare indicators of program beneficiaries. Specifically, Juntos has a moderate impact in reducing poverty and increasing monetary measures of both income and consumption. In addition, and similar to evidence from other countries, the program increases the utilization of health services for both children and women, and it improves nutritional intake of program households. In education, the analysis shows that as in other CCT contexts where primary school attendance is high, Juntos has impacts mainly at transition points, ensuring that children enter and finish primary school. The majority of these indicators are also increasing with the length in the program. There is also no evidence to suggest that the program creates unintended effects in a number of potential areas (reduction in adult work, increases in fertility rates or consumption of alcohol). Despite these positive effects, no impacts are found on final outcomes indicators such as malnutrition or anemia. This result is consistent with the international experience, which suggests that for these types of impacts, CCT schemes need to be complemented by adequate supply of health services (in both quantity and quality) as well as interventions that can better promote health and education practices. In this sense, the potential of Juntos to improve on these areas remains untapped.

Resumen Ejecutivo

Este estudio presenta los primeros resultados cuantitativos de evaluación de impacto del programa Juntos en Perú. La evaluación, elaborada por el Banco Mundial encuentra que el programa Juntos tiene impactos positivos en varias dimensiones de bienestar. Primero, Juntos tiene un impacto sobre pobreza, ingresos y consumo. En las áreas de nutrición y salud, hay un aumento significativo en la utilización de servicios de salud y mejoras en gastos de alimentos de mayor calidad nutritiva. Tercero, tal como en países con tasas altas de asistencia como en Perú, los impactos de Juntos en educación (matrícula e asistencia) se encuentran más en años de transición. Finalmente, el programa Juntos no genera comportamientos no deseados relacionados con cambios en mal uso del dinero (alcohol), la tasa de fecundidad o disminución en la participación laboral de adultos. Aun así, la evaluación después de dos anos del programa no encuentra todavía impactos en indicadores finales (nutrición infantil, anemia, desarrollo cognitivo). Este es un resultado consistente con la experiencia internacional en que para estos impactos se requiere complementar con una oferta de salud adecuada (en cantidad y calidad) e intervenciones que promueven mejoras en practicas de salud (por ejemplo educación sobre nutrición infantil). En ese sentido, existen varias áreas y espacio para mejorar y explotar el potencial de Juntos.

1. Introduction

Peru's conditional cash transfer (CCT) program, JUNTOS, commenced in 2005. It has since grown from operating in 110 districts and covering about 37,000 households, to 638 districts and about 454,000 households.[2] The Program ultimately plans to expand to all 880 of the poorest districts in Peru.

Despite the great success of CCT programs around the world in the last decade, the introduction of Juntos as one of Peru's flagship social programs has received mixed reactions. Partly, this was due to the fact that the debates have been centered around political discussions and not on the actual evidence of its merits. Unfortunately, Juntos did not integrate a systematic impact evaluation in its initial design. As such, little quantitative information has been known about the impact of Juntos and its ability to achieve its key objectives of reducing poverty and building human capital. To respond to these gaps, the World Bank provided an umbrella of technical assistance inputs to the Government of Peru and the Juntos team with the overall objective to produce evidence of whether Juntos is having the expected impact and to provide recommendations on how to improve it.[3]

Based on the above, this study provides the first quantitative impact evaluation of the Juntos program. Specifically, the study explores available data sources to construct a dataset which can be used to evaluate the impact of Juntos on beneficiaries during 2006 and 2007. As such, the study provides key inputs about Juntos's impacts and complements parallel qualitative work to explore implementation constraints and gaps.

The study is organized as follows. Section 2 provides a description of the Juntos program and its main components. Section 3 develops the econometric methodology used to make causal inferences

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[2] Associated budget expenditures increased from 116 million soles in 2005 to 344 million soles in 2008.

[3] This was a multi-institutional effort with a team comprising from Government agencies (CIAS, MEF, MINSA, MINEDUC, INEI) and other local and international institutions (IADB, UNICEF, GRADE).

about the impact of Juntos on welfare indicators. Section 4 presents the results, while section 5 concludes.

2. Program description

2.1 Program objectives

As with all Conditional Cash Transfer (CCT) programs, Juntos integrates two broad objectives: (i) in the short run, to reduce poverty by providing households with cash transfers; and (ii) in the long run, to break the intergenerational transmission of poverty through promotion of human capital via improved access to education (aimed at increasing primary school attendance, decrease in drop-out rate and decreases in child labor) and health services (aimed at decreasing in infant and child malnutrition; decreases in infant and mother mortality; decreases in child, infant, prenatal and postnatal morbidity; and increases in the percentage of births with medical assistance).

2.2. Program components and conditions

The program achieves these objectives through the provision of eligible households with a monthly cash transfer of S./ 100 (soles).[4] Unlike other CCT programs this is a lump -sum payment and does not differ across households (e.g. with a different number of children). Nonetheless, in order to receive this payment, households need to comply with a number of requirements. These "conditionalities" vary depending on the age and gender of the beneficiaries, and are listed in Box 1:[5]

Box 1: Program conditionalities

For children under 5 years:	Attend regular health and nutrition controls (for periodic monitoring of height and weight, complete series of vaccinations, iron and Vitamin A supplements and anti-parasite checks)
For children 6-14 years with primary school incomplete:	School attendance at least 85% of the school year
For pregnant and breast-feeding mothers:	Attend prenatal and post-natal checks (tetanus vaccination, folic acid and iron supplements and anti-parasite checks)

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[4] Around $30.

[5] Additional details on Juntos' components and conditionalities can be found at: www.juntos.gob.pe.

2.3. Program eligibility

The selection of the beneficiary households is comprised of three stages: selection of eligible districts, selection of eligible households within the eligible districts and finally a community level validation which finalizes the actual beneficiary list. At the first stage, participating districts were selected on the basis of the five criteria: (i) exposure to violence; (ii) poverty level, measured as a proportion of population with unsatisfied basic needs; (iii) poverty gap; (iv) level of child malnutrition; and (v) presence of extreme income poverty.[6] 638 districts were selected on basis of these criteria. Rolling out of the program was carried out in several stages, starting with the districts most severely affected by violence and with higher rates of extreme poverty. Table 1 contains the list of departments and dates of enrollment in the program.

In the second stage, a census of all households in each of the eligible districts was collected by the Instituto Nacional de Estadística e Informática (INEI). Using these data, a proxy means formula was applied to determine household eligibility based on poverty. In addition, and given that the primary focus of the program is on young children and pregnant mothers, only households with children under 14 years or a pregnant woman were selected. Finally, a community validation exercise was implemented to finalize the list of eligible households. This was done by community members, local authorities and representatives of the Ministry of Education and Health with the aim of minimizing both inclusion and exclusion errors.

3. Impact evaluation methodology

Unfortunately, an impact evaluation framework was not incorporated in the design of Juntos at the beginning of the program. As such, the feasibility to evaluate the impact of the program depends on any existing data on program beneficiaries and the possibility to credibly construct counterfactual control groups through the use of econometric techniques. This section describes the data and estimation methodology used to accomplish this.

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[6] This information comes from various sources including Ministry of Economy and Finance, FONCODES poverty map, reports of the Truth and Reconciliation Commission and the national census.

3.1. Data

A number of data sources can be combined to facilitate a non-experimental impact evaluation. First, the household survey Encuesta Nacional de Hogares (ENAHO) allows the identification of individuals who participated in Juntos in 2006 and 2007. This is a continuous survey (annual) and contains rich data on household consumption and spending patterns, household assets, education, health and civic participation of household members. Based on this, 1,262 ENAHO households were identified as beneficiaries of Juntos in 2006 or in 2007.[7]

Under the CRECER (umbrella of social programs) initiative in Peru, 880 districts have been identified as the poorest districts in Peru out of which, 638 districts have been integrated in the Juntos program between 2005 and the end of 2008. As such, in order to improve the matching exercise and the construction of a control group (described below), the pool of potential control households is restricted to Juntos-eligible districts for which, due to the roll-out timing of the program, Juntos had not entered at the time of the household survey.

The second source of data is the Juntos registry exercise carried out by Instituto Nacional de Estadística y Informática (INEI). This was a complete census of all households residing in the districts selected to participate Juntos. The census was used to determine households' eligibility (the proxy means formula discussed above). As such, this database includes detailed information on household assets, characteristics of the dwelling, demographic characteristics and the level of education of the household members.

A third data source is the Registro Nacional de Municipaidades (RENAMU) for 2006 and 2007. This is a database that contains information on infrastructure, public services, economic activity and other characteristics of the districts and can be used to take into account district-level heterogeneity.

Finally, the national population census of 2005 is also used in the analysis. Though it is impossible to identify Juntos beneficiaries in the census data, the census can be used to distinguish between

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[7] The ENAHO also has a panel component for 2005 and 2006. While this could be used to evaluate impact based on "double-differences" techniques, the number of panel households that also benefited from Juntos is really small (31).

participating and non-participating districts and calculate pre-treatment averages of the variables of interest at the district level.

3.2. Estimation methodology

Given the data availability, program design and its subsequent roll-out, matching techniques allow the construction of an artificial counterfactual – a control group, created of households who did not receive the transfer, but who are similar to the beneficiaries. These techniques have been widely used in the absence of experimental data and can provide a credible empirical framework for impact evaluation in the absence of random assignment.[8]

Conceptually, this is done as follows: first, a model is estimated that explores the program selection/participation process using observable data. The results are used to select non-Juntos households whose outcomes will be compared (matched) against those of Juntos beneficiaries. While there are a number of techniques that can be used for this matching, the aim is to create a final set of matched households whose (pre-treatment) characteristics are identical to those of the actual beneficiaries except for the fact that they did not participate in the program. In this sense, the control group is constructed out of households who would have been eligible for Juntos had their districts been offered the program. Finally, assessing program impact is done by comparing means of outcome indicators of interest between the two groups using parametric or non-parametric methods. These steps are described in more detail below.

3.2.1. Propensity score matching

Let T_i be an indicator of participation in Juntos, where $T_i=1$ if a household i is a beneficiary of the program, and $T_i=0$ otherwise. Let Y be an outcome of interest and X a set of observable characteristics. Following Ronsenbaum and Rubin[9], a control group can be constructed out of observationally similar households using "propensity scores" or probabilities of participation conditional on a vector of observable characteristics, given by

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[8] See for example Abadie and Imbens, 2006; Imbens, 2004; Rosenbaum and Rubin, 1983.
[9] Rosenbaum and Rubin, 1983.

$P(T_i)=P(T_i|X_i).$ (1)

The effect of the program can be identified using propensity score matching, if two assumptions, the "overlap" and "ignorable treatment", hold. The first assumption implies that there should be significant overlap in the distributions of the observed covariates of treated and control units. The ignorable treatment assumption requires that for any household, conditional on the observed characteristics, the potential outcomes with and without the treatment are independent of treatment assignment: $Y(0),Y(1) \perp T \mid X$.

For the case of Juntos, in order to address the "ignorable treatment" assumption, the vector X of matching covariates includes information related to the algorithm used for the Juntos beneficiary selection. Specifically, the matching covariates include district and household characteristics related to the targeting and eligibility scheme described above as well as additional variables that capture pre-treatment district heterogeneity (see Table 2). Matching covariates are also chosen to ensure that the "common support" is balanced, i.e. that for all covariates used in the propensity score regression, there is no statistical difference between control and treatment along the propensity score distribution. As such, and following common practice, interactions and non-linear terms of the basic matching covariates are included in the propensity score equation, which facilitates balancing in the common support.[10] All of these measures are aimed to ensure that the resulting sets of treated and control units are comparable and that any bias that can arise from unobservables is minimized.

Table 2 shows the probit regression used for estimating the propensity score function. Most of the covariates used are significant predictors of participation to Juntos. In addition, overall predictive power of the probit is high (pseudo R-squared is 0.214).

As is frequently the practice, the analysis is limited to the common support, i.e. to observations, which belong to the overlapping regions of the empirical densities of matching covariates for treated and control units. The region of overlapping in the distribution of propensity score (Figure 1) indicates that high proportion of treated and control units are similar in their observed

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[10] For example, Ho et al., 2001

characteristics. The range of common support is between 0.01-0.99. Even with this wide range, 416 observations fall outside of the common support and are not used in the analysis (out of 6,151).

Figure 1: Identifying common support –
Predicted propensity scores for Juntos beneficiaries and potential controls
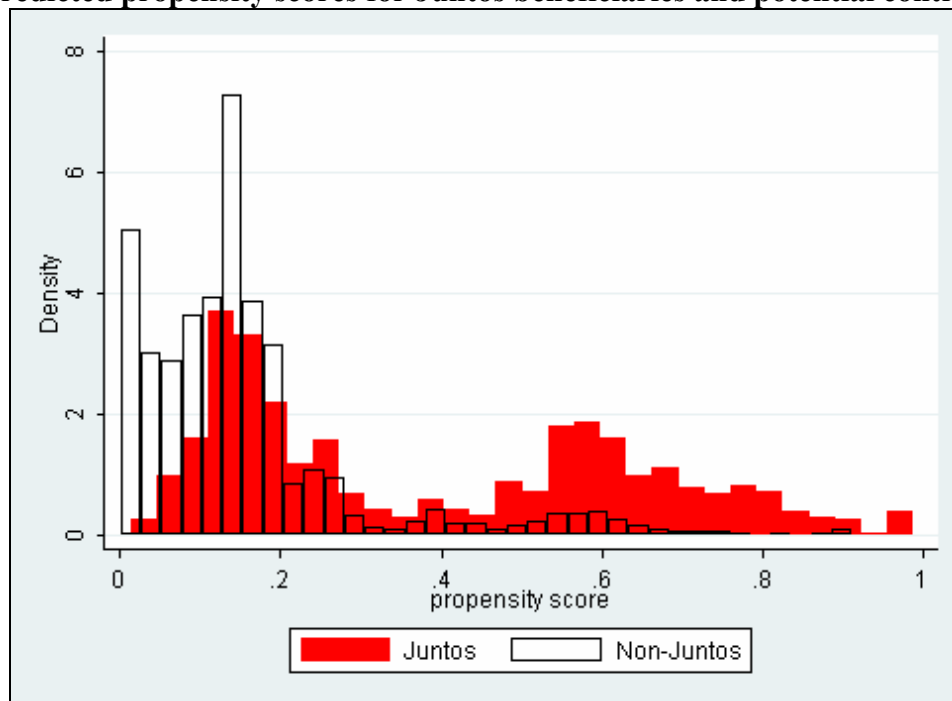
In order to create the final dataset for the analysis, "nearest neighbor" matching is used. Specifically, for a given Juntos beneficiary household, the non-Juntos household within the common support that has the closest estimated propensity score is matched.[11] As such, if $C(i)$ denotes the set of observations matched to unit i with propensity score p_i, then the nearest neighbor is defined as: $C(i)=min|p_i - p_j|$ [12]. Based on this sample, assessing program impact is done by comparing means of outcome indicators of interest between these two groups using parametric or non-parametric methods.

3.2.2. Average treatment effect estimator

Parametric estimation is used as the main estimator to evaluate the impact of the Juntos program for a number of reasons: first, despite the propensity score matching, some correlation between the

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[11] In cases of ties, potential controls were randomly chosen.
[12] Becker, Ichino, 2007.

probability to be treated and matching variables may still remain. As such, estimating the treatment effect parametrically allows for purging this correlation by including those variables directly in the regression. Regression analysis also offers a more intuitive interpretation of the coefficients, consistent with theory. For example, apart from simply measuring average effect, one can explore its variation depending on the presence of infrastructure or individual characteristics. Other advantages of parametric framework include the possibility to control for variables not included in the matching algorithm, which can nevertheless affect the outcome – such as pre-treatment outcome levels, survey dates (which can control for seasonality effects), or even interaction terms to explore variation across exogenous dimensions (e.g. time in the program).[13] Based on this, within the parametric framework, the average effect of Juntos for individual or household-level outcomes is estimated as:

$$Y_i = \alpha_o + \alpha_1 T_i + \alpha_2 X_i + \alpha_3 Z_i + \varepsilon, \qquad\qquad (2)$$

where Y denotes an outcome of interest, T is a dummy equal to one if an individual/household i benefits from the program (i.e. it is a Juntos household), X is a vector of matching covariates (the same as in the propensity score model), and Z is a vector of additional individual, households and district level characteristics correlated with the outcome. The set X includes pre-program district levels of poverty, childhood malnutrition, violence, per capita household monthly spending and the household level proxy means indicator. In addition, the set Z includes 2005 (pre-program) district averages of the outcome variable (when it exists)[14], household propensity score, household size and in individual level regressions age, age squared and gender. The impact of Juntos is captured by the coefficient α_1.

A parametric regression analysis framework also allows for the possibility to explore heterogeneity in the effect of the treatment. To capture differences in the effects of the transfer depending on age and gender, regression (2) is also estimated (when relevant) on the sub-samples of different age groups and by gender.

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[13] Ho et al., 2007

[14] For the districts, which were not included in 2005 ENAHO, district level average was replaced with average calculated at the department level.

3.2.3   Intensity (dose) analysis

Combining Juntos administrative data with the ENAHO data makes it possible to calculate a good proxy for the number of months a given household has been "treated." This is done, by calculating the number of months between the date of the household interview and the date when the program started in the respondent's district. Given that the operational guidelines of Juntos require that all beneficiaries in the district are enrolled in the program approximately at the same time, this variable is a good approximation for the individual participation time.

This allows exploring intensity effects, that is, how program outcomes may vary depending on how long a household has been in the program. Program impacts may intensify or decrease overtime. Let L_1 be a dummy equal to 1 if a respondent participated in the program for 12 months or less, L_2 is equal to 1 if a respondent participated in Juntos from 13 to 25 months. To capture heterogeneity in the effects depending on the length of the treatment, these variables and their interactions with participation dummy T are introduced in individual and household level regressions:

$$Y_i = \gamma_o + \gamma_1 T_i + \gamma_2 X_i + \gamma_3 Z_i + \gamma_4 L_{1i} + \gamma_5 L_{2i} + \gamma_6 L_{1i} T_i + \gamma_7 L_{2i} T_i + \varepsilon_i \qquad (3)$$

Coefficients γ_6 and γ_7 are indicative of the effect of the program for beneficiaries who have been receiving the transfer one and two years, respectively. Using these coefficients, a finding (for example) that $\gamma_7 > \gamma_6$ would suggest that in addition to its overall program effect, households (or individuals) that have been in Juntos longer (between one and two as opposed to less than 1) have experienced an additional gain of that particular indicator by $\gamma_7 - \gamma_6$.[15]

While the general comparison between control versus treated (or versus the intensity interaction terms) has its limitations as in any non-experimental evaluation approach (see below), comparison of marginal impacts across different treated groups based on length in the program is likely to provide an unbiased estimate of those impacts. As the ENAHO interviews were spread throughout the year, for any two districts enrolled in Juntos at the same time, the length of participation for households will be longer in the district where the ENAHO interviews took place later in the year. As this variation is exogenous to the program placement, it allows for the identification of marginal impacts across treatment spells.

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[15] F-tests can be used to test for significant differences between the two years.

3.2.4. Limitations, potential biases and robustness checks

Ideally, matching procedures should be based on pre-treatment characteristics for both treatment and control units. However, data limitations preclude this approach. The ENAHO data contain 1,262 households, which participated in Juntos between 2006 and 2007. The majority of these households were observed only once[16]. Consequently, the estimation can be carried out with a reasonably large sample only if a cross-section of households is used, and the households are matched on contemporaneous covariates. This could possibly lead to a negative bias, as the program may have already affected the covariates used in matching in the treated group. Juntos beneficiaries will be compared not to similar, but to somewhat wealthier "matched control" households. In this case, the effect of the program would be underestimated and the impacts are a lower bound of potential program impacts.

There are a number of reasons to believe that such bias is not likely. First, proxy means index, which is used as a household level matching covariate, is composed of characteristics, which are unlikely to change in the course of one year due to a budget increase of 30 dollars a month. These characteristics include the type of construction materials or access to electricity or sewage.

Second, in order to further reduce the likelihood of bias, district level pre-treatment covariates are used. These data are available from 2005 national census and Juntos administrative data. Intuitively, matching on the pre-treatment community characteristics reduces the bias as it makes it possible to control for the *likelihood* that the change in the household or individual characteristics will occur after the treatment. Though the changes in household characteristics, such as improvements in dwelling materials, or construction of a sanitary bathroom may be triggered by windfall gain of a cash transfer, they will be much easier to implement in the communities with better infrastructure. For example, getting a bathroom connected to a sewage is more likely to take place in a neighborhood where the sewage system is already in place, and only needs to be extended to the house, that in a neighborhood with no sewage at all. By drawing the matches from the communities with the same average characteristics in pre-treatment years, one can ensure that households with similar chances of experiencing changes in the matching covariates are compared.

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[16] As earlier discussed, there are only 31 panel households which participated in Juntos in 2006 and that were interviewed in 2005. In addition, the 2007 ENAHO did not include a panel component from previous years.

Finally, while the roll-out of the program was supposed to be based on a poverty index, this was not fully implemented. Nonetheless, implementation constraints and budget delays implied that districts received the program in a less systematic way. Simple analysis of the roll-out between 2006 and 2007 (the period that this study covers) suggests that there is no significant difference in district level characteristics (including poverty) between districts which received Juntos at different stages.[17]

For the reasons discussed above, the proposed matching framework is likely to provide credible estimates of program impacts. As a final robustness check, an instrumental variables approach is also used. Instrumental variables approach compares and validates the results of the matching/parametric approach presented above by exploiting the roll-out process in order to create an instrument that is used for identifying impacts (see Appendix C).

4. Program impacts on beneficiary households

4.1. Impacts on poverty, consumption and income

On average, the Juntos transfer represents 13 percent of the total monthly household consumption.[18] While this is in the mid-range of transfer size levels with respect to other CCT programs (Figure 2), the analysis suggests that Juntos is having a significant impact on reducing poverty and improving welfare. Specifically, Juntos reduces the poverty gap and poverty severity (by five percent and six percent, respectively, Table 3). The magnitude of the poverty impact is also consistent with experiences in other countries (Figure 3).

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[17] The analysis also suggests that the first districts that entered the program in late 2005 and early 2006 are indeed among the poorest in the country. This is consistent with the results on the headcount poverty impacts (discussed below), which suggest a program impact on poverty only after the first year in the program.
[18] Using the matched control sample.

Figure 2: Transfer size as a share of total consumption (selected CCT programs)
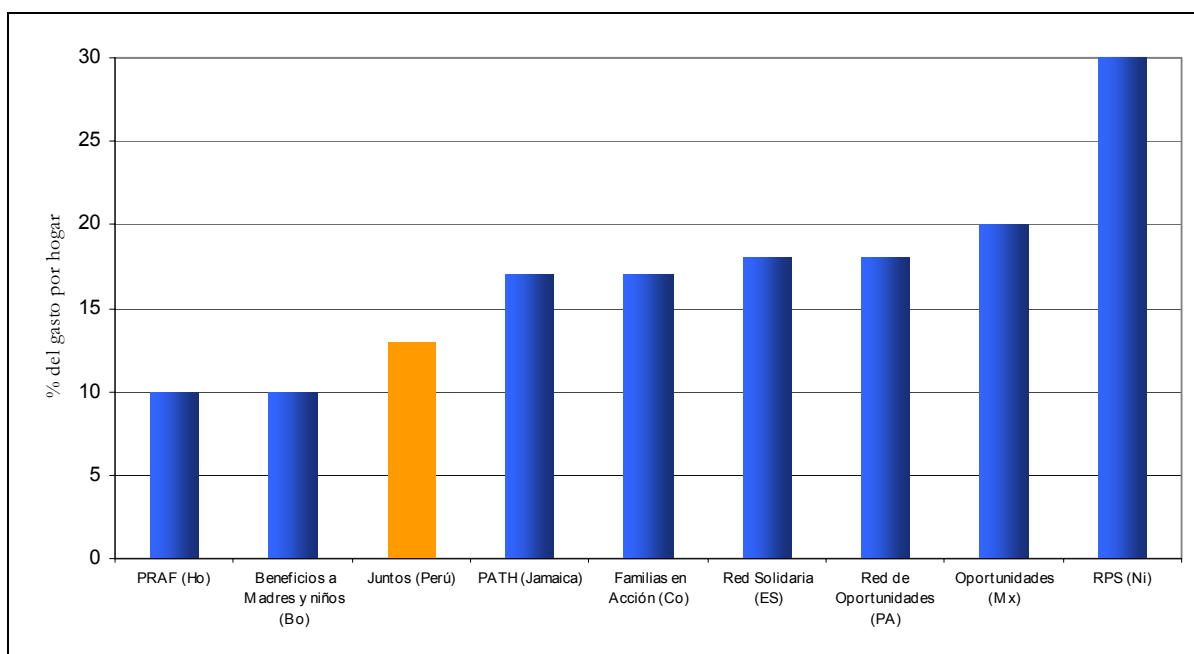
Interestingly, the modest transfer size is not sufficient to bring the beneficiary families over the poverty line (and reduce the poverty headcount rate). There are many reasons as to why this may be, ranging from the size of the transfer and how far beneficiaries are relative to the discrete poverty line, to limitations of the matching technique (which may underestimating impacts by comparing poorer beneficiaries to less poor matched control households). Since the transfer does move beneficiaries closer to the poverty line, this movement is better captured by poverty gap and poverty severity indicators and not the poverty headcount, which is based on a binary, cruder measure. It is worth noting, Juntos does have a positive impact on extreme poverty headcount rate (which is defined by a lower poverty line) with a reduction of two percent (Table 3).

Figure 3: Impact of CCTs on Poverty Gaps (selected CCT programs, in percentage points)
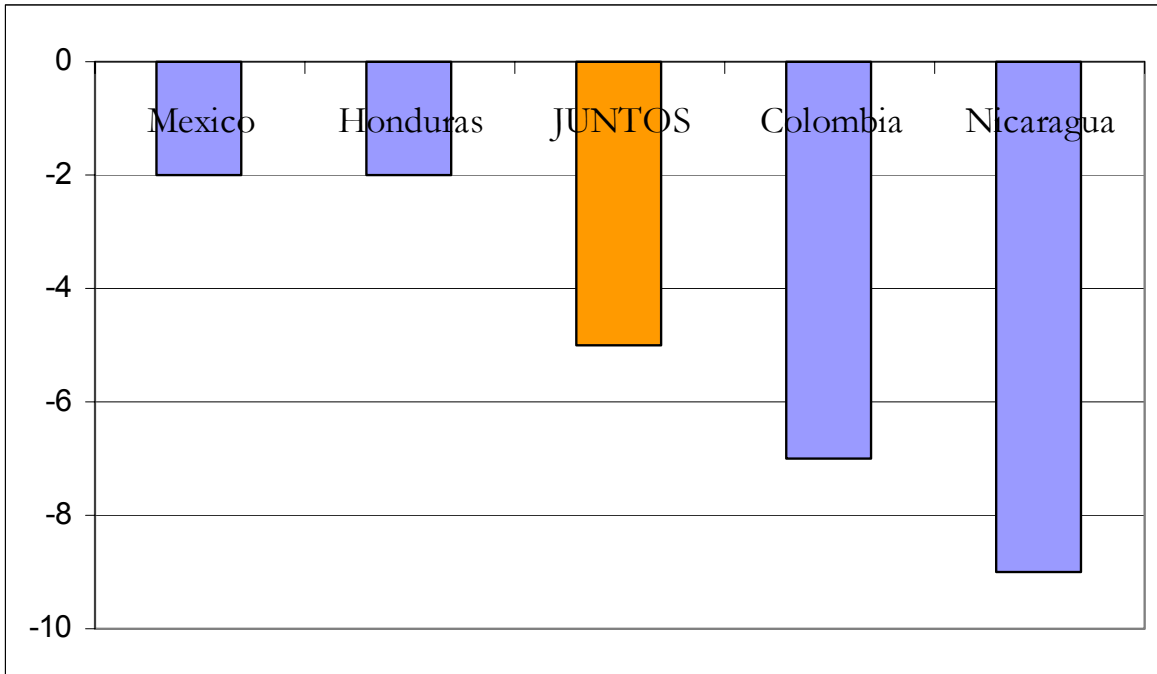
This reduction in poverty indicators discussed above is also mirrored by positive impacts in welfare indicators, namely income and consumption. For example, per capita household monetary income increases by 28 percent for Juntos beneficiaries (Table 4). Similarly, Juntos has a positive impact on household monetary consumption, driven by an increase in the food component (34 percent). No difference is found for total income or total consumption, reflecting the size of the transfer and the contribution of other non-monetary sources of income and consumption.

Overall, these results show moderate welfare improvements for Juntos beneficiaries. Juntos reduces poverty and increases a number of consumption and income measures. Relative to the size of the transfer, these results are consistent and comparable with impacts from similar programs in other countries.

4.2. Impacts in Health and Nutrition

4.2.1. Changes in the utilization of health services

As most CCT programs, Juntos increases the use of health services. This can be due to a number of reasons, including the transfer itself, the conditionalities, changes in attitude towards heath and nutrition practices or supply side improvements. The key impacts in the utilization of services are discussed below.

4.2.1a. Results for children under 5

The evaluation results indicate that for children under 5, the intensity of use of health services increased for all the indicators available from the ENAHO. For example, young children from beneficiary households are 37 percentage points more likely to go through health checks, 22 percentage points more likely to get medical attention, if they experience any illness, and 7 percentage points more likely to get vaccinated (Table 5). These patterns also remain when decomposed by gender and age groups (Tables 6 and 7).

Figure 4: Juntos impact on health services utilization, children under 5
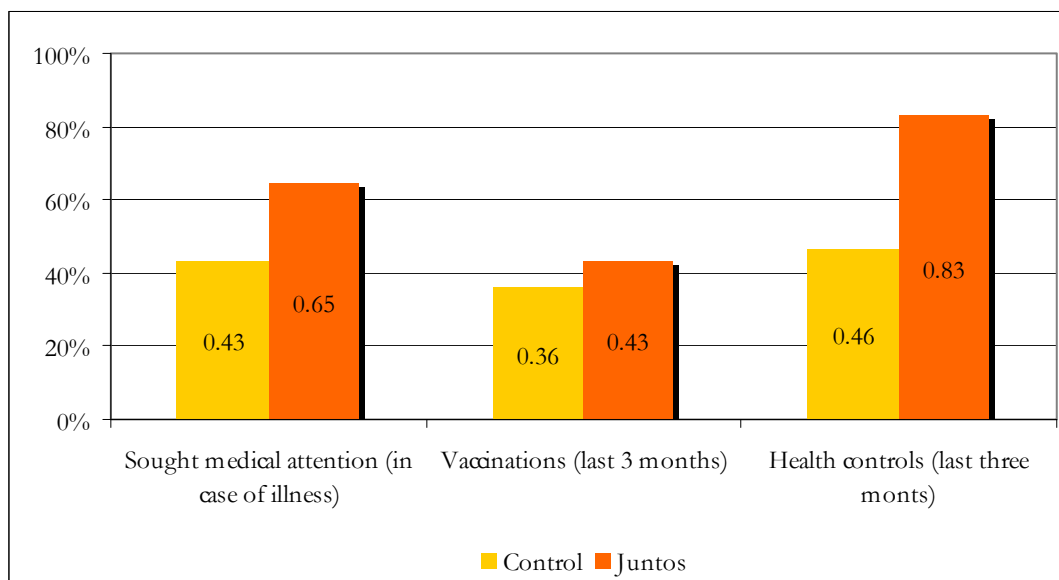
Despite the positive impacts, the overall level of utilization of these services among Juntos beneficiary children is below the program's goal of universal access. For example, only 66 percent of

the beneficiary children seek medical attention, 43 percent are vaccinated and only 83 percent receive child-development controls (as opposed to 100 percent). A number of reasons could explain these, from lack of enforcing program conditionalities to supply side gaps.

Nonetheless, the impact of Juntos on the use of these services is similar (and in some cases higher) to the impacts found on other CCT programs. For example, in Nicaragua, Red de Proteccion Social increased the fraction of child health controls by 13 percentage points, PRAF (Honduras) by 20 percentage points and PATH (Jamaica) by 28 percentage points. In Colombia the fraction of children under 2 who received health controls grew by 23 percentage points, and by 33 percentage points for children aged between 2 to 4. Finally, Chile Solidario, Bono de Desarollo Humano in Ecuador or PROGRESA/Opportunidades in Mexico did not affect the rate of health center visits for the corresponding age group.[19] While these results show the range of impacts across these countries, these comparisons should be interpreted with some caution in the sense that while the indicators are in principle the same, they may not correspond to the same age groups, the baseline attendance levels may vary, as the recall periods for questions on health visits.

4.2.1b. Impacts among women of childbearing age

Juntos also increased the utilization of health services for beneficiary women of childbearing age, especially for medical attention in case of illness, vaccinations, access to contraceptives and participation in family planning activities (Table 8).

As in the discussion for younger children, while the impact in these areas are significant, the magnitudes are not sufficiently high to consider the goal of universal access or use accomplished. For example, vaccination rate among beneficiaries increased by 17 percentage points. This suggests that the resulting immunization rate among Juntos beneficiaries is 51 percent – far below the goals of the program. Similarly, the shares of beneficiaries who seek medical attention receive contraceptives or participate in family planning campaigns are also below 50 percent.

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[19] Fiszbein and Schady, 2009

Figure 5: Juntos impact on health services utilization, women of childbearing age
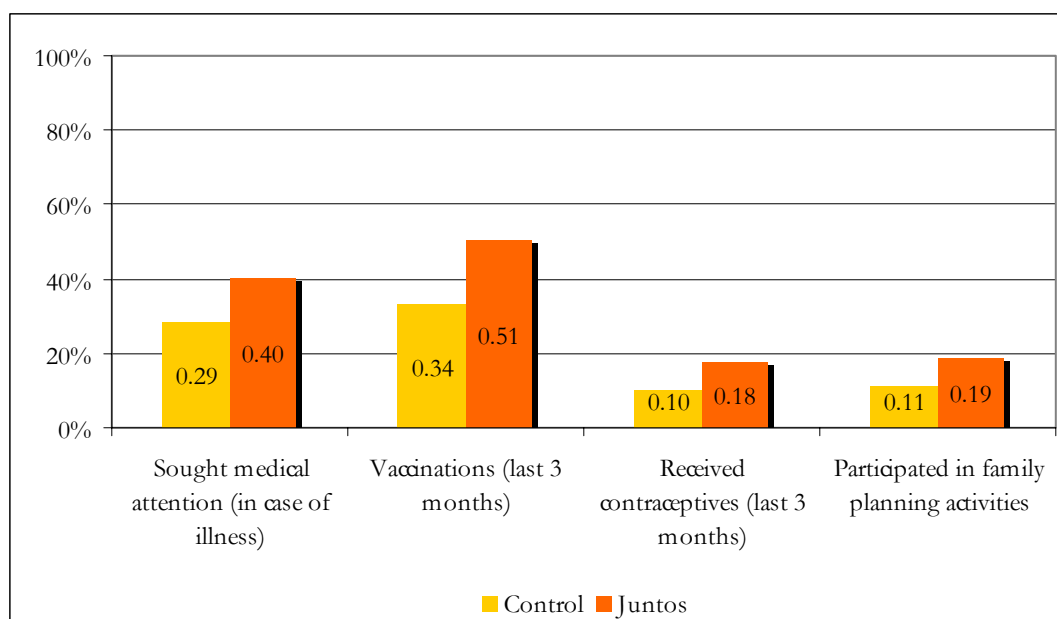
Despite clear evidence of some positive impacts, there are some indicators where no effect is found: such as doctor assisted deliveries or receipt of iron supplements.[20] Similarly, the share of women who give birth in medical facilities[21] or attended health campaigns between beneficiaries and control group are not statistically different, either.

In summary, estimation results show that Juntos increased the use of medical services for both program target groups: children under 5 and women of childbearing age. However, no impacts are found on a number of indicators, including some that are linked to program conditionalities, such as participation in pre-natal checks. Similarly, increase in indicators also linked to health visits and controls, such as immunization, are far below universality for both women and children. It is impossible to distinguish whether significant impacts reflect a behavioral change as opposed to mechanical effects driven by program conditionalities. The fact that use of services where no conditionalities exist, increased among beneficiaries is indicative of the former explanation, however it cannot be tested formally.

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[20] Fiszbein and Schady, 2009 report that in the case of Chile Solidario, the number of health checks among pregnant women was also found to be insignificant (and with a negative sign).

[21] ENAHO question about institutional birth asks about birth during the last three years, so births which took place before enrollment in Juntos are included in this variable.

4.2.2. Changes in nutrition – food consumption

The results show that per capita monthly spending increased almost in every food category (Table 9). Participation in Juntos triggered increase in spending on such food categories as breads and cereals, butter and oils, vegetables, fruit, grains, sugar and tubers. Interestingly, consumption of alcoholic beverages is a notable exception – Juntos households consume 15 percent less alcohol than those in the control. Nonetheless, the program did not affect spending on seafood, meats, milk, cheese and eggs (even though they do have a positive sign). Impacts of Juntos overtime indicate that increases in spending on some of the more nutritious foods groups become larger over time. For example consumption of milk, cheese and eggs is four times larges for households that have been in Juntos more than 1 year (Table 21).

Figure 6: Juntos impacts on nutrition - food diet (monthly per capita expenditures)
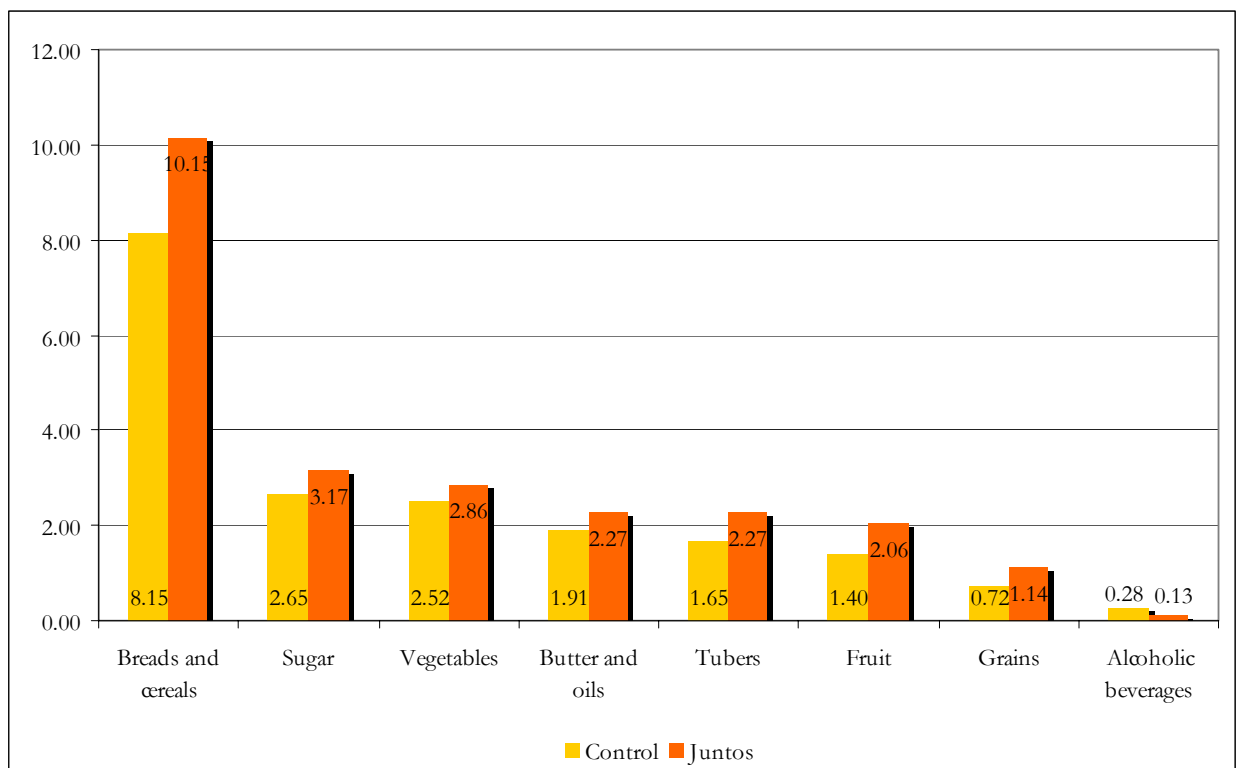
These results suggest that Juntos households not only consume more but also consume calories of higher nutritional value (such as vegetables and fruit). A number of reasons may exist to explain this. First, changes in nutritional preferences could be attributed to the work of *promotoras,* or participation in health campaigns, which are part of the program benefits. It is plausible that the

information about the value of a more balanced diet, beneficial effects of proteins and vegetables, was instrumental in the change in consumption patterns. Alternatively, families may be switching to higher nutrition foods simply due to the transfer and income increase, which allows substituting for more expensive products. Finally, qualitative work suggests that many beneficiaries believed buying food was one of the conditions of the program.[22] Unfortunately with the existing data one cannot distinguish between these alternatives.

4.2.3. Changes in final outcomes in health and nutrition

The evidence shows participation in Juntos triggered changes in the beneficiaries' use of services and diets. Nonetheless, the ultimate goal of CCT programs is to induce behavioral changes that can serve as inputs for improvements in final outcome indicators in health and nutrition. Unfortunately the data that would allow one to trace the impact of Juntos on beneficiaries' final outcome indicators of health and nutrition is scarce. For 2006 and 2007, the ENAHO contains a question on self-reported health. Based on that, Juntos children less than five were less likely to experience illnesses in the month prior to the survey (by six percentage points) (Table 10). No impact is found for women of reproductive age, even though they are significant for beneficiaries who participated in the program for 12 months or longer (Table 22).

In addition, during the last trimester of 2007 a new anthropometric module was introduced to the ENAHO survey, which includes data on weight, height and hemoglobin (which can be used to calculate indicators of malnutrition). Information on z-scores is available for children under 5, while data on hemoglobin were collected for children under 2 and breast-feeding women. The analysis finds no impacts in any of these indicators (Table 11). These results may be driven by the shortcomings of the data – the sample size is small as the anthropometrics module was administered only during the last trimester of 2007 ENAHO. This also restricts further decompositions by gender and age.

In summary, consistent with other CCT programs, Juntos shows a number of positive impacts on health inputs: an increase in service utilization and improvement in diets. There is also some evidence of improvement in the health of children but for the most part, Juntos does not seem to

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[22] Jones, Vargas and Villar, 2006

affect final outcome indicators of health and nutrition, but these results may be driven by small sample sizes.

4.3. Impacts in education

Juntos has a small overall impact on school registration (an increase of four percentage points, Table 12 and Figure 7). No effect is found on overall school attendance. Nonetheless, disaggregation of these results by primary school age reveals a number of interesting trends. First, the positive impact of Juntos on schooling is driven by impacts at transition points. For example, the effect on school registration is concentrated among younger children, especially 7 year olds (Table 13 and Figure 8). In addition, school attendance among 7 year olds is also significantly higher for Juntos households (Table 14). Finally, exploring impacts based on length of participation in Juntos also indicates that for households that have been in Juntos 1-2 years, the program has a positive impact for 11 (attendance) and 13 (registration) year olds (Tables 25 and 26).[23]

Figure 7: Overall increase in registration rate

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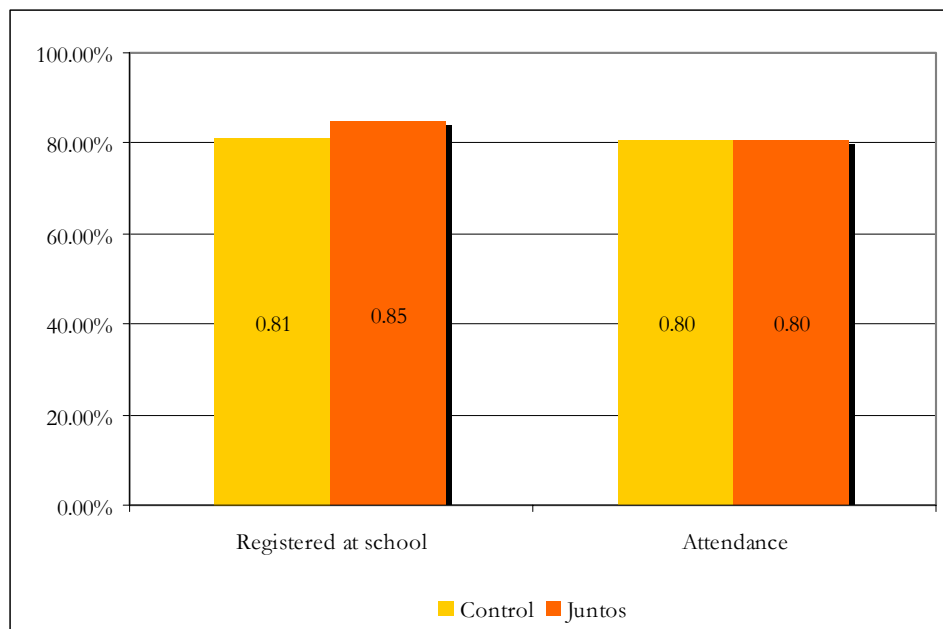
[23] Incidentally, these results also seem to be driven by higher impacts among girls, but the sample sizes are smaller and as such, gender-specific results are more noisy and should be treated with caution (Tables 25 and 26).

Figure 8: Increases in enrollment rates, by age
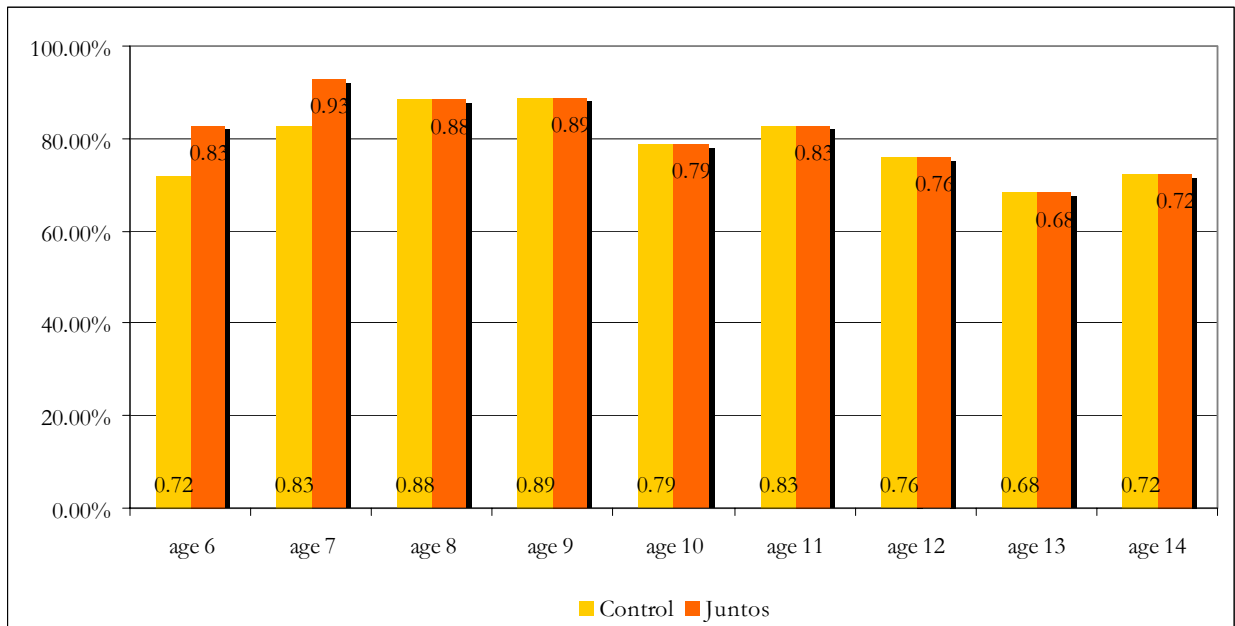
Taken together, these results suggest that the observed Juntos impacts are concentrated at transition points – entry in primary school and transition from primary to secondary. This result is consistent with results from CCT in other countries: the impacts of CCT programs in contexts with high initial enrollment and attendance rates tend to be more focused on such transition points. In this sense, the Juntos effects compare favorably with the impacts of CCT programs in other Latin American countries with similar context. For example, enrollment increased by 3.3 percentage points in the case of PRAF in Honduras (for children aged 6 to 13, from a baseline enrollment of 66 percent), 7.5 percentage points for Chile Solidário (for children aged 6 to 15, from a baseline enrollment of 61 percent), and by 12.8 percentage points for the Red de Proteccion Social in Nicaragua (for children aged 7 to 13, from a baseline enrollment of 72 percent.[24]

In addition to schooling outcomes, participation in Juntos also induces beneficiary households to spend more on educational supplies. Specifically, among households with at least one child aged between 6 and 14, an increase of approximately 30 soles a year in spending on uniforms can be attributed to participation in the program (Table 15). This increase constitutes 70 percent of the annual spending in the control group. Juntos does not seem to affect spending on other types of

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[24] Fizsbein and Schady, 2009

supplies, such as books.[25] However, the fact that the average spending on these items is generally very low – on average less than 1 sol a year per household in the control group for books and transportation – may account for the lack of impacts.

In summary, with respect to education outcomes, the analysis suggests that Juntos has had limited impacts on school registration and attendance. Still, these impacts are consistent with international experience: as the baseline enrollment is high (75 percent for the control group), and the transfer constitutes a moderate 15 percent of the average household monthly consumption, the transfer is more crucial at points where the opportunity costs are more binding, namely entering and finishing primary school. Unfortunately, data limitations make it impossible to estimate the impact of the program on learning.

4.4. Labor market impacts

The analysis suggests that the program does not have an impact on labor market outcomes. Specifically, while there is a significant reduction in individuals' employment status (driven by impacts on men), its magnitude is trivial (a reduction of two percentage points from 89 to 87 percent). In addition, there is no impact with respect to hours worked (Table 16).

Similarly, the results show that children from Juntos households are more likely to have worked last week (Table 16). Unfortunately, ENAHO survey contains only one question about labor for children aged 14 and younger – whether they worked during the last week. Consequently, there is no distinction between paid labor and household chores, or information on the number of hours worked. As such, and due to constraints with sample sizes, these results should be interpreted with caution. It is worth noting that the impact of CCT in other countries usually shows as a decrease in hours worked among children (as opposed to a withdrawal from work).[26] Due to the data limitations, this analysis cannot capture similar effect due to participation in Juntos.

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[25] The results suggest that Juntos households spend half the amount of those in the matched control for tuition. While these results are counterintuitive, they may be capturing differences in preferences or local context not accounted by the matching technique.
[26] Skoufias and Parker, 2001.

Overall, the analysis suggests that participation in Juntos did not have impacts on labor market decisions among adults in beneficiary households. The estimation of the impact on child labor is inconclusive – there is a small increase in the likelihood of working, however, the only available measure and sample sizes do not allow to capture changes in the number of hours worked.

4.5. Unintended impacts

Despite the positive impacts of CCTs, policy makers are usually preoccupied with whether CCT schemes also result in undesirable, unintended changes in behavior. Such undesirable changes may include the use of transfers in ways that may be inconsistent with the goals of the program – for example, spending it on alcohol and tabacco. Similarly, fertility rates may increase if beneficiary families believe that this will provide them with additional transfers. Finally, the transfer may induce households to work less. Available data allows exploring some of these hypotheses for the case of Juntos.

The results suggest that Juntos did not have any unintended, undesirable impacts on beneficiaries' behavior. For example, while there are large program impacts on various food consumption categories, the results suggest an over 50 percent reduction in consumption of alcohol (Table 9). Similarly, the results on labor market outcomes above suggest that employment effects are minimal. Finally, while the ENAHO survey does not provide information to directly test for "intentional pregnancy", there is a question where female respondents are asked to provide information about births they gave during the last three years. Using this variable, there are no significant differences in the birth rates of beneficiaries and non-beneficiaries – Juntos does not have an effect on fertility over the last three years (Table 17). These result are also consistent with the findings of the qualitative study carried out by UNICEF. The study shows that although the myth of "intentional pregnancies" is widely spread, especially among non-beneficiaries, it remains only a myth.[27]

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[27] Huber el al., 2009

4.6. Juntos impacts and intensity (dose) effects

As discussed earlier, the available data contain sufficient information to construct a measure of "treatment intensity" or "dose" – the length of participation in the program for a given Juntos household in the data. While the general comparison between control versus treated (or versus the intensity interaction terms) has its limitations as in any non-experimental evaluation approach (see earlier discussion), comparison of marginal impacts across different treated groups based on length in the program is likely to provide an unbiased estimate of those impacts. Specifically, as the ENAHO interviews were spread throughout the year, for any two districts enrolled in Juntos at the same time, the length of participation for households will be longer in the district where the ENAHO interviews took place later in the year. As this variation is exogenous to the program placement, it allows for the identification of marginal impacts across treatment spells.

Some of the analysis of differences in impacts among the households with varying length of participation is already discussed above. This section discusses some of these results in more detail. Impacts are compared among program beneficiaries who have been in Juntos less than a year with those that have been in the program for more than one (and up to 25 months).

4.6.1. Poverty

The overall improvement in poverty measures is higher overtime: for all indicators (the poverty gap, severity and extreme poverty), Juntos households that have been in the program for more than a year (and less than two) have significantly better welfare indicators compared to those that have only been in the program for less than a year (Table 18). Interestingly, even the general poverty rate (which remains positive and significant, indicating the limitations of the matching estimator) is significantly lower among Juntos households that have been in the program longer. Similarly, impacts on monetary measures of income and consumption increase buy more than 60 percent for Juntos beneficiaries who have participated longer (Table 19).

4.6.2. Utilization of health services

In addition to the overall effects on the utilization of health services discussed above, intensity effects show that Juntos beneficiaries that have been in the program longer are more likely to seek medical attention and receive health controls (Tables 20 and 21). In addition, doctor assisted births (a key goal of the program) are significantly higher among women who have been receiving the program for more than a year. These results are indicative of how Juntos may be improving overtime, either in its implementation or via changes in household behavior (through the sustained transfers or due to actual behavioral changes or due to the informational components of the program).

Interestingly, the program effect for the number of adult and children beneficiaries that receive vaccinations among Juntos beneficiaries that have been in the program longer is counterintuitive. Specifically, the effect either looses significance or becomes negative. While it is hard to identify why this may be the case, two reasons are the most plausible. First, the ENAHO questions on vaccinations only capture information about vaccinations received during the last three months. Second, Juntos requires that beneficiary children receive 11 vaccinations during the first 24 months of their lives and women should 1. As such, if Juntos beneficiaries complied with the conditions of the program immediately after joining, compliance effects cannot be fully captured in the timing of the ENAHO survey.

4.6.2. Nutrition - food consumption

Decomposition of impacts in food consumption overtime show that increases in spending go up for various food categories, especially for food groups where the overall effects are not significant: seafood, milk, cheese and eggs, vegetables, butter and oils, tubers, sugar and non-alcoholic beverages (Table 22). These results suggest that Juntos beneficiaries are improving their diets over time.

4.6.4. Final health and nutrition outcomes

Program impacts in self reported health status increase in magnitude overtime for both children, and women of childbearing age (Table 23). Decompositions in time for other health outcomes do not yield any results (e.g. for anthropometric or iron deficiencies).

4.6.5. Education

For both registration and attendance, the magnitudes of impacts are higher among Juntos children that have been in the program longer (Table 25). These results are stronger for girls than for boys. In addition, decomposition of the results by age, suggests that the effects in transition points are higher for Juntos beneficiaries that have been in the program fro more than a year (Tables 26 and 27).

4.6.5. Labor market outcomes

Interestingly, Juntos beneficiaries that have been in the program for more than a year are not associated with reductions in labor market participation (Table 28). This complements earlier findings that suggest that the program does not have unintended effects on labor outcomes.

5. Concluding remarks

This study presents the first quantitative impact evaluation of the Juntos conditional cash transfer program in Peru using non-experimental evaluation techniques. The analysis focuses on impacts in the first two years of Juntos. Overall, the analysis suggests that Juntos is improving a number of key welfare indicators of program beneficiaries. Specifically, Juntos has a moderate impact in reducing poverty and increasing monetary measures of both income and consumption. In addition, and similar to evidence from other countries, the program increases the utilization of health services for both children and women, and it improves nutritional intake of program households. In education, the analysis shows that as in other CCT contexts where primary school attendance is high, Juntos has impacts mainly at transition points, ensuring that children enter and finish primary school. The majority of these indicators are also increasing with the length in the program. There is also no

evidence to suggest that the program creates unintended effects in a number of potential areas (reduction in adult work, increases in fertility rates or consumption of alcohol).

Despite these positive effects, no impacts are found on final outcomes indicators such as malnutrition or anemia. This result is consistent with the international experience, which suggests that for these types of impacts, CCT schemes need to be complemented by adequate supply of health services (in both quantity and quality) as well as interventions that can better promote health and education practices. In this sense, the potential of Juntos to improve on these areas remains untapped.

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Appendix A: Tables

Table 1: District enrollment dates

Enrollment date	Departamento name	Number of districts enrolled
May, 2004	Ancash	1
July, 2004	Puno	1
September, 2005	Ayacucho	1
November, 2005	Apurimac	13
	Ayacucho	20
	Huancavelica	13
	Huanuco	11
December, 2005	Huancacelica	6
January, 2006	Huanuco	1
	Ayacucho	5
March, 2006	Apurimac	10
	Huancavelica	10
	Huanuco	11
	Ayacucho	7
July, 2006	Ancash	14
	Apurimac	32
	Ayacucho	16
	Cajamarca	21
	Huancavelica	30
	Huanuco	31
	Junin	7
	La Libertad	17
	Puno	29
November, 2006	Huancavelica	1
December, 2006	Puno	1
	Ayacucho	1
January, 2007	Puno	6
	Ancash	4
	Apurimac	5
	Ayacucho	19
	Cajamarca	42
April, 2007	Huancavelica	8
	Huanuco	13
	Junin	31
	La Libertad	24
	Puno	14
	Ancash	47
	Cajamarca	14
	Cusco	43
May, 2007	Huancavelica	9
	Junin	1
	La Libertad	1
	Pasco	8
	Piura	16
June, 2007	Cusco	1
July, 2007	Amazonas	7
October, 2007	Loreto	1

Table 2: Probits for calibrating the propensity scores

Variables used in probit regressions

Variable	Variable definition
Sp1	severity of poverty in 2005
Sp2	dummy equal to 1, if a district belongs to the third quartile in Sp1 distribution
Mp1	poverty headcount in 2005
Mp2	dummy equal to 1, if a district belongs to the third quartile in Mp1 distribution
Mn1	percent of children affected by cronical malnutrition
Mn2	dummy equal to 1 if a district belongs to the fourth quartile in Mn1 distribution
Av1	percent of centros poblados affected by violence
Av2	dummy equal to 1 if a district belongs to the third quartile in the Av1 distribution
Wc	dummy equal to 1 if a district belongs to the second quartile in the distribution of district averages of households with hygienic latrines
C1	district average of per household monthly spending in 2005
C2	dummy equal to 1 if a district belongs to the first or second percentile in C1 distribution
y	proxy means score
y1	dummy equal to 1 if a household belongs to 10th to 25th percentile in the distribution of y
y2	dummy equal to 1 if a household belongs to top 10 percent in the distribution of y

Probit regressions results

Variables	Coefficient	t-stat
Sp1*Sp2	0.0277118	2.5
Sp1*Sp2*Mp1*Mp2	0.0001638	2.61
Mn1*Mn2	0.0218699	23.14
Mn1*Mn2*Sp1*Sp2	-0.0013804	-11.03
Mn1*Mn2*Mp1*Mp2	0.0000821	4.17
Av1*Av2*Wc	0.3289244	7.01
Av1*Av2*Wc*Sp1*Sp2	0.0378576	2.61
C1*C2	0.0049853	2.85
y	2.272822	10.36
y*y1*Sp1*Sp2*Mn1*Mn2	0.0000755	0.12
y2*C1*C2*Sp1*Sp2	-0.0001398	-1.63
y*y2	-0.1172429	-1.4
(y*Sp1*Sp2)^2	-0.0015558	-1.48
y*C1*C2	-0.0060681	-2.66
Number of observations	6144	
Number of treated off common support	0	
R2	0.2147	

Note: dependent variable is equal to 1 if household participated in Juntos and equal to 0 otherwise

Table 3: Juntos impacts on poverty

Variable	Average for control group	Juntos effect	Number of observations
Poverty	0.69	0.11*	13,013
		(0.01)	
Extreme poverty	0.37	-0.02***	13,084
		(0.01)	
Poverty gap	0.46	-0.05*	10,977
		(0.01)	
Poverty severity	0.24	-0.06*	11,046
		(0.01)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level; "poverty gap" and "poverty severity" variables are in logs

Table 4: Juntos impacts on household consumption and income (per capita monthly)

Variable	Average for control group (soles)	Juntos effect	Number of observations
Consumption	188.40	-0.02	2,513
		(0.03)	
Food consumption	94.54	0.01	2,505
		(0.03)	
Non-food consumption	94.40	0.03	2,501
		(0.04)	
Monetary spending	89.62	0.18*	2,067
		(0.05)	
Monetary spending on food	45.65	0.34*	2,076
		(0.06)	
Monetary spending on non-food	41.07	0.02	2,048
		(0.06)	
Total income	197.00	0.01	2,065
		(0.04)	
Monetary income	107.65	0.28*	2,510
		(0.06)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level; all dependent variables are in logs

Table 5: Juntos impacts on the use of health services, children under 5

Variable	Average for control group	Juntos effect	Number of observations
in case of illness, sought medical attention	0.43	0.22*	1,205
		(0.05)	
received vaccinations in the last 3 months	0.36	0.07**	2,293
		(0.03)	
received health checks in the last three monts	0.46	0.37*	2,297
		(0.03)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 6: Juntos impacts on use of health services, by gender, children under 5

Variable	Average for control group	Juntos effect	Number of observations
Girls			
in case of illness, sought medical attention	0.50	0.16**	554
		(0.07)	
received vaccinations in the last 3 months	0.51	0.09**	1,114
		(0.04)	
received health checks in the last three monts	0.40	0.38*	1,101
		(0.04)	
Boys			
in case of illness, sought medical attention	0.44	0.28*	599
		(0.06)	
received vaccinations in the last 3 months	0.33	0.06	1,189
		(0.04)	
received health checks in the last three monts	0.50	0.32*	1,184
		(0.04)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 7: Juntos impacts on use of health services, by age, children under 5

Variable	Average for control group	Juntos effect	Number of observations
in case of illness, sought medical attention			
0 to 12 months	0.49	0.18**	414
		(0.08)	
13 to 36 months	0.59	-0.03	408
		(0.08)	
37 to 59 months	0.35	0.39*	367
		(0.09)	
received vaccinations in the last 3 months			
0 to 12 months	0.51	0.06	705
		(0.05)	
13 to 36 months	0.35	0.04	804
		(0.05)	
37 to 59 months	0.28	0.11**	806
		(0.05)	
received health checks in the last three monts			
0 to 12 months	0.67	0.29*	695
		(0.05)	
13 to 36 months	0.45	0.40*	805
		(0.05)	
37 to 59 months	0.25	0.39*	811
		(0.05)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 8: Juntos impacts on the use of health services, women of child-bearing age

Variable:	Average for control group	Juntos effect	Number of observations
in case of illness, sought medical attention	0.29	0.12*	2,261
		(0.03)	
received vaccinations in the last 3 months	0.34	0.17*	3,948
		(0.02)	
received contraceptives in the last 3 months	0.10	0.07*	3,936
		(0.02)	
received pre-natal checks in the last 12 months	0.08	-0.04*	3,956
		(0.01)	
delivery was assisted by a doctor	0.41	0.04	646
		(0.06)	
participated in the family planning activities	0.11	0.07*	3,704
		(0.02)	
participated in the health campaigns	0.00	0.01	3,955
		(0.00)	
received iron supplements	0.32	0.10	84
		(0.26)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 9: Juntos impacts on nutrition - food consumption

Variable	Average for control group (soles)	Juntos effect	Number of observations
Breads and cereals	8.15	1.99*	2,510
		(0.40)	
Meat	2.21	0.21	2,521
		(0.27)	
Seafood	1.44	0.05	2,522
		(0.16)	
Milk, cheese, eggs	1.65	0.10	2,518
		(0.20)	
Butter and oils	1.91	0.36*	2,515
		(0.10)	
Vegetables	2.52	0.34**	2,530
		(0.15)	
Fruit	1.40	0.66*	2,515
		(0.14)	
Grains	0.72	0.42*	2,523
		(0.10)	
Tubers	1.65	0.62*	2,531
		(0.15)	
Sugar	2.65	0.51*	2,517
		(0.14)	
Coffee, tea, cacao	0.28	0.06	2,531
		(0.04)	
Other	1.45	0.48*	2,518
		(0.11)	
Non-alcoholic beverages	0.59	0.09	2,525
		(0.09)	
Alcoholic beverages	0.28	-0.15**	2,525
		(0.07)	
Food consumed outside	11.62	-4.16*	2,500
		(1.31)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level; dependent variable is per capita monthly consumption at household level

Table 10: Impacts in self-reported health

Variable	Average for control group	Juntos effect	Number of observations
did not experience any illness in the last 4 weeks			
Children under 5	0.46	0.06***	2,307
		(0.03)	
Women of childbearing age	0.46	0.01	3,977
		(0.03)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 11: Juntos impacts in final outcome indicators

Variable	Average for control group	Juntos effect	Number of observations
Children under 5			
Hemoglobin	11.45	-0.45	128
		(0.90)	
Height for age	-1.56	-0.16	264
		(0.42)	
Weight for age	-1.12	0.44	262
		(0.40)	
Women of childbearing age			
Hemoglobin	12.71	0.19	347
		(0.36)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 12: Juntos impacts on education

	All			Girls			Boys		
Variable	Average for control group	Juntos effect	Number of observations	Average for control group	Juntos effect	Number of observations	Average for control group	Juntos effect	Number of observations
Registered at school	0.81	0.04*	4,570	0.78	0.04***	2,309	0.79	0.05*	2,354
		(0.01)			(0.02)			(0.02)	
Attendance	0.80	0.01	4,557	0.75	0.03	2,304	0.78	0.03	2,356
		(0.01)			(0.02)			(0.02)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 13: Juntos impacts in education, disaggregated by age and gender

Variable	All			Girls			Boys		
	Average for control group	Juntos effect	Number of observations	Average for control group	Juntos effect	Number of observations	Average for control group	Juntos effect	Number of observations
Registered at school									
age 6	0.72	0.11**	524	0.74	-0.12***	250	0.66	0.05	265
		(0.05)			(0.07)			(0.07)	
age 7	0.83	0.10**	530	0.72	0.24*	279	0.84	-0.08	246
		(0.04)			(0.05)			(0.06)	
age 8	0.88	-0.01	558	0.92	-0.03	285	0.78	0.06	273
		(0.04)			(0.05)			(0.06)	
age 9	0.89	-0.05	498	0.86	-0.01	237	0.88	-0.10***	256
		(0.04)			(0.06)			(0.05)	
age 10	0.79	-0.01	541	0.81	0.02	289	0.79	-0.01	261
		(0.04)			(0.06)			(0.06)	
age 11	0.83	0.01	525	0.83	0.03	275	0.70	0.08	252
		(0.04)			(0.05)			(0.07)	
age 12	0.76	0.04	553	0.79	0.07	258	0.72	0.00	294
		(0.04)			(0.06)			(0.06)	
age 13	0.68	0.08	524	0.65	0.09	268	0.74	0.06	262
		(0.05)			(0.09)			(0.06)	
age 14	0.72	-0.01	488	0.58	0.09	207	0.72	-0.11	291
		(0.06)			(0.10)			(0.08)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

	All			Girls			Boys		
Variable	Average for control group	Juntos effect	Number of observations	Average for control group	Juntos effect	Number of observations	Average for control group	Juntos effect	Number of observations
School attendance									
age 6	0.70	0.12**	527	0.69	0.01	252	0.65	0.12***	268
		(0.05)			(0.08)			(0.07)	
age 7	0.80	0.13*	528	0.67	0.26*	282	0.81	-0.05	244
		(0.04)			(0.06)			(0.07)	
age 8	0.87	-0.04	556	0.88	-0.08	285	0.78	0.01	271
		(0.04)			(0.06)			(0.06)	
age 9	0.87	-0.03	500	0.81	0.00	235	0.79	-0.05	254
		(0.04)			(0.06)			(0.05)	
age 10	0.76	-0.06	535	0.77	0.03	292	0.80	-0.09	264
		(0.04)			(0.06)			(0.06)	
age 11	0.80	0.01	521	0.83	0.05	275	0.68	-0.02	244
		(0.04)			(0.06)			(0.07)	
age 12	0.74	-0.00	553	0.76	0.08	260	0.70	0.09	294
		(0.04)			(0.07)			(0.06)	
age 13	0.67	0.04	527	0.65	-0.01	265	0.68	0.00	259
		(0.05)			(0.09)			(0.06)	
age 14	0.68	-0.06	492	0.55	0.06	209	0.70	-0.11	293
		(0.06)			(0.10)			(0.07)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 15: Juntos impacts on educational spending

Household spending, per year, soles	Average for control group (soles)	Juntos effect	Number of observations
Uniforms	40.85	30.03* 5.81	2,503
Books and other supplies	1.01	-1.20 0.86	2,496
Tuition	61.86	-32.93** 16.39	2,497

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 16: Juntos impacts in labor markets

Variable	Average for control group	Juntos effect	Number of observations	Average for control group	Juntos effect	Number of observations	Average for control group	Juntos effect	Number of observations
Adults:		**All**			**Women**			**Men**	
employed	0.89	-0.02** (0.01)	5,593	0.88	-0.01 (0.01)	2,725	0.96	-0.02* (0.01)	2,943
number of hours worked last week	35.90	-0.27 (0.62)	5,576	32.34	-1.13 (0.80)	2,759	39.63	-0.18 (0.88)	2,943
Children:		**All**			**Girls**			**Boys**	
Worked last week	0.42	0.05** (0.02)	4,640	0.33	0.10* (0.03)	2,349	0.48	0.02 (0.03)	2,378

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 17: Juntos impacts in fertility, women of child-bearing age

Variable	Average for control group	Juntos effect	Number of observations
Gave birth in the last three years	0.25	-0.01	3,671
		(0.02)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Appendix B – Tables for Intensity effects:
Program participation less than 1 year versus 1-2 years

Table 18: Juntos impacts on poverty - intensity effects

Variable	Average for control group	1 year or less	13 to 25 months	F-test	Number of observations
Poverty	0.69	0.09*	0.06*	9.91	13,130
		(0.01)	(0.01)		
Extreme poverty	0.37	0.00	-0.04**	9.39	13,134
		(0.01)	(0.02)		
Poverty gap	0.46	-0.05*	-0.07*	8.62	10,912
		(0.01)	(0.01)		
Poverty severity	0.24	-0.05*	-0.05*	2.3	11,080
		(0.01)	(0.01)		

- denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level; all dependent variables are in logs
- F-test verifies whether effect of participation for 1 year or less is significantly different from the effect of participation for longer than 1 year.

Table 19: Juntos impacts on household consumption and income (per capita monthly) - intensity effects

Variable	Average for control group (soles)	1 year or less	13 to 25 months	F-test	Number of observations
Consumption	188.40	-0.03	0.02	2.14	2,506
		(0.03)	(0.04)		
Food consumption	94.54	-0.02	0.00	0.37	2,491
		(0.03)	(0.05)		
Non-food consumption	94.40	-0.01	0.04	1.31	2,498
		(0.04)	(0.06)		
Monetary spending	89.62	0.29*	0.48*	11.49	2,067
		(0.05)	(0.08)		
Monetary spending on food	45.65	0.20*	0.28*	1.12	2,046
		(0.06)	(0.10)		
Monetary spending on non-food	41.07	0.03	0.10	1.2	2,067
		(0.06)	(0.08)		
Total income	197.00	0.00	0.05	1.42	2,080
		(0.04)	(0.06)		
Monetary income	107.65	0.34*	0.51*	7.1	2,504
		(0.06)	(0.08)		

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level; all dependent variables are in logs

Table 20: Impacts on use of health services, children under 5 - intensity effects

Variable	Average for control group	1 year or less	13 to 25 months	F-tests	Number of observations
in case of illness, sought medical attention	0.43	0.24*	0.29*	4.5	1,129
		(0.05)	(0.07)		
received vaccinations in the last 3 months	0.36	0.00	-0.11**	6.87	2,300
		(0.03)	(0.04)		
received health checks in the last three monts	0.46	0.40*	0.47*	0.96	2,294
		(0.03)	(0.04)		

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 21: Impacts on the use of health services, women of child-bearing age - intensity effects

Variable	Average for control group	1 year or less	13 to 25 months	F-tests	Number of observations
in case of illness, sought medical attention	0.29	0.11*	0.18*	5.59	2,213
		0.03	0.04		
received vaccinations in the last 3 months	0.34	0.12*	-0.01	29.86	3,957
		0.02	0.03		
received contraceptives in the last 3 months	0.10	0.04*	0.04	0.24	3,970
		0.02	0.02		
received pre-natal checks in the last 12 months	0.08	-0.03**	-0.01	1.5	3,961
		0.01	0.02		
delivery was assisted by a doctor	0.41	0.00	0.18***	5.24	691
		0.06	0.09		
participated in the family planning activities	0.11	0.06*	0.07*	0.14	3,692
		0.02	0.02		
participated in the health campaigns	0.00	0.00	-0.00	2.93	3,968
		0.00	0.01		
received iron supplements	0.32	0.00	0.42	3.65	91
		0.24	0.32		

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 22: Juntos impacts on nutrition - food consumption - intensity effects

Variable	Average for control group (soles)	1 year or less	13 to 25 months	F-test	Number of observations
Breads and cereals	8.15	1.58*	2.32*	2.92	2,530
		(0.40)	(0.58)		
Meat	2.21	0.42	0.54	0.17	2,515
		(0.27)	(0.38)		
Seafood	1.44	-0.13	0.22	4.02	2,514
		(0.16)	(0.23)		
Milk, cheese, eggs	1.65	0.19	0.78*	7.7	2,529
		(0.20)	(0.29)		
Butter and oils	1.91	0.48*	0.69*	4.03	2,535
		(0.10)	(0.14)		
Vegetables	2.52	0.32**	0.77*	7.64	2,523
		(0.15)	(0.22)		
Fruit	1.40	0.45*	0.36***	0.41	2,521
		(0.13)	(0.19)		
Grains	0.72	0.42*	0.48*	0.27	2,525
		(0.11)	(0.16)		
Tubers	1.65	0.38**	0.75*	4.51	2,511
		(0.16)	(0.23)		
Sugar	2.65	0.28**	0.61*	4.91	2,527
		(0.14)	(0.20)		
Coffee, tea, cacao	0.28	0.03	0.03	0	2,502
		(0.05)	(0.07)		
Other	1.45	0.30*	0.77*	15.44	2,523
		(0.11)	(0.16)		
Non-alcoholic beverages	0.59	0.09	0.19***	1.42	2,535
		(0.08)	(0.11)		
Alcoholic beverages	0.28	-0.17**	-0.22**	0.43	2,524
		(0.07)	(0.11)		
Food consumed outside	11.62	-3.17**	-5.49*	2.53	2,531
		(1.35)	(1.94)		

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 23: Juntos impacts on self-reported health, intensity effects

Variable	Average for control group	1 year or less	13 to 25 months	F-tests	Number of observations
did not experience any illness in the last 4 weeks					
Children under 5	0.46	-0.00	0.09***	11.52	2,307
		(0.03)	(0.05)		
Women of childbearing age	0.46	-0.01	0.06***	7.71	3,954
		(0.03)	(0.04)		

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 24: Juntos impacts on final outcome indicators, intensity effects

Variable	Average for control group	1 year or less	13 to 25 months	F-tests	Number of observations
Children under 5					
Hemoglobin	11.45	0.17	-0.19	0.43	135
		(0.81)	(0.90)		
Height for age	-1.56	-0.14	-0.35	0.57	265
		(0.40)	(0.41)		
Weight for age	-1.12	0.51	0.32	0.49	271
		(0.35)	(0.37)		
Women of childbearing age					
Hemoglobin	12.71	0.17	-0.19	1.4	135
		(0.81)	(0.90)		

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 25: Juntos impacts on education: intensity effects

Variable	Average for control group	1 year or less	13 to 25 months	F-tests	Number of observations
All					
Registered at school	0.81	0.08*	0.14*	14.75	4,581
		(0.01)	(0.02)		
School attendance	0.80	0.03***	0.09*	17.17	4,581
		(0.01)	(0.02)		
Girls					
Registered at school	0.78	0.07*	0.13*	8.86	2,314
		(0.02)	(0.03)		
School attendance	0.75	0.03	0.11*	10.34	2,306
		(0.02)	(0.03)		
Boys					
Registered at school	0.79	0.05*	0.07*	0.86	2,347
		(0.02)	(0.03)		
School attendance	0.78	0.03***	0.08*	0.62	2,337
		(0.02)	(0.03)		

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 26: Juntos impacts on education, disaggregated by age and gender, intensity effects

	All			Girls			Boys		
Variable	1 year or less	13 to 25 months	F-tests	1 year or less	13 to 25 months	F-tests	1 year or less	13 to 25 months	F-tests
Registered at school									
age 6	0.11**	0.12***	0.06	-0.18**	-0.27*	1.87	0.10	0.14	0.20
	(0.05)	(0.07)		(0.07)	(0.09)		(0.07)	(0.10)	
age 7	0.13*	0.22*	3.72	0.21*	0.30*	2.77	-0.06	-0.09	0.20
	(0.04)	(0.06)		(0.05)	(0.08)		(0.06)	(0.08)	
age 8	0.05	0.10**	1.96	0.01	0.06	0.90	0.06	0.10	0.50
	(0.04)	(0.05)		(0.05)	(0.07)		(0.06)	(0.08)	
age 9	-0.07***	-0.06	0.09	-0.03	-0.00	0.19	-0.12**	-0.18**	0.75
	(0.04)	(0.06)		(0.06)	(0.09)		(0.05)	(0.08)	
age 10	-0.02	-0.02	0.00	-0.04	-0.01	0.29	0.01	0.00	0.02
	(0.04)	(0.06)		(0.06)	(0.08)		(0.06)	(0.08)	
age 11	0.00	0.05	1.08	0.06	0.13***	1.74	0.12***	0.17***	0.49
	(0.04)	(0.06)		(0.05)	(0.08)		(0.07)	(0.10)	
age 12	0.03	0.04	0.04	0.09	0.13	0.33	0.03	0.04	0.00
	(0.04)	(0.06)		(0.07)	(0.09)		(0.06)	(0.08)	
age 13	0.13**	0.16**	0.36	0.14	0.13	0.02	0.05	0.17**	3.50
	(0.05)	(0.07)		(0.09)	(0.13)		(0.06)	(0.08)	
age 14	-0.02	0.09	3.48	0.22**	0.66*	20.64	-0.13***	-0.25**	2.27
	(0.05)	(0.08)		(0.10)	(0.14)		(0.08)	(0.11)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 27: Juntos impacts on education, disaggregated by age and gender, intensity effects

Variable	All			Girls			Boys		
	1 year or less	13 to 25 months	F-tests	1 year or less	13 to 25 months	F-tests	1 year or less	13 to 25 months	F-tests
School attendance									
age 6	0.11**	0.22*	3.81	-0.05	-0.05	0.00	0.12***	0.24**	2.31
	(0.05)	(0.07)		(0.08)	(0.10)		(0.07)	(0.09)	
age 7	0.16*	0.25*	4.06	0.25*	0.42*	8.06	-0.07	-0.11	0.40
	(0.04)	(0.06)		(0.05)	(0.08)		(0.06)	(0.09)	
age 8	0.01	0.07	2.44	-0.05	-0.03	0.21	0.04	0.11	1.44
	(0.04)	(0.05)		(0.05)	(0.07)		(0.06)	(0.08)	
age 9	-0.06	-0.02	0.73	-0.01	0.01	0.12	-0.07	0.00	1.20
	(0.04)	(0.06)		(0.07)	(0.09)		(0.06)	(0.08)	
age 10	-0.06	-0.03	0.44	0.01	0.07	1.18	-0.06	-0.04	0.13
	(0.04)	(0.05)		(0.06)	(0.08)		(0.06)	(0.08)	
age 11	0.07***	0.13**	1.91	0.07	0.18**	3.35	-0.02	-0.03	0.00
	(0.04)	(0.06)		(0.05)	(0.08)		(0.07)	(0.10)	
age 12	0.03	0.07	0.51	0.11	0.16	0.46	0.07	0.12	0.67
	(0.04)	(0.06)		(0.07)	(0.09)		(0.06)	(0.08)	
age 13	0.05	0.09	0.87	0.06	0.08	0.07	-0.01	0.14	4.83
	(0.05)	(0.07)		(0.09)	(0.12)		(0.06)	(0.09)	
age 14	-0.07	-0.02	0.69	0.15	0.50*	11.96	-0.19**	-0.33*	2.92
	(0.05)	(0.08)		(0.10)	(0.15)		(0.08)	(0.12)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 28: Juntos impacts on labor markets, intensity effects

Variable	1 year or less	13 to 25 months	F-tests	1 year or less	13 to 25 months	F-tests	1 year or less	13 to 25 months	F-tests
Adults:		**All**			**Women**			**Men**	
employed	-0.02*	0.01	13.84	0.01	0.09*	26.15	-0.02*	-0.01	1.46
	(0.01)	(0.01)		(0.01)	(0.02)		(0.01)	(0.01)	
number of hours worked last week	-0.19	-0.99	1.30	-0.44	-0.11	0.16	-0.08	-1.02	0.98
	(0.64)	(0.93)		(0.76)	(1.12)		(0.86)	(1.25)	
Children:		**All**			**Girls**			**Boys**	
Worked last week	0.06*	0.05***	0.03	0.05***	0.07	0.18	0.02	-0.00	0.62
	(0.02)	(0.03)		(0.03)	(0.04)		(0.03)	(0.04)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table 29: Juntos impacts on fertility, women of child-bearing age - intensity effects

Variable	Average for control group	1 year or less	13 to 25 months	F-tests	Number of observations
Gave birth in the last three years	0.25	-0.00	0.01	0.23	3,700
		(0.02)	(0.03)		

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Appendix C: Robustness checks

As discussed in section 3.2.4, in order to verify the robustness of the results, Juntos impacts are examined with an alternative methodology. The use of instrumental variables allows one to isolate the effect of the program from the confounding factors, triggered by non-random distribution of transfers and systematic rollout of the program.

Let Y_i denote outcomes of interest, T_i be a dummy equal to one if the observation is a household or an individual i that received Juntos, and X_i represent a vector of individual, households and district level characteristics which can affect the outcome. In order to rigorously estimate the impact of Juntos on the outcomes of interest, treatment T_i can be instrumented with the district level proportion of enrolled beneficiaries among all the eligible at the time of the survey. The corresponding first-stage regression is:

$$T_i = \gamma_0 + \gamma_1 P_{ij} + \gamma_2 X_i + \xi_i, \tag{C1}$$

where P_{ij} is the ratio of enrolled beneficiaries in district j to all the eligible residents of this district in the month and year when individual i was interviewed in the ENAHO.

Given this, the second stage regression captures the impact of the program in the coefficient α_1:

$$Y_i = \alpha_0 + \alpha_1 T_i + \alpha_2 X_i + \varepsilon_i \tag{C2}$$

The identification is possible under the assumption that the proportion of enrolled beneficiaries influences outcomes, such as immunization and enrollment decisions, through individual participation in the program only. The absence of direct influence of the proportion of beneficiaries on the outcomes cannot be tested directly, but seems plausible: the incentives to comply with the conditions of the program are unlikely to depend on the beneficiary status of one's neighbors, or the speed of enrolment into the program. Income and poverty outcomes are unlikely to be affected by the changes in overall welfare in the village – the size of the transfer is not sufficiently large to generate such spillover effects over a short period of time.

The instrument is created using the data from two data sets. The "Padron de Beneficiarios", a set of administrative records used by Juntos administration, contains data on every receipt of the transfer, thus allowing one to calculate the number of beneficiaries every month in every district. Juntos census was used to reproduce calculation of the proxy means score and to determine the number of eligible in every district.

Table C1 contains the results of the first stage regressions at individual and household level. The proportion of enrolled eligible is a strong predictor of individual or household participation in the program – both coefficients are positive and significant at 1% level.

Tables C2 through C9 replicate estimation of the impact of Juntos on the set of outcomes examined in the previous sections, using the instrumental variables method described in this section. In summary, the results discussed in the previous sections are generally robust to the use of this alternative method. Instrumental variables estimation shows that Juntos had positive effect on the use of services by children under 5 and women of childbearing age (Tables C2 and C3). Table C4 shows that monetary spending on a number of food categories is higher among beneficiaries. The set of categories in which spending increased according to IV estimation almost overlaps with the set of food categories where positive effect on consumption was identified using propensity score matching. The impact on final outcome indicators in health and nutrition appears somewhat stronger when estimated using IV: hemoglobin levels and weight for age indicators are significantly higher for beneficiary children under 5, while hemoglobin levels also improve for women of childbearing age (Table C5). Results on education are similar between the two techniques (Table C6). Finally, the impact on the number of hours worked per week is consistent across estimation methodologies (both find a small decrease in the incidence of working, Table C7).

The one area where results are slightly mixed is with respect to welfare measures of poverty, income and consumption. While the two techniques yield similar impacts in monetary consumption (Table C9), the IV results indicate that Juntos beneficiaries are doing worse with respect to indicators of total income, consumption and poverty than non-Juntos beneficiaries (Tables C9 and C8). As discussed in the methodology section, this may be indicating the limitations of any of these techniques to fully create pure counterfactual controls. In the case of the IV, one explanation is that

the IV may not be purging all correlation between the treatment and omitted variables which are likely to affect the outcome due to non-random placement of the program.

Table C1: Instrumental variables estimation: first stage

Fraction of beneficiaries at interview date

household level regressions	0.48*	7,514
	0.02	
individual level regressions	0.59*	34,385
	0.01	

- denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level; other controls include household and district level characteristics[28]

Table C2: Juntos impacts in the use of services, children under 5 – IV estimates

Variable	Average for control group	Juntos effect	Number of observations
in case of illness, sought medical attention	0.52	0.10	2,342
		(0.07)	
received vaccinations in the last 3 months	0.38	-0.04	4,620
		(0.05)	
received health checks in the last three monts	0.53	0.45*	4,620
		(0.05)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

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[28] Household level controls include: dummies for access to potable water, electricity and hygienic bathroom, types of materials used in the construction of the house, ownership type. District level controls include percentage of households with access to potable water, electricity and hygienic bathrooms, percentage of dwellings with different types of construction materials, indicators of the severity of poverty, poverty gap, poverty measured as percentage of households with unsatisfied basic needs, indicators of exposure to violence and child malnutrition. District level variables also include dummies for geographical regions.

Table C3: Juntos impacts in the use of health services, women of child-bearing age– IV estimates

Spending on consumption group, soles	Average for control group	Juntos effect	Number of observations
in case of illness, sought medical attention	0.30	0.07	4,963
		(0.06)	
received vaccinations in the last 3 months	0.26	-0.18*	8,924
		(0.04)	
received contraceptives in the last 3 months	0.11	0.09*	8,924
		(0.03)	
received pre-natal checks in the last 12 months	0.07	-0.04	8,923
		(0.02)	
delivery was assisted by a doctor	0.48	0.15	1,261
		(0.10)	
participated in the family planning activities	0.12	0.09*	8,387
		(0.03)	
participated in the health campaigns	0.01	-0.01	8,924
		(0.01)	
received iron supplements	0.36	-0.13	229
		(0.55)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table C4: Juntos impacts in food consumption– IV estimates

Variable	Average for control group (soles)	Juntos effect	Number of observations
Breads and cereals	9.18	2.12** (1.00)	7,514
Meat	3.67	0.24 (0.82)	7,514
Seafood	1.49	-0.18 (0.35)	7,514
Milk, cheese, eggs	2.43	-0.57 (0.63)	7,514
Butter and oils	1.94	0.99* (0.22)	7,514
Vegetables	3.16	-0.35 (0.43)	7,514
Fruit	2.15	0.99** (0.45)	7,514
Grains	0.87	0.94* (0.25)	7,514
Tubers	1.82	1.00** (0.39)	7,514
Sugar	2.59	1.41* (0.31)	7,514
Coffee, tea, cacao	0.30	0.01 (0.12)	7,514
Other	1.82	-0.13 (0.30)	7,514
Non-alcoholic beverages	0.66	0.04 (0.23)	7,514
Alcoholic beverages	0.11	-0.05 (0.11)	7,514
Food consumed outside	14.63	0.27 (3.90)	7,514

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table C5: Juntos impacts in final outcome indicators– IV estimates

Variable	Average for control group	Juntos effect	Number of observations
Children under 5			
Hemoglobin	12.28	3.28*	249
		(1.12)	
Height for age	-1.35	0.24	505
		(0.41)	
Weight for age	-1.06	0.91**	505
		(0.44)	
did not experience any illness in the last 4 weeks	0.46	-0.00	4,620
		(0.05)	
Women of childbearing age			
Hemoglobin	14.33	1.09**	782
		(0.54)	
did not experience any illness in the last 4 weeks	0.44	0.02	8,924
		(0.04)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table C6: Juntos impacts on education– IV estimates

Variable	Average for control group	Juntos effect	Number of observations
Registered at school	0.76	0.12*	8,980
		(0.03)	
Attendance	0.71	0.13*	8,995
		(0.03)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table C7: Juntos impacts in labor market– IV estimates

Variable	Average for control group	Juntos effect	Number of observations
Adults:		**All**	
employed	0.83	0.04*	16,770
		(0.02)	
number of hours worked last week	35.35	-5.90*	16,677
		(1.24)	
Children:		**All**	
Worked last week	0.48	-0.11*	9,125
		(0.03)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table C8: Juntos impacts in poverty– IV estimates

Variable	Average for control group	Juntos effect	Number of observations
Poverty	0.69	0.15*	33,315
		(0.02)	
Extreme poverty	0.38	0.09*	33,315
		(0.02)	
Poverty gap	0.46	0.03**	26,614
		(0.01)	
Poverty severity	0.24	0.03*	26,614
		(0.01)	

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level

Table C9: Juntos impacts in household consumption and income (per capita monthly)
IV estimates

Variable	Average for control group (soles)	Juntos effect	Number of observations
Consumption	200.25	-0.27* (0.06)	7,514
Food consumption	90.59	-0.15** (0.07)	7,428
Non-food consumption	109.66	-0.39* (0.10)	7,514
Monetary spending	105.02	0.28** (0.12)	5,834
Monetary spending on food	53.26	0.68* (0.14)	5,756
Monetary spending on non-food	51.77	0.05 (0.13)	5,825
Total income	218.85	-0.40* (0.10)	5,853
Monetary income	126.39	-0.21 (0.15)	7,455

* denotes results significant at 1% level; ** denotes results at 5% significance level; *** denotes results at 10% significance level; all dependent variables are in logs