CONDITIONAL CASH TRANSFERS IN BRAZIL, CHILE AND MEXICO: IMPACTS UPON INEQUALITY*

Sergei Soares
Instituto de Pesquisa Econômica Aplicada
Rafael Guerreiro Osório
International Poverty Centre, UNDP
Fábio Veras Soares
Marcelo Medeiros
Instituto de Pesquisa Econômica Aplicada
Eduardo Zepeda
Carnegie Endowment for International Peace

Resumen: Descomponemos los cambios en el coeficiente de Gini para investigar el impacto de las Transferencias de Ingreso Condicionales sobre la reducción de la desigualdad en tres países latinoamericanos: Brasil, México y Chile. Concluimos que los programas de Transferencias de Ingreso Condicionales contribuyeron para la reducción de la desigualdad entre los años 1990 y los años 2000. Estos programas representan apenas el 1% del ingreso total. Sin embargo, como son muy bien focalizados, fueron responsables por 21% da la disminución de la desigualdad en Brasil y en México. En Chile fueron menos importantes, contribuyendo con 15% de una pequeña reducción en la desigualdad.

Abstract: We decompose changes in the Gini coefficient to investigate whether the Conditional Cash Tranfers (CCT) have had an inequality reducing effect in three Latin American countries: Brasil, Mexico and Chile. We conclude that CCT programs helped reducing inequality between the mid-1990s and the mid-2000s. The share of total income represented by the CCTs is very small, less than 1%. But as their targeting is outstanding, the equalising impact of CCTs was responsible for about 21% of the fall in Brazilian and Mexican inequality figures In Chile the effect was responsible for around 15% of the reduction.

Clasificación JEL: D31

Palabras clave/keywords: Conditional Cash Transfers, CCT, Inequality, Gini decomposition, transferencias de ingreso condicionales, desigualdad, descomposición de Gini.

Fecha de recepción: 31 X 2007 *Fecha de aceptación: 16 I 2009*

* sergei.soares@ipea.gov.br, rafael.osorio@ipc-undp.org, fabio.veras@ipea.gov.br, marcelo.medeiros@ ipea.gov.br, EZepeda@carnegieendowment.org

1. Introduction

Conditional Cash Transfer (CCT) programs in Latin America are increasingly appealing. These programs have shown effectiveness in many of their objectives when subjected to rigorous process and impact evaluations: the literature is rich on CCT evaluations with significant impacts upon schooling, health, infant mortality, child labor, and poverty reduction for beneficiaries.[1] Like other programs, CCTs have come to generate expectations in areas upon which they were not explicitly intended to have impacts. One of these is the chronically high income inequality in Latin America and its negative consequences regarding economic performance.[2]

Our objective in this paper is to use a simple decomposition methodology to shed some light on the possibility for CCTs to significantly reduce inequality in three Latin American countries. We hope the results will also illuminate policy analysis in other countries of the region.

2. How Each Conditional Cash Transfer Program Works

2.1. *Brazil: the Bolsa Família*

Before October 2003, Brazil had four federal CCT programs in place.[3] Each of these programs had its own financing scheme, implementing agency, conditionalities, and information system.[4] As their control

[1] Most evaluations were based on the *Progresa/Oportunidades* program in Mexico; see for instance Hoddinott and Skoufias (2004), Skoufias and Parker (2001) and for an overview the main impacts of CCTs and a discussion of their limits in Latin America, see Handa and Davis (2006).

[2] See Furtado (1966), Acemoglu, Johnson and Robinson (2001), Aghion, Caroli and García-Peñalosa (1999), Atkinson (1997), Szekely and Hilgert (2001), and Fragoso and Florentino (2001) for different views on inequality, as well as its relationship with growth.

[3] The *Programa de Erradicação do Trabalho Infantil* (PETI), run by the Social Assistance Secretariat of the federal government, was created in 1996; Bolsa Escola Federal, run by the Ministry of Education, and the Bolsa Alimentação, run by the Ministry of Health, were created in 2001; and the *Cartão Alimentação*, run by the Ministry of Social Development, was created in early 2003.

[4] Although the unified information system, the *Cadastro Único*, was created in 2001, it was not operational before the end of 2003.

systems did not exchange information, a family could receive all four and another family, equally needy, could receive none. The values of the transfers were not harmonized so that the federal government was engaged in transferring to similar individuals different values under similar arguments.

In October of 2003, the *Bolsa Família* program was created to organize and merge[5] the various federal CCTs, benefiting from the unified information system that was implemented in 2001, the *Cadastro Único*. Families in extreme poverty (monthly *per capita* income below R$50 ($42 PPP)) that are beneficiaries of *Bolsa Família* receive R$50 ($42 PPP)/month each, regardless of their composition. Families in both extreme and moderate poverty receive an additional benefit of R$15 ($13 PPP)/month for every child or pregnant woman in family, but this is limited to three children or pregnant women, therefore R$95 ($91 PPP) is the highest amount transferred by *Bolsa Família* to a family in extreme poverty and R$45 ($39 PPP) the highest value transferred to a moderately poor family. The program requires a school attendance of 85% for school age children, updated immunization cards for children less than seven years old, and regular visits to health centers for breast-feeding or pregnant women.

When the Brazilian National Household Survey (PNAD), our data source, was fielded in September 2004, the merging of all previous CCTs into *Bolsa Família* was still underway and most families, while already registered in a single information system, were still receiving previously existing programs with different conditionalities and values. For our estimation purposes, we consider that any family receiving a federal conditional cash transfer, regardless of the program, was receiving *Bolsa Família*, since this is what happened shortly after.

Brazil is a decentralized federation and, while the definition of policy in the case of CCTs pertains to the Federal Government, two important implementation aspects are left to municipalities and states. The first is the verification of conditionalities. The Federal Government in Brazil does not run primary schools or primary health care centers, so it is up to the municipalities and states, particularly the former, to verify compliance. Overall, they yield a loose control over conditionalities, although qualitative studies show that families overwhelmingly do comply.

[5] *Bolsa Família* also incorporated the *Auxílio Gás*, a targeted unconditional cash transfer program designed to subsidize cooking gas. The PETI has been semi-incorporated in that it now shares the same information system and value of the stipend but, in localities highly prone to child labor, municipal school systems still receive aid to maintain the *Jornada Ampliada*.

The second crucial task is the primary identification of potential beneficiaries and provision of information about them. Although information must be recorded on a single Federal information form, it is up to municipal social workers to select potential beneficiaries and fill in all the information. In 2004 there were more candidates than available benefits, although this situation has improved with the expansion of the program. Since beneficiaries are selected solely upon income and social workers know this, they also decide, in practice, who ultimately gets selected. The results we will present suggest that social workers have been using wisely their discretion margin in the selection process.

2.2. *Chile: Chile Solidario*

Chile Solidario was created in May 2002. It is a social protection system targeted at people living in extreme poverty. The goal is to assist the 225,000 families living in extreme poverty (about 1.5% of the total population of 16 million people).

Families are invited to take part in this program on the basis of their score, according to a standardized form, which generates a multidimensional index to rank them. The higher the score the worse is the situation of the families regarding unmet basic needs that are grouped into 4 major categories: housing conditions, education, labor market insertion and income. Family support is delivered for two years, during which time families are visited by a social worker –or a similar professional– in order to set up with them a plan to tackle the major problems faced by them in several areas, ranging from domestic violence to access to public services, identification (id cards), health notions, and employment.

Besides the family support, beneficiaries also are entitled to *Aporte Solidario* or *Bono de Protección a la Familia*, a conditional cash transfer that lasts as long as the family support does and is paid to females heading families or to the female partner of the head. In order to receive the *Bono de Protección*, families have to comply with the conditionalities embedded in some actions that they must take in order to achieve the agreed targets of the plan. The aim of the *Bono de Protección* is to help the family to pay for a basket of goods, amenities and services that was considered as the minimum below which a family could not be considered as socially included. After 24 months, the family will continue to receive a financial support –the *Subsidio Único Familiar*– and will have priority in the access to

social protection programs or initiatives for another three years to help them out of poverty. If the family meets the target before two years, it is automatically excluded from the program by the social worker responsible for the family.

A distinct feature of the Chilean *Bono de Protección* is that its value decreases over the two-year period. In 2003, the values ranged from $10,500 pesos ($33 PPP) per month during the first six months in the program down to the value of the *Subsidio Único Familiar* during the last six months, $3,716 ($12 PPP).

2.3. *Mexico: Oportunidades*

Internationally, *Oportunidades* is the best known CCT program. The program, originally named *Progresa*, began in 1997 and initially covered 0.3 million households, expanding to 2.5 million families by 2000. In its initial years, the focus was on poor rural municipalities with less than 2500 inhabitants that had the minimum necessary school and health facilities for the conditionalities to be applied. In 2001, the name of the program was changed to *Oportunidades* and its coverage was expanded to include small urban locations with 2 500 to 14 999 inhabitants in 2001, and all urban areas one year later. This resulted in five million beneficiary households by 2004.

Selection of beneficiaries follows a three-stage procedure. First, municipalities are chosen according to a multidimensional index of marginality that classifies them into five categories. Secondly, households within chosen municipalities are selected according to a socio-demographic study based on discriminant analysis. In municipalities with very high indexes of marginality about 90% of the households are selected, and this percentage decreases to about 6% in those that are classified in the very low range. The third and final step involves feedback from the communities, in order to check eligibility.

The transfer has three basic components, two of which are conditional and one is non-conditional. Households benefiting from *Oportunidades* receive an unconditional transfer in the amount of $250 pesos ($32 PPP) per older adult in the household. Additionally, households receive a food support transfer of $189 pesos ($24 PPP) conditioned on attending training sessions on nutrition and health. The more substantive transfer, though, is the scholarship given to children and young adults in grades 3 to 12. Scholarships are conditional on school attendance and health check-ups; schools certify the first while health clinics attest to the compliance with health check-ups.

The value of the scholarship increases with the grade and is generally higher for females. Starting with an amount of $120 pesos ($15 PPP) for children in primary education, it goes up to $760 pesos ($98 PPP) for females in grade 12. On the whole, a household can receive a maximum of $1,095 pesos ($141 PPP) in scholarships if the household receives only scholarships for students in primary and secondary education, but the ceiling is $1,855 pesos ($239 PPP) if the household includes students in medium-high education. Transfers for the elderly started only in 2005 and are received directly by them.

2.4. *Differences in the Selection Process*

This brief comparison between *Chile Solidario, Oportunidades* and *Bolsa Família* shows that the targeting mechanisms are totally different between them. While all have some kind of centralized database and a standardized data collection form, the similarities stop there. In Brazil, municipal civil servants are those charged with identifying the poor and filling in the forms, and the only targeting criterion is income. In Mexico, identification is done by a central office and Federal civil servants (allowed little leeway in the selection process) using a multidimensional index for targeting. In Chile the social worker in charge of the family has at his disposal a multidimensional index but is also allowed considerable leeway in selecting families.

3. Data and Methods

3.1. *Income Data*

To investigate the impacts of CCTs upon income inequality in Brazil, Chile and Mexico we will decompose the Gini coefficient of the family *per capita* income distribution by the components of total income. For this, all that is needed is the average *per capita* household income by percentiles, as well as the averages of each component (in family *per capita* terms). This information should be available for two points in time, before and after the implementation of CCT programs. Finally –and crucially– the information should be as standardized as possible across time and countries.

These desired characteristics of the data impose upon us the use of income instead of consumption, because information on expenditures, although available, can not be found from the same sources that

yield data on CCTs, except for Mexico. Comparability across time was not an issue because we used different rounds of the same household surveys to gather income data, and these have not gone through significant changes during the period. For all countries, the year before the CCT programs were implemented was in the mid nineties, 1995 or 1996; and the point after was the closest available, 2003 or 2004.

We tried to construct income variables that were as close as possible for all countries. The first step was the construction of total household income. This was done by adding up all the individual incomes, regardless of the source, within households. We computed neither the income of domestic servants nor that of second line relatives, nor the income of boarders or lodgers, in household income. Total household income was then divided by household size (net of the residents whose income was not included), the quotient being the *per capita* household income.

Limited by comparability issues, we decomposed total household income into four categories: *i*) *labor income*; *ii*) *social security income*; *iii*) *CCT income*; *iv*) *other income*. Labor income is all income from labor, and includes the estimated monetary value of non-monetary income from labor (in-kind payments). Social security income is all transfers that can be classified as such, mainly pensions, but it also includes some other cash transfers such as social assistance transfers, unemployment insurance, etc. CCT income is the component under scrutiny, and it is the income received by the families registered in the programs and this component only exists in the second time point. Other income is any other income gathered by the survey. This last income component is mainly comprised of income from capital and private transfers. Means-tested, unconditional cash transfers are also included in other income.

This four-fold categorization of income was applied to the original income information collected by the household surveys in order to obtain the income components described above. Then the four components were separately added within households, and divided by the household size in the same way as total income. We ended up with four *per capita* income components summing up *per capita* household income. Finally, income from the first period was adjusted to be comparable to the last period using the general consumer price index of each country and period.

We had to overcome three difficulties when aggregating the original income components into four categories. The first was related to the degree and type of detail in the income collection. In Mexico and Chile, for instance, the CCT income was already split from others into

its own variable, or flagged in such a way that allowed its computation easily. In the case of Brazil, CCT income was mixed with other income, and we had to use the methodology developed by Soares *et al.* (2006) to separate it.

The second challenge was related to some adjustments that the disseminating institutions of each country do to the income data gathered in the field. In the Brazilian survey, we have access to the information as it was collected, and the people whose income was not reported are flagged with a special code. We simply dropped out all the members of the households where at least one member had non-declared income from at least one source, losing around 2% of the sample. In the case of Chile and Mexico, unknown income was imputed at the source, and there is no way to distinguish people with imputed income from the others.

Chile also applies other adjustments to income variables with the purpose of making the aggregate figures yielded by the survey match with those from national accounts. The adjustment factor varies accordingly to income type, and for labor income also varies with the type of recipient (wage-earning employee, self-employed, etc.). The information available on Chilean datasets makes it very difficult to reverse this adjustment, which is not reproducible for the other countries.

The third challenge was related to the construction of total income, namely, what should be included, and what should be left out. In Chile and Mexico, it is usual to impute the value of the estimated rental value of the self-owned housing unit as household income. In the case of Mexico, other expenditures related to the housing unit might also be imputed. We did not impute any of those incomes, decided to work only with declared incomes, and only retained imputed incomes due to non-declaration already in the data, as it was impossible to identify in which cases income had been imputed.

While we managed to construct a reasonably comparable total income figure across countries, we had to accept that our estimates of inequality are not always the same as official, consensual, or widely recognized country estimates. In the case of Mexico, the difference between official figures and the ones we present is the greatest. This happens for two main reasons. First, as already mentioned, unlike official estimates we did not impute any values related to the housing unit. Second, and more important, we computed neither the estimated monetary value of in-kind donations, nor that of household's production for own-consumption. As the poorest fractions of the populations are the ones that receive donations and that produce for

their own-consumption, not imputing them raises the level of inequality. But although we did not compute in-kind items that were not received as payment for labor, we followed closely the treatment given to income variables by the Mexican Technical Committee on Poverty Measurement. And as a consequence, monetary incomes were calculated as the price-adjusted average of the six-month period for which incomes were observed.

All the surveys we used had complete or almost complete national coverage, and correspond to the main sources often used to address inequality in each of the countries. Brazilian data comes from the 1995 and 2004 rounds of the *Pesquisa nacional por amostra de domicílios* (PNAD); Chilean data comes from the 1996 and 2003 rounds of the *Encuesta de caracterización socioeconómica nacional* (Casen); and Mexican data comes from the 1996 and 2004 rounds of the *Encuesta nacional de ingresos y gastos de los hogares* (ENIGH).

3.2. *Decomposition of the Gini Coefficient*

Kakwani (1980) and Shorrocks (1982) show that the Gini coefficient can be easily decomposed according to factor components and the resulting expression depends only upon the concentration coefficient of each component and its weight in total income. Equation (1) shows this expression:

$$G = \sum_k c_k \varphi_k \tag{1}$$

where G is the Gini index, c_k represents the coefficient of concentration of factor component k relative to total income and φ_k is the weight of factor k in total income. Differencing (1) we have:

$$\Delta G = \sum_k (\bar{c}_k \Delta \varphi_k + \bar{\varphi}_k \Delta c_k) \tag{2}$$

The bars over a variable refer to the average of a given variable over the two periods and the capital deltas (Δ) refer to the difference from one period to the next. The first term in the summation represents the composition effect and the second the change in coefficients of concentration. If we keep in mind that the sum of changes in the weights of all factor components is zero, we can subtract it from the formula above:

$$\Delta G = \sum_k (\bar{c}_k \Delta \varphi_k + \bar{\varphi}_k \Delta c_k) - \sum_k G \Delta \varphi_k \tag{3}$$

Rearranging, we have the following expression:

$$\Delta G = \sum_k ((\bar{c}_k - G) \Delta \varphi_k + \bar{\varphi}_k \Delta c_k) \tag{4}$$

The advantage of expression (4) is that it shows clearly that income components less concentrated than the Gini coefficient are inequality reducing while those more concentrated than the Gini are inequality increasing.[6] This is why we subtracted the term $\sum_k G \Delta \varphi_k$ from the original expression. This result is intuitive because it states that if an income component becomes less concentrated, or if a negatively concentrated component is added to a given income distribution, inequality will fall and if the opposite happens, inequality will rise. This is useful because it allows us to identify the contribution of any income source to a change in inequality.

A criticism that has been leveled at this decomposition by factor components is that it does not have a counterfactual interpretation. In other words, $G - c_k \varphi_k$ does not necessarily represent what the Gini coefficient would be if income source k vanished because the order of individuals in the distribution might change. Our answer is that the policy question we intend to address is incremental –which programs should receive more funds and not whether a given program should exist– and the interpretation of the Shorrocks decomposition by factor components answers this question as it provides the impact of the marginal currency unit of a given income source upon inequality, as opposed to the impact average currency unit, which is provided by, for example, counterfactual microsimulations.

4. Results

We begin by comparing the family *per capita* income distributions of each country in two moments in time, one in the mid-1990s, before the conditional cash transfer programs were put in place and the other in the mid-2000s, when these programs were already well established

[6] While neither Kakwani (1980) nor Shorrocks (1982) derive expression (4), Lerman and Yitzhaki (1985) do so, although they do not emphasize its importance

in the three countries of our study. Inequality was and still is very high in all three countries. Table 1 shows changes of -0.028 and -0.027 points in the Gini coefficient of Brazil and Mexico, which account for a reduction in overall inequality of 5% in both countries while in Chile the Gini coefficient was approximately constant.[7]

Table 1 also shows the concentration coefficients for each type of income (labor, social security, other income and CCT income) and the weight of each income source in total income. By multiplying the concentration index of an income source by its weight we have the total contribution of the source to the overall inequality as measured by the Gini index (equation 1). Dividing this result by the Gini gives the percentage contribution of the source to total inequality.

Labor is the main source of income in the three countries of our study. Its share in total income varies from 72.6% (Brazil, 2004) to 89.1% (Mexico, 1996). However, its importance has been declining over time. The patterns of this decline differ from country to country. In Brazil and Mexico it was mainly associated with an increase in the share of social security incomes and in Chile, the country that had the most modest change in the weight of labor, it resulted from a combination of a slightly larger share of social security and other incomes.

Government direct transfers –here represented by CCTs and Social Security– are the second most important source of income in these countries and their share has been increasing in all countries over the years. When these transfers are disaggregated it becomes clear that the weight of social security transfers is much higher than the weight of the conditional cash transfer programs. The latter never reach 1% of total income. In Brazil, social security –both of a contributory and a non-contributory nature– came to represent almost one quarter of total income. In Chile and Mexico social security accounts for 7.9% and 5.0%, respectively, of total income. It should be noted that the "other income" also includes non-conditional cash transfers.

The concentration indexes presented in table 1 give an idea of how each type of income is distributed in the population. Given its weight in the total, labor income indexes basically reproduce the Gini coefficients in each country. And, despite some common beliefs to the contrary, only in Chile are the social security transfers inequality-reducing in both time points; the high concentration of social security transfers contribute to increased levels of inequality in Brazil

[7] While we do not report this here, changes in inequality in Brazil and Mexico are highly significant. See Azevedo (2007) for Brazil.

and Mexico. Conversely, income from CCTs is the least concentrated income source in all three countries.

4.1. *Decomposition of Changes in Inequality*

Table 2 presents the factor decomposition (4) of changes in inequality from the mid nineties up to 2003/4 for each country. The decomposition points out the contribution of the changes in the share (composition effect) and in the concentration of each source of income to the total change in the Gini index. The relative contribution of each factor to the total change in inequality is obtained by dividing the absolute contribution of that factor to the change in the Gini index by this overall change in the Gini index.

Labor income is the main driving force of the level of inequality in the three countries. This is understandable, since labor income accounts for a large share of the total income of the families. More specifically, changes in the concentration of labor income were the most important driving force for changes in inequality in these countries. Although we can observe changes in the weight of labor income, their contribution to the reduction of inequality in Brazil and Mexico was small. In Chile the percentage of total change associated with the fall of the share of labor income in total income is 19%; however, it must be taken into account that there was almost no variation of inequality in Chile and therefore 19% corresponds to only 0.0002 Gini points.

Income from social security also made an important contribution to the dynamics of inequality, raising inequality in all countries but Chile. In Mexico (and in Brazil) one observed a higher concentration as well as a larger share of this income from social security. Such a combination, *ceteris paribus*, would have induced an increase in inequality, which corresponded in Mexico to one sixth (one quarter in Brazil) of the reduction in inequality brought about by a better distribution of labor incomes. In Chile, however, social security incomes became less concentrated and more important in total income, counteracting the trends observed in the labor market. The contribution of social security income to the reduction in inequality in Chile compensated more than half of the inequality increasing contribution of labor incomes.

The content of the variable 'other income', as already said, depends on the country. In Brazil, the reduction in the concentration and increase in share of this source is related to a large expansion

of the *Benefício de Prestação Continuada*, a large non-conditional means tested transfer to the elderly and to people with disabilities that render them unable to work. Although this income source also includes rent, interest, dividends and private transfers, these were not relevant to changes in income distribution over the period (Soares *et al.* 2006). In Mexico, other income includes non-conditional targeted cash transfers such as *ProCampo*, public and private scholarships, donations from NGOs, income from capital, and national or international remittances. In Chile, "other income" includes, once again, important non-conditional cash transfers (PASIS and SUF), as well as capital and other income. Our evidence suggests that means-tested unconditional cash transfers were also important in reducing inequality in Brazil and Chile, which would help to explain the inequality reducing effect of the changes in this component for both countries, as shown in table 2. But as our focus in this paper is on CCTs, we leave for future research the impacts upon inequality of those unconditional transfers.

The conditional cash transfers[8] proved to be an important inequality-reducing factor in all three countries –in Mexico and Brazil they were surpassed only by labor income. But their contribution to the fall in inequality was disproportionately high given their small share in total income. With a share less than 1% of the total income in all three countries, the CCTs were responsible for 15% of inequality reduction in Chile and 21% in Brazil and Mexico. Just to give an idea of the relative impact on inequality of the CCTs, in both Mexico and Brazil they were more than enough to counteract the increase in the concentration in social security incomes, although their share in total income amounts to a fraction of the latter.

In Chile, cash transfer income is very well targeted but it amounts to such a small share of the total income that its contribution to the fall in inequality is very modest. Indeed, among all factors contributing to reduce inequality in Chile, cash transfers were the least important; the effect of social security incomes, for instance, was more than 30 times higher than the contribution of the CCTs. Therefore, as targeting is similar, if the CCT share of total income were larger we would expect an impact as high as that observed for Brazil and Mexico.

[8] The joint composition and concentration effects are represented for CCTs only in table 2, because this component did not exist in the first time point (so both its share and concentration were null).

Table 1

Gini Coefficients and their Decompositions by Concentration Coefficients, and Weights in Total Income of Each Income Source

$G = \sum_k c_k \varphi_k$	*Income*	*Brazil*		*Chile*		*Mexico*	
	Source - k	*1995*	*2004*	*1996*	*2003*	*1996*	*2004*
G - Gini	**Total**	**.5985**	**.5711**	**.5630**	**.5620**	**.5374**	**.5103**
c_k	Labor	.5943	.5633	.5692	.5815	.5420	.5080
	Social Security	.5858	.6118	.4778	.4201	.5646	.6320
	Other	.7422	.6206	.5715	.5186	.4764	.5264
	CCT		-.5271		-.5383		-.4855
φ_k	Labor	.8204	.7260	.8319	.8164	.8906	.8600
Weight in total income	Social Security	.1425	.2270	.0701	.0794	.0298	.0501
	Other	.0371	.0419	.0980	.1041	.0795	.0844
	CCT	.0000	.0051	.0000	.0001	.0000	.0055
$c_k \ \varphi_k$	Labor	.4875	.4090	.4735	.4747	.4827	.4369
Contribution to Total	Social Security	.0835	.1389	.0335	.0333	.0168	.0317
Inequality	Other	.0275	.0260	.0560	.0540	.0379	.0444
	CCT		-.0027		-.0001		-.0027

Source: PNAD 1995, 2004; Casen 1996, 2003; ENIGH 1996, 2004. Note: values rounded. In the initial year there was no CCT income.

Table 2

Changes in Gini Coefficients and their Decompositions by Changes in Concentration, Coefficients, and Weights in Total Income of Each Income Source

$\Delta G=\sum_k((\bar{c}_k-G)\Delta\varphi_k+\bar{\varphi}_k\Delta c_k)$	*Income*	*Brazil*		*Chile*		*Mexico*	
	Source - k	*Value*	*%*	*Value*	*%*	*Value*	*%*
ΔG - Change in Gini	**Total**	**-.0274**	**100**	**-.0011**	**100**	**-.0272**	**100**
$\bar{\varphi}_k\Delta c_k$	Labor	-.0239	87.3	.0101	-941.2	-.0297	109.5
Concentration Effect	Social Security	.0048	-17.5	-.0043	401.7	.0027	-9.9
	Other	-.0021	7.5	-.0048	450.2	.0018	-6.7
$(\bar{c}_k - G)\Delta\varphi_k$	Labor	.0006	-2.1	-.0002	18.6	.0000	.1
Composition Effect	Social Security	.0012	-4.3	-.0011	98.1	.0015	-5.6
	Other	-.0023	8.3	-.0006	57.9	.0022	-7.9
$(\bar{c}_k - G)\Delta\varphi_k + \bar{\varphi}_k\Delta c_k$	Labor	-.0234	85.2	.0099	-922.7	-.0298	109.6
Concentration and	Social Security	.0060	-21.8	-.0054	499.8	.0042	-15.5
Composition	Other	-.0043	15.8	-.0054	508.2	.0040	-14.7
	CCT	-.0057	20.8	-.0002	14.7	-.0056	20.5

Source: PNAD 1995, 2004; Casen 1996, 2003; ENIGH 1996, 2004. Note: values rounded.

These results allow us to derive a pattern of change in inequality in the three countries of our study. In Brazil and Mexico the story is almost the same. Inequality is falling mainly due to the reduced concentration in labor incomes. This fall is also due to an important contribution from the conditional cash transfer programs. Conversely, the concentration of social security incomes is increasing in both countries and preventing inequality from falling even more. In Chile the labor market is driving inequality up but the social security system (including the non-contributory pensions and non-conditional targeted transfers grouped in other incomes) is compensating the negative performance of the labor market. *Chile Solidario* plays a minor role in the dynamics of inequality in Chile.

5. Conclusions

Mexico, Brazil and Chile are countries marked by a high degree of income inequality. This, however, is not a static picture. Some income sources increased or decreased their contribution to total income, and some had their concentration modified. The result of these changes is that from the mid-1990s to the mid-2000s the level of total income inequality was stable in Chile but fell substantially in Mexico and Brazil.

All three countries have put in place Conditional Cash Transfer programs. The total amount transferred by these programs is still modest, its share in total income ranging from almost zero in the Chilean *Chile Solidario* to 0.5% in the Brazilian *Bolsa Família* and the Mexican *Oportunidades* by the time of the surveys. These figures are small in comparison to the weight of transfers from the social security system. However, CCT income is so well targeted that even with such a small participation in total income they have an important contribution to decreasing inequality in Mexico and Brazil. In those two countries CCTs were the second most important determinant of the fall in inequality between 1996 and 2004. Only in Chile, where their weight was almost zero, did the CCTs not have any relevant contribution to the dynamics of inequality.

The analysis herewith presented has some clear limitations. The most obvious one is that we treat the social security system as a single unit despite the fact that there are several different programs within this system. By putting together contributory and non-contributory pensions and some social assistance programs and concluding about the overall impact of social security, we are not being explicit about

the important role of the social assistance programs on inequality. Similarly, the content of what we call 'other income' is equally heterogeneous and does not single out the impact of different types of private and public transfers on inequality. Although we are convinced that isolating such different sources of income was not advisable for this particular study, we believe that the same analysis done on a country by country basis would benefit from more disaggregated categories.

Our study does not lead to conclusions that allow us to prescribe detailed recommendations for redistributive policies. Nevertheless, there are some general implications of our results for development strategies aiming at the reduction of inequality.

The first is that, there are many roads to good targeting. Chile, Mexico and Brazil have chosen quite different approaches: decentralization and income as sole criterion in Brazil, centralization and a multidimensional index in Mexico, and social worker empowerment and a multidimensional index in Chile. All three approaches, however, produce concentration coefficients close to -0.5.

The second is that, due to their excellent targeting, CCTs are a very low cost way of reducing inequality that can be replicated in many other countries. Even in the countries where the CCTs are consolidated and cover a large share of the population they can still be amplified without representing a heavy fiscal burden comparable to that of traditional social security.

References

Acemoglu, D., S. Johnson, and J. A. Robinson (2001). *Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution*, NBER Working Paper, no. 8460, available at: http://www.nber.org/papers/w8460.

Aghion, P., E. Caroli and C. García-Peñaloza (1999). Inequality and Economic Growth: The Perspective of New Growth Theories, *Journal of Economic Literature*, 37(4), 1615-1660.

Atkinson, A. B. (1997). Bringing Income Distribution in From the Cold, *The Economic Journal*, 107 (441), 297-321.

Azevedo, J. P. (2007). Avaliando a Significância Estatística da Queda na Desigualdade no Brasil in R. Paes de Barros, M. N. Foguel, and G. Ulyssea (Eds.), *Desigualdade de Renda no Brasil: Uma Análise da Queda Recente*, vol. 1, IPEA, Rio de Janeiro, avaliable at: http://www.ipea.gov.br.

Fragoso, J. and M. Florentino (2001). *O Arcaísmo como Projeto*, Cia das Letras, Rio de Janeiro.

Furtado, C. (1966). *Subdesenvolvimento e Estagnação na América Latina*, Civilização Brasileira, Rio de Janeiro.

Handa, S. and Davis, B. (2006). The Experience of Conditional Cash Transfers in Latin America and the Caribbean, *Development Policy Review*, 24(5), 513-536.

Hoddinott, J. and E. Skoufias (2004). The Impact of PROGRESA on Food Consumption, *Economic Development and Cultural Change*, 53(1), 37-61.

IBGE. *Pesquisa Nacional por Amostra de Domicílios*, (PNAD), 1995, 2004, available at: http://www.ibge.gov.br/home/estatistica/populacao /trabalhoerendimento /pnad2007/default.shtm

INEGI. *Encuesta nacional de ingresos y gastos de los hogares*, (ENIGH), 1996, 2004, available at: http://www.inegi.gob.mx/prodserv/contenidos/espanol /biblioteca/Default.asp?accion=1&upc=702825000083&s=est &c=10753. Documento metodológico.

Kakwani, N. (1980). *Income Inequality and Poverty: Methods of Estimation and Policy Aplications*, World Bank Research Publications.

Lerman, Robert I. and S. Yitzhaki (1985). Income Inequality Effects by Income Source: A New Approach and Applications to the United States, *Review of Economics and Statistics*, 67(1), 151-156.

Mideplan. *Encuesta Casen*, 1996, 2003, avaliable at: http://www.mideplan.cl/ casen/

Paul, Satya (2004). Income Sources Effects on Inequality, *Journal of Development Economics*, 73(1), 435-451.

Skoufias E. and S. W. Parker (2001). Conditional Cash Transfers and their Impact on Child Work and School Enrollment: Evidence from the PROGRESA Program in Mexico, *Economía* 2(1), 45-96.

Shorrocks, A. (1982). Inequality Decomposition by Factor Components, *Econometrica*, 50(11), 193-211.

Soares, F. V. *et al.* (2006). *Cash Transfer Programs in Brazil: Impacts on Inequality and Poverty*, IPC Working Paper, no. 21, available at: http://www.undp-povertycentre.org/newsletters/WorkingPaper21.pdf

Szekely, M. and M. Hilgert (2001). *What Drives Differences in Inequality Across Countries?*, IADP Research Department Working Paper, no. 439, available at SSRN: http://ssrn.com/abstract=258947