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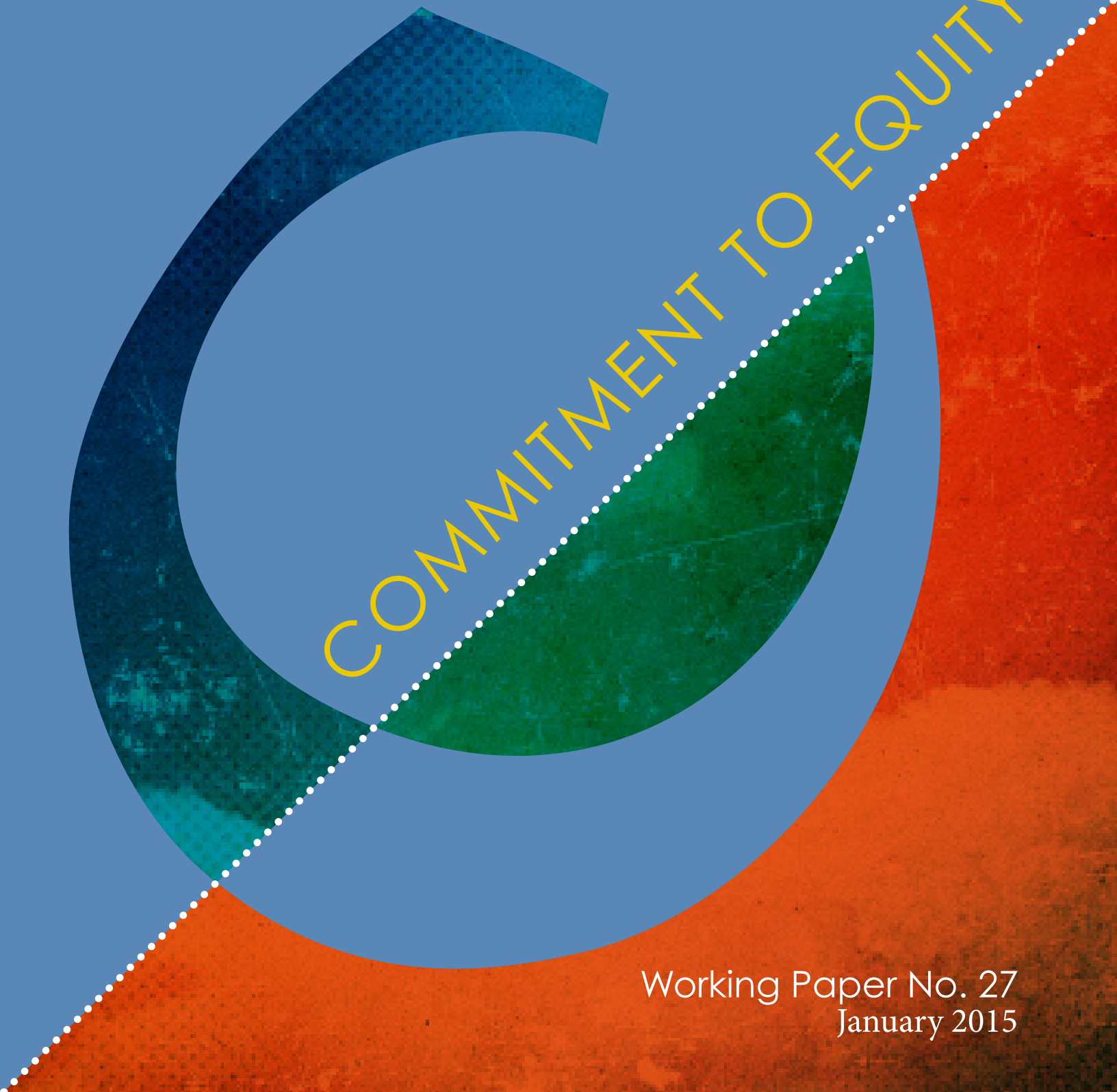
Marisa Bucheli



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PUBLIC TRANSFERS AND POVERTY REDUCTION: AN EVALUATION OF PROGRAM CONTRIBUTION TO THE EXIT RATE FROM POVERTY OF CHILDREN AND THE ELDERLY

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ABSTRACT

In Uruguay, social spending reduces poverty. The aim of this paper is to compare its performance for children and the elderly. The main motivation is that in Uruguay, as in the rest of Latin America, poverty affects mostly children, even after the recent period of fall in poverty. The methodological strategy consists on the estimation of the effect of transfers on the poverty exit rate and its decomposition in the coverage effect and the amount effect. The main conclusions are as follows: a) households with children (elder) are the less (more) likely to leave poverty, b) the reason is the per capita amount of the transfer received by each household type and not the coverage, c) the effectiveness of the amount is lower for households with children than with elders because poverty is more intense for the former, d) households in the same poverty conditions are less likely to be lifted out of poverty when they are composed by children than by elders because the conditional transfers directed to children are lower than the assistance pensions for the elders.

JEL Codes: I32, I38, J13
Keywords: poverty, public transfers, social spending, children

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1 INTRODUCTION

Since 2002, inequality and poverty in Latin America exhibit a decreasing trend that triggered several studies about the role of different explanations, such as growth, favorable external conditions, implementation of progressive social policies, transfers to poor families with children, improvement in education, and other factors (e.g., Gasparini et al., 2007; Cornia, 2010; Lustig et al., 2013). Despite this good news, poverty among children and adolescents according to various dimensions, including monetary poverty, is still a question of concern. Indeed, the decrease of poverty was lower among children than in the rest of the population and, particularly, much lower than among the elders (ECLAC, 2013). Thus, the changes that led to poverty reduction have benefitted children and adolescents to a lower extent than other age groups.

The debate about child poverty in Latin America began in the mid-1990 in a context of high levels of poverty. Concerns with child poverty are not only motivated by the welfare of children. There is also an understanding that deprivation during childhood increases the risk of bad conditions in later life. The main response was the implementation of transfers to poor families with children, conditioned on school attendance and primary health care. A large body of empirical research supports that conditional cash transfer (CCT) programs in Latin America have been effective in reducing child poverty, boosting school enrollment and decreasing dropout rates (Barrientos and DeJong, 2006; Berhman et al., 2005; Bourguignon et al., 2003; Dubois et al., 2012; Schady and Araujo, 2008).

This overall description suits Uruguay, a country that belongs to the group of lowest levels of inequality and poverty in Latin America. The most important direct transfers are the family allowances (FA) and the assistance pension (AP). The FA is a means-tested CCT program whose main objectives are poverty alleviation and school attendance of children and adolescents. The design and amount of the benefit attempts to encourage educational investments while minimizing undesirable effects as the reduction of mother's labor supply and the increase of fertility. The AP is also a means-tested program concerned with poverty alleviation, and it consists of a transfer to poor elders who do not fulfill the requirement to obtain a contributive pension. With its design and amount, the program seeks to discourage labor informality in earlier life stages.

The aim of this paper is to assess the age differentiated effect of direct transfers to alleviate monetary poverty in Uruguay. We attempt to disentangle the role of coverage and benefit amount in lifting the poor from their condition and compare the results for elders and children. The main finding is that FA is the program that most contributes to the poverty exit rate. This result is led by the high child poverty and the high FA coverage. However, children are less likely to leave poverty than elder because of the low transfer amount.

In section 2, the characteristics of data and method are presented. We build population groups based on the household age composition; we estimate their income before and after transfers and identify the before-transfers poor. The methodological strategy consist of the computation of the probability that the before-transfer poor leave poverty after transfers (poverty exit rate) and the decomposition of the exit rate: on two components, one measures the role of coverage and the other measures the role of the benefit amount. We present the results in the rest of the sections. In section 3, we describe before-transfer poverty across age groups and the poverty exit rates. In section 4, we show the results of the poverty exit rate decomposition. This result is revisited in section 5 through an analysis of the effect of the programs separately. Finally, in section 6, we conclude and discuss our results.

2 DATA AND METHODOLOGY

In the following three subsections, we present the characteristics of the database, the poverty lines used in the paper, and the methodological strategy.

i The database: taxes, public benefits, and income variables

We use the so-called CEQ database, which informs the amount of taxes paid by households, their received public benefits, and several income variables.[2] The CEQ database was built from data provided by Uruguay's household survey of 2009 (*Encuesta Continua de Hogares* or ECH) collected by the National Institute of Statistics (*Instituto Nacional de Estadística* or INE). The data unit is the individual (130058 observations) to which we assign the per capita taxes, benefits, and income of the household. Thus, we assume that all the individuals of the same household receive a benefit when at least one of the members is covered by a benefit program. We only consider programs that make direct transfers as defined below.

We are interested in three income concepts:

- Market income includes gross labor earnings and capital income, auto-consumption, imputed rent form owner-occupied housing, private transfers, and the contributory pensions paid by the social security system.
- Net market income is market income minus direct taxes. Social security contributions are treated as savings (not as taxes) which is consistent with including contributory pensions in market income. As low-income population do not pay direct transfers because of exemptions, net market income and market income are equal for most of the poor.
- Disposable income is equal to the net market income plus direct transfers. Direct transfers include the following:
    a) Assistance pensions. AP is a means-tested program that gives a transfer to disabled individuals and older than 65 years old that are not eligible for benefits from the contributory system. In 2009, the program was 0.5% of GDP.
    b) Family allowances. FA is a means-tested program targeted to households with children under 19 whose benefit is conditional to school attendance and health care. The benefit increases with the number of children but at a decreasing rate, and the amount is larger for attendance to secondary than elementary school. The transfers were 0.4% of GDP in 2009.
    c) Food transfers (FTs). FTs include the benefits of two programs: a means-tested food baskets program and dining room services. All these transfers were 0.3% of GDP in 2009.
    d) Other direct transfers (OTs). We include in this group several benefits that cover wage-loss periods for workers: unemployment insurance, disability and sickness allowances, and maternal benefits. They cover risks of workers who contribute to the social security system. Thus, the design does not aim to target the poor population.

ii The poverty line

We use three critera for identifying poverty. Two of them correspond to the extreme and moderate lines usually used by international agencies of US$ 2.5 and US$ 4 (per capita per day) at 2005 purchasing power

[2] For method of estimation and definitions, see Lustig and Higgins (2013); for a detail of the application of the method to Uruguay, see Bucheli et al. (2012).

parity. We converted the two international thresholds to local 2009 prices using information about the PPP conversion factor for private consumption provided by World Bank (2014).

We also work with the moderate official national poverty line (NPL) of Uruguay. Its main advantage when studying differences between age groups is that it has embedded an adult equivalent scale. Its threshold was calculated in 2006 by INE following the usual guidelines: a) an estimation of a food poverty line (that varies between regions) using information of an expenditure survey; b) an estimation of the nonfood component applying Orshansky coefficients that vary with the size of the household according to an equivalence scale (size powered to 0.8). INE (2010) provides the information to update the line. In 2009, the average NPL for all individuals is equal to US$ 9.5 PPP per capita per day.

iii The poverty exit rate and its decomposition

To analyze the effect of public benefits on poverty, we follow the concept of fiscal mobility proposed by Lustig (2011). Fiscal mobility refers to the movements across income distribution because of fiscal policy within a period. Lustig and Higgins (2012) apply this concept using a fiscal mobility matrix that "measures the proportion of individuals that move from a before taxes and transfers income group (e.g., nonpoor) to another income group (e.g., poor) after their income is changed by taxes and transfers." We are aware that the persons may adapt their behavior because of the existence of public benefits. Thus, the state of being poor according to market income incorporates the reactional behavior to the perception of an expected transfer. However, we do not consider these types of reactions, and we treat fiscal policy as exogenous.

In Figure 1, we show the potential transitions between the poverty and nonpoverty conditions, their feasibility, and the proportion of individuals in each path. We are interested on a specific transition: moving from poor under market income to nonpoor under disposable income. This transition is the result of a positive amount of net public direct transfers (direct transfers less direct taxes) that is enough to take out the poor of their condition. As shown in Figure 1, this transition involves 2.9%, 4.4%, or 3.2% of the population when considering different poverty lines, whereas 0.5%, 3.5%, or 22.1% remain poor.

FIGURE 1. TRANSITIONS BETWEEN POVERTY AND NON-POVERTY

Market income	Net market income	Disposable income	Proportion of population according to poverty line:		
			US$ 2.5	US$ 4	National
Poor	Poor	Poor	0.5	3.5	22.1
		Non-poor	2.9	4.4	3.2
	Non-poor	Poor		Not feasible	
		Non-poor		Not feasible	
Non-poor	Poor	Poor	0.0	0.0	0.2
		Non-poor	0.0	0.1	0.3
	Non-poor	Poor		Not feasible	
		Non-poor	96.5	92.1	74.2
All	All	All	100.0	100.0	100.0

Note that some individuals who are nonpoor under market income become poor under disposable income. This transition accounts for 0.2% of the population when using the NPL and is null with the other lines. Although this case is theoretically important, we do not address this issue in this paper because of its low incidence.

We are interested on a particular transition as measured by the poverty exit rate. It is equal to the proportion of nonpoor under disposable income but poor under market income, in the poor population under market income. We denote this probability as *P(Em,d)*. To disentangle the effect of the programs coverage and the value of the benefit, we use the following statistical property of probabilities:

$$P\left(E_{m,d}\right) = P(C)\, P\left(E_{m,d}/C\right) \qquad (1)$$

where *P(C)* is the probability of being covered and *P(Em,d/C)* is the probability of being taken out of poverty, given that the individual is covered.

We are also interested in the distinction between programs. We follow a strategy used in poverty dynamics studies, under which the transition over time is decomposed between the frequency with which the population at risk experiences a relevant event and the probability of transition, given the occurrence of the event (Jenkins and Schluter, 2001; Beccaria et al., 2013).

In this paper, we interpret the occurrence of an event as the fact of being covered by a benefit program. Thus, we split the poor population in terms of market income according to mutually exclusive coverage status. These groups respond to the coverage of the already mentioned programs: AP, FA, FT, and OT. As we want to classify all the population, one groups corresponds to noncoverage.

We build the classification, taking into account that we need a minimal number of cases in each one for the statistical purposes. In fact, we work with two groupings: G1 comprises 10 states, and G2 aggregates those states into five. The two groupings of coverage status are described in Figure 2.

FIGURE 2. DESCRIPTION OF THE CLASSIFICATION OF THE STATES

<table>
<tr><td colspan="2">States</td><td colspan="4">At least one member of the household is covered by:</td></tr>
<tr><td>G1</td><td>G2</td><td>Assistance pension (NCP)</td><td>Family allowances (FA)</td><td>Food transfer (FT)</td><td>Other direct transfers (ODT)</td></tr>
<tr><td>I</td><td rowspan="2">A</td><td>Yes</td><td>No</td><td>No</td><td>No</td></tr>
<tr><td>II</td><td>Yes</td><td>No</td><td colspan="2">Yes (at least one of the programs)</td></tr>
<tr><td>III</td><td rowspan="2">B</td><td>No</td><td>Yes</td><td>No</td><td>No</td></tr>
<tr><td>IV</td><td>No</td><td>Yes</td><td colspan="2">Yes (at least one of the programs)</td></tr>
<tr><td>V</td><td>C</td><td>No</td><td>No</td><td>Yes</td><td>No</td></tr>
</table>

VI		No	No	No	Yes
VII		No	No	Yes	Yes
VIII	D	Yes	Yes	No	No
IX		Yes	Yes	Yes (at least one of the programs)	
X	E	No	No	No	No

Because the groups are mutually exclusive and encompass the 100% of the possibilities, the probability of transition is equal to the sum of the transition probabilities associated with each coverage status. That is, if *Em,d* indicates the transition from poverty under market income to nonpoverty under disposable income, *Ci* is the occurrence of the coverage status *I* (being covered by the group of programs *i*), and *n* is the number of groups (n = 10 in G1 and n = 5 in G2), then

$$P(E_{m,d}) = \sum_{i=1}^{n} P(E_{m,d}, C_i) \qquad (2)$$

The decomposition of the distribution of this transition involves summing up, for included programs, the products of two terms:

$$P(E_{m,d}) = \sum_{i=1}^{n} P(C_i)\, P(E_{m,d}/C_i) \qquad (3)$$

The first term *P(Ci)* is the probability that a poor according to market income is covered by the groups of program *i*. The second term *P(Em,d/Ci)* is the probability that a poor leaves poverty conditional to being covered by *i*. In other terms, the decomposition allows to disentangle the effect of the coverage of a group of programs from the amount of the transfer to that group for alleviating poverty.

3 POVERTY BY AGE

We are interested on poverty by age and the extent to which public transfers alleviate children poverty. The option of classifying the population according to its individual age or to the age composition of the households is not obvious. It makes sense to think that individuals of the same household share the benefits they receive, at least to some extent. Even if the benefit received by an individual is not shared explicitly with the rest of the household members—a clear example is attendance to a dining room service, it means a relief of the income available to all of them. Under these considerations, we opt to build population groups according to the age composition of the households. We consider children and elders the individuals younger than 19 years and older than 64 years, respectively, and we distinguish the following: a) households with children (which account for 56% of the population), b) households with elders (18%), c) households with children and elders (7%), and d) households without children and elders (19%).

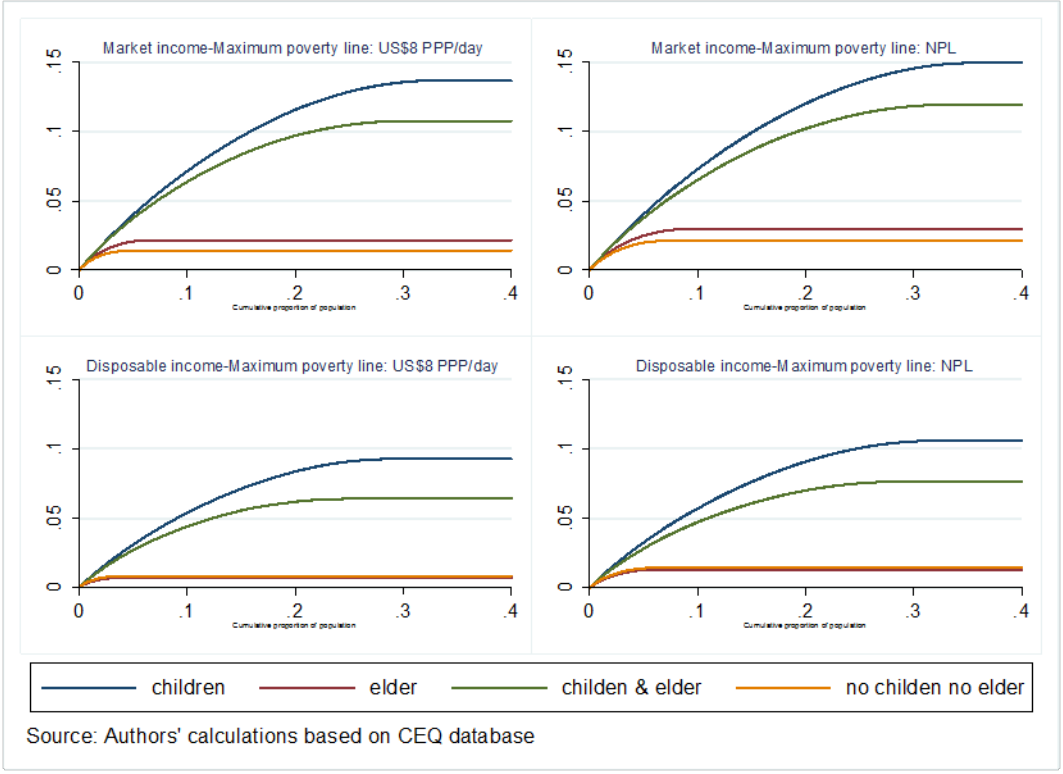
To analyze the poverty dominance among these groups, we use the graphical instrument three I's of poverty (TIP) curves proposed by Jenkins and Lambert (1997). The TIP curves are an appropriate graphical instrument to rank poverty of different populations without a specification of a proper poverty line.

The TIP curve is a plot of the cumulated proportion of population on the x-axis and the cumulated (normalized) per capita poverty gap on the y-axis. The gap is defined only for the poor and is calculated as the difference between income and maximum poverty line. In the curve, gaps are ordered from largest to smallest. As the curve becomes horizontal when the smallest gap is considered, at this point, the x-axis value is equal to the incidence of poverty at the maximum poverty line. The height of the TIP curve indicates intensity of poverty: it is equal to the average poverty gap for the maximum poverty line. The curvature reflects inequality among the poor. Note that the curve reflects the incidence, intensity, and inequality for all lines below the maximum line. Drawn for several populations, the curves provide dominance criteria to order them in terms of the class of the normalized measures of poverty gap.

In Figure 3, at the top and left, we present the TIP curve of market income by population groups with a maximum line of US$ 8 PPP per day. The graph is clear in terms of dominance and shows two distinct groups. The highest levels of poverty in terms of incidence, intensity, and inequality correspond to the population group in households with children (first position) and households with children and elders (second position). The distance between the second and third positions notably increases as the gap decreases. The third position corresponds to households with elders and, although closer in fourth position, households without elders and children. Below this graphs, we report the TIP curves of disposable income. We see again that poverty, although lower for all groups, is higher (in terms of incidence, intensity, and inequality) when there are children in the household. Unlike the market income TIP curves, the curves of the groups in households with elders and households without children and elders overlap.

In the right hand side graphs in Figure 3, we present the TIP curves using the NPL as the maximum line. Keep in mind that an adult equivalent scale is embedded in NPL, so the differences because of household size are narrow. However, the TIP curves for market and disposable income give support to the main conclusions obtained with per capita income: groups with children are poorer than groups without children.

FIGURE 3. THREE I'S OF POVERTY (TIP) CURVE BY TYPE OF HOUSEHOLD



Source: Authors' calculations based on CEQ database

We capture this overall picture in Table 1, where we show the poverty and exit poverty rates. For all the population, the headcount ratio is 3.5% under market income and declines to 0.5% under disposable income when we use the standard international extreme poverty line (EPL). Thus, even with a low headcount ratio before public benefits, policy is very successful in reducing poverty: the exit rate is 85%, and all population groups exhibit high levels of exit.

Naturally, poverty is higher when we use the international moderate poverty line (MPL): 7.8% under market income and 3.5% under disposable income. Meanwhile, the exit rate declines to 56%, and most importantly, differences between groups emerge. The exit rate for household with children (and no elders) is 53%, whereas the presence of an elder in the household is associated with a higher exit rate: 90% when there are only elders and 67% when there are children and elders.

Finally, according to the NPL, the incidence of poverty is 25.3% and 22.3% under market and disposable income, respectively. Thus, poverty increases sharply when we use national standards, whereas the ability of transfers to reduce it drops steeply: the exit rate is only 13%. According to their exit rate, the order of the population groups is the following: household with children (10%), household with children and elders (14%), household without children and elders (16%), and households with elders (32%).

TABLE 1. POVERTY RATE UNDER MARKET AND DISPOSABLE INCOME, COMPOSITION OF THE POOR AND EXIT RATE FOR THREE POVERTY LINES, BY GROUPS (CONFIDENCE INTERVAL AT 95% IN BRACKETS)

Population groups	Extreme poverty line: US$ 2.5 PPP				Moderate poverty line: US$ 4 PPP				National Poverty Line			
	Poverty rate		Comp. of the poor YM (%)	Exit rate	Poverty rate		Comp. of the poor YM (%)	Exit rate	Poverty rate		Comp. of the poor YM (%)	Exit rate
	YM	YD			YM	YD			YM	YD		
All the population	**0.035** [0.032;0.037]	**0.005** [0.004;0.006]	**100.0**	**0.846** [0.817;0.876]	**0.078** [0.075;0.082]	**0.035** [0.032;0.037]	**100.0**	**0.558** [0.533;0.583]	**0.253** [0.248;0.258]	**0.223** [0.218;0.228]	**100.0**	**0.126** [0.118;0.135]
With children	0.054 [0.050;0.059]	0.009 [0.007;0.011]	87.3	0.838 [0.805;0.871]	0.122 [0.116;0.128]	0.057 [0.052;0.061]	86.8	0.534 [0.506;0.561]	0.357 [0.348;0.365]	0.322 [0.314;0.330]	78.7	0.105 [0.095;0.114]
With elder	0.009*** [0.007;0.011]	0.000*** [0.000;0.000]	4.6	1.000*** [.;.]	0.017*** [0.014;0.019]	0.002*** [0.001;0.002]	3.8	0.905*** [0.858;0.952]	0.097*** [0.090;0.103]	0.066*** [0.061;0.072]	6.8	0.332*** [0.300;0.364]
With children/elder	0.029*** [0.021;0.037]	0.005* [0.001;0.009]	6.1	0.830 [0.717;0.943]	0.077*** [0.063;0.090]	0.026*** [0.017;0.034]	7.1	0.668*** [0.579;0.758]	0.322*** [0.298;0.345]	0.279*** [0.256;0.301]	9.2	0.140** [0.108;0.171]
Without children/elder	0.004*** [0.003;0.005]	0.000*** [0.000;0.001]	2.1	0.887 [0.751;1.022]	0.010*** [0.008;0.011]	0.004*** [0.003;0.005]	2.3	0.578 [0.474;0.681]	0.070*** [0.065;0.076]	0.060*** [0.055;0.065]	5.3	0.159*** [0.131;0.187]

* p<0.1;** p<0.05; *** p<0.01, where p is the p-value of the test Ho) column-indicator for row-group – column indicator households with children=0

YM: income market; YD: disposable income

4 THE EXIT FROM POVERTY: THE ROLES OF COVERAGE AND AMOUNT

In the columns *P(Em,d)* of Table 2, we report the exit rate from poverty for the whole population and by group calculated for EPL, MPL, and NPL. As stated in equation (1), the exit rate is equal to the product of the probability that a poor, according to market income, receives public benefits, reported in the columns *P(Si)*, and the probability that a poor leaves poverty conditional to being covered by a benefit program, reported in columns *P(Em,d/Ci)*.

As already mentioned, the exit rate is 85% when we work with EPL and diminishes to 56% and to 13% when considering MPL and NPL, respectively. The probability of coverage is 98% for EPL and declines slightly to 96% for MPL and 84% for NPL. Thus, the sharp fall of the exit rate when the line increases is driven by the decrease of the probability that a covered poor leaves poverty: from 85% for EPL to 58% for MPL and 15% for NPL.

When we analyze the population groups, we already know that the lowest exit rate corresponds to individuals in households with children. The coverage of this group is much extended with the three poverty lines. Indeed, the probability of a poor to be covered is 98%, 97%, and 90% under ELP, MLP, and NLP, respectively (Table 2). However, the probability of leaving poverty, given coverage, decreases from 0.855 under ELP to 0.551 under MLP and 0.117 under NLP. The low exit rate relies on the low amount of the transfer.

On the other extreme, the highest exit rate corresponds to the population in households with elders. The poor of the group are totally covered under ELP, and the coverage slightly declines to 97% under MPL. However, the probability of being covered decreases sharply to 55% under NLP, that is, to lower levels than for households with children. Thus, the success of public benefits in terms of exit rate relies on the amount of transfer. Indeed, the amount is enough to lift almost all its beneficiaries out of poverty under MLP and 61% of them under NLP.

The graph of the population in households with children and elders is rather close to that of households with children: high levels of coverage with low levels of transfer. Finally, households without children are in an intermediate situation.

TABLE 2. EXIT RATE, PROBABILITY OF BEING COVERED AND PROBABILITY OF LEAVING POVERTY GIVEN COVERAGE, BY GROUPS (CONFIDENCE INTERVAL AT 95%)

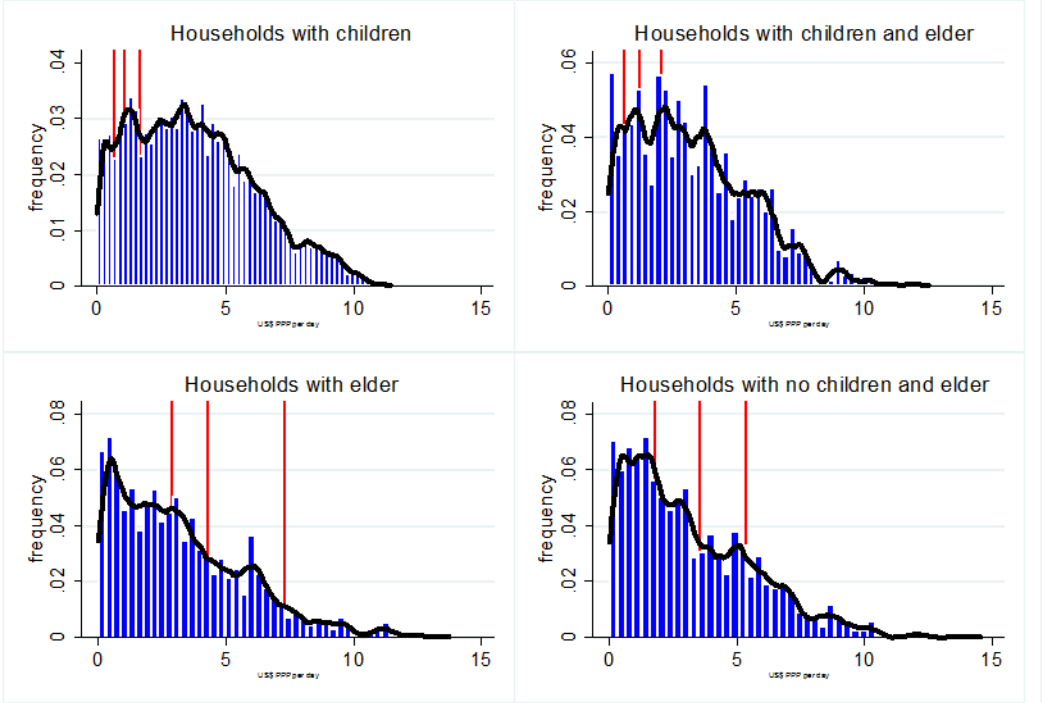
Population groups	Extreme poverty line: US$ 2.5 PPP			Moderate poverty line: US$ 4 PPP			NationalPovertyLine		
	P(Em,d))	P(Ci)	P(Em,d/ Ci)	P(Em,d)	P(Ci)	P(Em,d/ Ci)	P(Em,d)	P(Ci)	P(Em,d/ Ci)
All the population	**0.846** [0.817;0.876]	**0.980** [0.971;0.990]	**0.863** [0.834;0.893]	**0.558** [0.533;0.583]	**0.959** [0.951;0.967]	**0.582** [0.556;0.608]	**0.126** [0.118;0.135]	**0.836** [0.827;0.844]	**0.151** [0.141;0.162]
With children	0.838 [0.805;0.871]	0.980 [0.970;0.991]	0.855 [0.823;0.888]	0.534 [0.506;0.561]	0.968 [0.960;0.976]	0.551 [0.523;0.580]	0.105 [0.095;0.114]	0.895 [0.886;0.903]	0.117 [0.107;0.128]
With elder	1.000*** [.;.]	1.000*** [.;.]	1.000*** [.;.]	0.905*** [0.858;0.952]	0.922*** [0.879;0.965]	0.982*** [0.959;1.004]	0.332*** [0.300;0.364]	0.548*** [0.513;0.582]	0.606*** [0.560;0.652]
With children/elder	0.830 [0.717;0.943]	0.995** [0.986;1.005]	0.834 [0.721;0.947]	0.668*** [0.579;0.758]	0.964 [0.932;0.996]	0.694*** [0.603;0.784]	0.140** [0.108;0.171]	0.831*** [0.796;0.866]	0.168** [0.131;0.205]
Without children/elder	0.887 [0.751;1.022]	0.887 [0.751;1.022]	1.000*** [.;.]	0.578 [0.474;0.681]	0.676*** [0.577;0.775]	0.855*** [0.758;0.951]	0.159*** [0.131;0.187]	0.334*** [0.298;0.371]	0.476*** [0.410;0.542]

* p<0.1;** p<0.05; *** p<0.01, where p is the p-value of the test Ho) column-indicator for row-group – column indicator households with children=0

P(Em,d): poverty exit rate; P(Ci): probability of being covered; P(Em,d/Ci): probability of leaving poverty conditional to coverage

In sum, the amount transferred is crucial to understand the high probability of the elders and the low probability of children to leave poverty. Is this due to the fact that poverty is more intense among the children than among the elders? We attempt to answer this question graphically. In Figure 4, we show the histogram of the poverty gap of each group of population under market income and fixing of the poverty line at NLP. Overlaid, we draw a scaled kernel density estimate of the gap. Vertical lines are placed in the values of the percentiles 0.25, 0.50, and 0.75 of the distribution of the per capita transfer among the poor beneficiaries (all members of the household that receives a benefit) of each group.

FIGURE 4. HISTOGRAM OF THE POVERTY GAP BY GROUPS OF POPULATION



Source: Authors' calculations based on CEQ database

The histograms are consistent with the TIP curves. Because the density function of the group in households with elders has a peak at low values of the gap and onward, the graph looks convex. Instead, the appearance of the histogram for households with children corresponds to a group with a higher intensity of poverty: a higher mass is present at higher levels of the gap. This picture means that given a transfer, the probability that the transfer lifts the beneficiary out of poverty will be higher for elders than for children. However, the vertical lines show that transfers are rather different between groups. Thus, the different success of public transfers between groups is linked to the different amount transferred by each of the programs.

5 THE ROLE OF PUBLIC PROGRAMS

We saw that under EPL, direct transfers are successful in taking out people from poverty, but the exit rate declines as the line increases. This fall is mostly related to the amount of the transfer and not to coverage. We also learned that the fall of the exit rate as the poverty line increases is sharper among households with children than those with elders. Besides, the exit rate fall among households with children is mostly related

to the amount of the transfer, whereas among households with elder, both coverage and amount contribute to the fall.

How do the different programs explain this picture? To answer this question, we perform the decompositions stated in equations 2 and 3. In section 5.1, we analyze the contribution of coverage and transfer amount of the groups of programs to exit from poverty for all the poor population. Because by design, the programs are directed to different age groups, these findings help to explain the difference of the success by age of direct transfers. In section 5.2, we also perform the decomposition for each population group using NPL.

i Decomposition for all the poor population

In columns *P(Em,d)* of Table 3, we report the poverty exit rate for all the poor population and for the poor covered by the different program groups (including the group of noncovered poor). The other columns correspond to the terms of the decomposition in equation 3: in *P(Ci)*, we report the probability that a poor is covered by a program of the group *i*, and in *P(Em,d/Ci)*, we report he probability that a poor leaves poverty conditional to being covered by a program of group *i*.

For the three poverty lines, the group that contributes the most to the total exit rate is group B, composed by the poor covered by family allowances (FAs) and, eventually, food transfers (FTs) and/or other transfers (OTs) (but not assistance pensions (APs)). The high contribution of B relies on the wide coverage reflected by a high value of *P(Ci)*, which is partly due to the demographic composition of the poor: the proportion of children (to which AF are directed) is higher than that of elder. Besides, most households with children are covered by the group of programs B as we will discuss in the next subsection.

When we look at the probability of leaving poverty, given that the person belongs to a group, the highest values correspond to group A, that is, the beneficiaries of AP and, eventually, FT and/or OT (but not FA). According to EPL, the probability of leaving poverty conditional to A is rather similar than the probability conditional to B. However, the difference between A and B increases sharply with the poverty line. Indeed, when we consider MPL, the probability of exit from poverty is 94% conditional to A and 52% conditional to B. With NPL, these rates decrease to 50% and 10%, respectively.

The coverage by multiple programs merits a few words. The majority of the poor covered by AP and/or FA also receive benefits from FT and/or OT. The value of *P(Em,d/Si)* suggests that this combination is helpful to leave poverty, particularly for the poor covered by FA. Besides, FA beneficiaries have the highest probability of leaving poverty when they also receive AP (group D). Anyway, the results for group D are much closer to group B than to group A.

Finally, the results show that the poor of group C (covered by FT and/or OT) shows a particular characteristic: the coverage increases with the poverty line.

In sum, the FA program must take much of the credit of the high coverage of the direct transfer system. However, its efficacy of lifting out from poverty is lower than the AP program.

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TABLE 3. DECOMPOSITION OF THE EXIT RATE FROM POVERTY FOR THREE POVERTY LINES BY GROUPS OF PROGRAMS (CONFIDENCE INTERVAL AT 95%)

	Extreme Povery Line: US$ 2.5 PPP			Moderate Poverty Line: US$ 4 PPP			NationalPoverty Line		
	P(Em,d)	P(Ci)	P(Em,d/ Ci)	P(Em,d)	P(Ci)	P(Em,d/ Ci)	P(Em,d)	P(Ci)	P(Em,d/ Ci)
All the population	**0.846** [0.817;0.876]	**0.980** [0.971;0.990]	**0.863** [0.834;0.893]	**0.558** [0.533;0.583]	**0.959** [0.951;0.967]	**0.582** [0.556;0.608]	**0.126** [0.118;0.135]	**0.836** [0.827;0.844]	**0.151** [0.141;0.162]
A. AP and eventually FT and/or OT	**0.089** [0.073;0.104]	**0.091** [0.075;0.107]	**0.976** [0.929;1.022]	**0.073** [0.063;0.083]	**0.078** [0.067;0.088]	**0.938** [0.897;0.979]	**0.034** [0.031;0.038]	**0.069** [0.063;0.075]	**0.500** [0.459;0.540]
I. AP only	0.027 [0.019;0.034]	0.027 [0.019;0.034]	1.000 [.;.]	0.022 [0.017;0.026]	0.022 [0.017;0.027]	0.985 [0.955;1.014]	0.016 [0.014;0.018]	0.027 [0.024;0.030]	0.584 [0.526;0.642]
II. AP and (FT or OT)	0.062 [0.049;0.075]	0.064 [0.050;0.078]	0.966 [0.901;1.031]	0.051 [0.042;0.060]	0.056 [0.046;0.065]	0.920 [0.864;0.975]	0.019 [0.016;0.021]	0.042 [0.037;0.047]	0.445 [0.391;0.499]
B. FA and eventually FT and/or OT	**0.582** [0.544;0.620]	**0.693** [0.659;0.727]	**0.840** [0.802;0.878]	**0.350** [0.326;0.374]	**0.675** [0.652;0.698]	**0.518** [0.486;0.550]	**0.053** [0.047;0.060]	**0.512** [0.499;0.525]	**0.104** [0.091;0.116]
III. FA only	0.028 [0.017;0.038]	0.042 [0.027;0.058]	0.648 [0.454;0.842]	0.032 [0.023;0.040]	0.077 [0.064;0.090]	0.414 [0.329;0.498]	0.012 [0.009;0.014]	0.130 [0.122;0.139]	0.090 [0.071;0.110]
IV. FA and (FT or OT)	0.555 [0.516;0.593]	0.651 [0.615;0.686]	0.852 [0.815;0.890]	0.318 [0.294;0.342]	0.598 [0.574;0.622]	0.532 [0.498;0.566]	0.041 [0.035;0.047]	0.382 [0.369;0.395]	0.108 [0.093;0.123]
C. FT and/or OT only	**0.052** [0.036;0.068]	**0.071** [0.051;0.090]	**0.738** [0.611;0.866]	**0.058** [0.046;0.069]	**0.110** [0.095;0.126]	**0.522** [0.448;0.596]	**0.031** [0.027;0.035]	**0.205** [0.194;0.215]	**0.151** [0.131;0.171]
V. FT only	0.016 [0.007;0.024]	0.028 [0.015;0.040]	0.564 [0.335;0.793]	0.018 [0.011;0.025]	0.048 [0.037;0.058]	0.372 [0.260;0.485]	0.004 [0.002;0.006]	0.066 [0.059;0.073]	0.062 [0.036;0.088]
VI. OT only	0.014 [0.006;0.022]	0.017 [0.008;0.025]	0.848 [0.670;1.025]	0.021 [0.015;0.028]	0.032 [0.024;0.040]	0.668 [0.546;0.791]	0.016 [0.013;0.019]	0.096 [0.089;0.104]	0.167 [0.140;0.194]
VII. FT and OT	0.023 [0.011;0.034]	0.026 [0.014;0.039]	0.851 [0.682;1.021]	0.018 [0.012;0.025]	0.030 [0.022;0.039]	0.603 [0.459;0.748]	0.011 [0.008;0.014]	0.043 [0.037;0.048]	0.250 [0.192;0.308]
D. AP and FA and eventually FT and/or OT	**0.124** [0.097;0.150]	**0.126** [0.099;0.152]	**0.983** [0.960;1.006]	**0.078** [0.064;0.092]	**0.096** [0.081;0.112]	**0.813** [0.741;0.886]	**0.008** [0.006;0.010]	**0.050** [0.043;0.056]	**0.163** [0.119;0.206]
VIII. AP and FA	0.007 [0.002;0.013]	0.007 [0.002;0.013]	1.000 [.;.]	0.003 [0.001;0.006]	0.005 [0.002;0.008]	0.684 [0.392;0.976]	0.001 [0.000;0.002]	0.006 [0.004;0.009]	0.168 [0.053;0.283]
IX. AP and FA and (FT or OT)	0.116 [0.090;0.142]	0.118 [0.092;0.144]	0.982 [0.958;1.007]	0.075 [0.061;0.089]	0.091 [0.076;0.107]	0.821 [0.746;0.895]	0.007 [0.005;0.009]	0.043 [0.037;0.049]	0.162 [0.115;0.209]
E/X. No program	**0.000** [0.000;0.000]	**0.020** [0.010;0.029]	**0.000** [0.000;0.000]	**0.000** [0.000;0.000]	**0.041** [0.033;0.049]	**0.000** [0.000;0.000]	**0.000** 0.000	**0.164** [0.156;0.173]	**0.000** 0.000

P(Em,d): poverty exit rate; P(Ci): probability of being covered; P(Em,d/Ci): probability of leaving poverty conditional to coverage

ii Decomposition by population groups

In Table 4 we report the decomposition of the exit rate for the population groups under NPL.

TABLE 4. EXIT RATE, PROBABILITY OF BEING COVERED AND PROBABILITY OF LEAVING POVERTY UNDER NLP, GIVEN COVERAGE, BY GROUPS OF POPULATION AND PROGRAMS

Program group	P(Em,d)	P(Ci)	P(Em,d/ Ci)	P(Em,d)	P(Ci)	P(Em,d/ Ci)
	With children			With children and elder		
All the population group	0.105	0.895	0.117	0.140**	0.831***	0.168***
A. AP and eventually FT and/or OT	0.005	0.016	0.314	0.043***	0.144***	0.299
B. FA and eventually FT and/or OT	0.062	0.612	0.101	0.045	0.324***	0.139
C. FT and/or OT only	0.032	0.225	0.140	0.017**	0.178***	0.098
D. AP and AF and eventually FT and/or OT	0.006	0.041	0.150	0.034***	0.185***	0.184
E/X. No program	0.000	0.105	0.000	0.000	0.169***	0.000
	With elder			Without children and elder		
All the population.group	0.332***	0.548***	0.606***	0.159***	0.334***	0.476***
A. AP and eventually FT and/or OT	0.306***	0.475***	0.643***	0.108***	0.201***	0.535***
B. FA and eventually FT and/or OT	0.000***	0.001***	0.000***	0.001***	0.014***	0.086
C. FT and/or OT only	0.025	0.069***	0.362***	0.050**	0.118***	0.428***
D. AP and FA and eventually FT and/or OT	0.001***	0.003***	0.497***	0.000***	0.001***	0.000***
E/X. No program	0.000	0.452***	0.000	0.000	0.666***	0.000

* p.<.0.1; ** p < 0.05; *** p < 0.01, where p is the p-value of the test (Ho) column indicator for row group – column indicator households with children = 0

The difference between households with children and households with elder strongly relies on the difference between the FA and AP programs. On one hand, 48% of the population in households with elder are covered by programs of group A, whereas 45% are not covered at all. Their probability of leaving poverty given group B is 64%. Instead, 61% of poor in households with children are covered by programs of group B, and their probability of being taken out of poverty given coverage is 10%. Additionally, 22% of households with

children benefit from programs of group C. With *P(Em,d/Ci)* equal to 14%, its efficacy for lifting out from poverty its beneficiaries is very similar to group B.

Keep in mind that households with children and elders perform rather similar than households with children. According to Table 4, this is the result of a more even distribution among programs suggesting some heterogeneity within this population group. However, this is the group with the highest probability of receiving both pensions and family allowances.

Finally, households without children and elders have the lowest probability of coverage. Most of the beneficiaries are covered by the groups of programs A and C, each one with *P(Em,d/Ci)* equal to 53% and 43%.

6 CONCLUSIONS

Before fiscal policy, incidence and intensity of poverty are higher for households with children than for all the other types of households. On the other extreme, households without children and elders exhibit the lowest poverty rate. This picture justifies that the two main programs aimed to poverty alleviation are targeted to children and the elder.

The wide coverage of the family allowances program, plus the overrepresentation of children in the poor population, makes this program contribute considerably to lift poor out of poverty. However, the low benefit to market income ratio offsets the positive effect of coverage on child poverty so that, in the end, the poverty exit rate is higher for the elder than for children. The benefit to market income ratio is not enough for two reasons. First, as poverty is more intense among household with children, the amount required for being lift out of poverty is higher than for households with elders. Second, given per capita income, the FA is much lower than AP.

The FA by child is lower than the AP because many reasons. A historical perspective shows that AP is a traditional program that goes back to the end of XIX century, whose coverage and benefits widened gradually since then. However, the FA is the result of a reformulation of a contributive program passed in 2006 that increased sharply both benefit and coverage. From a fiscal sustainability perspective, the number of poor children and adolescents is much higher than the number of poor elders with no contributive pension. From the design perspective, the FA is seen as an income complement, whereas the AP is the only income source of beneficiaries. Besides, FA has multiple purposes, whereas the objective of AP is just to give support to the poor. Indeed, FA combines the aim of poverty alleviation with educational targets. Finally, in part because of all these factors, the concern about undesirable effects of transfers is more present in the debate about FA than the AP program. Consequently, as each program is usually designed and assessed separately, we finally observe that households in the same poverty conditions are less likely of being lift out of poverty when they are composed by children than by elders.

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WHAT IS CEQ?

Led by Nora Lustig since 2008, the Commitment to Equity (CEQ) project is an initiative of the Center for Inter-American Policy and Research (CIPR) and the Department of Economics, Tulane University, the Center for Global Development and the Inter-American Dialogue. The project's main output is the CEQ Assessment, a methodological framework designed to analyze the impact of taxation and social spending on inequality and poverty in individual countries. The main objective of the CEQ is to provide a roadmap for governments, multilateral institutions, and nongovernmental organizations in their efforts to build more equitable societies.

Since its inception, the CEQ has received financial support from Tulane University's Center for Inter-American Policy and Research, the School of Liberal Arts and the Stone Center for Latin American Studies as well as the Bill & Melinda Gates Foundation, the Canadian International Development Agency (CIDA), the Development Bank of Latin America (CAF), the General Electric Foundation, the Inter-American Development Bank (IADB), the International Fund for Agricultural Development (IFAD), the Norwegian Ministry of Foreign Affairs, OECD, the United Nations Development Programme's Regional Bureau for Latin America and the Caribbean (UNDP/RBLAC), and the World Bank.
www.commitmentoequity.org

COMMITMENT TO EQUITY

The CEQ logo is a stylized graphical representation of a Lorenz curve for a fairly unequal distribution of income (the bottom part of the C, below the diagonal) and a concentration curve for a very progressive transfer (the top part of the C).