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DOCUMENTO DE TRABAJO N° 397

THE CONSUMPTION OF HOUSEHOLD GOODS,
BARGAINING POWER, AND THEIR RELATIONSHIP WITH
A CONDITIONAL CASH TRANSFER PROGRAM IN PERU

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Enero, 2015

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DOCUMENTO DE TRABAJO 397 http://files.pucp.edu.pe/departamento/economia/DDD397pdf © Departamento de Economía – Pontificia Universidad Católica del Perú,

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The Consumption of Household Good, Bargaining Power, and their Relationship with a Conditional Cash Transfer Program in Peru Lima, Departamento de Economía, 2015 (Documento de Trabajo 397)

PALABRAS CLAVE: Conditional Cash Transfers; Bargaining Power; Merit Goods; Demerit Goods.

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Hecho el Depósito Legal en la Biblioteca Nacional del Perú № 2015-02559. ISSN 2079-8466 (Impresa) ISSN 2079-8474 (En línea)

Impreso en Kolores Industria Gráfica E.I.R.L. Jr. La Chasca 119, Int. 264, Lima 36, Perú.

Tiraje: 100 ejemplares

THE CONSUMPTION OF HOUSEHOLD GOODS, BARGAINING POWER, AND THEIR RELATIONSHIP WITH A CONDITIONAL CASH TRANSFER PROGRAM IN PERU

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Resumen

La presente investigación evalúa el efecto del programa de transferencias condicionales

de dinero JUNTOS sobre el consumo de algunos bienes meritorios (como los alimentos)

y no meritorios (como las bebidas alcohólicas). Responderemos a las siguientes

preguntas: ¿Cuánto es el impacto de la transferencia entregada a las madres sobre el

consumo familiar de algunos bienes? En la investigación se utiliza la información

socioeconómica de la Encuesta Nacional de Hogares 2009-2012, en un panel no

balanceado. Los resultados de las estimaciones por efectos fijos arrojan sin lugar a

dudas que los hogares beneficiarios del programa JUNTOS destinan una mayor fracción

del gasto familiar al consumo de alimentos y a la educación.

Abstract

This research assesses the effect of the JUNTOS cash transfer program on the

consumption of certain merit goods (such as food) and demerit goods (such as alcoholic

drinks). We will address the following questions: How much of an impact does the

transfer made to mothers have on household consumption of certain goods? This

research utilizes socioeconomic information from the National Household Survey

(Encuesta Nacional de Hogares), 2009-2012 in an unbalanced panel. The results of the

fixed-effects estimates unquestionably show that the JUNTOS program's beneficiary

households spend a large proportion of the family budget on food consumption and

education.

Keywords: Conditional Cash Transfers; Bargaining Power; Merit Goods; Demerit Goods

JEL Classification: D12, I38

## THE CONSUMPTION OF HOUSEHOLD GOODS, BARGAINING POWER, AND THEIR RELATIONSHIP WITH A CONDITIONAL CASH TRANSFER PROGRAM IN PERU

Luis García

#### 1. INTRODUCTION

In 2005, with the introduction of the JUNTOS program, Peru joined the ranks of those developing countries that have implemented innovative conditional cash transfer programs aimed at reducing poverty and child labor. At present, the program pays out to more than half a million households. JUNTOS involves the transfer of cash<sup>1</sup> to mothers from poor families conditional to certain commitments, such as school attendance by their children, the application of vaccinations, food provisioning, medical checkups, etc. In this way, these Conditional Cash Transfer (CCT) policies provide economic assistance to households in extreme poverty. The initial assessments of this program have yielded results in line with policymakers' expectations. Perova and Vakis (2009 and 2011), for instance, have noted a reduction in both the poverty gap and severity of poverty, an increased uptake of health services, and a slight rise in the consumption of certain foods in comparison with similar, non-participating households. Moreover, there has been a rise in school enrollment among 6 and 7 year-old children, though not for other age groups. The study found no evidence that the JUNTOS program increases alcohol and tobacco consumption.

In this document, we research the effects of these conditional transfers on the consumption of certain goods and services that do not form part of the conditions. We proceed from the notion that households can use payments for the purchase of goods and services that they deem necessary, based on their preferences. Given that the money is transferred to mothers, purchases can go towards goods they consider to be important (called merit goods in this research), such as, for example, food, clothing,

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Though at present the payout is only 100 soles per month (around US \$30), this is not a negligible sum for low-income households. It represents approximately 15% of the Minimum Living Wage and exceeds the monthly income of many poor households. According to statistics from the National Household Survey on Living Conditions and Poverty (ENAHO 2010), 13.2% of rural households have a net family income of less than 100 soles per month, while 26.0% of rural households take in under 200 soles.

and their children's education (Thomas, 1990; Schultz, 1990). However, the availability of the cash is also influenced by women's empowerment, as those who lack intrahousehold bargaining power may be susceptible to the appropriation or reassignment of the cash transfers by their spouses for the purchase of goods that are not desirable as part of the program. These goods, known as demerit, are generally intended for adult consumption, such as alcoholic drinks and tobacco. To give an extreme example, a woman without any intra-household bargaining power would be incapable of administering the subsidy, as she would be inclined to hand over all of the money to her spouse, who in turn would use at least part of the economic assistance for personal consumption.

This research seeks to come up with qualitative responses to the following concerns: How much of an impact does the transfer made to mothers have on household consumption? To what extent are the results affected by the bargaining power of the mothers in receipt? This paper contributes to the literature providing new evidence on the expected and unexpected effects of conditional cash transfer.

In Section 2 we briefly review the theoretical and empirical literature on conditional transfers, placing emphasis on the effect on the consumption of goods and the relationship with bargaining power. In Section 3 we propose an econometric model with panel data. In Section 4 we determine the endogenous variables and the main regressors of interest for the study. In Section 5 we analyze the principle statistical and econometric results from the study. Finally, in Section 6 we present the conclusions.

#### 2. THEORETICAL FRAMEWORK

There have been a number of approaches taken to this area. Becker (1965, 1981) devised the "family income/family budget" model, also known as the "unitary" model, in which all household members share the same preferences —or one dictates to the rest— and share the same budget. Nonetheless, empirical evidence from developed and underdeveloped countries has rejected this model for not predicting household conduct effectively (Quisumbing and Maluccio 1999).

Other more realistic "non-unitary" models hold that household members have different preferences due to the goods they consume, as well as not sharing 100% of household resources, and that final household decisions depend on some kind of bargaining mechanism among members (McElroy and Horney, 1981; Chiappori, 1992), or the assignation of resources by way of Pareto efficiency criteria (Basu, 2004). Carter and Katz (1997) devised the conjugal contract model, which was further developed by Gitter (2006) to study the effect of conditional cash transfers. This model, unlike those that preceded it, includes household chores as a public good in the household, which creates further connections between household members that add to mere intrafamilial cash transfers.

There have been several previous studies on conditional cash transfers given out to mothers in a number of countries in Latin America and elsewhere. In the case of empirical work on conditional cash transfers and female empowerment, Gitter and Barham (2008) study the effect of the Nicaraguan program *Red de Protección Social* (Social Protection Network), where they acknowledge that the impact of this CCT program may vary depending on the bargaining power of mothers who receive the subsidy. These authors measure the bargaining power of mothers through the years of education that both partners have. In a previous study, Gitter (2006) finds that the transfer given to mothers does not have a significant effect on family alcohol and tobacco consumption (which is usually ascribed to men). The author concludes that the program has succeeded in increasing the intra-household bargaining power of mothers.

There have been several studies on the Mexican conditional cash transfer program, *Oportunidades* (Opportunities; previously known as *Progresa* - Progress) related to child labor, school assistance, and the consumption of merit goods. Skoufias and Parker (2001) find that the program reduced child labor in Mexico, measured as the probability of working, and increased school attendance. For his part, Schultz (2004) finds that the program has a positive effect on child enrollment rates. Gertler (2004) points out that *Oportunidades/Progresa* has had a significant impact on certain health indicators, such as reduced likelihood of illness, especially of anemia, and increased child height. In addition, Hoddinott and Skoufias (2004) discover that, as well as consuming more calories, beneficiary households enjoy a better diet based on vegetables and animal products.

Another program similar to *Oportunidades/Progresa* is Brazil's *Bolsa Familia* (Family Allowance), which also consists of cash transfer to mothers, conditional on child school attendance and other undertakings. Denes (2003) shows that the program has been successful in reducing school dropout and child labor rates among 10 to 14 year-olds. Cardoso and Souza (2004) and Souza (2005) find that *Bolsa Familia* increases school attendance, though they do not note a clear effect on child labor, given that work and study are compatible activities in Brazil.

As Schultz (1990) points out, the different forms of non-labor income tend to have a different impact on consumption and labor supply, as some of these sources of income are linked to past consumption and investment decisions, and thus to preferences. Nonetheless, there are other sources that can be considered as exogenous, such as inheritance, transfers from family members or others, transfers from the government, property rental when the recipients are young, etc. For his part, Thomas (1990) separates men's and women's labor income and calculates the impact of this form of income on certain results related to child welfare, such as calories and proteins consumed, number of live-born children, size/weight ratio, and size/age/weight ratio, finding that the non-labor income received by mothers has a greater impact.

In another study, Bhalotra and Attfield (1998), utilizing semiparametric techniques to estimate Engel curves, analyze possible inequities in household consumption in

Pakistan, finding a tendency towards consumption by adult males. Quisumbing and Maluccio (1999) assess the effect of parents' asset possession on certain family outcomes, such as the fraction of the budget spent on food, healthcare, education, and clothing for the children, as well as some individual outcomes such as educational attainment. Their main argument is that these assets increase the bargaining power of mothers, and thus lead to improved healthcare, education, and food consumption.

In summary, the various theoretical and empirical studies on the subject of conditional transfers and household resource allocation show that these transfers bring about the expected results on the variables related to conditionality. However, there is still little evidence available on the role of bargaining power and the consumption of merit goods.

#### 3. THE ECONOMETRIC MODEL

The econometric model that will be employed here is similar to that which features in Thomas (1990) and Schultz (1990), only based on the information concerning participation in the JUNTOS program.

Family spending is usually presented in household surveys on an aggregate basis, without distinction of individual consumption. One alternative employed in the empirical literature (Gitter, 2006; Bhalotra and Attfield, 1998; Quisumbing and Maluccio, 1999) is to identify those goods that are typically consumed by adults (e.g. alcohol and tobacco, and others that correspond to children and the family (e.g. food consumption, clothing for children, education expenses, etc.).

In the econometric model, the unit of analysis is the household. Let  $J_{it}$  be a dummy variable that takes the value of 1 if the i-th household is a beneficiary of the JUNTOS program at time t, and 0 if it is not a beneficiary. Let  $X_{it}$  be a vector of variables that describe the i-th household at moment t, and may include household income, household socioeconomic characteristics, etc. Finally, let  $y_{it}$  be the endogenous variable selected (such as the fraction of spending on a good compared with overall family spending); the household econometric model i in the period t is:

$$y_{it} = \beta_0 + \beta_1 J_{it} + \beta' X_{it} + c_i + u_{it}$$
 (1)

which includes an unobservable error component specific to the household and invariable in time ( $c_i$ ). This component arises from the observation of certain variables of household tastes and preferences. It should be mentioned that participation in the program (variable  $J_{it}$ ) is not completely exogenous given that it could be correlated with  $c_i$ , as it responds in part to individual preferences and to the program implementers' decisions in the selection of beneficiary areas.

#### 4. VARIABLES AND DATA

The fraction of expenditure on food, clothing and footwear for children, education, healthcare, tobacco, and alcoholic and soft drinks, set against total family expending expressed as a percentage, were chosen as variables. The former three are goods that, in regulatory terms, should be promoted and consumed by households. The remainder are demerit goods that do not make a positive contribution to households.

The category of food refers to those items that are purchased for preparation at home. It does not cover expenditure on pre-prepared food, such as in restaurants. The foods included in this research are bread rolls and others; pastries; rice (regular and highgrade); milk; potatoes (blanca variety and others); eggs: beef and other red meats; chicken and other poultry; meat products (bacon, sausages, etc.); beef liver, beef tripe, and other offals; corn, cornflour, corn nuts and other derivatives; wheat, wheatflour, and oats; quinoa, quinoa flour and derivatives; peasemeal, flour of broad beans, cassava and others; pasta (loose or packaged); fresh fish, canned tuna, sardines, and others; fresh cheese, butter (loose and packaged), yogurt, and other dairy products; lentils, peas, broad beans, beans, and other pulses; onions (white, red, etc.,); tomatoes (plum, red); carrots, squash, sweetcorn, sweet potato, and cassava; other vegetables and legumes; lemons, tangerines and oranges; papayas; all types of banana; and other fruits (apple, pineapple, etc.).

For the estimation of the model (1), a panel database for the years 2009, 2010, 2011, and 2012 was constructed based on the National Household Survey (ENAHO). This

panel is not balanced, in that for some families no information is available for these four years. These household surveys contain socioeconomic information on Peruvian households throughout the country. Only those households with children aged fourteen or below were considered.

For the purposes of this study, ENAHO is a suitable database, as it contains information on household participation in the JUNTOS program, on expenditure and consumption by household members on the aforementioned items, and on sources of family income, among other household socioeconomic characteristics (such as household size, composition, education level, presence of children, school attendance, health conditions, etc.

The bargaining power of mothers has been calculated in a similar way to Gitter and Barham (2008). With respect to the couple in charge of each household (the head and his or her spouse), the male head of household is called the "father", while the female head of household is referred to as the "mother". Then, bargaining power is calculated by way of the formula:

Bargaining Power = 
$$\frac{\text{Mother's years of education} + 1}{\text{Father's years of education} + 1}$$

In this case, the larger these variables are, the greater the bargaining power of the mother is expected to be. In accordance with what we have seen in the literature, this variable is expected to have a positive impact on merit goods, and a negative impact on demerit goods.

As has been mentioned, a dummy variable was constructed with respect to the participation of one household in the JUNTOS program in a given year. In the panel sample, it was seen that some households had a constant presence in the program, but the vast majority never participated during the two year of the panel. Meanwhile, another 209 households in the sample entered or left the program. In econometric terms, the calculated effect of JUNTOS on the fractions of expenditure on goods is identified for precisely those households that displayed variation in time for the dummy variable. If the goods are normal, the effect of JUNTOS should be positive,

whether they are merit or demerit.

The other control variables employed in the study are: the aggregate family expenditure logarithm, the number of children aged under 14, the average years of education of the parents, the logarithm of other transfers received by the household (not counting JUNTOS), and a dummy variable if the household is a beneficiary of other social programs.

## 5. ANALYSIS OF THE OUTCOMES OF THE EFFECT OF JUNTOS ON THE CONSUMPTION OF GOODS

#### 5.1 <u>Descriptive Statistics</u>

JUNTOS is a conditional cash transfer program, with payment received by mothers for administration to the benefit of their children. Implemented in 2005 during the government of Alejandro Toledo, its objective from the outset was to provide monetary assistance to poor families, on the condition that the children in the household attend school, that their vaccinations and growth and development checkups are kept up-to-date, and that the mothers attend family planning talks, among other requirements. The amount transferred is 100 Peruvian nuevos soles per month (approximately 35 US dollars).

The program started up as a token gesture in 2005, in the district of Chuschi in the region of Ayacucho, a part of Peru blighted by poverty and by the terrorist violence of 1980-1992. At its launch, 1,041 households in the district benefited. Beneficiaries were subjected to socioeconomic studies with the purpose of verifying that the households were impoverished. In the months and years that followed, it was gradually expanded into other poor, essentially rural, districts and areas throughout Peru. Thus, by the end of 2013 JUNTOS had spread to fourteen regions of Peru, serving 718,275 registered households and aiding 1.5 million children, youths, and expectant mothers.<sup>2</sup>

At present, the JUNTOS program entails a two-stage targeting approach: In the first stage, the districts with the highest rates of child malnutrition and poverty, and those

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http://www.juntos.gob.pe/index.php/usuarios/quienes

with the highest number of children aged three or below, are identified. In the second stage, poor households are targeted, based on socioeconomic criteria. This stage can either encompass all poor households in the district, or allow household members to come forward voluntarily for registration, assessment, and subsequent qualification as program beneficiaries or otherwise.

Utilizing the information from ENAHO 2009-2012, Table 1 shows us the make-up of households, year on year, by level of poverty and participation in the JUNTOS program.

Table 1
Distribution of JUNTOS beneficiary and non-beneficiary households in Peru, by levels of poverty (2009-2012)

		JUNTOS	No JUNTOS	Total
2009				
Extremely poor		38.4%	6.1%	8.0%
Poor		44.3%	18.9%	20.3%
Non-poor		17.3%	75.0%	71.7%
	Total	100.0%	100.0%	100.0%
2010				
Extremely poor		30.2%	4.7%	6.2%
Poor		46.2%	17.6%	19.4%
Non-poor		23.6%	77.7%	74.3%
	Total	100.0%	100.0%	100.0%
2011				
Extremely poor		24.5%	3.9%	5.2%
Poor		44.4%	16.2%	17.9%
Non-poor		31.1%	80.0%	76.9%
	Total	100.0%	100.0%	100.0%
2012				
Extremely poor		25.7%	3.3%	4.7%
Poor		41.8%	15.0%	16.7%
Non-poor		32.5%	81.7%	78.7%
	Total	100.0%	100.0%	100.0%

Source: ENAHO 2009-2012. Compilation: Author's own work

As can be seen, poverty in Peru has fallen steadily. Likewise, coverage of the JUNTOS program has now been expanded to non-poor households, and this coverage has increased year-on-year. Indeed, in 2009 17.3% of beneficiary households did not correspond to any of the categories of poverty. This percentage has since grown

steadily, reaching 32.5% in 2012. At the same time, the proportion of those in extreme poverty who are not enrolled in the program dropped to 3.3% in 2012. There are two possible explanations for this result: Firstly, it could be that there are problems of filtration when households are selected, with the result that a number of non-poor households receive the benefit without entitlement to it. The second possible explanation is that some long-standing program participants are now emerging from poverty, but are still registered as beneficiaries. For both of these cases further research is required to confirm or reject the hypothesis, which is beyond the scope of this study.

Moving on to the unbalanced panel sample<sup>3</sup>, Table 2 shows the descriptive statistics of the expenditure on merit and demerit goods, expressed in percentages, for the 6,639 households in the 2009-2012 unbalanced panel. The total number of observations (household data in time) in the calculation of averages for Table 2 may vary, depending on the presence of missing data. This number ranges from 14,735 to 14,809. The percentages mentioned are disaggregated by receipt or non-receipt of the JUNTOS program transfer. In this study, 1,085 households attested to receipt of transfers from the program for at least one year, while 6,768 households never benefited in the four years of the sample.

Aided by Box-plot graphics (not shown in this document), outliers were eliminated following these *ad hoc* criteria: for the variables with asymmetrical distributions with long right tails, all values higher than six standard deviations from the average were dismissed. For apparently symmetric distributions (such as the logarithm of income and parents' average years of education), the upper and lower values of three standard deviations from the average were dismissed.

Table N° 2

Descriptive statistics of the percentages 1/ of annual expenditure on goods for households from the unbalanced panel sample, 2009-2012 (households with children < 14 years of age)

	JUNTOS <sup>2/</sup>			No	Non-JUNTOS		
	Average	Min	Max	Average	Min	Max	Average
Food	15.97	0.00	64.25	21.94	0.00	68.14	21.04
Children's clothing and footwear	1.67	0.00	13.27	1.47	0.00	13.36	1.50
Education	4.49	0.00	20.00	3.66	0.00	19.80	3.78
Healthcare	2.00	0.00	34.59	3.59	0.00	34.45	3.35
Alcoholic and soft drinks	0.31	0.00	4.53	0.51	0.00	5.26	0.48
Tobacco	0.02	0.00	1.58	0.04	0.00	1.60	0.03

<sup>1/</sup> The percentages per column do not add up to 100%, as the list does not include all goods from the family shopping basket.

Source: ENAHO 2009-2012. Compilation: Author's own work

Table 2 shows that the Food category accounts for the largest share of family expenditure among all the goods and services studied, at an average of a little more than 11% of the family shopping basket. It should be noted that the food items included in this category do not cover all of those consumed by the household; only those included on the list shown in Section 4. This is followed by Education (almost 4%), which is slightly higher for program beneficiaries. In the case of healthcare, the percentage of spending stands at 3.3% overall, but this percentage is lower for households that are beneficiaries of the program. However, the maximum and minimum values are similar.

As for spending on children's clothing and footwear, the percentage of total expenditure is slightly higher in beneficiary households. Finally, spending on alcoholic and soft drinks, and on tobacco, the percentage is 0.02% for households in the program and 0.04% for household that are not in the program.

Table 3 shows descriptive statistics pertaining to the remaining quantitative variables used in this part of the study. This table enables a comparison of sample households that are in and those that are not in the JUNTOS program. It can be seen that

<sup>2/</sup> All differences in averages between JUNTOS and Non-JUNTOS are statistically significant at 1%.

households registered to JUNTOS have lower family spending than the households that are not in the program. Moreover, beneficiary households are larger, with more children below the age of 14 per household, as well as an average of four years less schooling. In addition, JUNTOS beneficiary households receive less external transfers, and heads of household and their spouses have considerably lower income than their peers in non-participating households.

Table N° 3

Descriptive statistics of the remaining quantitative variables in the unbalanced panel, 20092012 (households with children < 14 years of age)

		JUNTOS	5	N	o JUNT	os	Total
	Average	Min	Max	Average	Min	Max	Average
Log (total household expenditure)	9.23	7.79	10.91	9.83	7.80	11.69	9.74
Number of household members	5.79	2.00	14.00	5.18	2.00	16.00	5.26
Number of children < 14 years of age	2.69	1.00	8.00	1.99	1.00	9.00	2.09
Log (other transfers <sup>2/</sup> )	0.13	0.00	9.04	0.63	0.00	11.30	0.56
Average years of education of head of household and spouse	4.07	0.00	17.00	8.05	0.00	18.00	7.47
Income of male head of household or partner (nuevos soles/year)	1675.50	0.00	26426.0	7078.86	0.00	90604.0	6276.2
Income of female head of household or partner (nuevos soles/year)	1365.53	0.00	18076.0	2603.02	0.00	45456.0	2421.9

<sup>&</sup>lt;sup>1/</sup> All differences in averages between JUNTOS and Non-JUNTOS are statistically significant at 1%.

Source: ENAHO 2009-2012. Compilation: Author's own work

Table 4 shows the descriptive statistics of the qualitative variables for the panel sample of households with children below the age of 14. It can be seen that 95% of households that participate in JUNTOS live in rural areas, while non-participating households are predominantly urban. The table also shows that 80% of households are led by males, with minimal differences when disaggregating into participants and non-participants.

<sup>&</sup>lt;sup>2/</sup> Transfers not including JUNTOS.

In the case of ownership of schools attended, almost 100% of children in rural areas are educated at public schools. With respect to children from households that do not participate in the JUNTOS program, 80.9% attend state schools, while 3.5% of households have their children distributed between state and private schools. Additionally, 86.0% of JUNTOS beneficiary households are found to participate in other social programs, a result which is perhaps related to the fact that the program is geared towards the needlest sectors. Of those that do not participate in JUNTOS, 50.3% receive support from other social programs.

Table N° 4
Frequencies of qualitative variables in the unbalanced panel sample 2009-2012)
(households with children < 14 years of age)

	Variable	Total	JUNTOS	No JUNTOS
Area of residence	Urban	55.9%	4.9%	64.5%
	Rural	44.1%	95.1%	35.5%
Sex of head of household	Male	83.0%	86.5%	82.5%
	Female	17.0%	13.5%	17.5%
Household structure	Single parent - male head	79.5%	84.2%	78.7%
	Two parent - female head	2.0%	0.9%	2.2%
	Single parent - male head	3.5%	2.3%	3.7%
	Single parent - female head	14.9%	12.7%	15.3%
Ownership of children's school	Only public schools	83.8%	99.2%	80.9%
	Only private schools	13.2%	0.4%	15.6%
	Combination	3.0%	0.5%	3.5%
Other social programs	Do not receive	44.5%	14.0%	49.7%
	Receive	55.5%	86.0%	50.3%

Source: ENAHO 2009-2012. Compilation: Author's own work

#### 5.2 Econometric estimates of the determinants of expenditure on goods

#### 5.2.1 Ordinary Least Squares (OLS) pool sample estimation

By way of exploration, the ordinary least squares equation (1) was estimated based on the unrealistic assumption that all panel sample observations are independent from one another. Set out in Table N° 5 are the pool OLS estimates of the determinants of percentages of expenditure on food and services selected in this study. This table shows statistical associations between the variables that cannot be deemed causal effects. As we have seen, there may be a self-selection mechanism of some kind in the program, in that within the targeting criteria there is open mobility on the part of registered families. This leads to a correlation between the program's dummy variable and household preferences, with the latter variable unobserved. The main consequence is the skewing and inconsistency of these estimates. For example, the coefficient of the dummy JUNTOS shows a negative and significant sign in food, healthcare, drink, and tobacco consumption. This does not mean that the program causes a reduction in the consumption of these goods, only that the beneficiary households consume less, as is to be expected of poor households. A similar noncausal interpretation can be made of the negative coefficient of parents' education on healthcare: in those households where the parents have a low level of education, healthcare spending accounts for a larger proportion of the total family expenditure.

Table N° 5
Results of OLS estimates
(complete pool sample, 2009-2012)

VARIABLES	(1) Food	(2) Clothing and Footwear	(3) Education	(4) Healthcare	(5) Drinks	(6) Tobacco
						_
Log of family expenditure	62.953***	0.115	0.749	-1.027	1.318***	-0,026
•	(3.038)	(0.577)	(0.865)	(1.328)	(0.198)	(0.043)
(Log of family expenditure)^2	-3.396***	-0,014	-0,054	0.132*	-0.064***	0,002
,	(0.154)	(0.029)	(0.044)	(0.069)	(0.010)	(0.002)
Number of children < 15 years of age	-0.218***	0.216***	0.403***	-0.287***	-0.006	0.005***
	(0.081)	(0.014)	(0.020)	(0.033)	(0.005)	(0.001)
Parents' years of education	0.411***	0.072***	0.091***	-0.068***	0.003**	-0.001***
	(0.023)	(0.004)	(0.006)	(0.011)	(0.002)	(0.000)
Log of other transfers	0.103**	-0.025***	-0.027**	0.051**	-0.009***	0.002**
	(0.040)	(0.007)	(0.011)	(0.022)	(0.003)	(0.001)
JUNTOS dummy	-5.331***	0.160***	0.844***	-0.705***	-0.143***	-0.021***
	(0.273)	(0.049)	(0.071)	(0.112)	(0.015)	(0.003)
Other programs	-1.498***	0.162***	-0.435***	-0.030	-0.002	0.007***
	(0.200)	(0.035)	(0.048)	(0.090)	(0.014)	(0.003)
Constant	-269.56***	0.578	0.223	2.027	-6.207***	0.111
	(14.989)	(2.841)	(4.254)	(6.383)	(0.958)	(0.204)
Observations	14,766	14,742	14,754	14,725	14,722	14,693
R-squared	0.095	0.037	0.056	0.052	0.015	0.007

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

Source: ENAHO 2009-2012. Compilation: Author's own calculations.

#### 5.2.2 Fixed Effects Estimation

Under the assumption that omitted variables that are correlated to the JUNTOS dummy are invariable in time, in this section we carry out a fixed effect estimation of the model (1).<sup>4</sup>

It should be noted that in this model, the identification of the JUNTOS program effect lies in the sample variability of the JUNTOS dummy between individuals and over time. Exploring the data, we found that of the 1,085 households in the panel sample that were JUNTOS program beneficiaries at one time, 209 were mobile in some way, whether into or out of the program.

The results of the fixed effects estimate are shown in Table 6. Turning our attention to the effect of the JUNTOS dummy —our variable of interest— it turns out that this effect is very different to the OLS estimate. In column (1) the effect of the program on the fraction of spending on food is positive and significant, which suggests that the cash transfer to mothers has the desired effect on this merit good. This is also true with respect to the fractions of spending on children's clothing and footwear and on education, both of which are merit goods. Nonetheless, no statistically significant effect can be seen on the fraction of spending on healthcare. Finally, there likewise appears to be no significant effect on the fractions of expenditure on drinks and tobacco, which are demerit goods.

As regards the effects of other variables, the higher the number of small children there are in the household, the larger the fractions of expenditure on food, children's clothing and footwear, and healthcare will be, as is to be expected, though there is no such effect on education. Parents' education appears not to affect any of the endogenous variables proposed. In the case of the effect of other cash transfers received by the households, these only have an effect on the fraction of spending on

were opted for here.

We also carry out random effects estimations, where we assume that the problem of endogeneity of the regressors is non-existent. Nonetheless, the results of the Hausman Test on the specification of models showed in most cases that the fixed effects model was the most suitable. Moreover, considering that the fixed effects estimate is consistent and in light of the theoretical discussion on the presence of non-observable variables, fixed effects estimates

tobacco. Finally, it is interesting to note that other social programs (food programs, for instance) have a negative effect on the fraction of spending on food.

Table N° 6
Results of fixed effects estimates
(complete sample)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Food	Clothing and Footwear	Education	Healthcare	Drinks	Tobacco
						_
Log of family expenditure	29.734***	-0.240	-4.630***	-6.642**	0.601+	0.045
•	(4.915)	(1.113)	(1.194)	(2.730)	(0.381)	(0.106)
(Log of family expenditure)^2	-1.897***	0.017	0.142**	0.432***	-0.031+	-0.002
,	(0.252)	(0.057)	(0.061)	(0.143)	(0.020)	(0.005)
Number of	0.334*	0.308***	0.057	0.163+	-0.011	-0.001
children < 15 years of age						
· ·	(0.177)	(0.040)	(0.045)	(0.101)	(0.015)	(0.003)
Parents' years of education	0.167	-0.006	0.025	0.053	0.009	-0.003
	(0.117)	(0.024)	(0.027)	(0.060)	(0.009)	(0.002)
Log of other transfers	-0.051	0.003	-0.003	-0.024	0.000	0.003**
	(0.065)	(0.015)	(0.017)	(0.042)	(0.006)	(0.002)
JUNTOS dummy	1.477**	0.255*	0.460***	0.155	-0.007	0.009
	(0.617)	(0.153)	(0.161)	(0.330)	(0.054)	(0.006)
Other programs	-0.411*	0.068	0.023	0.293**	-0.009	0.006
	(0.246)	(0.054)	(0.061)	(0.144)	(0.022)	(0.004)
Constant	-89.677***	1.476	34.965***	25.897**	-2.430	-0.218
	(23.941)	(5.455)	(5.842)	(13.014)	(1.847)	(0.515)
Observations	14,766	14,742	14,754	14,725	14,722	14,693
R-squared	0.077	0.008	0.082	0.015	0.001	0.002

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

Source: ENAHO 2009-2012. Compilation: Author's own calculations.

In Table 6, female bargaining power has not been taken into account as a determining factor. As an introduction to this element we will determine two levels of bargaining power, based on the definition given in Section 4. If this variable has a value higher than 1 (the female head of household has more years of education than the male head), we will assume that the bargaining power is high. If the variable has a value equal to or less than 1, we can say that female bargaining power is low. We will now see how the results in Table 6 change when the sample is divided up into these two levels of bargaining power.

In Table 7, the results of those estimates with high bargaining power can be seen. In this case, the dummy variable for the JUNTOS program is not statistically significant in any case except that of education, which means that with a high level of bargaining, the program has a positive impact on the fractions of spending on education. This dummy also has a positive effect on the fraction of spending on food, but this is only statistically significant at 15%. However, it is worthy of note that this effect has a larger magnitude than that shown in Table 6. Another feature of Table 7 is that no other significant determinants on the fraction of spending on children's clothing and footwear can be observed, except for the number of children; this variable also affects the fraction of spending on healthcare.

Table N° 7
Results of fixed effect estimates
(High bargaining power)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Food	Clothing and Footwear	Education	Healthcare	Drinks	Tobacco
Log of family expenditure	8.993	-3.310	-6.522**	9.332	0.429	-0.035
•	(12.293)	(2.677)	(2.904)	(6.971)	(0.949)	(0.222)
(Log of family expenditure)^2	-0.864	0.169	0.227+	-0.397	-0.021	0.003
,	(0.621)	(0.135)	(0.148)	(0.357)	(0.049)	(0.011)
Number of	0.405	0.409***	0.077	0.361*	-0.010	0.002
children < 15 years						
of age						
	(0.457)	(0.113)	(0.123)	(0.214)	(0.039)	(0.009)
Parents' years of education	0.246	-0.041	-0.115	-0.138	-0.002	-0.005
	(0.357)	(0.076)	(0.080)	(0.187)	(0.030)	(0.008)
Log of other transfers	0.021	-0.013	0.028	0.021	-0.009	0.006
	(0.163)	(0.037)	(0.055)	(0.104)	(0.013)	(0.005)
JUNTOS CCT	2.887+	0.423	0.760*	-1.165	0.005	0.002
	(1.801)	(0.361)	(0.450)	(0.930)	(0.99)	(0.005)
Other programs	0.192	0.071	-0.010	0.179	-0.031	-0.015
	(0.567)	(0.128)	(0.149)	(0.335)	(0.056)	(0.011)
Constant	14.057	17.112	46.380***	-49.328+	-1.641	0.136
	(60.973)	(13.273)	(14.298)	(33.986)	(4.628)	(1.077)
Observations	3,494	3,489	3,493	3,484	3,483	3,469
R-squared	0.082	0.013	0.104	0.016	0.001	0.005

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

Source: ENAHO 2009-2012. Compilation: Author's own calculations.

We will not present the results when bargaining power is low; that is, the male head of household has more years of education than the female head. Table 8 gives the results of the fixed-effect regressions for this level of bargaining. With regard to our variable of interest, we can see that the effect of the JUNTOS program on the fractions of spending on food and education is positive and significant, even though the magnitudes of the coefficients are a little lower than in the previous tables. Similarly to the previous results, the only variable that would seem to affect the fractions of spending on children's clothing and footwear is precisely the number of children in the household. Once again, is notable here that when women have low bargaining power,

income from other transfers and participation in other programs give rise to a greater fraction of spending on tobacco. Nonetheless, the JUNTOS program does not appear to have this effect, regardless of whether female bargaining power is high or low. Finally, parents' education would only seem to affect the fraction of spending on education positively, a result which is not observable in any of the previous tables.

Table N° 8
Results of fixed effect estimates
(Low bargaining power)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Food	Clothing and Footwear	Education	Healthcare	Drinks	Tobacco
-						
Log of family expenditure	34.191***	0.076	-4.767***	-10.983***	0.531	0.070
•	(5.695)	(1.330)	(1.389)	(3.334)	(0.444)	(0.129)
(Log of family expenditure)^2	-2.112***	-0.000	0.152**	0.660***	-0.027	-0.003
	(0.294)	(0.068)	(0.071)	(0.176)	(0.023)	(0.007)
Number of	0.231	0.280***	0.037	0.151	-0.003	-0.001
children < 15 years						
of age						
	(0.207)	(0.045)	(0.052)	(0.122)	(0.018)	(0.004)
Parents' years of education	0.148	0.028	0.058*	0.014	0.009	-0.002
	(0.159)	(0.031)	(0.035)	(0.080)	(0.012)	(0.003)
Log of other transfers	-0.036	0.008	-0.010	-0.037	0.000	0.003*
	(0.077)	(0.017)	(0.020)	(0.049)	(0.007)	(0.002)
JUNTOS dummy	1.316*	0.199	0.439**	0.388	-0.020	0.007
	(0.698)	(0.171)	(0.179)	(0.359)	(0.062)	(0.007)
Other programs	-0.283	0.035	0.003	0.234	-0.007	0.011**
	(0.291)	(0.065)	(0.071)	(0.171)	(0.025)	(0.004)
Constant	-112.73***	-0.126	35.244***	46.804***	-2.171	-0.332
	(27.543)	(6.486)	(6.756)	(15.754)	(2.148)	(0.626)
Observations	11,272	11,253	11,261	11,241	11,239	11,224
R-squared	0.071	0.007	0.080	0.016	0.000	0.003

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

Source: ENAHO 2009-2012. Compilation: Author's own calculations.

Given that the results of Table 6 were constructed taking into account the entire sample, it is worth disaggregating the sample by degree of poverty, on account of the different patterns of consumption that households may display. In the following tables we show the results for poor households, and then for poor households with high and low bargaining power.

Table 9 gives the results for poor households alone. In this case, the effect of the JUNTOS program is positive and significant for fractions of spending on food, clothing and footwear, and education, similar to the results obtained with the full sample displayed in Table 6. On the other hand, the effect of other cash transfers and participation in other social programs on the fraction of spending on food is negative, which means that households in receipt of the transfers or benefits prefer to use the resources for other goods. With respect to the other variables, for poor families having a lot of children not only equates to a higher fraction of spending on children's clothing and footwear, but to increased healthcare spending as well.

Table N° 9
Results of fixed effect estimates
(poor households)

VARIABLES	(1) Food	(2) Clothing and Footwear	(3) Education	(4) Healthcare	(5) Drinks	(6) Tobacco
Log of family expenditure	60.798***	1.082	5.889*	-1.757	0.875	0.261
	(13.979)	(3.542)	(3.299)	(6.460)	(1.086)	(0.218)
(Log of family expenditure)^2	-3.558***	-0.059	-0.441**	0.128	-0.047	-0.014
, ,	(0.764)	(0.193)	(0.182)	(0.354)	(0.060)	(0.012)
Number of	-0.302	0.253***	-0.005	0.396***	0.002	0.003
children < 15 years						
of age	(0.202)	(0.000)	(0.000)	(0.4.46)	(0.027)	(0.005)
5	(0,303)	(0.068)	(0.080)	(0,146)	(0.027)	(0.005)
Parents' years of education	0.292	-0.117*	0.090	-0.082	-0.007	-0,004
	(0.256)	(0.060)	(0.064)	(0.121)	(0.021)	(0.003)
Log of other transfers	-0.253*	-0.001	0.024	-0.145+	-0.002	0.006
	(0.132)	(0.034)	(0.031)	(0.088)	(0.012)	(0.004)
JUNTOS CCT	1.982**	0.631***	0.500**	0.285	-0.044	0.016*
	(0.844)	(0.199)	(0.212)	(0.245)	(0.072)	(0.009)
Other programs	-1.114**	0.068	0.030	0.207	-0.002	0.002
	(0.496)	(0.114)	(0.136)	(0.257)	(0.043)	(0.008)
Constant	-237.24***	-3.748	-13.070	6.728	-3.628	-1.188
	(64.038)	(16.253)	(14.970)	(29.472)	(4.904)	(0.989)
Observations	5,764	5,745	5,759	5,758	5,749	5,732
R-squared	0.034	0.010	0.080	0.007	0.001	0.004

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

Source: ENAHO 2009-2012. Compilation: Author's own calculations.

Though the sample of non-poor households that participated in the program at one time is not all that large (251 households, of which 53 fell into or emerged from poverty), judging by the results of Table 1, the growing proportion of non-poor households in the group merits analysis. This point is important, given that JUNTOS is a social program geared toward poor households. We will therefore take a look at how non-poor households respond to receipt of this benefit.

Table 10 shows the results for non-poor households. We can see that the program dummy seems only to affect the fraction of spending on food, as in the case of the

previous tables. Here, it can be seen that the number of children affects not only the fraction of spending on food as well as clothing. With these results, it can be confirmed that the poor households that participate on the program place greater importance on food in the family budget. No significant changes to the other goods and services are observed, perhaps because the sum of 100 nuevos soles per month allocated by the program is low compared to the family budgets of non-poor households.

Table N° 10
Results of fixed effect estimates
(poor households)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Food	Clothing and	Education	Healthcare	Drinks	Tobacco
		Footwear				
Log of family	3.137	2.119	0.864	11.681+	0.133	-0.208
expenditure						
	(11.083)	(2.330)	(2.446)	(7.756)	(1.093)	(0.237)
(Log of family	-0.626	-0.099	-0.107	-0.446	-0.009	0.011
expenditure)^2						
	(0.539)	(0.114)	(0.120)	(0.379)	(0.053)	(0.012)
Number of	0.787***	0.365***	0.080	0.085	-0.020	-0.002
children < 15 years						
of age						
	(0.248)	(0.059)	(0.061)	(0.170)	(0.022)	(0.006)
Parents' years of	0.172	0.027	0.003	0.017	0.017	-0.003
education						
	(0.150)	(0.027)	(0.034)	(0.079)	(0.012)	(0.003)
Log of other	-0.006	0.001	0.003	-0.038	0.005	0.002
transfers						
	(0.081)	(0.018)	(0.024)	(0.051)	(0.008)	(0.002)
JUNTOS CCT	2.191*	-0.640+	0.076	-0.627	0.151	-0.019
	(1.279)	(0.406)	(0.318)	(1.704)	(0.145)	(0.015)
Other programs	-0.115	0.089	0.059	0.171	-0.010	0.008
	(0.319)	(0.069)	(0.075)	(0.202)	(0.031)	(0.006)
Constant	50.644	-10.705	5.549	-68.717*	-0.052	1.078
	(56.865)	(11.956)	(12.491)	(39.647)	(5.609)	(1.200)
Observations	9,002	8,997	8,995	8,967	8,973	8,961
R-squared	0.104	0.012	0.033	0.019	0.001	0.002

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, + p<0.15

Source: ENAHO 2009-2012. Compilation: Author's own calculations.

#### 6. SUMMARY AND CONCLUSIONS

In this research we have studied the effects of the Peruvian conditional cash transfer program JUNTOS on family consumption patterns, focusing on certain selected goods and services. We refer to those goods whose consumption should be promoted in a regulatory sense as "merit goods", which includes food, children's clothing and footwear, education, and healthcare, while those goods that should not be promoted, such as alcoholic and soft drinks and tobacco, as demerit goods.

These selected goods are not controlled by the conditional cash transfer program, but by consumer sovereignty. On receiving the transfers, mothers are free to decide how to spend the money. We argue that this decision is dependent on female bargaining power, measured in this research as the number of years of education possessed by the female head of household in comparison with that of her male partner, the male head of household.

In order to obtain estimates with causal connotations, a panel of unbalanced households was employed, and fixed effects estimations were carried out; these ought to remove the effect caused by unobservable variables such as households' preferences, which could affect the variable of interest in the estimates. This variable is a dummy that characterizes the participation of the household in the program. Given that participation is voluntary, it could be influenced by households' preferences. Nonetheless, the problem of endogeneity of the regressors would be resolved with the fixed effects estimates.

The results of the estimates unquestionably show that the JUNTOS program's beneficiary households spend large proportions of the family budget on food consumption and education. The explanation for this result lies in the fact that the program not only transfers cash to female participants; rather, awareness-raising and information sessions are held on the importance of children's' food and education, and these events are apparently prompting increased consumption of these goods.

As regards the influence of female bargaining power, when this power is high the afore-mentioned positive effects are retained, though the effects are apparently increasing in magnitude. Unfortunately, the sample of households with high bargaining power is not large enough to lead to more solid conclusions. When female bargaining power is low, the pattern of the effects remains the same, though the impact is of a lesser magnitude. Moreover, if we assume that alcoholic drinks and tobacco are goods consumed by male householders, the fact that JUNTOS does not affect consumption of these goods suggests that the cash transferred to mothers is being used for the intended ends, which is consistent with the empowerment of the female recipients of the benefit.

Finally, when the results are disaggregated by level of poverty, in addition to the above-mentioned effects, poor households are subject to a JUNTOS program effect on the fraction of spending on children's clothing and footwear, and a very limited effect on tobacco consumption. It should be noted that cash received from other transfers (such as remittances, pensions, etc.) and other social programs (such as food programs) reduce the fraction of spending on food. One interpretation of this result, especially for the case of food programs, could be that when families receive free foodstuffs they end up devoting a lower fraction of their spending to such items. On the other hand, in the case of the JUNTOS program spending on food does increase.

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