Graduate School of Development Studies

Impact of cash transfers on women's time use:
The Ecuadorian case

A Research Paper presented by:

Paul Andres Guerrero Jara
Ecuador

in partial fulfillment of the requirements for obtaining the degree of
MASTERS OF ARTS IN DEVELOPMENT STUDIES

Specialization:
Poverty Studies and Policy Analysis
POV

Members of the examining committee:

Dr Robert Sparrow [Supervisor]
Prof. Dr Arjun Bedi [Reader]

The Hague, The Netherlands
November, 2009

Disclaimer:

This document represents part of the author's study programme while at the Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

Research papers are not made available for circulation outside of the Institute.

Inquiries:

Postal address:	Institute of Social Studies P.O. Box 29776 2502 LT The Hague The Netherlands
Location:	Kortenaerkade 12 2518 AX The Hague The Netherlands
Telephone:	+31 70 426 0460
Fax:	+31 70 426 0799

Acknowledgements:

I am grateful to my supervisor, Robert Sparrow, for his guidance and insightful comments throughout the writing process of this paper. I am also thankful to Arjun Bedi, my second reader, for his valuable suggestions. I would also like to thank Hessel Oosterbeek and Jose Rosero for their comments on a previous version of this paper; and Katiuska King and Hernan Viscarra for providing me with the data for this research. Having said that all remaining mistakes are mine.

Dedication:

To Maria Claudia, my love, for her support, encouragement and patience in the last 15 months. *Te agradezco de todo corazón por el amor y apoyo que he recibido de ti, no solo ahora, en la realización de mi MA, sino siempre.*

To my mother for her continuous support to all my academic adventures. *Gracias, no solo por tu apoyo pero por tus incentivos para reflexionar, estudiar y aprender que siempre he recibido de ti.*

To my friends and neighbours in Sunneke, Daniela, Jessica, Farzia and Cesar, for all those laughs and dinners that we shared so many times; and the always interesting walks in AH.

Contents

List of Tables

List of Figures

List of Acronyms

BNF	Banco Nacional de Fomento
CCT	Conditional Cash Transfer
CPI	Consumer Price Index
ECLAC	Economic Commission for Latin America and the Caribbean
ENEMDU	Encuesta Nacional de Empleo, Desempleo y Subempleo (National survey of employment, unemployment and under employment).
HH	Household
HDC	Human Development Credit
SAP	Structural Adjustment Program
UCT	Unconditional Cash Transfer
2SLS	Two stages least square

Abstract

Cash transfers are popular poverty alleviation programs in Latin America which aim to accumulate human capital among children in poor families. However, most of these programs evaluations have overlooked the effects they have on women, usually the ones who receive the cash transfer, and the time they devote to productive and reproductive purposes. This paper, using data from Ecuador and an instrumental variable approach, finds that the unconditional cash transfer in this country decreases the hours beneficiaries dedicate to productive work and does not change their reproductive workload. These effects are found for a particular group of the Ecuadorian women.

Keywords

Cash Transfers, women's time use, instrumental variables.

Chapter 1
Introduction

Social programs to improve school enrolment and attendance are numerous. They may act from the supply side through provisioning of school infrastructure, increasing number of teachers, providing free text books and uniforms, among others. From the demand side programs such as conditional cash transfer have been implemented. These conditional cash transfer have been a common denominator for many countries in Latin America, for instance, Brazil with *Bolsa Escola* (first conditional cash transfer to be implemented in 1995 in Campinas and Brasilia (Rawlings and Rubio, 2003)), Mexico with *PROGRESA* from 1997 (renamed *OPORTUNIDADES* in 2001) (Villatoro, 2005), Nicaragua with *La Red de Proteccion Social*, Colombia with *Familias en Acccion*, Honduras with *Programa de Asignacion Familiar*, Jamaica with *Program of Advancement through Health and Education*, and Ecuador with *Bono de Desarrollo Humano*, etc.

These Conditional Cash Transfers (CCT), argue Oosterbeek et al. (2008), Bradshaw and Quiros (2008), among others, are attractive since they tackle short and long term poverty. For the short run, cash transfers, usually given to the mother in the family, relax the household budget constraint. For the longer term, they encourage investment on human capital, in terms of schooling and health among the poor, related to the conditionalities frequently on school enrolment and attendance, and health checkups for children in the household. This would eventually lead to break the cycle of poverty since, as argued by ECLAC (2000; in Villatoro, 2005), intergenerational transmission of poverty is due to lack of human capital.

Regarding the effectiveness of cash transfers on human capital accumulation, they have shown positive results. For schooling, Schultz (2004) finds that *PROGRESA* increases the probability of enrolment in primary level between 0.8 and 1.1, and between 0.9 and 1.2 percentage points for boys and girls, respectively. For secondary school the effects were bigger; the probability of enrolment increased between 6.2 and 5.2 percentage points for boys, while between 9.2 and 7.1 percentage points for girls. Attanasio et al. (2008) find that *Familias en Accion* increases enrolment rates for children between 14 to 17 years old by 5 to 7 percentage points, while the effect was between 1 to 3 percentage points for younger children. Unlike in the previous two programs, *Red de Proteccion Social* has a larger effect on younger children. In Ecuador, Schady and Araujo (2006), and Oosterbeek et al. (2008) find an impact of about 10 percentage points in enrolment for those in the first quintile (the poorest) while no impact for those around the limit between the second and third quintile (line between the poor and non-poor).

In the child labour area the signs and magnitudes of the impacts are not consistent across studies. In one hand Schady and Araujo (2006) find that for Ecuador the cash transfer program decreases child labour by about 17 percentage points. For Nicaragua, argues Maluccio and Flores (2004), the CCT

decreases it between 4.6 and 5.6 percentage points for children between 7 and 13 years old. Similar positive results were found by Parker and Skoufias (2000) for *PROGRESA* in Mexico. In the other hand, Attanasio et al. (2008) explain that the Colombian CCT showed no reduction on the hours worked by children in income-generating activities. Duryea and Morrison (2004) also find no effect of the CCT – in kind transfer – *Superemonos* in Costa Rica on this particular issue.

Although mostly overlooked by the impact evaluations, these programs have effects on women, or as called by Molyneux (2006), on *the conduit of policy*[1], who are usually the beneficiaries of the cash transfers programs, as already mentioned. The central role of women and their duties for a program to be successful has brought Sylvia Chant (2008) to talk about the "feminization of ani-poverty programmes" or Bradshaw and Viquez (2008) about the social and economic cost that *Red de Proteccion Social* has on women. Beneficiaries are expected, in the case of the Nicaraguan CCT for instance, to attend workshops on nutrition, family hygiene, child care, etc. (Bradshaw and Viquez, 2008) which are time consuming activities. These time demanding activities may work against women and their performance on paid work (Bradshaw and Linneker, 2003; in Molyneux, 2006) which may end up weakening women's position in the household in the framework of a bargaining household model.

The cash transfers can also increase the workload of reproductive activities that women have on their shoulders since it is most likely that women will do the reproductive work previously done by children, who are now in school as an effect of the programs. Empirically, this was found by Adato et al. (2000), one of the few that has looked at this issue, for *PROGRESA* using a qualitative methodology. Although one of the usual goals of these programs is to empower women, this type of policies may actually, as commonly argued, perpetuate the traditional role of women with the low bargaining power attached to these activities in the household. For these reasons it becomes important to look at the effects that the cash transfer may have on women's time allocation. A better understanding of cash transfer programs would allow to fine-tune them in order to prevent any undesirable outcomes.

This paper adds to bridge that gap looking at the potential variation of time devoted to productive and reproductive activities that the Unconditional Cash Transfer (UCT) program in Ecuador, *Bono de Desarrollo Humano*, may have on women. They are the majority of participants in this program and their workload in the reproductive and productive spheres are higher and lower, respectively, compared to other women who do not participate in the program. The effect of the cash transfer on time devoted to the productive area has never been evaluated in Ecuador; while using a time-use survey to quantify its effect on reproductive work is a novelty since, as far as I am aware, this has not been done before. In addition, this paper considers a new option given to the UCT beneficiaries in Ecuador to allow them to have up to 12 months value of the UCT up-front, a new approach in this type of programs. The rest of the paper is organized as follows: chapter 2 encompasses the program description, literature review and the theoretical framework; chapter 3 presents the data;

chapter 4 has the descriptive analyses; finally chapter 5 shows the empirical approach, results and conclusions.

Chapter 2
Program Description, Literature review and Theoretical framework

2.1 Program Description

In 1998 the Ecuadorian government launched the program *Bono Solidario* which was a cash transfer to self targeted poor mothers making less than US$ 40 dollars a month, people with disabilities and senior citizens to compensate them for the increase in the gas and electricity prices (Ponce and Bedi, 2008). The transfer amount increased by 50%, as mentioned by Ponce and Bedi (2008), in April 1999 reaching about US$ 22 dollars for mothers and about US$ 11 dollars for senior citizens and people with disabilities.

The *Bono Solidario* was then merged with *Beca Escolar*, a conditional cash transfer (CCT) program which had already been launched towards the end of the 90s (Ponce and Bedi, 2008). From the union of these two programs *Bono de Desarrollo Humano* was born with the objective to increase human capital among the poor families in Ecuador. The self targeted mechanism used by the *Bono Solidario* was replaced by a proxy-means test creating an index called Selben which labels families with scores below 50.65 as potential beneficiaries – poor – of the UCT. This cash transfer, as others in Latin America, has two components: education and health. For the first one, children between 6 and 15 years old have to be enrolled at school and attend at least 90% of the school days in a month (Ponce and Bedi, 2008), while for the second component, children below the age of 6 have to go to medical check-ups (Ibid). Nevertheless it is important to mention that until recently there has not been any initiative to actually verify both components and its compliances by the cash transfers beneficiaries. Due to the fact that the data used in this paper was gathered before these conditionalities checks started, the program can be considered an unconditional cash transfer for this paper.

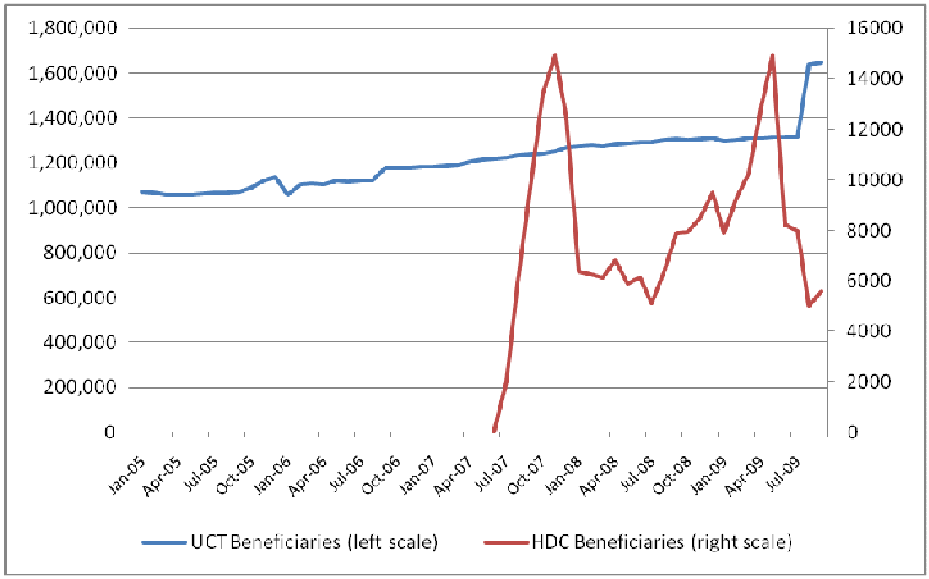
In 2007 the UCT *Bono de Desarrollo Humano* beneficiaries were given a new option. They could receive a cash advance equal to the amount of the UCT accumulated by any number of months, up to a year, in other words up to US$ 360 dollars, minus the cost of the credit (interest rate and commissions). This option was called Credito de Desarrollo Humano (Human Development Credit (HDC)) and pursues, according to the officer in charge of the program[2], to allow the beneficiaries to start a microenterprise or improve an existing one. The HDC can be provided through two channels: Banco Nacional de Fomento (BNF), a public bank with 91 participating branches; or private operators (private organizations which provide the HDC and/or other financial services) with 145 offices. Most of these private operators are being regulated only by the Ministerio de Inclusion Economica y Social which is the Ministry in charge of many of the Ecuadorian social programs, including the

UCT and the HDC, and not by the Bank Superintendence which only regulates 3 of those private operators and the public bank.

Although the name of this new option for the Ecuadorian UCT beneficiaries suggests a credit scheme this cannot be considered as such. First there are no repayments due at any period since the individuals that go for this new option will simply stop benefiting from the UCT monthly cash transfer. Second, there is not any regular check on the conditionality that those who get the HDC actually start a microenterprise or enhance an existing one, specially if the cash advance is given by the public bank.

The numbers of beneficiaries of the UCT and HDC programs from 2005 are the following:

Figure 1
Number of beneficiaries of the UCT and HDC programs at national level from 2004



Source: Programa de Proteccion Social (www.pps.gov.ec)

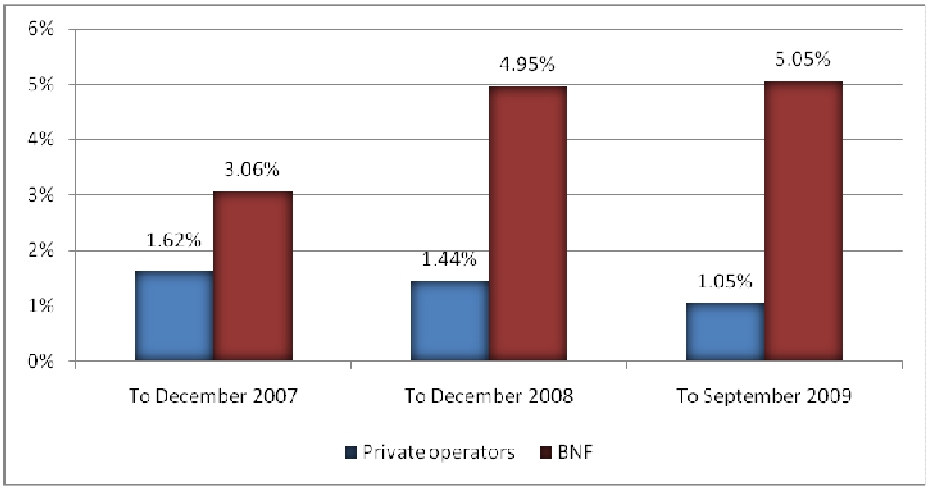
As it can be observed, the number of individuals that opted for the HDC reached its highest point just a few months after the program started. A second high point was reached in March, April and May 2009, close to the election day (April 26, 2009) when actual President Correa was elected President again, but now under the new Ecuadorian Constitution. The average number of beneficiaries of the HDC program per month is about 8,000 which represents about 0.6% of the monthly average number of UCT participants since June 2007. This low take up of this new program does not seem to be due to the limited offices to apply for it since, if it was the case, there would not be such a strong variation in the number of beneficiaries choosing this new option. Furthermore, the highly variable level of take up of this program does not seem to be related to the UCT beneficiaries' preferences since they are not expected to change as drastically as shown in the previous Figure. This leaves

a budgeting factor – limited resources for the program – as a possible explanation for the high variability of the number of program participants.

The sharp increase in the number of UCT beneficiaries for August and September 2009 is related to the inclusion of about 300,000 new beneficiaries that were identified as such thanks to the census among the poor that the government had been running since 2008.

For 2007, 2008 and to September 2009, we see in Figure 2 that the beneficiaries that opted to receive a HDC has a tendency to increase, if one considers the number of HDC given in that particular period divided by the average number of UCT beneficiaries in that period.

Figure 2
Human Development Credit, from private operators or BNF, as percentage of the average number of beneficiaries of the Bono de Desarrollo Humano accumulated to December 2006, December 2007 and September 2009



Source: Programa de Proteccion Social (www.pps.gov.ec)

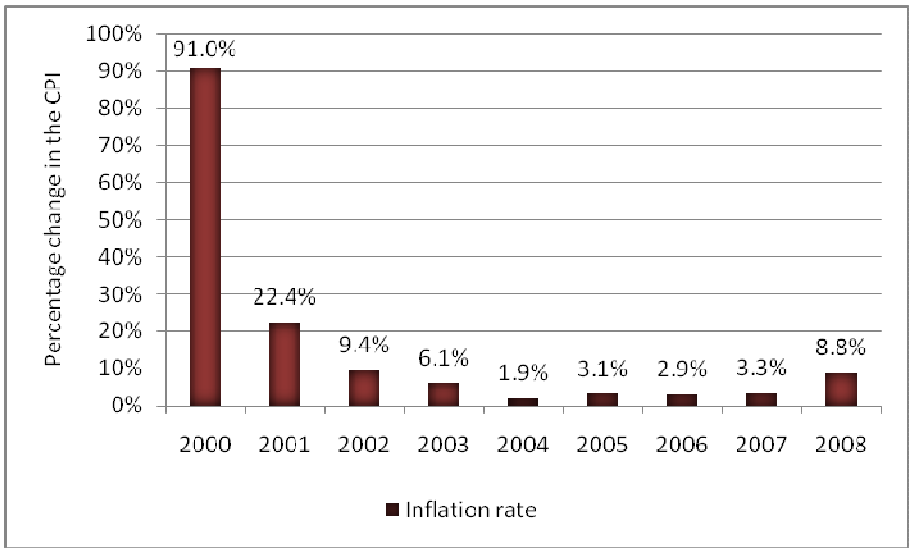
Already to September 2009, the percentage of UCT beneficiaries that have opted for the HDC is higher compared to 2008 and 2007, for those who opted the public bank as the institution to get the cash advance from. For the private operators, the percentage is lower than in previous years although consistent with the tendency to decrease from the last two years going from 1.62% in 2007, to 1.44% in 2008 and to 1.05% until September 2009.

Two possible reasons for this decreasing preference for the private operators are: first, that they ask the beneficiaries to open a savings account with US$ 50 dollars while the BNF only asks to open it with US$ 10 dollars; and second, that some of the private operators send workers to verify that the person who will receive the cash advance has, in reality, a little business or an activity where the beneficiary will invest the money, while the BNF does not. On the downside of getting a credit from the BNF, as mentioned by the officer in charge of the HDC[3], it can take up to two months to get it while with the private operators it may only take 48 hours. Furthermore, from June 2007

through 2008, the amount given by the BNF was US$ 341 while the private operators would give US$ 345, in both cases corresponding for a cash advance equivalent to 12 months of the UCT.

This cash advance program could also be considered as a source for income smoothing for families in 2007 whose income was affected by a higher inflation rate than in the 3 previous years. The inflation rates for the last 8 years can be observed in Figure 3.

Figure 3
Inflation rate between 2000 and 2008 (annually measured from January to December)



Source: Instituto Nacional de Estadistica y Censos INEC

Now if we consider that the HDC is targeted to people in the first and second quintile of the Selben Index we can hypothesis that they had higher incentives to ask for this cash advance. They would perceive a higher inflation than a richer family since, as mention by the Instituto Nacional de Estadística y Censos (2007)[4], inflation in 2007 was driven mainly by the food and beverages component which is one of the biggest shares in the poor families' budgets

Before concluding the program description it is important to emphasize that in order to become a HDC participant, the person had to be already a UCT beneficiary. This implies that the targeting mechanism, the Selben index, that the UCT programs uses is the same for the HDC initiative.

2.2 Literature Review

In terms on work done on the reproductive sphere, in Colombia the CCT *Familias en Accion,* argue Attanasio et al. (2008), decreases the probability of children to participate in those activities. For children between 14 and 17 years old the decrease is about 10 percentage points, while for those between 10 and 13 years old it is almost 13 percentage points, in the urban area. In the rural

areas, there is no effect of the program on the probability of participating in domestic work (Attanasio et al., 2008). Parker and Skoufias (2000), evaluating *OPORTUNIDADES* with a time use survey done in one point in time in the framework of a bigger evaluation, explain that the program reduces domestic work done by children, with special high magnitudes among girls, who were working more in that area before the program, compared to boys. For the cash transfer *Atencion a Crisis* in Nicaragua Del Carpio and Macours (2009) find that the program decreases by about 1 hour each week the time devoted to reproductive activities for girls between 10 and 15 years old who go to school.

This evidence of the decrease of reproductive work done by children, a direct impact of the programs, indirectly impacts women since it is more likely that women will do those activities on top of the tasks that they already perform in the reproductive area, specially in societies like the Ecuadorian one. The gender division of labour in this country is very clear about leaving most of the household chores to women. This increase in time women dedicate to reproductive work due to the lower contribution of children on this area is found by Adato et al. (2000) for *PROGRESA*.

When it comes to productive work, or work done in income generating activities, Parker and Skoufias (2000) find that PROGRESA did not have any particular impact on adult labour supply. Skoufias and di Maro (2006), using difference in difference estimators, show similar results. They find that although some economic models would show a decrease of labour supply due to the cash transfer, *OPORTUNIDADES* in Mexico did not have such impact. However, Skoufias and di Maro (2006) show that among the eligible for the program in salaried work, men between 18 and 24 years old actually increase their probability of work by about 4 percentage points between November 1997 (base line) and October 1998, but the effect becomes statistically insignificant when latter rounds of the survey are considered. A similar situation appears when the probability of being involved in salaried work is look at, between the base line and the first round (October 1998), for men in the 35 to 44, and 45 to 54 years old categories. For self-employed/family business, they show that between the base line and October 1998, there was a decrease in the probability of being involved in this category of employment of about 3.5 percentage points for men between 18 and 24 years old. For the same employment category, men between 25 and 34 years old, decrease their probability of being employed by about 4.8 percentage points between base line and June 1999.

For women, Skoufias and di Maro (2006) show a decrease in the overall probability to work among those between 45 and 54 years old of about 3.8 percentage points between the base line and October 1998. A similar impact is found for women between 18 and 24 years old, between base line and June 1999. When it comes to salaried work, women in the 18 to 24 years old category decrease their probability of working in these activities by about 2.6 percentage points between base line and June 1999; while for women 55 and over, this probability increases by 1.3 percentage points between base line and November 1999. In the self employment/family business work category, women between 45 and 54 years old decrease their probability of participation

in about 2.2 percentage points between base line and October 1998. Overall, there is not a significant effect on either women or men, in any age category that remains throughout the different survey rounds.

In conclusion, the literature on the impacts of cash transfer on productive work is limited if compared to the literature on impacts on schooling. For the impact on time spent on reproductive purposes the literature is scarce and seems to be focused mostly on the effects on children but not on women. Most of the evidence comes from *OPORTUNIDADES* that, as commonly argued, is one of the most evaluated programs but the results found are case specific and cannot be assumed to be valid for other programs.

To understand the forces that shape the outcomes that are observed on individuals in terms of the time they devote to productive and reproductive activities it is important to review some concepts. First, the underlying believes and social constructions in social policy. Second, the household models and; finally, a simple labour market model. These concepts will help us understand the forces playing in decision making process of time allocation in the household.

2.3 Theoretical Framework

The theoretical framework for this paper encompasses a brief review of some of the assumptions of social policy in Latin America, household models and labour supply concepts.

2.3.1 Social Policy and its Gender Perspective

It is commonly argued that many countries in Latin America suffered severely from the Structural Adjustments Programs (SAP) endorsed by the International Financial Institutions; yet the burden of these programs was heavier on women. Due to the oil and debt crises in the 70s the World Bank and International Monetary Fund advocated for liberal policies in order to "adjust"[5] many countries' economies (Bradshaw, 2008). The cutbacks in the social sector due to the SAP, as commonly mentioned as in Bradshaw (2008) and Molyneux (2002), brought many responsibilities previously handled by the State to the private and voluntary spheres. For instance part of the health care previously provided by the State was now provided by the households at home, and specially women who are usually the ones in charge of care. In general, the contraction in the social sector took place when its presence was mostly needed (Molyneux, 2006).

Bradshaw (2008) explains that by the end of the 80s it was clear that policies were needed to alleviate some of the problems that the SAP had brought. Molyneux (2006) argues that Cornia et al.'s UNICEF study *Adjustment with a Human Face* (1987) was important for international organizations to see the social cost of the SAPs. Social policy took a shift, as explained by Molyneux (2006), considering empowerment and co-responsibility which are concepts included in the World Bank's New Poverty Agenda, released in 1990, and the visibilisation of women in the poverty alleviation programs. Concepts of co-responsibility, co-management, co-

financing and cost sharing were included in the design of social policy to avoid the "dependency culture"[6] that was supposed to stop development in the 80s (Molyneux, 2006). Examples of these policies are microcredit programs, basic education in nutrition and health care – this education to allow the poor to manage their destiny –, direct household transfers and participatory projects (Molyneux, 2007).

Conditional Cash Transfers, a popular poverty alleviation policy in Latin America, are commonly channelled through women, serving as a *conduit of policy*[7] as pointed out by Molyneux (2006), in order to achieve its goals of improving health and education among their children (Bradshaw, 2008). This author, based on SEDESOL (2004) and Gomez-Hermosillo (2005), explains that targeting women as the beneficiaries of these cash transfers is based on the commitment of these women with their families' wellbeing and to prevent men from misusing the money. Molyneux (2006) explains that *OPORTUNIDADES* in Mexico, the second largest CCT in Latin America, succeeds thanks to women fulfilling their "traditional"[8] roles and responsibilities or "good motherhood" [9] . The Inter American Development Bank (2003; in Bradshaw and Visquez, 2008) mentions the need to develop "responsible attitude"[10] among families who benefit from the CCT in Nicaragua.

To assure that mothers investment on children's health and education the programs can include training for women and monitoring systems (Molyneux, 2006) . For instance, *OPORTUNIDADES* includes training and monitoring as part of the program (Molyneux, 2007). The training is about reproductive health, family nutrition, etc. while the monitoring is on school attendance and health checkups for children. Other activities that women have to perform in order to continue benefiting from *OPROTUNIDADES* are workshops, meetings and community work (cleaning buildings, etc) (Molyneux, 2006). For *La Red de Proteccion Social* in Nicaragua, activities such as training on breast feeding are also included for the beneficiaries of this CCT (Bradshaw and Visquez, 2008). These activities, as pointed out Bradshaw and Visquez (2008) focus on the stereotype of the women's role, and are taken as an extension, as mentioned by Molyneux (2002), of the responsibilities of women to the family and community.

Taking children to school and to health checkups, attending workshops, performing community works are time demanding activities that, as stated by Bradshaw and Linneker (2003; in Molyneux, 2006), can work against women performing paid work. This negative effect on income generating activities, as commonly argued, undermines a sustainable way out of poverty through paid work. These demands on women resources, such as time, have led Chant (2008) to talk about the "feminization of anti-poverty programmes".

Men are left aside from the functioning of these programs leaving women with all the tasks that they are supposed to do because of their mother status (Molyneux, 2006). If men decided to be involved in caring their children, they could be stigmatized as "feminine" or "odd" [11] (Molyneux, 2006, 2007), which is very likely in Latin America where this gender division of labour is still strongly present.

In conclusion, the CCTs are based on the preconception that caring for children and assuring their wellbeing is a natural job for women. This shallow view of women and their roles might result in an overburden of time consuming activities for them. This burden decreases their probability of engaging in productive work (Bradshaw and Linneker, 2003; in Molyneux, 2006). Productive work is important as pointed out by Molyneux (2002: 184): "… the securing of income by women is the single most powerful factor in alleviating family poverty and children's malnutrition".

Whether a woman works more or less in the productive or reproductive sphere are outcomes of a decision making processes that happen in the realm of the household. These outcomes are subject to the forces and determinants acting inside the households, hence it becomes necessary to review the household models available in the literature that may give important insights of the results found in this paper.

2.3.2 Household Models

The household models are an effort to understand the dynamics and determinants in the decision making process inside the households. In this paper three household models will be addressed: unitary, bargaining and collective model.

2.3.2.1 Unitary Household Model

This household model, argues Klaveren et al. (2006) is the first and oldest one in the literature. Becker (1965), going beyond the typical labour leisure analysis, finds the effects of changes in income, earnings and market prices on the time allocated to work and to consumption in order to maximize the household utility. Other contributions from this work include the addition of time limit to the traditional monetary budget constraint for the household, the production of consumables inside it, leaving behind the idea of the household as a place of consumption only, using purchased goods, time and capital from the household (Senauer, 1990).

In this study Becker (1965) assumes the household to have a unique utility function that can be maximized considering its constraints (Strauss and Beegle, 1996). In order to maximize this utility function decisions about the allocation of resources have to be taken. Under this model, argue Strauss and Beegle (1996), this allocation of resources can be done by one person –malevolent or benevolent dictator–, or consensus among the members, or that the preferences of the members are identical. However implying a consensus seems more an outcome from another bargaining or collective household model than from a unitary one. In the notation used by Klaveren et al (2006, 2008) the unitary household model can be written as:

$$U = \sum_{i-1}^{n} \pi_i U_i \qquad [1]$$

Where i is used to identify the household member i with a fixed weight π_i in the utility function of a household with n members. Under the assumption

that all preferences are the same in the household π_i becomes one so that the utility of the household is the sum of the utilities of the different members. If we assumed that a person (malevolent or benevolent dictator) makes the decisions π_i will have the value of 1 for the particular member i who is the dictator, while for the rest the value of π_i becomes 0 indicating the only utility function considered comes from the benevolent dictator (in which case the utility function, as explained by Becker (1974) the head of the household or dictator integrates the utilities functions from all the members of the household into one single utility function) or malevolent dictator (in which case the utility function considered is from that person only, disregarding the other members' utility functions).

This approach to the study of households and their behaviour has been criticized for a number of reasons, for instance, firstly, explain Strauss and Beegle (1996), no attention is given to how decisions are really taken in the household under this approach, leaving this as a black box. Secondly, in the concept of the unitary household model there is no concern about the different preferences that women and men have, which in reality exist as verified by Klaveren et al. (2008) using household data from Britain under a collective household model with two income earners. Thirdly, in addition to the difficulty of trying to aggregate different preferences due to gender characteristics, there are other aspects that play a role in preferences such as age, education, culture, etc.

Overlooking the deficiencies of this approach, one could hypothesis the possible consequences of providing cash transfers to Ecuadorian households under this household model. In terms of the time use, one would not expect a relative change in the allocation of time between productive and reproductive work since the current allocation, according to the model, maximizes the household's utility function. In addition, no differences should be expected due to the gender of the cash transfer recipient since all income is pooled together without considering the person who contributed to the common fund. This last point is shown no to be the case since given women the resources, as commonly argued, enables her to gain more saying in the decision making process.

2.3.2.2 Bargaining Household Model

Pasqua (2005) explains that the bargaining model comes into play to overcome the deficiencies shown by the unitary household model. Under this new model, developed from John Nash bargaining models, members differ in their preferences and bargaining powers (Pasqua, 2005), neglected under the unitary household model. Hence the decisions taken in the household no longer answer to a unique utility function but to as many utility functions as members in the family but with different weights.

From expression [1] in the previous section π_i becomes the weight or bargaining power of individual i in that particular household. Amartya Sen (1990) points out that the bargaining power of a member in a household depends on three aspects: 1) Breakdown well-being response, which refers to

the position of that particular member in case the members of the households decide to go on their own, leaving behind the household structure; 2) Perceived interest response, referring the extent to which a member of the household relates his interest to his wellbeing; 3) Perceived contribution response, that refers to how other members of the household perceive the contribution of one of their members.

Within this framework of the determinants of bargaining power Sen (1990) explains that women are the most vulnerable group. For the first determinant, women tend to have higher illiteracy rates and lower education in developing as well as in developed countries (Sen, 1990) which lowers their fall-back position. Furthermore in some societies women may not enter the labour market due to gender-discriminating norms which, in case of breakdown of the household, would exclude them from selling what they could produce and buy what is offered in the market, therefore lowering their bargaining power. For the second determinant, perceived interest response, Sen (1990) explains that a woman in rural India would not know how to answer about her own welfare since the family identity may have such a heavy weight on her perception that her own welfare cannot be individually identified. Perceived contribution response, the third determinant of bargaining power, is biased against women since reproductive work, typically performed by women, is not perceived as something valuable to the household members, unlike productive work and the economical resources gained from it.

Agarwal (1997) expands the sources, interaction and conceptualization of bargaining power described by Sen (1990) to include concepts and processes such as social norms, resources that increase the bargaining power but that may have to bargained for in the first place, interaction with the state and community, differences of bargaining powers due to differences in time, etc. In terms of the social norms Agarwal (1997) mentions that the norms set the limits of what can be bargained about, since certain aspects are not to be bargained but only accepted as something not subject to contestation. For example, household work and child care may be considered in certain societies to be only for women.

From this perspective many of these social norms restrict the chances of acquiring bargaining power for women, as mentioned by Sen (1990) but does not consider certain practices. They can include continuous complaining, withholding sex from their husbands, threat to go back to their families' home, among others, performed by women to gain some bargaining power (Agarwal, 1997). These norms are also subject to contestation but depend on certain determinants; Agarwal (1997: 21) writes: "[T]o challenge norms that go against their self-interest would depend on at least three factors: their economic situation; the link between command over property and control over institutions that shape gender ideology; and group strength."

Furthermore Agarwal (1997) criticizes Sens' (1990) statements where he explains about the low value women attached to their self-interest. Agarwal (1997) explains that this is not the case since women do not look for their own interest but due to the circumstances and under the norms they live, there is not much they can do openly. Nevertheless, there are practices that women

undergo to have access to some resources that otherwise they would not command. Some of these are: doing some income generating activities secretly, keeping goats and cows in their parent's home without the knowledge of theirs partners, buying presents for some household members to gain their support (Luschinsky, 1962 in Agarwal, 1997), keeping some food aside to have pic nics with friends and so forth (Agarwal, 1997).

In addition Agarwal (1997) points out that some of the behaviours of women that may seem altruistic in nature are a strategy for survival in reality. Women may give preference to sons, brothers or other male members in order to secure their affection that could be used in the future, for example, in case she becomes widow. This may happen considering that female's life expectancy is longer than the male's, and the fact that in many communities a woman cannot interact directly in the market. Higher investment in boy's education may be seen as a strategy of the mother in order to secure his affection and support for latter years.

Although the bargaining power and preferences of the different individuals cannot be directly observed in the date used in this paper, the outcomes from their interaction can be noticed. For instance, holding other factors constant, comparing women from different ethnic background may give us an idea of the different preferences and bargaining powers between these individuals. Other differences due to age, geographical location, relationship to the household head, education, etc. are factors whose role in the bargaining power and preferences can be looked at; however disentangling these two effects is not possible looking only on the outcomes on women but it would have to include other members' outcomes. These differences can be verified by looking at the estimators of the regressions done in this paper to find the effect of the cash transfer on allocation of time to productive and reproductive activities.

Under this new model of household the outcomes of cash transfers become more complicated to predict. Unlike in the unitary household model, now it becomes important who brings the resources – UCT or HDC in this case – since the perceptions of the other members of the household would change, therefore changing the bargaining power of the person. At the same time there are the social norms – specific of the Ecuadorian case – that may distort the perceptions of the other members. Nevertheless, one could expect that UCT or HDC recipients would increase their bargaining power, giving a higher weight to their preferences. Then if the cash transfer is used to smooth consumption one could see a decrease in productive work time as long as women's perceptions of their utilities is tied to the notion that work decreases them.

In conclusion, the bargaining model overcomes some of the shortcomings of the unitary household model used by Becker (1965) and opens the doors to more complex but still untangled dynamics that take place inside the household. This allows a better understanding of the functioning and the determinants of certain behaviours in the household. Yet it brings more uncertainty of the possible outcomes of policies due to the multiplicity and

changing nature of the circumstances that play a role in the household decision making process.

2.3.2.3 Collective Household Model

Klaveren et al. (2006) points out that the collective household model was developed by Chiappori (1988, 1997) and Apps and Rees (1988, 1997) where the two partners of the household – in a two partners type household – look for a Pareto equilibrium. This equilibrium means that there is no other possible arrangement where one of the household members is better off without the other being worse off. One of the members maximizes his utility considering the utility of the other (Klaveren et al., 2006). In other words the collective household model is a bargaining model where the utility of the rest of the members is considered when maximizing the different utility functions. This Pareto efficiency is not generally the case, specially in African countries (Smith, 1994 and Udry, 1996; in Pasqua, 2005).

The collective and unitary household model may yield the same results in certain occasions (Pasqua, 2005). These occasions being when the models do not consider the wages of the earners (Browing et al., 2004; in Klaveren et al. 2005, 2006).

2.3.3 Labour supply

To better understand the influence of cash transfers on time devoted to productive and reproductive activities it is important to look at other factors playing a role in the realm of the labour supply. Sachs and Larrain (1993), using a very simple labour supply model, where an individual can choose from work and leisure (the only two activities that person is supposed to do in the model), work as many hours as the person decides to (limiting the day to 24 hours), consume all income and where work is associated to disutility and leisure is considered to increase utility, an increase in the time devoted to work would mean an increase in the time for leisure, if the person is to remain at the same level of utility. Now, when an increase in wages takes place, there are two forces that will determine the outcome, the substitution effect and the income effect (Sachs and Larrain, 1993).

The substitution effect relates to, given the raise in wages, household moving away from leisure and dedicating more time to work. This since one hour dedicated to leisure means higher forgone consumption, given that the wages have risen, if compared to the situation before the raise in wages (Sachs and Larrin, 1993). On the opposite direction there is the income effect which is related to a decrease in the amount of time devoted to work due to the fact that leisure is something desirable and if the household has a defined consumption level, they do not have to work as many hours as before to fulfil that consumption level, given the raise of wages (Sachs and Larrain, 1993). These authors explain that, theoretical, the effect of an increase in wages is ambiguous since it depends on the strength of each effect, yet empirical research tends to support the idea of a dominating substitution effect over the income effect.

In the case of the UCT or HDC, the transfers are not related to an increase in wages of any sort; however there could be still a substitution and an income effect but both working in the same direction. For the income effect this means that if households have fixed consumption level, the cash transfer would allow them to reach that consumption bundle working fewer hours than before. The substitution effect may act raising the reservation wages of the individuals benefiting from the UCT which could mean that some people now working may choose not to do so anymore. Hence theoretically cash transfers to households can be expected to have negative impacts on the labour supply of its members.

Before concluding the theoretical framework section it is important to realize that within it there are opposing effects that could be predicted from each perspective. In one hand, from the gendered view, cash transfers could increase the time women devote to reproductive purposes due to the nature of the program and its reliance on women's role for its success. On the other hand from the bargaining household model side, cash transfers given to women may increase their bargaining power which could be observed in a decrease in their reproductive workload, if women want to reduce that workload. In the productive work area, the gender perspective on the cash transfer policy argues that this policy might go against women and their participation in this type of activities, in the same line as the labour supply model explained in previous paragraphs; while from the bargaining perspective the predictions are not so clear. The effects found in the paper can be taken as the differences in the magnitudes of the effects predicted from each perspective.

Chapter 3
Data and time aggregates

3.1 Data

When dealing with time-use surveys, there are two types of approaches that are commonly used: the stylized approach and the diary approach (Budlender, 2007). The first one consists of a list of activities that respondents are asked to state how much time they spend on each one of them, while the second approach leaves the respondents to describe what activities they performed at different times in a given period (Ibid). Each of these two methodologies have some positive and negatives aspects. For example, as mentioned by Budlender (2007), the stylized approach does not tell at what time of the day a certain activity was carried out, or the boundaries of some activities may not be clearly marked. Furthermore, Budlender (2007) brings out a statement of the United Nations Statistic Division from 2005 where they mention that the stylized approach has a high degree of error since respondents may tend to overreport activities such as work, which is an activity considered as important, while undereporting activities as leisure which is considered less important. This approach also poses other challenges for the respondents, it is difficult for them to estimate the total amount of time spent on one activity when it happens in intermittent spurts, or the inconsistency of the inclusion or not of simultaneous activities in the estimations (Budlender, 2007). Nevertheless Kan (2006; in Budlender, 2007) argues that estimates using the stylized approach can be used for multivariate analysis; in other words to find out what factors affect the different amount of time dedicated to different activities by different individuals.

The data used in this paper was collected using the stylized approach. The Instituto Nacional de Estadistica y Censos gathered the date starting in December 2007, as a separate module of the Encuesta Nacional de Empleo, Desempleo y Subempleo ENEMDU (national survey of employment, unemployment and underemployment) which is carried out once a year, in December, at national level, with province representativeness (except for the provinces of Orellana, Zamora Chinchipe, Pastaza, Morona Santiago, Napo, Sucumbios which are the provinces located at the Oriente and should be taken as one unit). The December 2007 survey counts with 18.933 households, including 76.922 individuals. Other modules of this survey are: household characteristics (physical characteristics of the house where family surveyed lives), information about the members of the household (age, sex, relationship to the household head), occupational characteristics of the household members, satisfaction at work, participation of housework (limited to only 8 activities), income, credit, education, international migration, consumer confidence index, household satisfaction and a module for people that perform certain activities in the household but are not part of it.

The time-use module included in the December 2007 ENEMDU survey has 105 questions regarding the time spent during the week before the survey. The questions are divided into two categories: from Monday through Friday, and weekends. This time-use module is divided into subsections that include personal needs (sleep, eat, shower, dress, etc.), committed time (look for job, commute, attend school, homework, among others), culinary activities (cook, do the dishes, etc.), household keeping (fetch water, care of pets, fixing something in the house, among other variables), caring and making of cloths (wash and iron cloths, sew or embroil, etc.), shopping and management (buy groceries, organize housework, keep track of expenses, etc.), care for children (feed, bath children, among others), building and repairing (electric and plumber activities, fix the means of transportation, etc.), productive activities for auto consumption (making furniture, caring for chickens or other animals, etc.), solidarity activities and community support (help in a hospital, children care centres, etc.), leisure (exercise, dance, go to the movies, etc.), care for people with disabilities (clean their room, feed, bath, etc.) and family and sociability (play at home, talk on the phone). Many of these activities, as can be observed, may be done simultaneously with other tasks, for example, somebody can be talking on the phone while ironing some cloths. This means that if we added all the time devoted to the different activities in the survey, it could give as a total time over 24 hours for a day.

For this particular survey less than 0.5% of the cases reported to have done more than 24 hours of reproductive work in one day, while 78% and 57% dedicated less than 6 and 3 hours a day for these activities, respectively. For productive work there is not any case of more than 24 hours a day devoted to this activity.

Unfortunately this module was only asked to people 12 years old and older which misses the work done by children in household chores and other activities.

3.2 Time aggregates

For this research attention will be given only to the time aggregates of productive and reproductive activities. The definition and source questions for these aggregates are:

3.2.1 Productive work

Peterson (2002) explains that this category of work is the most familiar one. This type of work and the agents that participate are around production, distribution and consumption involving wages and commodities. In other words this work is done in exchange for a wage and takes place not only in offices but also in the household with home-based workers. Only one question was used for this time aggregate which is about the number of hours the individual worked the week before the survey in exchange for a wage or income. In the survey this was asked to people from 5 years old and above.

3.2.2 Reproductive work

Esquivel (2006), based on Elson (1999), describes reproductive work as not marketed, non-monetized, unpaid labour that includes household chores and care activities. This type of work is the base for other types of work, including the productive one (Picchio, 1995; in Esquivel, 2006). The reproductive time aggregate encompasses 65 questions of the time-use section of the survey and they can be observed in Appendix 1. It is important to mention that this selection of questions does not include two questions that, while belonging to this type of work, explicitly mention to be done along with other activities. This would increase the overlapping of activities, already suspected to exist due to the nature of the methodology employed for the survey. As already mentioned before, these questions were not asked to people 11 years old and younger.

Chapter 4
Descriptive Analysis

For the purpose of this paper some households were left out of the analysis for either having some members benefiting from the conditional cash transfer and other from the Human Development Credit at the same time, for having more than 1 UCT, or having more than 1 HDC beneficiary member. Keeping these few cases in the analysis may distort the results. In addition and since there were just a few men that received the HDC, their households, along with the households where men receive the UCT were left out from the analysis as well.

The Human Development Credit (HDC) program has the unconditional cash transfer beneficiaries as their target population therefore it is important to see if there are observable differences between the HDC and UCT participants. Some of these differences are in the following table:

Table 1
Differences between the HDC participants and CCT beneficiaries (using samples weights)

	HDC participant (1)	UCT participant (2)	Difference (2) – (1)	Non UCT or HDC participant (3)	Difference (3) - (2)
Age	38.9	42.3	3.38*	27.5	-14.8*
Schooling	7.1	5.3	-1.8*	7.8	2.5*
% in the urban area	71.9%	46%	-26.1%*	71.6%	25.8%*
With partner	72.0%	76%	3.7%	45.0%	-30.7%*
Household size	5.3	4.9	-0.4	4.9	0.02
Children below 5	0.7	0.6	-0.1	0.6	0.03
Children 6 to 14 years old	1.4	1.4	0.	1.1	-0.3*
Senior adults in the HH	0.1	0.2	0.30*	0.2	0.03**
Illiteracy ration in HH	5%	14%	9%*	5.9%	-8%*
Women is household head	29%	24%	5%	24%	-0.001
Selben index	46.0	42.2	-3.80*	50.8	8.6*

Source: ENEMDU December 2007. Author's calculations.
* 1% significance level. ** 5% significance level. *** 10% significance level

As it can be observed there are not statistical significant differences between those who benefit from the UCT program and those who have opted for the HDC in terms of whether they live with a partner (married or cohabiting), household size and other demographic characteristics. Nevertheless when it comes to age, there is a significant difference between the two groups; the HDC participants are, on average, 38.9 years old, 3 years younger that than the UCT beneficiaries. Even thought the average age for the

UCT beneficiaries is higher there are 22 cases in the data of beneficiaries who are 15 years old and below, being two girls of 9 years old the youngest to receive the UCT, while for the HDC the youngest to receive the cash advance is 21. In addition over 70% of the HDC recipients are in urban areas, while only 46% of the UCT participants are. Based on these indicators, specially the ones regarding Selben Index, geographical location, education and illiteracy ratio one can conclude that, on average, participants of the HDC are richer that than participants of the UCT program.

When the groups compared are women who benefit from the UCT program and women who do not benefit from either program, there are some important differences. Women not benefiting from the UCT or HDC programs have about 2.5 years more of schooling, are more likely to be located in the urban area, have a lower illiteracy ratio at home and a higher Selben index, among other differences. This shows that the average woman who does not benefit from either program is richer than the average woman who benefits from the UCT, something expected due to the targeted nature of the program. When it comes to analyze age, whether the woman has a partner or not, demographic structure of the household, etc. one has to be careful drawing conclusion since women of all ages are considered in the group that does not benefit from either program.

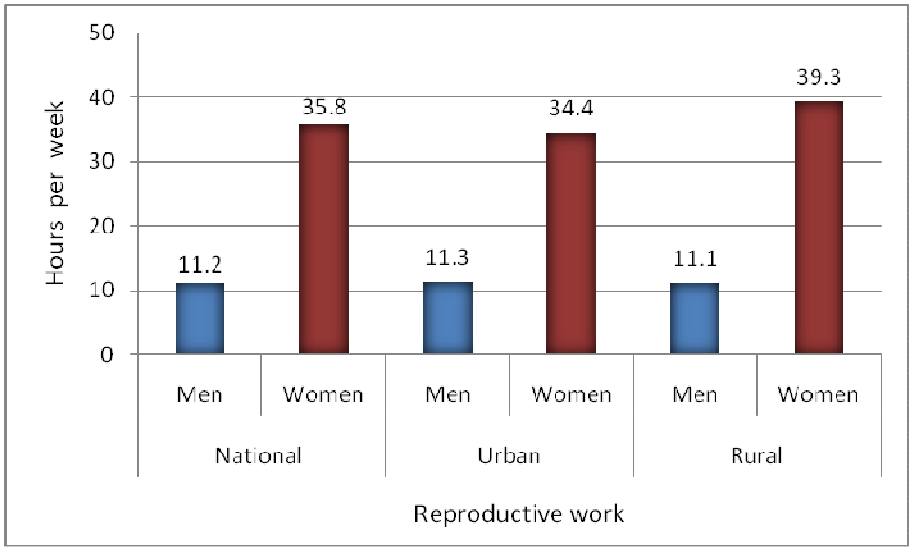
As already mentioned, the UCT eligibility is based on an index which is built with 27 variables (26 in the original index but later a question about people with disabilities in the household was added). For those scoring below the cutoff point of 50.65, which is the point between the second and third quintile for the Index, they are eligible to receive the UCT, hence the HDC, leaving ineligible those with scores above that point. However, as in other targeted program, there are errors of inclusion and exclusion.

If we see those who are benefiting from the UCT, we find that about 87% of them are actually below the cutoff point, leaving the other 13% of beneficiaries as a leakage. For the HDC beneficiaries, about 72% were eligible, leaving the other 28% as a leaked, a much higher inclusion error than for the UCT program.

Before analyzing time allocations it is important to mention that in this paper a week not only considers the week days but also the weekends, hence where a week is mention, it refers to 7 days. In addition, the samples considered for the analysis of time devoted to productive and reproductive activities are not the same. Some women for whom there is information about time devoted to productive purposes may have denied answering the time use section of the survey.

As for the time aggregates we can see, at national level, the average amount of hours spend on reproductive activities in the following Figure:

Figure 4
Time spent by women and men 12 years old and above on reproductive activities in a week (in hours), disaggregated by location and gender

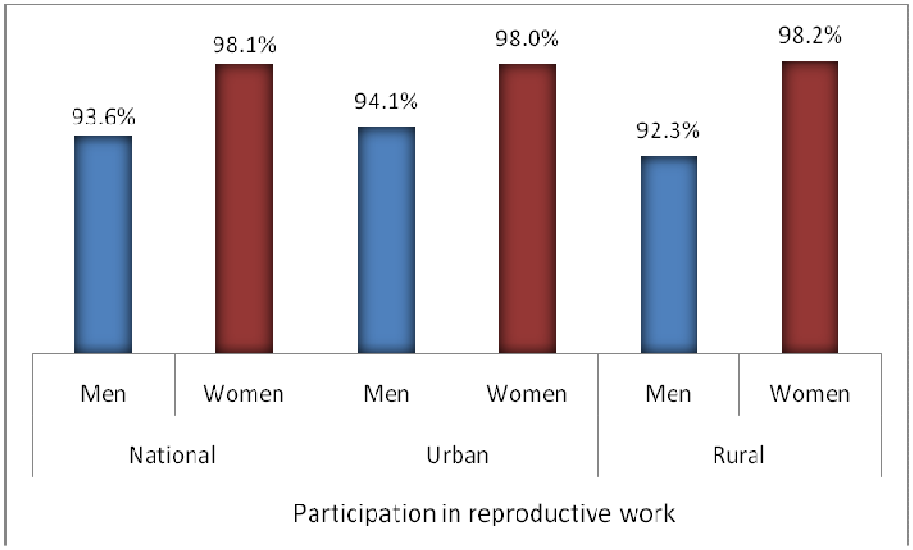


Source: ENEMDU December 2007. Author's calculations.

As it can be seen women are the ones who work more hours on reproductive activities in Ecuador, over three times more compared to men. Among women, the ones located in the rural areas, work a little more than 3 hours more each week than the ones located in the urban areas. For men the difference between the urban and rural area is statistically not significant. This reality is not strange to other Latin American experiences, for instance, as mentioned by Budlender (2007) based on a survey done in 2002 in Mexico, women work about 6, 4, 10 and 9 more hours than men on care for children and other household members, care for disabled people, supervising children and supervising disabled people, respectively, for those who participate in these activities.

The participation rate, measured as those individuals 12 years old and above who declare to have done at least one minute of reproductive work over the total of 12 years old and older people, shows the following behaviour:

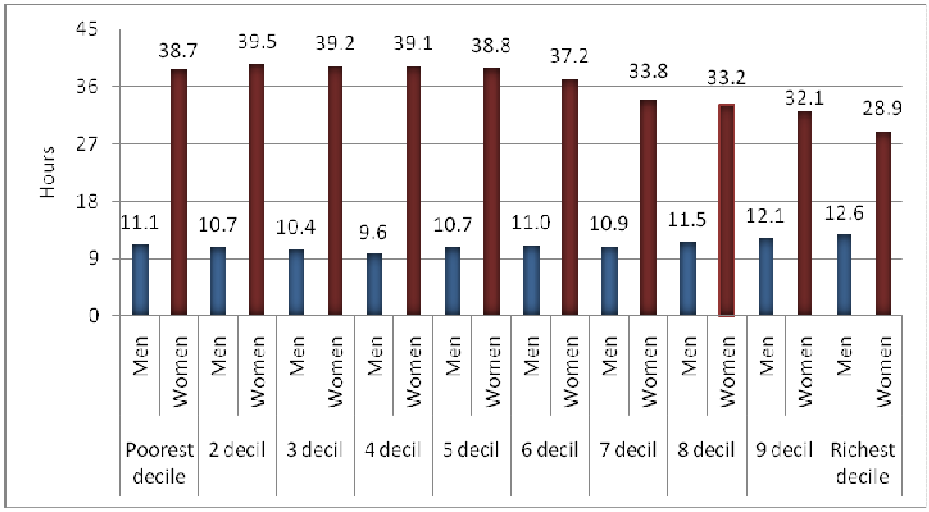
Figure 5
Participation rate of women and men 12 years old and above in reproductive activities, disaggregated by location and gender



Source: ENEMDU December 2007. Author's calculations.

This shows that women and men, 12 years old and above, have similar participation rates but, as shown in Figure 4, their workload is totally disproportionate. However it is important to notice that men in the urban sector participate more in reproductive activities than men in the rural areas. One possible hypothesis is that men participate less in these activities the poorer they are since they have to devote more of their time to the labour market or other non-wage productive activities. Hence it is important so see the amount of time women and men devote to these activities by income deciles.

Figure 6
Time spent by women and men 12 years old and over on reproductive activities in a week (in hours), disaggregated by income deciles and gender

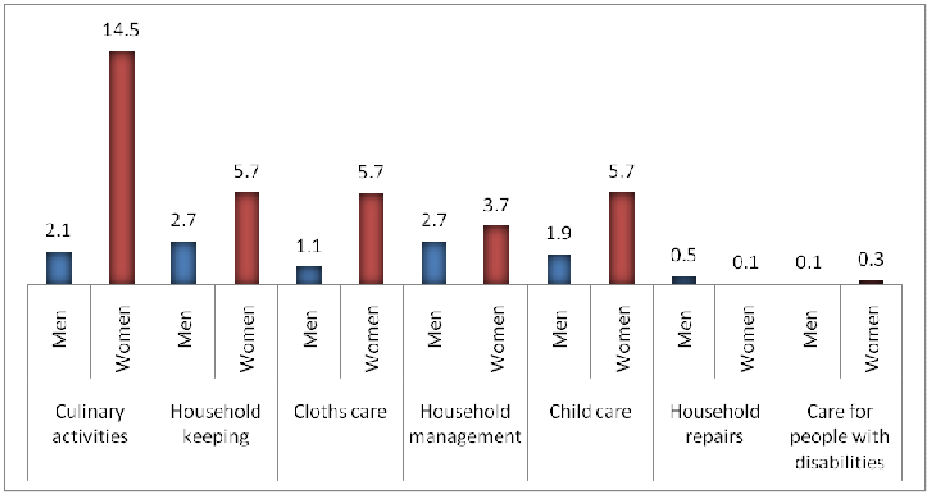


Source: ENEMDU December 2007. Author's calculations.

For the hypothesis stated in previous paragraphs about the lower participation of men in reproductive activities in the rural area which is associated to higher poverty rates, we see that, at least, for the first 5 deciles, men participate and devote the same amount of hours to reproductive tasks; hence income does not seem to play a role in explaining the behaviour of men towards reproductive activities in those deciles.

Now it is important to know where those differences between men and women in time devoted to reproductive activities come from. To be able to achieve this, the reproductive time variable is disaggregated into some of the subcategories already mentioned in the data descriptive section. The results are:

Figure 7
Time spent by women and men 12 years old and above in the different subgroups of reproductive work in a week (in hours), disaggregated by gender

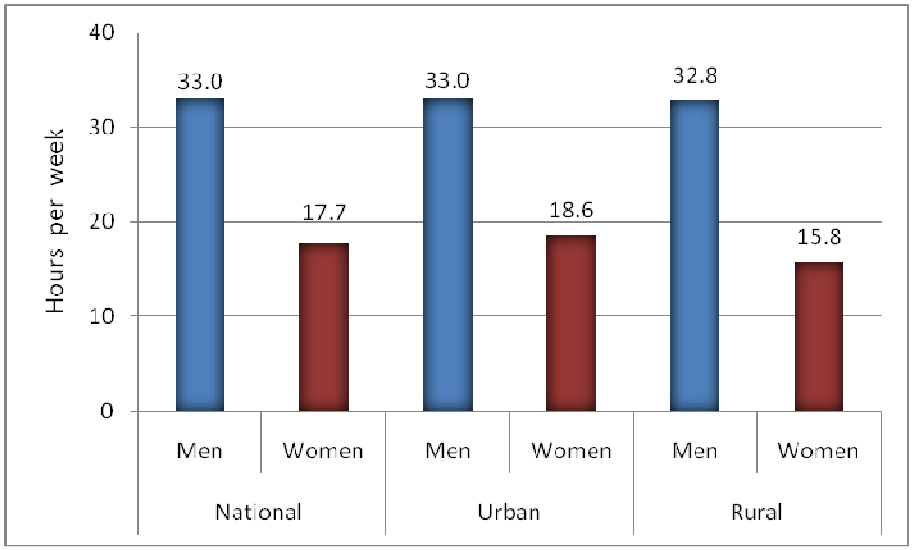


Source: ENEMDU December 2007. Author's calculations.

It is clear that the main reproductive activity where women allocate their time is culinary activities that encompasses cooking, doing the dishes, etc. This is the subcategory where the highest gap between men and women can be noticed; women's time allocation to these activities is 7 times more than men. The participation rate of individuals 12 years old and over in culinary activities also shows a noticeable bias for women, reaching 89% for them while 39% for men. Women dedicate more time to the rest of activities than men, except for the household repairs subcategory which does not represent an important part of the time devoted to reproductive activities. This last subcategory involves the use of tools which is usually related to males. Furthermore, in the subcategory of household management, which includes activities such as keeping household accountability, doing paper work or payments, buying things for the normal functioning of the household, etc. the gap between men and women is not so deep since many of these activities involve managing money, an issue where men are commonly involved.

When it comes to productive work done by men and women 12 years old and above in Ecuador, we have the following results:

Figure 8
Time spent by women and men 12 years old and older on productive activities in a week (in hours), disaggregated by location and gender

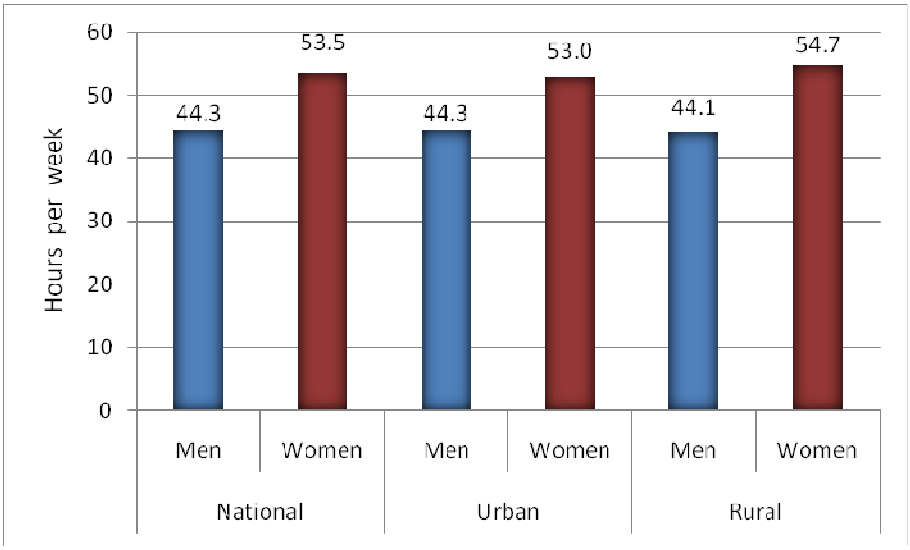


Source: ENEMDU December 2007. Author's calculations.

For the Figure above, those individuals who did not report to have worked the week before the survey were assigned a 0. About 74% of men 12 years old and over reported to have worked at least one hour in the week before they were surveyed, while only about 47% women fell in this category. From the Figure above and Figure 4, there seems to be a trade between productive and reproductive work for men and women, with the former devoting more time to productive work while the latter to the reproductive one.

If time dedicated to productive activities is added to time used for reproductive purposes we can have a better idea of the workload for men and women. The results are the following:

Figure 9
Time spent by women and men 12 years old and older on productive and reproductive activities in a week (in hours), disaggregated by location and gender



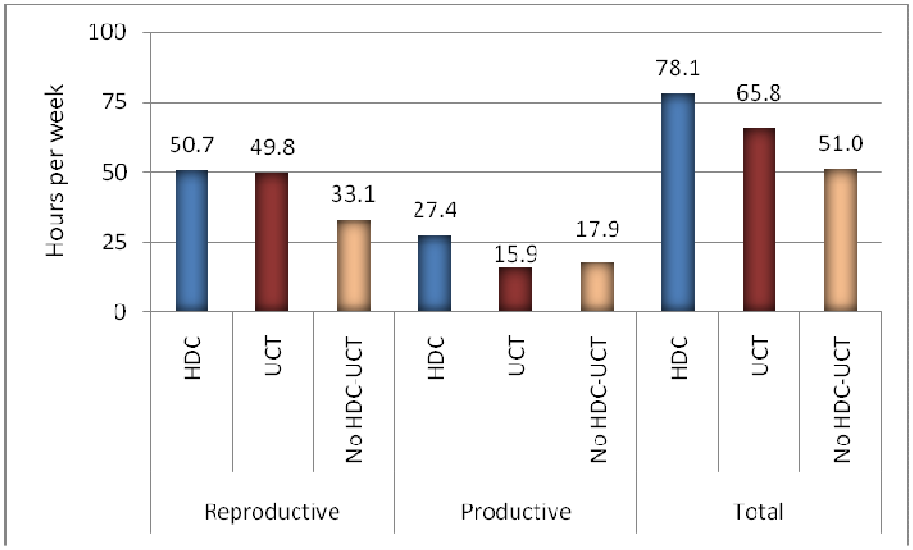
Source: ENEMDU December 2007. Author's calculations.

It is important to mention that, for the Figure above, only individuals who completed the time-use survey were used. As expected, time women use for productive or reproductive tasks is higher than men's by about 9 hours each week, at national level. This gap decreases in the urban sector and increases in the rural area. This goes in line with what the literature refers to the "double burden" that women have to bear.

Although the difference between men and women may not seem big – about 9 hours a week at national level – one has to consider the issue of choice. It is most likely that many of these women do not have the choice to do less reproductive work because it is expected from them to do those tasks due to the social construction of the role of women in Ecuador.

When considering the HDC, UCT beneficiary groups and women who do not benefit from either program one can observe the following differences in terms of their time allocation:

Figure 10
Time allocation for women who benefit from the UCT or HDC, or do not benefit from either, in a week (in hours)



Source: ENEMDU December 2007. Author's calculations.

On average, the individuals benefiting from the HDC or UCT program spend the same time on reproductive activities which is higher than the national average for either women or men. It is most likely due to the fact, as shown in Figure 6, that individuals – specially women who are the majority in the UCT or HDC programs – spend more hours on reproductive activities in the lower income deciles where the participants of these 2 programs are mostly located. When looking at women who do not benefit from either program one observes that they allocate less time to reproductive activities. For the productive time, those who participate in the HDC program work more than women in the urban or rural area by about 10 hours a week, while the UCT beneficiaries work a little less than the average women in either area. Women not benefiting from the programs work 2 more hours a week than the UCT beneficiaries, on average, and about 10 hours less than those participating in the HDC program. The total time devoted to productive and reproductive activities by HDC and UCT women are well above the national averages for men or women.

So far we have seen that women, and specially women in the rural area, spend more time on reproductive activities than men. Men in the rural areas have a lower participation rate on reproductive activities, compared to men in the urban sector. Unexpectedly men have a tendency to participate more and to do more reproductive work in the higher income deciles, compared to the low income deciles. Using the bargaining household model concepts, this phenomenon could be explained due to the increase of the bargaining position of women in richer deciles since women are better educated[12], hence with a higher fallback position, compared to lower incomes deciles. This increase of

their bargaining power would allow them to ask the male member of the household to do more reproductive work.

At a national level, the variables that will be used for the analysis are:

Table 2
Variables used for the empirical analysis, at national level

	Variables	Mean
Household level	Children 0-5	0.44
		(0.01)
	Children 6-14	0.82
		(0.01)
	Children 15-17	0.25
		(0.01)
	Adult males	1.06
		(0.01)
	Adult females	1.12
		(0.01)
	Senior citizens	0.26
		(0.01)
	people in HH	3.97
		(0.02)
	Illiteracy ratio	0.08
		(0.00)
	Women as HH head	0.23
		(0.00)
	Selben Index	51.27
		(0.21)
	Urban	70%
		(1.01%)

	Variables	Mean
Individual level	Women	50.6%
		(0.2%)
	Age	28.7
		(0.2)
For those above 5 years old	Indigenous	6.5%
		(0.4%)
	White	7.3%
		(0.3%)
	Afro Ecuadorian	3.7%
		(0.2%)
	Mestizo and other	82.5%
		(0.6%)
For those above 17 years old	Married or living with partner	61%
		(0.4%)
	Schooling (in years)	8.7
		(0.8)
Province level	Unemployment	0.049
		(0.0)
	Poverty incidence	0.36
		(0.0)
	Poverty gap	0.15
		(0.0)
	Average Selben index	49.22
		(0.09)

Source: ENEMDU December 2007. Author's calculations.

Chapter 5
Empirical approach, results and conclusions

5.1 Empirical Approach

The model proposed to find the impact of the HDC and UCT on time allocation in terms of the time dedicated to productive and reproductive tasks for women between 15 and 65 years old is:

$$y_i = \beta_1 + \beta_2 T_i + \sum_{j=3}^{n} \beta_j X_i + \varepsilon_i \qquad [2]$$

Where y_i is the number of hours dedicated to productive and reproductive work by individual i, X_{ji} are the j characteristics (individual and household level) for individual i, ε_i is the error term than includes all unobservable characteristics for individual i, and T is the treatment variable, which is the variable of interest in this case. T takes the value of 1 for those individuals who benefit from the cash transfer programs, and 0 for those individuals who do not benefit from either program. This would tell us the effect that can only be attributed to the programs. This model could be estimated using OLS but its unbiasness and consistency, as pointed out by Verbeek (2000), Wooldredge (2003) and Gujarati (2003), depends on the assumption that $E\{\varepsilon_i T_i\} = 0$. In other words there should not be correlation between the error term, or the unobservable characteristics encompassed in this term, and the treatment variable.

The assumption of orthogonality between the variable of interest, T, and the error term, ε_i, would not seem to hold in reality since there are unobservable characteristics of some individuals that allow them to access the programs. Furthermore for this research it was found that 8 households with one member benefiting from the UCT and with another member participating in the HDC program. Another household had, in addition to a member with a HDC, 2 members with UCT. This means that these households had 2 and 3 UCT beneficiaries before the HDC program came into place[13]. The violation of the assumption of the no correlation between the treatment variable and error term, or exogeneity, tell us that the estimators would be biased and inefficient, leading to wrong interpretations.

To tackle this problem this paper will use an instrumental variable (IV) approach. For this approach to work, as pointed out by Wooldredge (2003), additional information is needed. This information consists of a new variable or variables that are correlated to the endogenous variables, T in this case, and uncorrelated with the error term – exclusion restriction –. Formalizing this:

$$\mathrm{Cov}(z_i, \varepsilon_i) = 0 \qquad [3]$$

$$\mathrm{Cov}(T_i, z_i) \neq 0 \qquad [4]$$

Where z_i is the additional variable or variables, also called instrument. Condition [4] can be verified running a regression of T on z_i, along with the rest of the variables from model [2] as follows:

$$T_i = \beta_1 + \beta_2 Z_i + \sum_{j=3}^{n} \beta_j X_{ji} + \varepsilon_i \qquad [5]$$

From this regression, in the case that the instrument holds condition [4], β_2 will be statistically different from zero. If the instrument holds assumption [2], one can obtain the predicted values from equation [5] and plug them into model [2] instead of the endogenous variable. This would give us unbiased and efficient estimators allowing us to draw conclusions about the impact of the HDC and UCT on time allocation. This approach is also called 2SLS (two stage least squares).

The effect found by this approach is limited to those individuals whose behavior is influenced by the instrument (Imbens and Angrist, 1994). This effect is called Local Average Treatment Effect (LATE). As pointed out by Angrist and Krueger (2001) this means that the effect found with the IV approach is limited to a subsample of the treatment group where the instrument modifies those individuals' behaviors. This distinction is important in the case there is "heterogeneous treatment effects"[14] (Angrist and Krueger, 2001), as it is expected to exist in the case of the effects of the cash transfers.

5.2 Instrument proposed and its validity

Since the UCT and HDC beneficiaries should be only those individuals whose Selben index is below 50.65 – this is the cutoff point between the second and third quintile in the Selben Index –, then an instrument based on this discontinuity can be used, although the rules is not always complied with and some individuals above the cutoff point benefit from those programs, while others below do not. This instrument, from now on mentioned as Eligibility, takes the value 1 for those below the cutoff point and 0 for those above. Ponce and Bedi (2008) follow the same approach when analyzing the impact of the UCT on student's cognitive achievements in Ecuador.

The Selben Index is a combination of 26 variables (27 if the latter added variable of people with disability in the household is considered). The data set used for this paper contains only 24 of those variables, some of them with slight changes in the way the questions are asked but that can be used for the purposes of creating the index. To tackle the absence of these 2 question[15] this papers follows a similar procedure done by Ponce and Bedi (2008) reproducing the Selben index in the Living Standards Measurement Survey of 1999 where all the necessary questions are present and then create a *cuasi* Selben index using just the 24 variables available in the survey used in this paper. Then the following regression is run:

$$Selben_{26} = \beta_1 + \beta_2 Cuasi\ Selben_{24} + \varepsilon_i \qquad [6]$$

From this one gets β_1 and β_2 to adjust the index created in the December 2007 survey with only 24 variables. The regression shows a $\beta_1 = 8.878288$ and a $\beta_2 = 1.033428$ with standard errors of **0.1431561** and **0.003264**, respectively. The R-squared is 0.9616.

The cutoff point is exogenously determined hence it is expected that expression [3] holds. This means that if women just above the cutoff point were compared to women just above, their observable characteristics should be similar. To do this, each covariate is regressed on the Eligibility variable and the third degree polynomial function of the Selben index. In Appendix 3 the coefficient and significance of the beta related to the Eligibility variable from the regressions are shown. In the first and second columns it is displayed the means of the variables for those women, in the age category 5 to 65 years, who are above or below the cutoff point, respectively. As expected, the significance of the results of the regression are all below the usual significance levels, except for three variables: number of children from 6 to 14 years of age, women as household heads and location in Costa.

In addition to complying with expression [3], the Eligibility criterion has to be correlated to the endogenous variable, in this case the participation in the UCT or HDC program, to be a valid instrument. In other words, it has to comply with condition [4]. This correlation of the instrument and the endogenous variable – equivalent to the first stage of the IV approach – is done separately for the reproductive and productive work analysis because different samples are considered. This difference is due to rejection or incomplete answers to the time-use section of the survey, related to the reproductive activities, after completing the section where the question about productive work was asked. In other words, for some women there is information about the time devoted to productive activities while there is not for the reproductive tasks.

Before looking at the regressions that show the correlation between the instrument and the endogenous variables, it is important to mention that the Eligibility criterion only identifies those individuals around the cutoff point.

As mentioned in the previous section the IV approach only identifies the effect on those individuals whose behaviours are modified by the instrument. In this case the Eligibility criterion identifies those individuals around the cutoff point whose behaviour it influences. This means that the effect found (LATE) with this instrument is constrained to that particular area. In no way the results presented in this paper should be considered a finding for all the treated individuals but to only those around the cutoff point between the second and third quintile of the Selben Index, specially considering the effect heterogeneity that this program probably has. In addition the effects found cannot be attributed to one of the two programs analyzed here, but to both of them; in other words it is a joint effect that is found.

For the reproductive work analysis, considering only women who are household heads, household heads' spouses and daughters, the results are the following:

Table 3
Correlation between the instrument proposed and participation in the HDC or UCT program, for women between 15 and 65 years old considered in the reproductive work analysis[16]

	All	Urban	Rural	Sierra	Costa	Indigenous	White	Mestizo	Afro	15 to 40 years old	41 to 65 years old
Instrument (Eligibility)	0.034***	0.047***	0.038*	0.032*	0.044**	0.16***	0.024	0.033**	-0.023	0.0073	0.071***
	(0.012)	(0.014)	(0.022)	(0.017)	(0.019)	(0.059)	(0.049)	(0.013)	(0.061)	(0.015)	(0.020)
Partial R squared test of the instrument (F statistic)	7.39	10.6	3	3.61	5.46	7.67	0.24	5.97	0.14	0.22	12.15
Treated	4,105	1,447	2,658	1,860	2,032	500	264	3,073	268	2,368	1,737
Control	12,927	9,094	3,833	7,401	5,006	550	885	10,936	556	7,657	5,270

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

It is observed that the instrument is strongly correlated to the treatment variable, in terms of the significance level of the instrument, for the complete sample. The significance is high and the coefficient shows that for those just below the cutoff point their probability of participating in the programs increases by about 3.4 percentage points, compared to those just above that point, holding everything else constant. When observing at other subsamples, useful to look at the effect heterogeneity, the instrument performs well in many cases, however for other cases caution is advice when drawing conclusions. The complete regression for the complete sample can be observed in Appendix 4, in the second column under the label first stage.

This regression shows that women between reach their highest point in the probability of participating in the programs at 40 years old. Those who are the household heads' daughters have 4.4 percentage points lower probability of receiving a cash transfer, while household heads' spouses have a 5 percentage points increase in the probability, compared to household heads, holding other variables constant. As expected, one extra year of education is related to a decrease of 1 percentage point in the probability of benefiting from a cash transfer. Women who consider themselves as indigenous have a 5.8 percentage points higher probability of participating in the UCT or HDC program, holding other variables constant, compared to women who consider themselves to be in the mestizo or other category. Higher illiteracy ratio is related to lower probability of benefiting from cash transfer; this shows that the mechanism used to distribute these programs in Ecuador should be made easier for illiterates to access.

Staiger and Stock (1997; in Baum et al.,2003) mention that if the F statistic of the partial R-squared test is below 10 for a single endogenous regressor, then one has to be concerned about the strength of the instrument. Under this criterion only the results from the urban area subsample and from the one formed by women between 41 to 65 years old would have no cast of doubt in terms of the strength of the instrument. In any case the results for all groups will be shown and caution is advice when looking at the results of those subsamples where the instrument is not strong in terms of the significance level and F statistic of the partial R-squared test.

When looking at the sample of women analyzed for the impact of the cash transfers (HDC or UCT) on time allocated to productive purposes, considering only women who are household heads, household heads' spouses and daughters, the results are:

Table 4
Correlation between the instrument proposed and participation in the HDC or UCT program, for women between 15 and 65 years old, considered in the productive work analysis

	All	Urban	Rural	Sierra	Costa	Indigenous	White	Mestizo	Afro	15 to 40 years old	41 to 65 years old
Instrument (Eligibility)	0.031***	0.044***	0.037*	0.024	0.043**	0.14**	0.038	0.031**	-0.026	0.0080	0.064***
	(0.012)	(0.014)	(0.021)	(0.016)	(0.018)	(0.056)	(0.047)	(0.013)	(0.059)	(0.015)	(0.020)
Partial R-squared test of the instrument (F statistic)	6.92	10.46	3.14	2.27	5.49	6.37	0.66	5.79	0.2	0.3	10.83
Treated	4,302	1,493	2,809	1,988	2,085	574	276	3,165	287	2,469	1,833
Control	14,098	9,861	4,237	8,222	5,283	637	977	11,877	607	8,418	5,680

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

For the complete sample, the table above shows that the instrument is significant at 1% significance level, although the F statistic of the partial R-squared test is not completely satisfactory. The coefficient shows that for those women, considered in the productive work analysis, who are just below the cutoff point their probability of participating in the cash transfers programs increase by about 3.1 percentage points. For the rest of subsamples, the results vary; for some of them the instrument works better than for others. The regression for the complete sample can be observed in the second column in Appendix 5, under the label of first stage.

This regression shows that women who consider themselves as indigenous have about 6 percentage points higher probability of participating in the programs, compared to those in the mestizo and other category. Other variables show similar results compared to the ones found in the analysis for

reproductive work, for instance, the highest probability of participation in the programs is reached at 40 years of age.

School enrolment is another outcome that this paper will look at since, as seen in the theoretical framework and literature review, this is related to women's time use. To analyze the impact of the cash transfer programs on school enrolment for children between 12 and 17 years old, the treatment group is define as those who live in households where one of the members is a UCT or HDC participant, while the control group is formed by those who live in households where none of its members benefit from either program. The correlations between the treatment variable and the instrument are the following:

Table 5
Correlation between the instrument proposed and being in a household where one of the members participates in the HDC or UCT programs, for children between 5 and 17 years

	All	Urban	Rural	Sierra	Costa	Indigenous	White	Mestizo	Afro	5 to 11 years old	12 to 14 years old	15 to 17 years old
Instrument	0.075***	0.043**	0.079***	0.071***	0.066***	0.13**	0.064	0.085***	-0.10*	0.080***	0.074***	0.054**
	(0.013)	(0.017)	(0.026)	(0.018)	(0.020)	(0.063)	(0.053)	(0.014)	(0.062)	(0.018)	(0.025)	(0.027)
Partial R squared test of the instrument (F statistic)	33.42	6.19	9.2	15.92	10.47	4.03	1.43	35.18	2.76	19.13	8.52	3.9
Treated	9,123	3,062	6,061	4,257	4,276	1,230	507	6,748	638	5,242	2,083	1,798
Control	11,924	7,882	4,042	6,634	4,700	676	767	9,901	580	6,233	2,827	2,864

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

The results in the table above show that the instrument is highly correlated – significant at 1% – with a coefficient that shows an increase of about 7.5 percentage points for those just below the cutoff point, compared to those just above it. The F statistic of the partial R squared test is satisfactory. The complete regression can be seen in Appendix 6, in the second column under the heading of first stage. For the subsamples, the instrument shows to perform well for most of them.

5.3 Results

When studying the impact of the cash transfers on time women allocate to either productive or reproductive purposes, it is important to look at the effects of those cash transfers on children's enrolment rates. They might affect the time devote to these two groups of activities. The impact of cash transfer on school enrolments of children between 5 to 17 years old are the following:

Table 6
Impact of cash transfers (UCT or HDC) on school enrolment, for children between 5 to 17 years old[17]

	All	Urban	Rural	Sierra	Costa	Indigenous	White	Mestizo	Afro	5 to 11 years old	12 to 14 years old	15 to 17 years old
Treatment (IV)	0.056	-0.084	-0.025	-0.039	0.21	-0.10	-0.29	0.13	-0.096	0.00094	0.75**	-0.69
	(0.10)	(0.22)	(0.21)	(0.16)	(0.20)	(0.28)	(0.53)	(0.10)	(0.36)	(0.082)	(0.33)	(0.58)
Treatment (OLS Naïve)	0.013**	0.012*	0.013*	0.00019	0.026***	-0.0020	0.050**	0.012**	0.012	0.019***	-0.0056	0.027*
	(0.0051)	(0.0069)	(0.0073)	(0.0075)	(0.0076)	(0.017)	(0.023)	(0.0058)	(0.018)	(0.0047)	(0.012)	(0.016)
Treated	9,123	3,062	6,061	4,257	4,276	1,230	507	6,748	638	5,242	2,083	1,798
Control	11,924	7,882	4,042	6,634	4,700	676	767	9,901	580	6,233	2,827	2,864

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

For the whole sample of children between 5 to 17 years of age, the cash transfers increase the probability of enrolment by about 5.6 percentage points; however this estimator is statistically not significant. Other variables show that at about 9 years of age, children reach the highest probability of being enrolled. Children who consider themselves white have a 3 percentage points lower probability of being enrolled, compared to those in the mestizo and other category, holding other factors constant. Having a woman as the household head is related to a decrease in the probability of being enrolled, while higher schooling level of the household head is positively related. The complete regression can be observed in Appendix 6.

For other subsamples, where the instrument performs well in terms of its strength, there is not any statistically significant impact on school enrolment, except for the subsample of children between 12 and 14 years old. In this subsample those influenced by the cash transfers increase their probability of being enrolled in school in about 75 percentage points. Graphical, considering only the Selben index, the first stage and reduced form can be observed in Appendix 7.

The results for the impact of the cash transfer (UCT or HDC) on time dedicated to reproductive activities, considering only women who are household heads, women as household heads' spouses and daughters, are the following:

Table 7
Impact of cash transfers (UCT or HDC) on women's time devoted to reproductive activities in a week (for those between 15 to 65 years old)

	All	Urban	Rural	Sierra	Costa	Indigenous	White	Mestizo	Afro	15 to 40 years old	41 to 65 years old
Treatment (IV)	-15.5	-7.06	-49.5	-11.4	-7.17	27.2	-157	-3.33	206	-171	8.15
	(23.3)	(20.5)	(45.8)	(36.0)	(24.0)	(20.5)	(337)	(25.5)	(536)	(393)	(17.2)
Treatment (OLS Naïve)	2.72***	4.05***	2.38***	1.28*	3.99***	1.59	4.74**	2.74***	4.85**	2.99***	2.15***
	(0.50)	(0.78)	(0.67)	(0.77)	(0.70)	(1.65)	(2.01)	(0.57)	(1.93)	(0.68)	(0.75)
Treated	4,105	1,447	2,658	1,860	2,032	500	264	3,073	268	2,368	1,737
Control	12,927	9,094	3,833	7,401	5,006	550	885	10,936	556	7,657	5,270

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

For the whole sample, the cash transfer decreases in about 15 hours the time women devote to reproductive activities in a week; however the coefficient is statistically not significant at the usual levels. It should also be considered that the instrument does not perform well in terms of the F statistic in the partial R-squared test which casts some doubt on the result. Other variables show that about 40 years old women reach the highest workload of reproductive work; women who are household heads' spouses work about 5.6 hours more each week, while daughters work about 8.6 hours less each week, compared to women as household heads, holding other factors constant. Women who consider themselves as indigenous do approximately 3 hours less of reproductive work each week, compared to women in the mestizo and other category. The complete regression is in Appendix 4.

For the subsamples, the coefficients of interest have different signs and magnitudes. This clearly shows the effect heterogeneity of the cash transfers, although for some of the subsamples, as shown in Table 3, the instrument is not very powerful which brings doubt about the validity of some of the findings. This lack of power of the instrument comes from the analysis of the F statistic of the partial R-squared test and the rule of thumb proposed by Staiger and Stock (1997; in Baum et al.,2003).

When it comes to productive work there are two impacts that this paper will look at. The first is the impact of the cash transfers on the hours devoted to productive purposes, while the second is the impact on the probability of doing productive activities, in other words the probability of participating in the labour market or income generating activities.

The results of the impact of cash transfers on the number of hours in a week devoted to productive work by women between 15 and 65 years old, who are household heads, household heads' spouses and household heads' daughters, are the following:

Table 8
Impact of cash transfers (UCT or HDC) on women's time devoted to productive activities in a week (for those between 15 to 65 years old)

	All	Urban	Rural	Sierra	Costa	Indigenous	White	Mestizo	Afro	15 to 40 years old	41 to 65 years old
Treatment (IV)	-46.3*	-45.8*	-18.2	-58.9	-39.0	11.5	55.3	-55.7*	112	-155	-29.0
	(27.4)	(24.7)	(30.7)	(54.3)	(27.7)	(23.3)	(96.4)	(32.9)	(266)	(296)	(18.6)
Treatment (OLS Naïve)	-3.85***	-4.26***	-2.96***	-4.65***	-2.44***	-4.73***	-4.83***	-3.95***	-0.92	-4.79***	-2.82***
	(0.43)	(0.72)	(0.52)	(0.64)	(0.59)	(1.38)	(1.66)	(0.49)	(1.67)	(0.57)	(0.65)
Treated	4,302	1,493	2,809	1,988	2,085	574	276	3,165	287	2,469	1,833
Control	14,098	9,861	4,237	8,222	5,283	637	977	11,877	607	8,418	5,680

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

The complete sample result shows that the cash transfers have a negative effect on time allocated to income generating activities. Those women who benefit from the programs decrease in about 46.3 hours their participation in the labour market each week – 7 days –. Although this coefficient is statistically significant at 10%, the F statistic of the partial R-squared draws some caution to validity of this result. Other variables show that women reach the longest hours in the labour market at about 41 years of age. Women who consider themselves as indigenous work approximately 13 hours more each week, compared to women in the mestizo or other category, holding other factors constant. Women who have a partner work about 4 hours less than women without one. The complete results can be seen in Appendix 5.

Other subsamples where the instrument works well in terms of its strength, based on the threshold proposed by Staiger and Stock (1997; in Baum et al.,2003) about the F statistic of the partial R-squared test, show that the cash transfers have negative impacts as well. For instance, for the urban subsample women who receive the transfers work 45.8 hours less each week, significant at 10%. Although at first glance other results may suggest outstanding heterogeneity of the effect, one has to consider the strength of the instrument for each subsample before drawing any conclusion.

When it comes to analyze the impact of the cash transfers on the probability of participating (1 = participates, 0 = does not participate) in productive activities, considering only household heads, household heads' spouses and household heads' daughters, the results are the following:

Table 9
Impact of cash transfers (UCT or HDC) on women's probability of performing productive activities (for those between 15 to 65 years old)

	All	Urban	Rural	Sierra	Costa	Indigenous	White	Mestizo	Afro	15 to 40 years old	41 to 65 years old
Treatment (IV)	-0.62	-0.61	-0.28	-0.82	-0.65	-0.18	1.46	-0.89	0.79	-2.78	-0.32
	(0.53)	(0.47)	(0.68)	(1.00)	(0.58)	(0.42)	(2.26)	(0.65)	(3.00)	(5.54)	(0.38)
Treatment (OLS Naïve)	-0.036***	-0.036**	-0.026**	-0.054***	-0.0100	-0.075***	-0.060	-0.030***	-0.025	-0.055***	-0.020
	(0.0098)	(0.015)	(0.013)	(0.014)	(0.014)	(0.027)	(0.040)	(0.011)	(0.039)	(0.013)	(0.015)
Treated	4,302	1,493	2,809	1,988	2,085	574	276	3,165	287	2,469	1,833
Control	14,098	9,861	4,237	8,222	5,283	637	977	11,877	607	8,418	5,680

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

The results suggest that women who benefit from the cash transfers decrease their probability to participate in the labour market in about 62 percentage points; although the estimator is statistically not significant and caution is advice in terms of the strength of the instrument. The age variables show that women at 42 years of age reach the highest probability of participation in the labour market. In terms of ethnicity, those women who consider themselves indigenous have a higher participation probability of about 28 percentage points, holding other variables constant, compared to those in the mestizo and other category. Household heads' daughters and household heads' spouses decrease their participation probability in about 16 and 5.7 percentage points, respectively, compared to the household heads. The complete results are in Appendix 8.

For the other subsamples, the results vary in terms of their magnitude but the majority shows a negative effect of the cash on the probability of participating in the labour market. However all the coefficients are statistically not significant. In the case of the subsample grouping those who consider themselves as white, although the coefficient may seem difficult to interpret, one has to remember that for this subsample the instrument lacks strength and that the model used is a Linear Probability Model.

As a concluding remark from this section, it is important to mention that the OLS results are different from the IV. In this naïve approach to evaluate the programs the UCT and HCD show to have a statistically significant impact in some cases, while for the same cases the IV approach shows otherwise. Furthermore, when analyzing the effects of the UCT or HDC program on time in reproductive activities, the OLS approach shows a statistically significant increase while the IV methodology indicates a negative effect, although statistically not significant. This shows that there is auto selection present in the participation of the program and if this paper had not accounted for that through the use of the IV methodology, the results would have been misleading.

5.4 Conclusions

The results show that cash transfers have a positive impact on the probability of enrolment of children between 12 and 14 years old of about 75 percentage points, even when the enrolment in that age range is already high in Ecuador. This increase in the probability is among those children around the cutoff point. At this point is exactly where Oosterbeek et al. (2008) find no impact of the UCT Bono de Desarrollo Humano; however when that impact evaluation was carried out the UCT given out was US$ 15 dollars, while when the survey used in this paper was done the UCT had increased to US$ 30 dollars, and the age group looked at is different. The heterogeneous impact of the UCT on enrolment shows the need to debate about giving different amounts of cash depending on the age of the children since they face different opportunity costs related their age.

Although an increase of reproductive work for women was expected from the work previously done by children, who are now in school, and from the work that complying with the conditionalities may represent, there is not any statistical significant change in this time that can be attributed to the cash transfers. It was expected the extra work load to be placed on women's shoulders due to the strong gender division of labour that exists in Ecuador and that was shown in the descriptive analysis section of this paper. To understand this result it is important to look at the possible effects at play.

The first effect is an increase in the bargaining power of the women who benefit from the cash transfer. With higher bargaining power they could choose not to take any extra reproductive work on their shoulders, as long as they relate that work with disutility. This assumption is likely to hold due to the already high workload on this group of women. In this case, one could expect that other members of the household would do the extra reproductive work.

The second one is the substitution effect. Women now have some hours that were previously used to take care of the children since children have increased their enrolment rates; hence they spend some hours in school and not at home, or demanding care from a household member. This could be specially true in the case in Ecuador where there are no conditions attached to the cash transfer such as going to workshops or do community work unlike in other cases, for example, in Mexico or Nicaragua. The negative sign of the effect of the cash transfer on reproductive work in the urban area, although statistically not significant, may reflect that women now spend less hours caring for the children, specially in the urban area where it is expected to have a better availability of schools and taking children to them does not take too long.

The third effect at play here is that children are going to school and doing school related activities but, in addition to these activities, they are doing the reproductive work as usual. This could also be expected from the bargaining household model given that children have less bargaining power compared to other members, and given that their mothers and other women have already a

considerable load of this type of work. The time increase for these activities may be taken from their leisure.

These three effects cannot be disentangled from each other. What is seen in the results of this paper is the interaction of these effects. In order to look at the different effects and their directions and magnitudes further research is necessary since it becomes necessary to look at the behaviour of the other household members, something not done in this paper due to the limited scope of this research. Nevertheless, and based on the findings of this paper, the absence of any statistically significant impact, poses new questions about the validity of the predictions based on concepts used and the predicted direction of each effect. In any case, for the Ecuadorian case, these findings go against the hypothesis of increase of time burden on women due to the cash transfers.

Unfortunately, when restricting the sample to those women who live in households with at least one child in the age range between 5 to 14 years old, among who there is an increase in enrolment due to the cash transfer, the instrument does not perform well as shown in Appendix 9. Results from this analysis would have added some light to the relationship between schooling and reproductive work.

In terms of the productive work, cash transfers show that they decrease the time devoted to these tasks for the whole sample and for the subsample formed by those in the urban area. This would have been expected from the labour supply model explained by Sachs and Larrain (1993) where a cash transfer would reduce the labour supply if the desired consumption basket could have been reached with less hours worked. However, those around the cutoff point, where the effect is found, are women who are poor or may fall into poverty easily hence it is not very likely that these individuals are satisfied with their actual consumption basket and therefore decrease their labour supply. This specially since about 74% of women, between 15 and 65 years old and eligible for the transfers, answer that they rather have more income than leisure. Nevertheless this does not necessarily mean that they are willing to work more hours. Same effect would have been expected from the gendered analysis of the policy which points out its negative effects on income generating activities done by women.

Under the concepts of the bargaining household model, one of the sources of bargaining power is the perception of the other household members about the contribution of that particular member. It is expected that women who bring the cash transfer to their homes increase their bargaining power which would allow them to decrease their labour supply as a way to ease their workload. It was seen in the descriptive analysis section of this paper that women work in income generating activities as well as on reproductive tasks, leaving them with higher workload, compared to men. That their time burden is not decrease through a reduction on the time devoted to reproductive activities might reflect, as explained by Agarwal (1997), the limit to the area where contestation is allowed; in other words, this may reflect that the gender division of labour is strong enough not to allow any changes through the increase in women's bargaining power due to cash transfers in Ecuador. This

weak bargaining power acquired thanks to the cash transfer could also explain the absence of any effect on time devoted to reproductive activities.

The reduction in labour supply in Ecuador due to the cash transfers (HDC or UCT) is an effect not found in the Mexican case. This might be due to the fact that, as pointed out by Rawlings and Rubio (2003), in Mexico, as well as in Jamaica, every 3 years the family's status of beneficiary of the program is reevaluated while for Nicaragua, the program only lasts 3 years in the community. Contrary to this, in Ecuador, after the first survey that acted as the means test, there has been only one extra survey – census type that just ended– to reevaluate the eligibility status of the family and, apparently, no people were taken out of the list, while about 300,000 new beneficiaries were added. This lack of commitment to the targeting mechanism might be due to the possible political damages that this could cause to the government in terms of its popularity and support. The lack of perception that the eligibility status might end at some point may bring households to behave as if the cash transfers were guaranteed no matter their mobility in the Selben index distribution, therefore showing these effects, absent in other cash transfers programs.

Further research is needed to find out whether the decrease of the labour supply is an effect that is only found around the cutoff point, or this is also found in other sections of the Selben distribution. This would allow the government to take action to prevent this effect if a decrease in labour supply is undesired.

In general, no reduction in reproductive work, and a decrease in labour supply to income generating activities may seem as a way to relive the uneven workload on women. However this reduction in the labour supply may decrease women's bargaining position in the medium or long term since her fallback position would be weaken due to the women's limited experience in the labour market or in income generating activities. This experience is necessary if she is to go back to the labour market in case the household structure breaks apart or the cash transfers stops. This would probably leave them in a worse position than the one they started with.

Notes

[1] Cursive in the original text

[2] Personal interview with Monica Platzer about Human Development Credit, at the Programa de Proteccion Social PPS, Quito – Ecuador, July 30th 2009

[3] Personal interview with Monica Platzer about Human Development Credit, at the Programa de Proteccion Social PPS, Quito – Ecuador, July 30th 2009

[4] Ecuadorian National Statistics Office

[5] Quotation marks used by Bradshaw (2008) in her original text.

[6] Quotation marks used by Molyneux (2006) in her original text.

[7] Cursive in the original text.

[8] Quotation marks used by Molyneux (2006) in her original text.

[9] Quotation marks used by Molyneux (2006) in her original text.

[10] Quotation marks used by Bradshaw and Quiros (2008) in her original text.

[11] Quotation marks used by Molyneux (2006) in her original text.

[12] Women 18 years old and older in the first 2 income deciles have, on average, almost 6 years of schooling while women in the 2 highest deciles have above 11 years of schooling, on average.

[13] For the analysis these households were left out.

[14] Quotation marks used by Angrist and Krueger (2001) in their original text.

[15] This paper uses the 26 questions Selben Index, instead of the 27 questions Selben Index. Important differences are not expected to appear since there is considerable fuzziness around the cutoff point hence, a cutoff point a little above or below does not make much difference.

[16] Other covariates included in the regressions at individual level are age, age squared, number of years of schooling, dummy variables for ethnic background: Afro Ecuadorian, Indigenous, White (Mestizo and other are left as the reference category) and whether the women has a partner or not. At household level the covariates used are number of children between 0 and 5 years old, number of children between 6 and 14 years old, number of children between 15 and 17 years old, number of adult males, number of adult females, number of senior citizens, number of people in the household, schooling of the household head, illiteracy ratio in the household, sex of the household head, Selben index, Selben index squared, Selben index cubed, whether the household is in the urban area. At province level the variables are unemployment, poverty incidence, poverty gap, average Selben index and dummy variables for regions: Costa and Oriente (Sierra is left out as the reference category).

[17] For this analysis a child is considered to be enrolled when it is stated that he or she is enrolled in the survey without looking at whether the child is enrolled at the corresponding grade for his age or not.

References

Adato, M., B. de la Briere, D. Mindek and A. Quisumbing (2000) 'The impact of PROGRESA on Women's Status and Intra-household Relations: Final Report'. Washington DC.: International Food Policy Research Institute.

Agarwal, B. (1997) '"Bargaining" and Gender Relations: Within and Beyond the Household', *Feminist Economics* 3(1): 1-51.

Anderson, C.L., L. Locker and R. Nugent (2002) 'Microcredit, Social Capital, and Common Pool Resources', *World Development* 30(1): 95-105.

Angrist, J.D. and A.B. Krueger (1991) 'Does Compulsory School Attendance Affect Schooling and Earnings?' *The Quarterly Journal of Economics* 106(4): 979-1014.

Angrist, J.D. and A.B. Krueger (2001) 'Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments', *Journal of Economic Perspectives* 15(4): 69-85.

Apps, P.F. and R. Rees (1988) 'Taxation and the household', *Journal of Public Economics* 35(3): 355-369.

Attanasio, O., E. Fitzsimons, A. Gomez, D. Lopez, C. Meghir and A. Mesnard (2008) 'Child Education and Work Choices in the Presence of a Conditional Cash Transfer Programme in Rural Colombia', *The Institute for Fiscal Studies Working Paper 06/13*.

Baum, C., M. Schaffer and S. Stillman (2003) 'Instrumental variables and GMM: Estimation and testing', *Boston College, Department of Economics. Working Paper No. 545*.

Becker, G.S. (1965) 'A Theory of the Allocation of Time', *The Economic Journal* 75(299): 493-517.

Becker, G.S. (1974) 'A Theory of Social Interactions', *The Journal of Political Economy* 82(6).

Bedi, A.S. and N. Gaston (1999) 'Using variation in schooling availability to estimate educational returns for Honduras', *Economics of Education Review* 18(1): 107-116.

Beegle, K., R. Dehejia and R. Gatti (2003) 'Child Labour, Income shocks, and access to credit': World Bank

Behrman, J.R., R.A. Pollak and P. Taubman (1982) 'Parental Preferences and Provision for Progeny', *The Journal of Political Economy* 90(1): 52-73.

Bobonis, G., R. Castro and M. Gonzalez-Brenes (2009) 'Public Transfers and Domestic Violence: The Roles of Private Information and Spousal Control', *University of Toronto, Department of Economics, Working Paper 362*.

Bradshaw, S. (2008) 'From Structural Adjustment to Social Adjustment: A Gendered Analysis of Conditional Cash Transfer Programmes in Mexico and Nicaragua', *Global Social Policy* 8(2): 188-207.

Bradshaw, S. and A. Víquez Quirós (2008) 'Women Beneficiaries or Women Bearing the Cost? A Gendered Analysis of the Red de Protección Social in Nicaragua', *Development and Change* 39(5): 823-844.

Budlender, D. (2007) 'A Critical Review of Selected Time Use Surveys': United Nations Research Institute for Social Development

Buvinic, M., M. Berger and C. Jaramillo (1989) 'Impact of a Credit Project for Women and Men Microentrepreneurs in Quito, Ecuador', in M. Berger et al. (eds), *Women's Ventures* (pp. 222-246). West Hartford CT: Kumarian Press.

Chant, S. (2008) 'The 'Feminisation of Poverty' and the 'Feminisation' of Anti-Poverty Programmes: Room for Revision?' *The Journal of Development Studies* 44(2): 165-197.

Cherchye, L., B.D. Rock and F. Vermeulen (2005) 'Opening the Black Box of Intra-Household Decision-Making: Theory and Non-Parametric Empirical Tests of General Collective Consumption Models', *Institute for the Study of Labor (IZA)*.

Chiappori, P. (1988) 'Nash-Bargained Households Decisions: A Comment', *International Economic Review* 29(4): 791-796.

Chiappori, P. (1992) 'Collective Labor Supply and Welfare', *The Journal of Political Economy* 100(3): 437-467.

Christian Dustmann, N.R.A.S. (2003) 'Class Size, Education, and Wages*', *The Economic Journal* 113(485): F99-F120.

Del Carpio, X. and K. Macours (2009) 'Leveling the Intra-Household Paying Field. Compensation in Child Labor Allocation', *World Bank Policy Research Paper 4822*.

Esquivel, V. (2006) '"What else do we have to cope with" Gender, paid and unpaid work during Argentina's last crises', *The International Working Group on Gender, Macroeconomics and International Economics (GEM-IWG)* Working paper 06-6.

Geoffrey, L., M. Pushkar and R. Ranjan (2008) 'Household Expenditure Patterns and Gender Bias: Evidence from Selected Indian States', *Oxford Development Studies* 36(2): 133-157.

Gujarati, D. (2003) *Basic Econometrics* (Fourth ed.). New York: McGraw-Hill.

Hashemi, S.M., S.R. Schuler and A.P. Riley (1996) 'Rural credit programs and women's empowerment in Bangladesh', *World Development* 24(4): 635-653.

Ilahi, N. (1999) 'Gender and the Allocation of Time and Tasks: What Have We Learned from the Empirical Literature?' Washington , D.C.

Imbens, G.W. and J.D. Angrist (1994) 'Identification and Estimation of Local Average Treatment Effects', *Econometrica* 62(2): 467-475.

Instituto Nacional de Estadística y Censos (2007) 'Evolución y Análisis de Inflación 2007'.

Kabeer, N. (2001) 'Conflicts Over Credit: Re-Evaluating the Empowerment Potential of Loans to Women in Rural Bangladesh', *World Development* 29(1): 63-84.

Katherine, R. (2002) 'Social Capital, Microfinance, and the Politics of Development', *Feminist Economics* 8(1): 1-24.

Khalily, M.A.B. (2004) 'Quantitative approach to impact analysis of microfinance programmes in Bangladesh - what have we learned?' *Journal of International Development* 16(3): 331-353.

Landivar, J. (1989) 'Credit and Development Women: An Introduction to the Ecuadorian Development Foundation', in M. Berger et al. (eds), *Women's Ventures* (pp. 214-221). West Hartford CT: Kumarian Press.

Maluccio, J.A. and R. Flores (2005) 'Impact Evaluation of a Conditional Cash Transfer: The Nicaraguan *Red de Proteccion Social*', *International Food Policy Research Institute Reserach Report 141.*

Mayoux, L. (2001) 'Tackling the Down Side: Social Capital, Women's Empowerment and Micro Finance in Cameroon', *Development and Change* 32(3): 435-464.

Molyneux, M. (2002) 'Gender and the Silences of Social Capital: Lessons from Latin America', *Development and Change* 33(2).

Molyneux, M. (2006) 'Mothers at the Service of the New Poverty Agenda: Progresa/Oportunidades, Mexico's Conditional Transfer Programme', *Social Policy & Administration* 40(4): 425-449.

Molyneux, M. (2007) 'Change and Continuity in Social Protection in Latin America, Mothers at the Service of the State', *United Nations Research Institute for Social Development. Gender and Development Programme Paper Number 1.*

Morduch, J. (2000) 'The Microfinance Schism', *World Development* 28(4): 617-629.

Mushtaque, C., M. Paul and S. Anton (2004) 'Introduction', *Journal of International Development* 16(3): 291-300.

Newman, C. (2002) 'Gender, Time Use, and Change: The Impact of the Cut Flower Industry in Ecuador', *World Bank Econ Rev* 16(3): 375-395.

Oosterbeek, H., J. Ponce and N. Schady (2008) 'The impact of Cash Transfers on School Enrollment: Evidence from Ecuador', *World Bank Policy Research Working Paper 4645*.

Parker, S. and E. Skoufias. (2000) 'El impacto de Progresa sobre el trabajo, el ocio y el uso del tiempo', *Gaceta de Economia*.

Pasqua, S. (2005) 'Gender Bias in Parental Investments in Children's Education: A Theoretical Analysis', *Review of Economics of the Household* 3(3): 291-314.

Peterson, V. (2002) 'Rewriting (Global) Political Economy as Reproductive, Productive and Virtual (Foucauldian) Economies', *International Feminist Journal of Politics* 4(1): 1-30.

Pitt, M. and S. Khandker (1996) 'Household and Intrahousehold Impact of Grameen Bank and Similar Targeted Credit Programs in Bangladesh', *World bank Discussion Papers number 320*.

Pitt, M., S. Khandker and J. Cartwright (2006) 'Empowering Women with Micro Finance: Evidence from Bangladesh', *Economic Development and Cultural Change* 54(4): 791-831.

Ponce, J. and A.S. Bedi (2008) 'The Impact of a Cash Transfer Program on Cognitive Achievement: The Bono De Desarrollo Humano of Ecuador', *SSRN eLibrary*.

Programa de Proteccion Social PPS (2009) Estadisticas del Bono de Desarrollo Humano y Credito de Desarrollo Humano. Retrieved October 10th, 2009, from www.pps.gov.ec.

Quisumbing, A.R. and J.A. Maluccio (2000) 'Intrahouselhold allocation and gender relations: New empirical evidence from four developing countries', *International Food Policy Research Institute* FCND Discussion paper No. 84.

Rahman, A. (1999) 'Micro-credit initiatives for equitable and sustainable development: Who pays?' *World Development* 27(1): 67-82.

Rawlings, L. and G. Rubio (2003) 'Evaluating the Impact of Conditional Cash Transfer Programs: Lessons from Latin America', *World Bank Policy Research Paper 3119*.

Rosati, F.C. and M. Rossi (2003) 'Children's Working Hours and School Enrollment: Evidence from Pakistan and Nicaragua', *World Bank Econ Rev* 17(2): 283-295.

Sachs, J. and F. Larrain (1993) *Macroeconomics in the global economy*. New York: Harvester Wheatsheaf ; Prentice Hall.

Schady, N. and M. Araujo (2006) 'Cash transfers, conditions, school enrollment, and child work: Evidence from a randomized experiment in Ecuador', *World Bank Policy Research Working Paper 3930*.

Schultz, T. (2004) 'School subsidies for the poor: evaluating the Mexican Progresa poverty program', *Journal of Development Economics* 74(1): 199-250.

Sebstad, G. and G. Chen (1996) 'Overview of studies on the impact of microenterprise credit'. Washington DC.

Sen, A. (1990) 'Gender and Cooperative Conflicts', in I. Tinker (ed.), *Persistent inequalities* (pp. 123-149). New York: Oxford University Press.

Senauer, B. (1990) 'The impact of the Value of Women's Time on Food and Nutrition', in I. Tinker (ed.), *Persisten Inequalities* (pp. 150-161). New York: Oxford University Press.

Simeen, M. (2003) 'Actually how Empowering is Microcredit?' *Development and Change* 34(4): 577-605.

Skoufias, E. (1993) 'Labor market opportunities and intrafamily time allocation in rural households in South Asia', *Journal of Development Economics* 40(2): 277-310.

Skoufias, E. and V. di Maro (2006) 'Conditional Cash Transfers, Adult Work Incentives, and Poverty', *World Bank Policy Research Working Paper 3973*.

Strauss, J. and K. Beegle (1996) 'Intrahousehold Allocations: A Review of Theories, Empirical Evidence and Policy Issues', *International Development Working Papers 62, Department of Agricultural Economics, Michigan State University*.

van Klaveren, C., B. van Praag and H. Maassen van den Brink (2006) 'A Collective Household Model of Time Allocation - A Comparison of Native Dutch and Immigrant Households in The Netherlands', *Tinbergen Institute Discussion Papers*.

van Klaveren, C., B. van Praag and H. Maassen van den Brink (2008) 'A public good version of the collective household model: an empirical approach with an application to British household data', *Review of Economics of the Household* 6(2): 169-191.

Verbeek, M. (2000) *A Gguide to Modern Econometrics*. West Sussex.

Villatoro, P. (2005) 'Programas de transferencias monetarias condicionadas: experiencias en America Latina', *Revista de la Cepal*.

Wooldridge, J. (2003) *Introductory Econometrics: A Modern Approach* (Second ed.). Mason: Thomson South-Western.

Wydick, B. (1999) 'The Effect of Microenterprise Lending on Child Schooling in Guatemala', *Economic Development and Cultural Change* 47(4): 853-869.

Appendices

Appendix 1. Questions used to calculate time used on reproductive purposes for people 12 years old and over.

1. Did you cook or prepare any food to eat for breakfast, lunch, dinner or between-the-meals- snack, including food to take away? If so, how much time did you spend doing that (during the weekdays and weekend)?
2. Did you serve the food, set the table, pick up the dishes after eating or warm up the food? If so, how much time did you spend doing that (during the weekdays and weekend)?
3. Did you do the dishes, dry them and put them back in their place? If so, how much time did you spend doing that (during the weekdays and weekend)?
4. Did you clean the place where you cook the meals (wash, clean the stove, sink and/or the cooking area)? If so, how much time did you spend doing that (during the weekdays and weekend)?
5. Did you take a meal for any member of the household to his/her job, school, hospital, jail, etc.? If so, how much time did you spend doing that (during the weekdays and weekend)?
6. Did you do any previous preparation to consume any product such as: peel, toast, grind and clean the seeds? If so, how much time did you spend doing that (during the weekdays and weekend)?
7. Did you light up the charcoal or wood to cook? If so, how much time did you spend doing that (during the weekdays and weekend)?
8. Did you prepare sweets, bread, cheese or other dried food such as coffee, corn, meat, sea food for the household consumption? If so, how much time did you spend doing that (during the weekdays and weekend)?
9. Did you make the beds or get the place to sleep ready? If so, how much time did you spend doing that (during the weekdays and weekend)?
10. Did you clean the bathroom including all its parts, or any other place used as toilettes? If so, how much time did you spend doing that (during the weekdays and weekend)?

11. Did you clean up your house except for the kitchen and bathroom? If so, how much time did you spend doing that (during the weekdays and weekend)?
12. Did you fetch water for the household use and consumption? If so, how much time did you spend doing that (during the weekdays and weekend)?
13. Did you warm up water to take a bath? If so, how much time did you spend doing that (during the weekdays and weekend)?
14. Did you wash the household car, motorcycle, bike or animals used for transportations? If so, how much time did you spend doing that (during the weekdays and weekend)?
15. Did you spend some time taking care of dogs, cats, birds, fish, etc.? If so, how much time did you spend doing that (during the weekdays and weekend)?
16. Did you do garden activities (watering, trimming, planting, etc.)? If so, how much time did you spend doing that (during the weekdays and weekend)?
17. Did you throw away, burn or burry trash? If so, how much time did you spend doing that (during the weekdays and weekend)?
18. Did you wash or clean your shoes (any kind of shoes)? If so, how much time did you spend doing that (during the weekdays and weekend)?
19. Did you wash your clothes or any family member's clothes? If so, how much time did you spend doing that (during the weekdays and weekend)?
20. Did you iron your clothes or any family member's clothes? If so, how much time did you spend doing that (during the weekdays and weekend)?
21. Did you take your clothes or any family member's clothes to have them dry cleaned or to another person to have them washed? If so, how much time did you spend doing that (during the weekdays and weekend)?
22. Did you fold your clothes or put them in their place or in a place to have them ready to used the next day? If so, how much time did you spend doing that (during the weekdays and weekend)?
23. Did you knit, embroil or fix any family member's clothes? If so, how much time did you spend doing that (during the weekdays and weekend)?

24. Did you buy or exchange meats, vegetables, fruits, groceries, beverages, cleaning items or other things you need to buy one a week, every other week or once a month? If so, how much time did you spend doing that (during the weekdays and weekend)?
25. Did you buy something at the community or neighborhood store (little things such as matches, milk, soda, aspirins, etc.)? If so, how much time did you spend doing that (during the weekdays and weekend)?
26. Did you buy medicines for you or any other household member? If so, how much time did you spend doing that (during the weekdays and weekend)?
27. Did you buy or go with somebody to buy school materials, cloths for you or any other family member? If so, how much time did you spend doing that (during the weekdays and weekend)?
28. Did you buy any kitchen utensils, maintaining equipments, photoFigureic material, musical instruments for any member of the household? If so, how much time did you spend doing that (during the weekdays and weekend)?
29. Did you buy any orthopedic o therapeutic things for any family member? If so, how much time did you spend doing that (during the weekdays and weekend)?
30. Did you buy a vehicle, or do the paper work to buy one, or rent a house for a latter family use? If so, how much time did you spend doing that (during the weekdays and weekend)?
31. Did you do Christmas shopping? If so, how much time did you spend doing that (during the weekdays and weekend)?
32. Did you have to wait for home delivery of gas, water, garbage recollection? If so, how much time did you spend doing that (during the weekdays and weekend)?
33. Did you do any payments or paperwork necessary for any member of the household such as high school fees payments, bank statements, passports, births certificates? If so, how much time did you spend doing that (during the weekdays and weekend)?
34. Did you get your Bono de Desarrollo Humano (conditional cash transfer)? If so, how much time did you spend doing that (during the weekdays and weekend)?
35. Did you put in their places important papers for the household, or did you pick up the mail and distribute to the rest of the family members? If so, how much time did you spend doing that (during the weekdays and weekend)?

36. Did you supervise the household work or make decisions about everyday life such as the menu for a household meal? If so, how much time did you spend doing that (during the weekdays and weekend)?
37. Did you do the household accountability such as keeping track of income and expenses and how to allocate the budget? If so, how much time did you spend doing that (during the weekdays and weekend)?
38. Did you manage the house security, for instance, closing the doors at night, park the car – or any other mean of transportation? If so, how much time did you spend doing that (during the weekdays and weekend)?
39. Did you do activities related to moving to another house or rearrange some house spaces (rearrange closets, terraces) or did you manage to buy or give away items that were not going to be used? If so, how much time did you spend doing that (during the weekdays and weekend)?
40. Did you pay for services such as electricity, water, property taxes, telephone, gas or water? If so, how much time did you spend doing that (during the weekdays and weekend)?
41. Did you feed any child in the household? If so, how much time did you spend doing that (during the weekdays and weekend)?
42. Did you bath any child in the household? If so, how much time did you spend doing that (during the weekdays and weekend)?
43. Did you play, talk to, read a story to any child in the household? If so, how much time did you spend doing that (during the weekdays and weekend)?
44. Did you do any special exercise, therapy to any child in the household? If so, how much time did you spend doing that (during the weekdays and weekend)?
45. Did you go to meetings, festivals or other activities organized by the educational center of any of the household children?
46. Did you help with the homework of any kid in the household? If so, how much time did you spend doing that (during the weekdays and weekend)?
47. Did you take or pick up any member of the household to and from school, high school, university, work, doctor's office or work? If so, how much time did you spend doing that (during the weekdays and weekend)?

48. Did you go with any family member to a special class or practice (soccer, swimming, dance or painting)? If so, how much time did you spend doing that (during the weekdays and weekend)?
49. Did you take care of any household member who was in the hospital during the day or night? If so, how much time did you spend doing that (during the weekdays and weekend)?
50. Did you take any household member to a hospital, health center, midwife, medical therapies, psychological therapies or alternative medicine practitioners? If so, how much time did you spend doing that (during the weekdays and weekend)?
51. Did you prepare any homemade medicine to help any household member?
52. Did you do or help to fix something in the house (electric, plumber, etc. system)? If so, how much time did you spend doing that (during the weekdays and weekend)?
53. Did you supervise any reparation (of any kind) being done to the electric or plumber systems, or to the house itself? If so, how much time did you spend doing that (during the weekdays and weekend)?
54. Did you fix or take it to have it fixed a household mean of transport such as car, bicycle, boat, etc.? If so, how much time did you spend doing that (during the weekdays and weekend)?
55. Did you fix or take it to have it fixed a household electric appliance or other types of appliances? If so, how much time did you spend doing that (during the weekdays and weekend)?
56. Did you do or help to do a piece of furniture such as chairs, tables, boats, utensils, etc.? If so, how much time did you spend doing that (during the weekdays and weekend)?
57. Did you help to feed any handicapped family member? If so, how much time did you spend doing that (during the weekdays and weekend)?
58. Did you help to bath, or go to the bathroom, or change the dipper to any handicapped family member? If so, how much time did you spend doing that (during the weekdays and weekend)?
59. Did you do any special therapy or did you talk to him/her during the day? If so, how much time did you spend doing that (during the weekdays and weekend)?
60. Did you look after any handicapped family member during the night? If so, how much time did you spend doing that (during the weekdays and weekend)?

61. Did you prepare any special food for any handicapped family member during the night? If so, how much time did you spend doing that (during the weekdays and weekend)?
62. Did you take any handicapped family member to the doctor, therapies or any paperwork? If so, how much time did you spend doing that (during the weekdays and weekend)?
63. Did you clean the room of any handicapped family member? If so, how much time did you spend doing that (during the weekdays and weekend)?
64. Did you wash and iron any handicapped household member's clothes? If so, how much time did you spend doing that (during the weekdays and weekend)?

Appendix 2. Questions used to calculate time used on school related activities for people 12 years old and over.

1. Did you spend time going to school, high school or university, or to a training class? If so, how much time did you spend doing that (during the weekdays and weekend)?
2. Did you spend time doing homework at home, or researching in the library, internet, etc? school or university, or to a training class? If so, how much time did you spend doing that (during the weekdays and weekend)?

Appendix 3. Comparison between women around the cutoff point (from 15 to 65 years old)

Variables	Above the cutoff point	Below the cutoff point	Difference
Age	36.731	34.319	-0.124
	-0.14	-0.128	-0.405
Age squared	1555.709	1372.391	-10.781
	-10.844	-9.707	-31.096
Schooling	10.826	6.503	0.012
	-0.043	-0.036	-0.116
Indigenous	0.024	0.111	0.004
	-0.001	-0.003	-0.007
White	0.072	0.063	0.01
	-0.003	-0.002	-0.007

Afro Ecuadorian	0.034	0.062	-0.003
	-0.002	-0.002	-0.006
Household head	0.139	0.126	-0.013
	-0.003	-0.003	-0.01
Partner	0.543	0.594	-0.009
	-0.005	-0.005	-0.014
Children 0-5	0.328	0.733	0.004
	-0.006	-0.008	-0.022
Children 6-14	0.604	1.309	-0.075**
	-0.008	-0.011	-0.029
Children 15-17	0.333	0.477	-0.028
	-0.005	-0.006	-0.017
Adult males	1.148	1.212	0.001
	-0.008	-0.008	-0.024
Adult females	1.608	1.514	0.04
	-0.008	-0.008	-0.025
Senior citizens	0.206	0.174	0.022
	-0.005	-0.004	-0.014
people in HH	4.228	5.421	-0.038
	-0.017	-0.021	-0.057
Schooling HHhead	10.318	5.294	-0.139
	-0.048	-0.032	-0.112
Illiteracy ratio	0.021	0.111	-0.004
	-0.001	-0.002	-0.005
Sex of HHhead	0.249	0.218	-0.025**
	-0.004	-0.004	-0.012
Selben Index	59.068	41.471	0
	-0.055	-0.059	0
Selben index squared	3521.43	1761.642	0
	-6.739	-4.64	0
Selben index cubic	211935.565	76310.64	0
	-619.711	-281.351	0
Area	0.843	0.381	-0.005
	-0.004	-0.004	-0.013
Unemployment	0.041	0.043	0
	0	0	0
Poverty incidence	0.392	0.431	-0.005
	-0.001	-0.001	-0.003
Poverty gap	0.171	0.189	-0.003

	-0.001	-0.001	-0.002
Avg. Selben	48.574	47.104	0.027
	-0.039	-0.032	-0.104
Costa	0.334	0.48	0.025*
	-0.005	-0.005	-0.014
Oriente	0.038	0.051	0.004
	-0.002	-0.002	-0.006

*** p<0.01, ** p<0.05, * p<0.1

Appendix 4. Impact of cash transfers (UCT or HDC) on women's time devoted to reproductive activities in a week (for those between 15 to 65 years old).

		IVREG	
Variables	**OLS**	**First stage**	**Second stage**
Treatment (with UCT or HDC)	2.72***		-15.5
	(0.50)		(23.3)
Age	1.08***	0.031***	1.65**
	(0.089)	(0.0013)	(0.73)
Age squared	-0.014***	-0.00039***	-0.021**
	(0.0011)	(0.000016)	(0.0092)
Household head's spouse	4.68***	0.053***	5.65***
	(1.09)	(0.016)	(1.67)
Household head's daughter	-7.83***	-0.044***	-8.63***
	(0.95)	(0.014)	(1.44)
Schooling	-0.0048	-0.011***	-0.20
	(0.058)	(0.00086)	(0.26)
Indigenous	-4.05***	0.058***	-2.98*
	(0.81)	(0.015)	(1.59)
White	-0.83	0.0022	-0.79
	(0.68)	(0.011)	(0.71)
Afro Ecuadorian	-0.27	-0.0089	-0.43
	(0.84)	(0.015)	(0.91)
Partner	6.54***	-0.024**	6.10***
	(0.78)	(0.012)	(1.00)
Children 0-5	3.12	0.025	3.66
	(7.60)	(0.083)	(8.10)
Children 6-14	-1.70	0.061	-0.50
	(7.59)	(0.083)	(8.21)

Children 15-17	-5.28	0.052	-4.25
	(7.59)	(0.083)	(8.16)
Adult males	-2.37	0.032	-1.70
	(7.59)	(0.083)	(8.11)
Adult females	-6.48	0.011	-6.18
	(7.59)	(0.083)	(8.07)
Senior citizens	-1.44	0.018	-1.03
	(7.61)	(0.083)	(8.10)
people in HH	2.80	-0.030	2.17
	(7.59)	(0.083)	(8.10)
Schooling HH head	0.0078	-0.0020**	-0.028
	(0.057)	(0.00078)	(0.074)
Illiteracy ratio	-3.47***	-0.046**	-4.32***
	(1.11)	(0.022)	(1.59)
Sex of HH head	3.58***	0.027***	4.08***
	(0.78)	(0.0098)	(1.02)
Selben Index	0.075	0.15***	3.15
	(0.62)	(0.013)	(4.02)
Selben index squared	0.0048	-0.0036***	-0.068
	(0.013)	(0.00027)	(0.095)
Selben index cubed	-0.000093	0.000026***	0.00042
	(0.000088)	(1.8e-06)	(0.00067)
Area	-1.96***	-0.038***	-2.65***
	(0.46)	(0.0077)	(1.03)
Unemployment	182***	0.16	185***
	(19.7)	(0.33)	(21.0)
Poverty incidence	-17.0	0.21	-13.4
	(12.2)	(0.19)	(13.5)
Poverty gap	-15.1	-0.15	-17.8
	(15.3)	(0.25)	(16.3)
Avg. Selben	-1.06***	-0.00081	-1.08***
	(0.28)	(0.0046)	(0.29)
Costa	-6.23***	0.023	-5.82***
	(0.91)	(0.015)	(1.08)
Oriente	-8.31***	-0.0073	-8.44***
	(1.31)	(0.022)	(1.39)
Eligibility		0.034***	
		(0.012)	
Constant	73.3***	-2.00***	33.3

	(19.2)	(0.33)	(55.4)
Observations	17032	17032	17032
R-squared	0.259	0.320	0.196
Uncentered R-square			0.78
Centered R-square			0.20
*** p<0.01, ** p<0.05, * p<0.1			
Robust standard errors in parentheses			

Appendix 5. Impact of cash transfers (UCT or HDC) on women's time devoted to productive activities in a week (for those between 15 to 65 years old)

		IVREG	
Variables	**OLS**	**First stage**	**Second stage**
Treatment (with UCT or HDC)	-3.85***		-46.3*
	(0.43)		(27.4)
Age	2.31***	0.030***	3.57***
	(0.081)	(0.0013)	(0.83)
Age squared	-0.028***	-0.00038***	-0.044***
	(0.00099)	(0.000015)	(0.010)
Household head's spouse	-3.30***	0.044***	-1.45
	(1.05)	(0.015)	(1.71)
Household head's daughter	-6.62***	-0.049***	-8.71***
	(0.91)	(0.013)	(1.71)
Schooling	0.76***	-0.011***	0.28
	(0.053)	(0.00081)	(0.32)
Indigenous	10.1***	0.059***	12.6***
	(0.69)	(0.014)	(1.88)
White	-1.60***	0.0030	-1.47*
	(0.62)	(0.010)	(0.76)
Afro Ecuadorian	0.99	-0.0056	0.76
	(0.75)	(0.015)	(1.01)
Partner	-3.03***	-0.017	-3.77***
	(0.72)	(0.011)	(0.99)
Children 0-5	-2.07	-0.030	-3.24
	(5.31)	(0.069)	(6.60)
Children 6-14	-1.45	0.0052	-1.13
	(5.31)	(0.069)	(6.55)

Children 15-17	-2.12	-0.0060	-2.28
	(5.31)	(0.069)	(6.55)
Adult males	-3.04	-0.025	-4.02
	(5.30)	(0.069)	(6.58)
Adult females	-0.65	-0.046	-2.48
	(5.31)	(0.069)	(6.67)
Senior citizens	-1.35	-0.041	-2.97
	(5.31)	(0.070)	(6.65)
people in HH	1.76	0.026	2.78
	(5.30)	(0.069)	(6.58)
Schooling HH head	-0.41***	-0.0013*	-0.47***
	(0.051)	(0.00074)	(0.070)
Illiteracy ratio	1.08	-0.044**	-0.82
	(0.96)	(0.021)	(1.80)
Sex of HH head	3.45***	0.025***	4.48***
	(0.75)	(0.0091)	(1.06)
Selben Index	-0.82*	0.15***	6.26
	(0.47)	(0.012)	(4.59)
Selben index squared	0.021**	-0.0036***	-0.15
	(0.0100)	(0.00025)	(0.11)
Selben index cubed	-0.00014**	0.000026***	0.0010
	(0.000069)	(1.7e-06)	(0.00077)
Area	-0.51	-0.035***	-2.01*
	(0.40)	(0.0073)	(1.11)
Unemployment	-123***	-0.040	-124***
	(17.3)	(0.30)	(21.6)
Poverty incidence	-5.82	0.27	5.34
	(10.8)	(0.18)	(14.9)
Poverty gap	27.3**	-0.17	20.2
	(13.3)	(0.24)	(17.4)
Avg. Selben	0.45*	0.0010	0.48
	(0.24)	(0.0043)	(0.30)
Costa	-1.79**	0.032**	-0.43
	(0.75)	(0.014)	(1.31)
Oriente	0.98	0.00046	0.99
	(1.17)	(0.020)	(1.44)
Eligibility		0.031***	
		(0.012)	
Constant	-32.4**	-2.09***	-128**

	(16.2)	(0.31)	(64.8)
Observations	18400	18400	18400
R-squared	0.153	0.319	-0.265
Centered R-square			-0.27
Uncentered R-square			0.30
*** p<0.01, ** p<0.05, * p<0.1			
Robust standard errors in parentheses			

Appendix 6. Impact of cash transfers (UCT or HDC) on school enrolment, for those between 5 to 17 years old

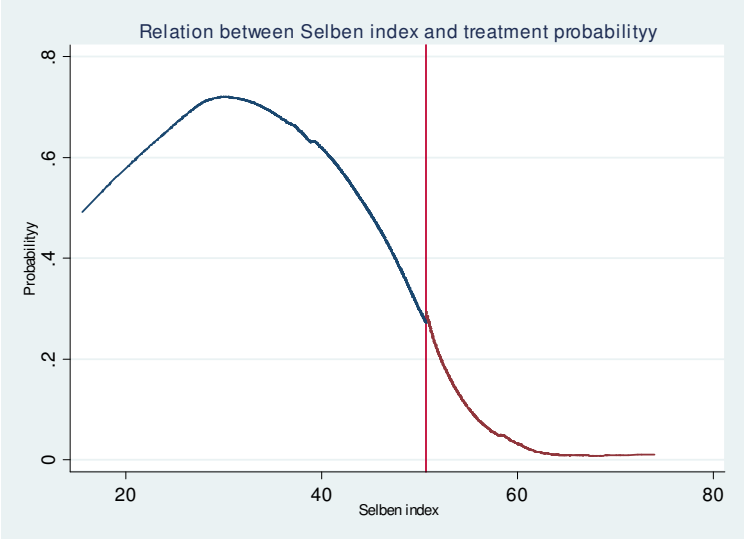
		IVREG	
Variables	**OLS**	**First stage**	**Second stage**
Influenced by treatment (UCT or HDC)	0.013**		0.056
	(0.0051)		(0.10)
Sex	0.0064	0.0035	0.0063
	(0.0040)	(0.0059)	(0.0040)
Age	0.10***	-0.0067	0.10***
	(0.0044)	(0.0059)	(0.0044)
Age squared	-0.0057***	0.00018	-0.0057***
	(0.00021)	(0.00027)	(0.00021)
Indigenous	0.012	0.060***	0.0095
	(0.0085)	(0.012)	(0.011)
White	-0.030***	0.0075	-0.031***
	(0.0090)	(0.012)	(0.0090)
Afro Ecuadorian	0.013	0.010	0.013
	(0.0098)	(0.015)	(0.0099)
Children 0-5	0.011	-0.21***	0.020
	(0.052)	(0.060)	(0.057)
Children 6-14	0.013	-0.17***	0.020
	(0.052)	(0.060)	(0.055)
Children 15-17	0.017	-0.18***	0.024
	(0.052)	(0.060)	(0.055)
Adult males	0.00059	-0.19***	0.0088
	(0.052)	(0.060)	(0.056)
Adult females	0.031	-0.19***	0.038
	(0.052)	(0.060)	(0.056)
Senior citizens	0.020	-0.28***	0.032

	(0.052)	(0.060)	(0.060)
people in HH	-0.019	0.20***	-0.027
	(0.052)	(0.060)	(0.056)
Schooling HHhead	0.0033***	-0.0084***	0.0037***
	(0.00056)	(0.00085)	(0.0010)
Illiteracy ratio	-0.094***	-0.086***	-0.090***
	(0.015)	(0.021)	(0.018)
Sex of HHhead	-0.014**	-0.012	-0.013**
	(0.0059)	(0.0086)	(0.0060)
Selben Index	0.0050	0.19***	-0.0041
	(0.0073)	(0.011)	(0.025)
Selben index squared	0.000020	-0.0043***	0.00023
	(0.00016)	(0.00025)	(0.00058)
Selben index cubed	-2.2e-07	0.000030***	-1.7e-06
	(1.1e-06)	(1.7e-06)	(4.0e-06)
Area	0.024***	-0.061***	0.027***
	(0.0051)	(0.0080)	(0.0080)
Unemployment	-0.75***	0.14	-0.76***
	(0.23)	(0.33)	(0.23)
Poverty incidence	0.017	0.64***	-0.0091
	(0.14)	(0.20)	(0.15)
Poverty gap	0.48***	-0.76***	0.51***
	(0.18)	(0.26)	(0.19)
Avg. Selben	0.0075**	0.00034	0.0076**
	(0.0032)	(0.0046)	(0.0032)
Costa	0.033***	0.011	0.032***
	(0.011)	(0.015)	(0.011)
Oriente	0.018	0.025	0.017
	(0.014)	(0.021)	(0.014)
Eligibility		0.075***	
		(0.013)	
Constant	-0.18	-1.95***	-0.088
	(0.22)	(0.31)	(0.33)
Observations	21047	21047	21047
R-squared	0.172	0.268	0.168
Centered R-square			0.17
Uncentered R-square			0.91
Robust standard errors in parentheses			

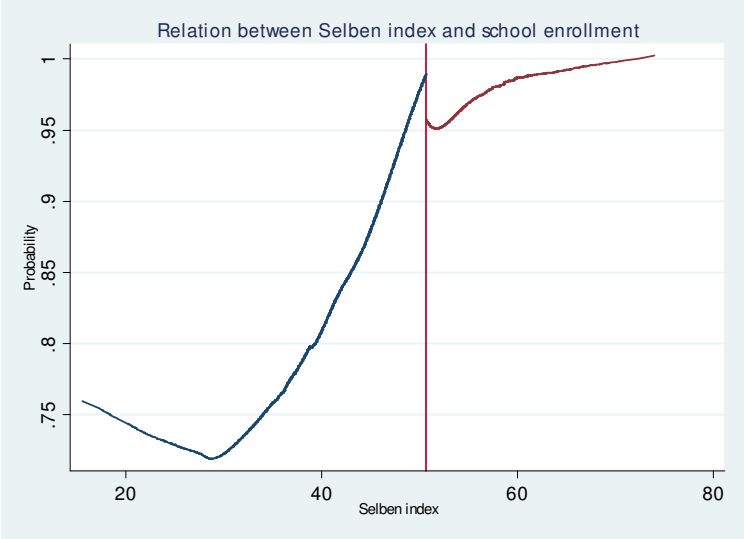
*** p<0.01, ** p<0.05, * p<0.1			

Appendix 7. First and reduced form of the impact of cash transfers on school enrolment for children between 12 and 14 years, considering only the Selben index.

First stage



Reduced form relation



Appendix 8. Impact of cash transfers (UCT or HDC) on women's probability of performing productive activities (for those between 15 to 65 years old)

		IVREG	
Variables	**OLS**	**First stage**	**Second stage**
Treatment (with UCT and HDC)	-0.036***		-0.62
	(0.0098)		(0.53)
Age	0.051***	0.030***	0.069***
	(0.0018)	(0.0013)	(0.016)
Age squared	-0.00060***	-0.00038***	-0.00082***
	(0.000022)	(0.000015)	(0.00020)
Household head's spouse	-0.083***	0.044***	-0.057*
	(0.022)	(0.015)	(0.033)
Household head's daughter	-0.13***	-0.049***	-0.16***
	(0.018)	(0.013)	(0.033)
Schooling	0.017***	-0.011***	0.011*
	(0.0011)	(0.00081)	(0.0061)
Indigenous	0.24***	0.059***	0.28***
	(0.014)	(0.014)	(0.035)
White	-0.034**	0.0030	-0.032**
	(0.014)	(0.010)	(0.015)
Afro Ecuadorian	0.015	-0.0056	0.012
	(0.017)	(0.015)	(0.019)
Partner	-0.061***	-0.017	-0.072***
	(0.015)	(0.011)	(0.019)
Children 0-5	-0.030	-0.030	-0.046
	(0.12)	(0.069)	(0.13)
Children 6-14	-0.019	0.0052	-0.015
	(0.12)	(0.069)	(0.13)
Children 15-17	-0.034	-0.0060	-0.036
	(0.12)	(0.069)	(0.13)
Adult males	-0.056	-0.025	-0.070
	(0.12)	(0.069)	(0.13)
Adult females	-0.012	-0.046	-0.037
	(0.12)	(0.069)	(0.13)
Senior citizens	-0.021	-0.041	-0.044
	(0.12)	(0.070)	(0.13)
people in HH	0.026	0.026	0.041

	(0.12)	(0.069)	(0.13)
Schooling HH head	-0.0084***	-0.0013*	-0.0091***
	(0.0011)	(0.00074)	(0.0014)
Illiteracy ratio	0.041*	-0.044**	0.014
	(0.022)	(0.021)	(0.034)
Sex of HH head	0.082***	0.025***	0.096***
	(0.016)	(0.0091)	(0.021)
Selben Index	-0.013	0.15***	0.085
	(0.011)	(0.012)	(0.089)
Selben index squared	0.00032	-0.0036***	-0.0020
	(0.00024)	(0.00025)	(0.0021)
Selben index cubed	-2.1e-06	0.000026***	0.000014
	(1.6e-06)	(1.7e-06)	(0.000015)
Area	-0.061***	-0.035***	-0.082***
	(0.0088)	(0.0073)	(0.021)
Unemployment	-1.89***	-0.040	-1.91***
	(0.39)	(0.30)	(0.44)
Poverty incidence	-0.86***	0.27	-0.70**
	(0.23)	(0.18)	(0.29)
Poverty gap	1.34***	-0.17	1.24***
	(0.29)	(0.24)	(0.33)
Avg. Selben	-0.0023	0.0010	-0.0019
	(0.0055)	(0.0043)	(0.0060)
Costa	-0.075***	0.032**	-0.056**
	(0.018)	(0.014)	(0.026)
Oriente	-0.082***	0.00046	-0.081***
	(0.025)	(0.020)	(0.027)
Eligibility		0.031***	
		(0.012)	
Constant	0.058	-2.09***	-1.27
	(0.37)	(0.31)	(1.27)
Observations	18400	18400	18400
R-squared	0.158	0.319	-0.012
Uncentered R-square			0.55
Centered R-square			-0.012
*** p<0.01, ** p<0.05, * p<0.1			
Robust standard errors in parentheses			

Appendix 9. Correlation between the instrument proposed and participation in the HDC or UCT program, for women between 15 and 65 years old considered in the reproductive work analysis, restricted to those who live in a household with at least one child between 5 and 14 years old.

	All	Urban	Rural	Sierra	Costa	Indigenous	White	Mestizo	Afro	15 to 40 years old	41 to 65 years old
Instrument	0.036	0.034	0.087*	0.060*	0.013	0.10	0.058	0.044*	-0.13	0.030	0.052
	(0.023)	(0.032)	(0.049)	(0.033)	(0.037)	(0.12)	(0.10)	(0.025)	(0.15)	(0.029)	(0.041)
Partial R squared test of the instrument (F statistic)	2.41	1.14	3.16	3.37	0.13	0.82	0.31	2.98	0.75	1.11	1.6
Treated	1,589	535	1,054	759	738	203	106	1,176	104	923	666
Control	3,072	2,103	969	1,779	1,156	164	179	2,614	115	1,998	1,074

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