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Fabio Veras Soares Sergei Soares Marcelo Medeiros Rafael Guerreiro Osório International Poverty Centre, UNDP/IPEA

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International Poverty Centre SBS – Ed. BNDES,10° andar 70076 900 Brasilia DF Brazil

povertycentre@undp-povertycentre.org www.undp.org/povertycentre Telephone +55 61 2105 5000 Fax +55 61 2105 5001

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CASH TRANSFER PROGRAMMES IN BRAZIL: IMPACTS ON INEQUALITY AND POVERTY*

Fabio Veras Soares,** Sergei Soares,***
Marcelo Medeiros,**** and Rafael Guerreiro Osório*****

ABSTRACT

This paper evaluates the contribution of cash transfer programmes to the observed fall in inequality in Brazil between 1995 and 2004 as well as its impact on poverty. We use the 2004 Brazilian National Household Survey (PNAD) that for the first time collected data on the incidence of some of the cash transfer programmes. We develop a methodology to separate out the income of different cash transfer programs, cross-check the survey information with administrative records, evaluate the incidence of the programmes, calculate their concentration indexes and decompose the Gini index into the contribution of each income source. We find that both BPC – the means tested old age pension and disability grant programme – and Bolsa Família are quite well targeted: 74% of BPC reported income and 80% of Bolsa Família reported income goes to families living below the poverty line (half of minimum wage per capita), and that they were jointly responsible for 28% of the fall in the Gini inequality between 1995 and 2004 (7% from BPC and 21% from Bolsa Família). This contribution is guite sizable since BPC and Bolsa Família together account for a tiny 0.82% of the total family income reported in the National Household Survey. It is also striking that pensions equal to the minimum wage – contributory or not – contributed 32% to the fall in the Gini index, but this better performance was due to the fact that they make up 4.6% of the total family income.

Keyword: Income distribution, cash transfer programmes.

JEL Classification: D31

Email address for correspondence: fabio.veras@undp-povertycentre.org.

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^{**} From the IPEA (Institute of Applied Economic Research) coordination in the International Poverty Centre (IPC/UNDP/IPEA).

^{***} From the IPEA Social Studies Department.

^{****} From the IPEA coordination in the International Poverty Center (IPC/UNDP/IPEA).

^{*****} From the International Poverty Center (IPC/UNDP/IPEA).

1 INTRODUCTION

The eradication of poverty and the substantial reduction of the levels of inequality in Brazil are goals which are difficult to reach within a reasonable time limit without resorting to direct redistribution mechanisms. Cash transfer programmes that are of a non- contributory nature are clear examples of the use of this type of mechanism. These programmes have existed for decades and have passed through innovations and expansions since the end of the 1990s.

The publication of supplementary data from the 2004 National Household Survey (PNAD 2004) for the first time provided information on the incidence of these programmes. Our objective is to analyze the distributive effects of the Brazilian direct cash transfer programmes using these new data. In order to be able to do this, we will have to: a) assess the PNAD information vis-à-vis administrative records, and b) develop a methodology to separate out the components of income that can be identified as cash transfers. There are various motives for doing this type of analysis. Among them is to identify areas in which design and implementation need to be adjusted, as well as plan for the expansion of such programmes.

In 2004, the PNAD collected, for the first time, information using a supplementary questionnaire about the participation in Federal Government cash transfer programmes such as *Auxílio Gás* (cooking gas stipend), *Benefício de Prestação Continuada*, BPC (continous cash benefit; means-tested disability grant and old age pension), *Bolsa Alimentação* (food stipend), *Bolsa Escola* (school stipend), *Bolsa Família* (Family Stipend), *Cartão Alimentação* (food card from the Hunger Zero programme), Child Labor Eradication Programme (PETI), and other cash programmes. The households in which there were beneficiaries were identified and, for some programmes, the number of beneficiaries was also identified.

However, the questionnaire used by PNAD does not allow the direct use of data for studies about the specific incidences of each programme. The way in which information is collected does not permit the individual identification of the programme beneficiaries in the households, nor does it allow the distinction among the incomes received from the cash transfer programmes from investment income (interests and dividends), which are all blended in a category called "other incomes". This fact complicates the carrying out of studies about the incidences of these programmes; however, we put forward a methodology for the disaggregation of "other incomes that allows us to surmount this obstacle in a satisfactory way

With the use of this methodology, we assessed the targeting of the programmes and their effects on inequality and poverty. Our results indicate that all programmes prioritize the population with the lowest income, even though there is a margin for adjustments in their design and implementation. The poorest families receive the largest part of the transfer resources and the quantity of families benefited in the richest strata of the population is negligible. The programmes also have a visible impact on the incidence of poverty (reduction in the proportion of poor people), particularly the BPC, and were responsible for an important part of the fall in income inequality in Brazil between 1995 and 2004.

Previous research was based only on the information that a household has a beneficiary from one (or more) of the programmes, and simply carried out the analysis using the category "Other income". Our methodology is innovative by separating the income component of each programme, and in particular, separating the BPC from the other cash transfer programmes. The latter separation is fundamental since the BPC is the programme in which the transfer value is the highest (the equivalent of one Brazilian minimum wage), besides the fact that it possesses objectives and institutional characteristics that make it very different from the other programmes.

We also assessed the levels of concentration of all of the other sources of income which were investigated by the PNAD. As a result, we identified a high concentration of rents and pensions or retirement funds which were above the value of the social security floor (1 minimum wage). The high concentration of income from financial investments called attention since they chiefly originate from interest paid on federal government bonds and, therefore, can be understood as a form of governmental transfer to the richest segment of the population at a magnitude which is much greater than that of the transfers targeted on the poor.¹

Most of the preliminary investigations that have been released up to now have only called attention to the great change verified in the component "other incomes" in terms of the volume of resources measured, as well as in its distribution: from the most concentrated component in the 1990's, it became, in 2004, one of the less concentrated, losing only to retirement funds and pensions indexed to the minimum wage, according to the two studies that disaggregated the retirement funds and pensions by value (Soares (2006) and Hoffman (2005)). In the present study, we separated the component "other incomes" in a way that offers a more refined analysis of the role of each of its sub-components — the interests, the BPC, and other cash transfer programmes — in the fall in inequality observed in the last few years. This exercise also allows us to improve the analysis of the incidence of the cash transfer programmes by separating the BPC from the other programmes. In addition, such a separation will permit, in the future, an international comparison between the distributive role and the degree of focalization of the Brazilian cash transfer programmes in relation to other similar programmes in Latin America.

This paper is composed of other three sections after the introduction. In the next section, we present the methodology, confronting the data of the 2004 PNAD supplement with the administrative records of September 2004 in order to identify disparities. In the third section, we analyze the degree of targeting (incidence) of the programmes, conduct a robustness test of the methodology, present a decomposition of the Gini index for different sources of income in 1995 and 2004, and analyze how each source of income contributed (or not) to the reduction of inequality and had effects on poverty. In the last section, we summarize our conclusions. But before that, we will end this introduction with a brief description of the cash transfer programmes that were investigated in the 2004 PNAD.

BPC: The Continuous Cash Benefit Programme is an unconditional cash transfer to the elderly or to extremely poor individuals with disabilities. It was created by the 1988 Federal Constitution, but it was only implemented in 1996. The transfers are made to the elderly or people with a severe disability, whose family *per capita* income is less than one quarter of the minimum wage² (approximately US\$ 1/day in March, 2006). The value of the transfer is equivalent to a monthly minimum wage (approximately US\$ 4/day). The benefit is independent of previous contributions to the social security system and is not subject to any conditionality. All extremely poor individuals over 65 years of age, whether disabled or not, are entitled to the benefit. In the case of non-elderly disabled individuals, only the very poor that are classified as having a severe disability that hinders their independent life and work can receive BPC. Medical experts carry out tests to evaluate the individual's social situation with respect to his or her disability. The programme beneficiaries are re-evaluated every two years in order to ensure that their status has not changed.

<u>PETI</u>: The programme for the eradication of child labor (PETI) was created in 1996. It consisted of a cash transfer for children, between 7 – 15 years, working (or prone to) in hazardous and dangerous activities such as sugar cane plantations and vegetal coal

production. It also had a supplementary budget for municipalities to extend the activities at school (*Jornada Ampliada*) so that the children would not have "free time" to work in those dangerous activities. Initially municipalities with a high incidence of child labor in those dangerous activities were targeted. The value of the benefit was R\$ 25 per child in the rural areas and R\$ 40 per child in the urban areas. The conditions include a commitment that children younger than 16 will not work and 75% attendance in classes.

Bolsa Família: created in October 2003, this is the main conditional cash transfer programme of the Federal government and it is administered by the Ministry for Social Development. It unifies the other conditional cash transfers programmes: Bolsa Escola and Bolsa Alimentação as well as other cash transfer programmes: Cartão Alimentação do Fome Zero and Auxílio Gás, which were still in place in 2004. Bolsa Família targets poor families with a monthly per capita income below R\$ 100 (US\$ 40) and who are registered in the unified roll (Cadastro Único). Selection of beneficiary families is decentralized and implemented at the municipal level (with a double check at the Federal level). Despite all the information gathered through the Casdastro Único, the only relevant information for eligibility is the "monthly family per capita income". Each municipality has a quota – based on the estimates of poor people according to the National Statistics Office – that must be filled in. The benefits vary according to the monthly per capita income of the family and its composition. Families with a monthly per capita income below R\$ 50 – extreme poverty – have access to a monthly benefit of R\$ 50, regardless of its composition. Families with a monthly per capita income between R\$ 50 and R\$ 100 are only eligible if they have children between 0-15 and/or a pregnant woman. The benefit for each child is R\$15 and a family can accumulate it for up to a maximum of three children. Families in extreme poverty (up to R\$ 50) can also accumulate this benefit with the basic benefit of R\$ 50. Therefore, the maximum benefit that a family can achieve under this programme is R\$95.3 Conditionalities of the programme involve a 85% attendance at school for school age children, updated immunization cards for children between 0-6 years old, and regular visits to health centers for breast feeding or pregnant woman. Moreover, there are some structuring activities that aim at giving access to social services to adults in beneficiaries' families. These include: preference in training programmes (including literacy courses), in employment, and in income generating programmes, and those members without civil register (and other civil documents) would get them.

<u>Bolsa Escola</u>: The Federal Bolsa Escola was created in 2001 and targeted children between 6 and 15 years whose families have a monthly per capita income below R\$90. The value of the benefit is R\$ 15 per child up to a ceiling of R\$45. The family has to guarantee that the children will not miss more than 15% of the classes. As previously mentioned, this programme was merged with the Bolsa Família in January 2004. This programme was administered and implemented by the Ministry of Education.

<u>Bolsa Alimentação</u>: This programme was created in September 2001 by an initiative of the Ministry of Health. It aimed at fighting infant mortality in families with per capita income below half of minimum wage. The families were identified by the community health agents and the families would get R\$ 15 per child between 0-6 years old (or pregnant woman) up to a maximum of R\$ 45. As a conditionality, the immunization cards of the children had to be updated and breast feeding mothers or pregnant women had to pay regular visits to health centers.

<u>Auxílio Gás</u>: This programme was created in December 2001 to compensate poor families for the ending of the subsidy in the cooking gas price. It targeted families with monthly family

incomes below R\$ 90 excluding the income that may come from other cash transfer programmes such as *Bolsa Escola, Bolsa Alimentação, PETI*, unemployment benefits, etc. There were no conditionalities attached to this programme besides being registered in the "*Cadastro Único*". The amount of the benefit was R\$ 7.50 paid every other month. The Ministry for Mining and Energy was responsible for administering this programme.

<u>Cartão Alimentação</u>: This programme was created in 2003 and consists of a transfer of R\$ 50 to families with a monthly *per capita* income lower than half of the minimum wage for 6 months (which can be extended up to 18 months). The aim of the programme is to fight food insecurity while other measures are taken to ensure that the family will stop being food insecure.

2 METHODOLOGY

2.1 THE QUESTIONNAIRE ABOUT THE CASH TRANSFER PROGRAMMES IN THE 2004 PNAD SUPPLEMENT

The special supplement of the 2004 PNAD about the governmental cash transfer programmes investigated the incidence of the following beneficiaries:

- A) Cooking Gas stipend (two questions):
 - if they had received the gas stipend that month;
 - if they were signed up for the programme. As the allowance was paid bi-monthly, the person could say that they hadn't received the benefit that month and appear as if they were a non-beneficiary, the second question here tries to get around this problem;
- B) Bolsa Família
 - if they had received it that month;
- C) Food Card from the Hunger Zero Programme
 - if they had received it that month;
- D) Food Stipend—(two questions):
 - if they ha programme; d received it that month;
 - how many members of the household were signed up for the programme or were beneficiaries of the
- E) Continuous Cash Benefit (BPC)—(three questions):
 - if an elderly person or person with a disability in the household had received the benefit that month;
 - how many elderly people or people with disabilities in the household received money from the BPC that month;
 - if another resident had received money from the Programme that month.⁴
- F) Bolsa Escola (two questions):
 - if they had received it that month;
 - how many residents in the household were signed up for the programme;

- G) Child Labor Eradication Programme (PETI):
 - if they had received it that month;
 - how many residents in the household were signed up for the programme;
- H) Other federal, state, or municipal cash transfer programmes:
 - if they had received it that month.

However, the special supplement did not foresee the identification of the beneficiaries of the above described programmes, nor did it foresee the identification of the income which originated from these programmes as a separate category in the questionnaires. For this reason, it is not possible to be certain if the registered income in the category "other incomes" is, or not, an income which originates from a cash transfer programme that one beneficiary resident in the household had received during the reference month of the survey. For this reason, we will work with the total "other incomes" of the household in an attempt to extract the cash transfer programme incomes.

It is interesting to observe that diverse statistics institutes in Latin America, as for example those in Mexico and Chile, altered the way to measure income, without harming the comparability with the historical series, in order to better inform the society about the effects of the government cash transfer programmes on poverty and inequality. The improvement in the gathering of information is fundamental for permitting a better analysis⁵ of the impact of this type of programme and for monitoring them at a low cost.

2.2 COMPARISON OF THE 2004 PNAD RESULTS WITH ADMINISTRATIVE RECORDS

The first relevant question is if the information obtained by the PNAD, a nationally representative household sample survey, approximates the results that came from the administrative records of the programmes. Specifically, there are two aspects that deserve attention: the precision of the PNAD programmes in relation to the absolute number of programme beneficiaries and the relative distribution of the attributes of the beneficiaries (regional distribution, etc.).

It is fundamental to observe that the PNAD sample design was not planned to estimate the total number of cash transfer programme participants. A characteristic of the PNAD sampling is the creation of geographically clustered samples, due, in part, to the first two stages of the sampling, respectively, the selection of a panel of municipalities, and of a group of census tracts. A consequence of this design is that the survey does not capture phenomena well that are very concentrated in a specific geographic area.

At any rate, the information rendered by the households with beneficiaries from the sample is extremely relevant for the analysis of the targeting of the programmes and of their impact on poverty and on income distribution, as well as to have an idea of the major characteristics of the household with programme beneficiaries.

Around 15.5% of Brazilian households (8 million) declared having received money from at least one of the 8 cash transfer programmes investigated in the 2004 PNAD. If we exclude the households that only receive the BPC, this total falls to 14.5% (7.5 million). According to Table 1, the benefit most commonly declared by the households was the *Bolsa Escola* with 7.4% of the

households (3.8 million), followed by Cooking Gas stipend (3.5 million) and *Bolsa Família* (2.1 million). These values do not reflect the programmes' administrative data records. According to these data, in September 2004, the *Bolsa Família* had already reached around 5 million families and the *Bolsa Escola* around 3.3 million (without overlapping). The discrepancies are large: the PNAD estimates a number of *Bolsa Família* beneficiaries that is lesser than one half of those who are officially registered and a number of *Bolsa Escola* beneficiaries that are approximately 15% greater than those registered.

Faced with this discrepancy, it is important to note that the conclusions of the studies that have been conducted up to now, as well as our own considerations, are drawn from data which still needs to be improved in terms of quality. As such, all of the interpretations based on the 2004 PNAD need to be made with caution.

TABLE 1

Absolute Number of Beneficiaries: Administrative Records and PNAD

| Programme | Administrative Record | PNAD | Difference |
|-------------------------------|------------------------|------------------------|-------------|
| BPC Disability | 1,098,552 | 437,701 | -60% |
| BPC (old age) | 885,236 | 324,575 | -63% |
| Subtotal BPC | 1,983,788 | 762,276 | -62% |
| Bolsa Família | E 025 CC0 | 0.000.070 | -58% |
| Bolsa Familia Bolsa Escola | 5,035,660 3,381,486 | 2,089,970 3,803,526 | -58% 12% |
| Food Stipend | 251,459 | 536,149 | 113% |
| Food Card | 107,907 | 752,112 | 597% |
| Cooking gas | 4,220,953 | 3,491,400 | -17% |
| Subtotal Others | 12,997,465 | 10,673,157 | -18% |
| Total | 14,981,253 | 11,435,433 | -24% |

Source: 2004 PNAD Microdata (IBGE) and Ministry of Social Development (MDS) administrative data.

It is possible to speculate about the motives of this discrepancy. Besides the motives regarding the type of sampling used in the PNAD, another problem that affects these data is the fact that the Federal Government cash transfer programmes were going through a transition during the time of data collection. All of the programmes, with the exception of PETI and BPC — which have characteristics that are quite different from those of the other programmes — were being unified under the umbrella programme *Bolsa Família*. This transition can be associated with the difficulty of discerning the correct name of the programme during the answering of the questionnaire. It is possible, for example, that the people who were still not used to identifying *Bolsa Família* as "their programme" for cash transfer could have answered that they receive money from more than one programme because they confused *Bolsa Família* with other programmes. For this reason, the duplicity in the answer does not, necessarily, mean that the household had beneficiaries from diverse programmes.

According to the PNAD data and excluding BPC from the analysis, 42% of the households declared having a beneficiary or beneficiaries from more than one programme, which reveals either a great overlapping among the diverse programmes or an inability of the population in discerning which "his/her cash transfer programme" was. A great deal of the overlapping is due to the Cooking Gas Stipend programme, which was the programme that was most

frequently declared simultaneously with other programmes. Such a situation is not alarming, having in mind that this is a complementary bi-monthly low-cost benefit. Around 70% of the beneficiary households from this programme were also beneficiaries of some other programme.

An additional piece of evidence that the bias does not occur only in the direction of underestimating the total number of beneficiaries, but is also a consequence of the confusion among the diverse programmes, is the fact that 536 thousand households declared being beneficiaries of the Food Stipend programme and 752 thousand declared being beneficiaries of the Food Card from the Hunger Zero Programme,⁷ while the administrative data indicate that only 251 thousand and 107 thousand families, respectively, were beneficiaries of those two programmes.

Even though the absolute numbers of the administrative records were not reproduced, the PNAD can reproduce the distribution of the beneficiaries and their characteristics well in relative terms. To investigate this hypothesis, we contrasted the regional distribution of the administrative data for the *Bolsa Família*, *Bolsa Escola*, Food Stipend, Food Card, and Cooking Gas Stipend referring to the number of beneficiary families with the PNAD data distribution for the same programmes. Table 2 reveals that the PNAD reproduces the regional distribution of the beneficiaries with quite good precision for the majority of the programmes, especially for the Food Stipend programme.

TABLE 2

Comparison between Administrative Records (AR) and the PNAD Regional Distribution

Data for the Cash Transfer Programmes⁸

| 5 | | | | | | | | | | |
|-----------|--------------|------|---------------|------|--------------|------|-----------|------|-------------|------|
| Region | Bolsa Escola | | Bolsa Família | | Food Stipend | | Food Card | | Cooking gas | |
| | PNAD | AR | PNAD | AR | PNAD | AR | PNAD | AR | PNAD | AR |
| North | 8% | 9% | 8% | 10% | 7% | 7% | 2% | 1% | 7% | 9% |
| Northeast | 51% | 54% | 59% | 47% | 58% | 58% | 84% | 88% | 56% | 48% |
| Southeast | 23% | 24% | 22% | 25% | 20% | 20% | 10% | 10% | 20% | 25% |
| South | 12% | 9% | 8% | 11% | 10% | 10% | 3% | 1% | 12% | 12% |
| Mid-West | 5% | 4% | 3% | 6% | 5% | 5% | 2% | 0% | 4% | 6% |
| Brazil | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Source: 2004 PNAD Microdata (IBGE) and Ministry of Social Development (MDS) administrative data.

Around 762 thousand households — which corresponds to 1.5% of the Brazilian total — declared having a beneficiary of the BPC, which means that a large part (practically half) escape the PNAD estimations, even when considering that this does not include individualized information about the beneficiaries. According to the administrative data, there were 1,983,788 beneficiaries in September 2004, of which 1,098,552 were disabled people and 885,236 were elderly, 65 years of age or older.

Due to the characteristics of the BPC, it is possible to advance a little more in the comparison between the Programme's administrative records and the information gathered by the PNAD. In Table 3, when we break down the information on the households with BPC beneficiaries, one can perceive that 57% of the households did not have any resident 65 years of age or older, 31% did, and 11% had two such people. If we assume that households without residents of this age range probably have disabled people beneficiaries, we arrive at the conclusion that, in proportional terms, the data of the PNAD replicate the distribution by category of BPC administrative data well since, accordingly, 55% of the beneficiaries were disabled people in September 2004.

TABLE 3

Number of residents 65 years of age or older in households where BPC beneficiaries live

| # of redidents (65 years or older) | Frequency | % |
|------------------------------------|-----------|-------|
| 0 | 437,701 | 57.42 |
| 1 | 237,12 | 31.11 |
| 2 | 83,544 | 10.96 |
| 3 | 3,053 | 0.40 |
| 4 | 648 | 0.09 |
| 5 | 210 | 0.03 |
| Total | 762,276 | 100 |

Source: 2004 PNAD Microdata (IBGE).

In terms of regional distribution, the PNAD data replicate the administrative data with good precision when one looks at the distribution of the beneficiaries for the disabled people, as seen in Table 4. Yet, the regional distribution of the BPC for the elderly reveals an overestimation (relative) from the Northeast in detriment to the Southeast in the PNAD data, while for the other regions, the discrepancy is not so large.

TABLE 4

Comparison between Administrative Regions (AR) and the PNAD data on the regional distribution of the BPC beneficiaries⁹

| Region | Disabled | | Eld | lerly | Total | | |
|-----------|----------|------|-----|-------|-------|------|--|
| | AR | PNAD | AR | PNAD | AR | PNAD | |
| North | 10% | 10% | 9% | 5% | 10% | 8% | |
| Northeast | 41% | 44% | 32% | 56% | 37% | 49% | |
| Southeast | 30% | 28% | 39% | 20% | 34% | 24% | |
| South | 10% | 10% | 10% | 8% | 10% | 9% | |
| Mid-west | 8% | 8% | 10% | 13% | 9% | 10% | |

 $Source: 2004\ PNAD\ Microdata\ (IBGE)\ and\ Ministry\ of\ Social\ Development\ (MSD)\ administrative\ data.$

The data analyzed in this section indicate that, even though it was not possible to reproduce the absolute number of cash transfer programme beneficiaries, the PNAD is able to reproduce the regional distribution of the administrative data in a reasonable way with only a few exceptions. It is important to remember that it is a rule of thumb that absolute numbers obtained from the expansion of household survey samples are rarely near those that come from administrative records. Nevertheless, for some of the programmes analyzed here, even some of the relative numbers demonstrate a non-negligible degree of discrepancy. The main one refers to the elderly BPC beneficiaries, where there is an over-estimation of the proportion of beneficiaries in the Northeast region in detriment to the Southeast region. A possible explanation for this fact could be the confusion on the part of the beneficiaries (or on the part of those who answered the questionnaires) between the BPC and pensions and retirement funds. It is possible, therefore, that a significant part of the BPC is being included in the answers about public retirement funds and pensions.¹⁰

2.3 DISAGGREGATING THE "OTHER INCOMES"

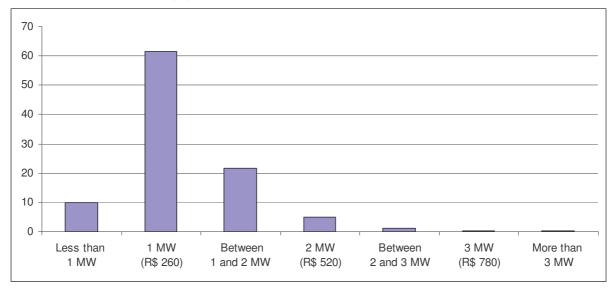
2.3.1 Separating the Income Components Declared in "Other Incomes"

To separate the component "other incomes", the idiosyncrasies of each programme must be taken into consideration. In monetary terms, the BPC is clearly differentiated from the other cash transfer programmes. Of the eight cash transfer programmes investigated by the 2004 PNAD supplement, it is the only one that is indexed to the minimum wage. As such, it is easier to investigate if the households with Programme beneficiaries declared the BPC income in the category "other incomes" or not.

All of the households that declared having a BPC beneficiary have positive values registered in the component "other incomes". Figure 1 below shows the distribution of the total household income coming from "other incomes" (that is, the sum of the value registered in this component for each one of the household members), considering only the households with BPC beneficiaries.

FIGURE 1

Total Household Income coming from "Other Incomes" from the households with BPC beneficiaries (%)



Source: 2004 PNAD Microdata (IBGE).

Note: the Minimum Wage was R\$260 in September 2004.

These data reveal that of the households with BPC beneficiaries, 67% declared an income of one Minimum Wage, or a multiple of this as "other incomes". If we restrict the sample to households that declared receiving the BPC exclusively, we observe that 94% declared receiving exactly 1 Minimum Wage or a multiple (two or three minimum wages) of this as "other incomes" according to Figure 2.

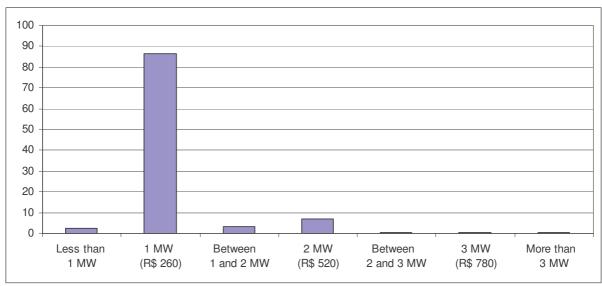


FIGURE 2

Household Income from "Other Incomes" (%) – households that receive the BPC exclusively

Note: the Minimum Wage was R\$260 in September 2004.

Due to the probable confusion between the BPC and retirement funds or pensions connected to the minimum wage, it is possible that the questionnaire respondent declare the BPC transfer two times: once as "other incomes" in the correct place for the BPC, and again in the category for retirement funds or pensions, contributing to the double counting of the benefit and to the over-estimation of the income. There are 35 registers in the PNAD sample (which represent 15,146 people in the population) that receive 1 minimum wage from a retirement fund or pension, and that also reported 1 minimum wage in other incomes and whose household reports having a BPC beneficiary. Of these 15,146 individuals, 35% are in households without elderly (65 years or older), 58% are in households with 1 elderly person, and 7% in households with 2 elderly people. As it is possible for the retired person to be the one who is responsible for (guardian of) a disabled person, it does not seem that the double counting could be relevant to the point that it biases the results of the incidence analysis. Nonetheless, it is important to observe that when one refers to the existence of more than one BPC beneficiary per household, the Elderly Persons Act¹¹ permits the exclusion of the income of the BPC for the elderly in the computations of the value of the family income per capita if an elderly person in the same household requests the benefit, which can result in the accumulation of BPCs in the same household (Medeiros, Diniz & Squinca, 2006).

The values of the transfers provided by other cash transfer programmes vary according to the family composition (number of children or pregnant women) and the family income *per capita* before the programme, according to the size of the municipality (PETI), and whether the state or the municipality complement the Federal cash transfer or not. Given such complexity in the computation of the values of the transfers and the absence of complete information, one can perceive that it would not be possible to apply the rules of each programme to the structure of "other incomes" according to the characteristics of each family (household) with the purpose of separating this income component. Just to cite two inconveniences that are impossible to get around, the category "other federal, state, and municipal programmes" can

comprise a series of transferences with rules that are distinct for each programme and unknown unidentifiable from the PNAD dataset, and there is no information about the presence of disabled persons in the household, which is a problem for BPC.

This does not mean that there is no clear prevalence of typical values from the different cash transfer programmes: R\$ 7—Cooking Gas Stipend (per month); R\$ 15—Bolsa Família and Bolsa Escola; R\$ 50—Bolsa Família and Food Card from the Hunger Zero Programme; R\$ 25 and R\$ 40—PETI; R\$ 95—Bolsa Família maximum, and so on. From among the programmes, the BPC is that which generates the most congruent reports in the category "other incomes" when one considers the value that was expected from the transfer (minimum wage or multiples thereof). For this reason, we initiate the separation of the "other incomes" into three subcomponents by the presence of a BPC beneficiary. The methodology is very simple and can be easily replicated:¹²

- 1. If the household does not receive the BPC
- 1.1. For the households that do not have beneficiaries either from the BPC or from other cash transfer programmes, the income declared in the entry "other incomes" is all attributed to the residual sub-component hereafter called *interest*.
- 1.2. If the household does not have BPC beneficiaries, but has beneficiaries from the other cash transfer programmes, and the registered value in "other incomes" is greater than one minimum wage, we divide the income into two parts: one that is equal to a minimum wage (R\$ 260) will be credited to the sub-component other cash transfer programmes, and the other remaining part will be attributed to the interest. If the value is equal to or less than one minimum wage, it will be entirely credited to the subcomponent other cash transfer programmes. Such a procedure could be considered conservative since a family, no matter how many cash transfer programmes it accumulates, could hardly obtain a quantity close to one minimum wage. In this manner, the income classified as coming from "other cash transfer programmes" could be identified as a superior limit for the appropriation of this type of income by the families (households).
 - 2. If the household receives the BPC:
- 2.1. For values equal to or above R\$ 780 (3 minimum wages) in the category "other incomes", R\$ 780 will be accredited to the sub-component *BPC*; the value that exceeds this will be accredited to *other cash transfer programmes* up to the limit of R\$ 260 (as described in 1.2). In the case of households that receive from programmes other than the BPC, if there is still exceeding income (households with a total above R\$ 1,040 in "other incomes"), it will be accredited to *interest*. If the household does not receive from other programmes, all of the income exceeding 3 minimum wages will go to interest.
- 2.2. For values between R\$ 520 and R\$ 779 in the category "other incomes", the income accredited to the sub-component *BPC* will be equal to R\$ 520. The difference between the declared income in "other incomes" and R\$ 520: will be attributed to the sub-component *other cash transfer programmes* if the household receives any other programme; it will be attributed to the sub-component *interest* if the household receives the BPC exclusively.
- 2.3. For values between R\$ 260 and R\$ 519 in the category "other incomes", the income accredited to the *BPC* will be equal to R\$ 260, following the same separation rule for the exceeding value that was defined in 2.2.

2.4. For values below R\$ 260 (1 minimum wage), a BPC income will be produced if the household declares it as the only cash transfer programme to which they have access. If access to other programmes is declared, the entire value will be accredited to *other cash transfer programmes*. In this way, an error in declaration is admitted in the case in which, apparently, the BPC income had been confused with that of another cash transfer programme.

3 INCIDENCE AND EFFECTS ON INEQUALITY AND POVERTY

3.1 INCIDENCE OF THE CASH TRANSFER PROGRAMMES

In order to analyze the incidence of the income of the cash transfer programmes, we will analyze the concentration curves and the concentration indices of the income that comes from the BPC, from the income that comes from the other cash transfer programmes (*Bolsa Família* and others), and from the income that comes from the retirements and pensions that are equal to or less than the minimum wage.

The concentration curves indicate the accumulated proportion of the income of each of the sub-components of the income appropriated by the accumulated share of the population ranked by their *per capita* income. The concentration index is calculated from the area under the concentration curves and the diagonal line (45 degree line) that would be obtained if there were equality in the distribution. The sum of the concentration indices of the income components weighted by the share of each income sub-component in the total income is equal to the Gini index, which is nothing more than the concentration coefficient for the (total) income *per capita*.

In other words, to draw a concentration curve one has to:

- 1. Rank the population according to the total *per capita* income.
- 2. In the horizontal axis, accumulate the population (which has already been ranked by the total *per capita* income).
- 3. On the vertical axis, accumulate the proportion of the income (from different sources) that corresponds to the share of the population in the horizontal axis.

When one is interested in the incidence of the income of one particular subcomponent of the total income, say BPC or *Bolsa Família*, one has to subtract that particular income from the computation of the total *per capita* income. This is so because we are interested in the ex-ante incidence, which means that we are interested in knowing the poverty status of the members of the population <u>before</u> the transfer is made. Therefore, the incidence curve in this approach is a concentration curve of a particular income component when this income component is subtracted from the total income.

For this exercise, we are going to work with three types of *per capita* income. The first is the net *per capita* income of each one of the programmes. We exclude the BPC, the other cash transfer programmes (to save space hereafter, we call those programmes *Bolsa Família*) and the income from pensions and retirement funds that are equal to or less than one minimum wage one at a time from the computation of the total *per capita* income in order to analyze their incidence. The second excludes groups of income, say BPC and *Bolsa Família*, in order to

analyze their incidence if they were treated as a single programme. The third *per capita* income is the total *per capita* income, which includes all the components in the calculation of the concentration curves; in this case an incidence analysis is an ex-post analysis of the transfer. Only in this latter case, the concentration index of the total *per capita* income – which is the same as the Gini index – can be decomposed into the summation of the concentration index of each component weighted by their participation in the total income.

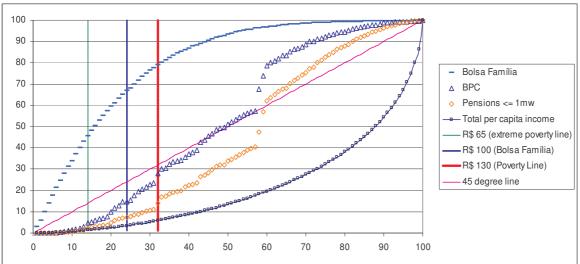
Before we analyze the graphs and tables with the results, it is important to alert to the fact that the *per capita* income used in this study is a little different from the *per capita* income that is divulged by the IBGE (National Statistics Office). This is because we adopted the following criteria when we classified the incomes: if one household has a cash transfer programme beneficiary, but no resident from this household declared income in "other incomes" (V1273 is the code for this variable in the dictionary), we do not consider this household in the calculation of household *per capita* income. It is interesting to observe that this happened in only 70 households that declared having received the Food Card and in 286 households that declared having received the *Bolsa Escola*. We believe that this procedure is the most appropriate since if the household receives money from some programme and does not declare it, the income in "other incomes" should be considered as "uninformed" and not as "not applicable".

Beyond the exclusion of this type of household, another difference can arise due to our criterion of separating the incomes deriving from the cash transfer programmes. For example, a household that informs receiving the BPC and also other cash transfers, but declares a value that is less than the minimum wage in "other incomes", will have this value computed as being from "Bolsa Família", not contributing in this way to the income attributed to the BPC in the calculation of the household per capita income (see item 2.4 above). This income will enter only in the income from "other cash transfer programmes". As we mentioned before, to analyze the incidence of the programmes from the incomes calculated by the methodology that was outlined above is different from analyzing the incidences (or targeting analysis) of the transfer programmes based on the per capita income calculated when extracting the whole component of "other incomes" and evaluating the incidence using only the questions about whether the household has a programme beneficiary or not, something which has been the rule in the studies and notes that have been divulged up to now.

Figure 3 shows the incidence curve of the *Bolsa Família* (uppermost dashed line). We also plotted in this graph the concentration curves of BPC (triangular line), of pensions equal to or below one minimum wage (curve with small circles) and of the total *per capital* income, all based on the net *per capital* income of the income from *Bolsa Família*. The vertical bars from left to right indicate the percentile in which the first value is one-quarter of a minimum wage in 2004 — R\$ 65 (extreme poverty line), the percentile in which the income reaches R\$ 100 (the *Bolsa Família* cut off point), and the percentile in which the income reaches one-half of a minimum wage — R\$ 130 ("poverty" line).

The shape of the incidence curve of the *Bolsa Família* reveals a high degree of distributiveness of the programme with a concentration index of -59.4. The poverty line which coincides with the 32nd percentile shows that 80% of the *Bolsa Família* total income goes to the population below the poverty line (32%). The extreme poor, 14% of population, get 48% of the *Bolsa Família* total income. These numbers suggest that the *Bolsa Família* is a very well targeted cash transfer programme.

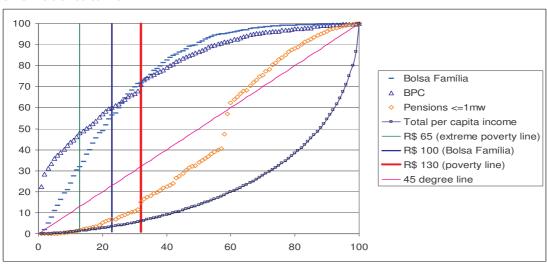
FIGURE 3 **Bolsa Família** incidence curve



Source: 2004 PNAD Microdata (IBGE).

Figure 4 shows the BPC incidence curve. The relevant *per capita* income to rank the population in Figure 4 is the one net of BPC income. It is striking how the BPC curve changes from Figure 3 to 4. This is so because the BPC value is high enough to move many families over the extreme poverty line; when we subtract the BPC income from the total income, many households that were not classified as poor or extremely poor fall into this category. Around 72% of the total BPC income goes to households below the poverty line and 50% to extremely poor households. Comparing *Bolsa Família* incidence with BPC incidence (and overlooking their interaction), we can conclude that while *Bolsa Família* seems to be more important to the poor as a whole, the BPC has a very important role for the share of population that would be below the extreme poverty line if the BPC did not exist. Table 5 shows a concentration index of -52, revealing a high degree of distributiveness for the BPC.

FIGURE 4 **BPC incidence curve**



Source: 2004 PNAD Microdata (IBGE).

As we mentioned before, it is likely that at least part of the BPC beneficiaries confound it with pensions linked to the minimum wage. Therefore, it is possible that some of the "missing" beneficiaries of BPC actually had declared their BPC income in the pensions entry on the questionnaire. Moreover, some non-contributory pensions such as the rural pension, which are not identifiable in the questionnaire, are indexed to the minimum wage. For this reason, we analyze pensions that are below or equal to the minimum wage in order to capture those non-contributory pensions which are also an important component of the cash transfers in Brazil.

Figure 5 shows that similar to the BPC and to the *Bolsa Família*, pensions linked to the minimum wage seem to be well targeted in an ex-ante analysis: 64% of the reported income in this component goes to families that would be living below the poverty line without this transfer. Bearing in mind that this componente mixes both contributory and non-contributory component, it does shows a very pro-poor incidence as indicated by the negative concentration index of - 41.

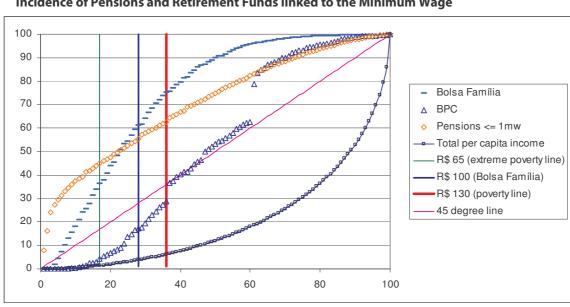


FIGURE 5
Incidence of Pensions and Retirement Funds linked to the Minimum Wage

Source: 2004 PNAD Microdata (IBGE).

What would happen with the BPC and *Bolsa Família* concentration (incidence curves) if we treated these programmes as if they were just one single programme, i.e., if we subtracted the income from both BPC and *Bolsa Família*. Figure 6 shows the incidence curve of the joint programme (BPC + BF) and the individual incidence curve of the BPC and of the BF. The joint incidence curve is closer to the BF incidence curve due to the fact that BF total income is larger than BPC total income according to the 2004 PNAD. While BF represents 0.52% of the total income of the households, the BPC represents 0.3% of the total income; therefore, the incidence curve of the joint component – which is a weighted average of the two individual incidence curves – would resemble the *Bolsa Família* one more.

What is striking in Figure 6 is the fact that the BPC and the *Bolsa Família* incidence curves cross just above the extreme poverty live (14th percentile) at the 17th percentile. The population below the extreme poverty line receives a slight higher proportion of the BPC total

expenditure in comparison to the share of the "Bolsa Família"; nevertheless, the height of the curves in the part that goes from the first to the 17th percentile reveals that the BPC is still more concentrated in the percentiles of the extremely poor than the other cash transfer programmes. The 1% poorest of the distribution get more than 20% of the total of the BPC quantity, but receive less than 5% from the other programmes. As a consequence of this high concentration in the extremely poor, when one considers the population between the extreme poverty line and the poverty line, the opposite occurs. In the area between the 14th and 33rd percentiles, there is a higher concentration of the "Bolsa Família" and less of the BPC. The population until the poverty threshold, located at the 33rd percentile, receives 74% of the total of the BPC income and 80% of the total of the income from the Bolsa Família. The income from the BPC presents a concentration coefficient of -56.89 and the Bolsa Família, -59.13. Therefore, in accordance with the concentration indices, we can conclude that the Bolsa Família programmes are slightly better targeted than the BPC, according the joint incidence analysis.

ANA MANAGAMAN MA 100 90 80 Bolsa Família △ BPC 70 Pensions <=1mw 60 total per capita income 50 R\$ 65 (extreme poverty line) R\$ 100 (Bolsa Família) 40 R\$ 130 (Poverty line) 30 45 degree line BF + BPC 20 10 0 0 20 40 60 80 100

FIGURE 6
Incidence Analysis BPC + Bolsa Família

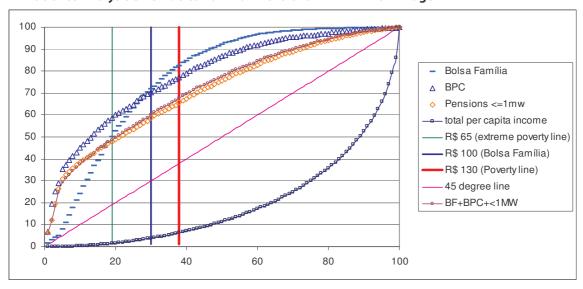
Source: 2004 PNAD Microdata (IBGE).

As mentioned before, it is possible that the BPC beneficiaries confound it with pensions and retirement funds that are linked to the minimum wage. In this sense, a part of the BPC income "missing" in the PNAD could be partially (and wrongly) reported in the public pensions and retirement funds linked to the minimum wage. In order to test the possible impact of this confounding, we estimated the concentration curves and the concentration indices again, excluding the retirement funds and official (government) pensions that were equal to or less than one minimum wage from the calculation of the *per capita* income, besides the income from BPC and from *Bolsa Família*.

Inspecting Figure 7, we observe two basic differences in relation to Figure 4. First, the weight of the pensions and retirement funds linked to the minimum wage, which corresponds to 4.6% of the total income, dominates the incidence curve of the joint component (BPC+BF+<=1MW); the two curves almost overlap.

The individual incidence curves show two basic differences in relation to Figure 6. First, the income from pensions and official retirement funds linked to the minimum wage overlap with the concentration curve of the BPC up to the 5th percentile and remain above the concentration curve of the *Bolsa Família* until the 18th percentile. Second, the BPC concentration curve remains above the *Bolsa Família* curve until the 28th percentile, and at the higher percentiles, the two curves are not as separate as in Figure 6. This difference makes the total area between the concentration curve and the 45 degree line a little larger for the income from the BPC than for the income from the *Bolsa Família*. Therefore, the BPC concentration index, when one excludes the incomes from pensions and retirement funds that are pegged to one minimum wage in the calculation of household *per capita* income, is less than (-56.60) the concentration index of the *Bolsa Família* (-53.88), which indicates that if we also exclude the incomes from pensions and retirement funds that are connected with the social security floor (one minimum wage), the BPC becomes a little better targeted than the *Bolsa Família* (See last two columns in Table 5).

FIGURE 7
Incidence Analysis BPC + Bolsa Família+ Pensions <= 1 Minimum Wage



Source: 2004 PNAD Microdata (IBGE).

TABLE 5

Concentration (incidence) indexes for several sources of income

| | Concentration (incidence) Index | | | | | | | |
|---------------|-------------------------------------|-------------------------------|-------|-------|--------|-------------|----------|--|
| | Total per | Excluding (ex-ante analysis): | | | | | | |
| | capita income (ex-post analysis) | BF | BPC | <=1sm | BF+BPC | BF+BPC+<1SM | BPC+<1SM | |
| Pension <=1sm | 11.7 | 12.0 | 11.8 | -40.9 | 11.8 | -41.8 | -41.3 | |
| BPC | -6.0 | -5.9 | -56.1 | -4.9 | -56.9 | -56.6 | -56.3 | |
| Bolsa Família | -52.1 | -59.4 | -52.0 | -47.5 | -59.1 | -53.9 | -47.2 | |
| BPC+BF | | | | | -58.2 | | | |
| BPC+BF+<1SM | | | | | | -43.6 | | |
| BPC+<1SM | | | | | | | -42.1 | |

Source: 2004 PNAD Microdata (IBGE).

The capacity of the BPC to reach the poorest is surprising if we take the concept of family that the law prescribes for the calculation of *per capita* family income¹³ into consideration. The family is defined based on the concept of social security, which includes the following relatives: spouse, parents, children up to the age of 21, the permanently disabled, including the minor children of the disabled family member; and the siblings who are under 21 years of age or who are permanently disabled. By these criteria, *some* members of the family who are 21 or older do not enter into the computation of the family income *per capita*, not even as providers of income in the numerator, nor in the denominator for the calculation of the *per capita* family income.

Consequently, even though the family income *per capita* for BPC eligibility is one quarter of a minimum wage, which corresponded to R\$ 75 in 2004 is lower than the income which was necessary for the *Bolsa Escola* in 2004 (R\$ 100); its calculation — due to a different concept of family — does not permit comparability between the two values. As a result, a family that, according to the legal criterion, has a family *per capita* income of R\$ 65, could, in reality, according to the PNAD data and our ranking of the same data, have a *per capita* income that is well above R\$ 65. In this way, the common criticism that the BPC would be less targeted than the *Bolsa Família* misses this institutional aspect and has strong implication for any incidence analysis. The criticism should not be directed at the management of the programme that could not "evaluate well who is poor", but at the legal criteria for the programme that now permit people with a relatively secure financial situation to request these benefits, and with their rights. It is our opinion that the concepts of family should be homogenized according to the *Bolsa Família* criteria in order to close this legal gap.

We would like to highlight the fact that the use of the extreme poverty and poverty lines and the criteria for the Bolsa Família selection in the incidence analysis that we did above does not intend to scrutinize the families to judge who deserves the benefit or not. It is important to observe that the income criterion can not be used in a blind way to include or exclude families from the programme or to evaluate the programme. If a programme, Bolsa Família for example, previews structuring and/or conditioning actions that intend to improve the human capital of the family in a way that it can break the intergenerational transmission of poverty and make the famous "exit doors" viable; then, a positive income shock, when a member of the household is able to increase their income through work and, which can be of short duration given the high turnover rate observed in the Brazilian labor market, should not be a motive for the automatic exclusion of a family. The exclusion of the family, when a small transient increase in income occurs could, in fact, lead to dependency, a phenomenon that frightens so many cash transfer programmes commentators. The beneficiary families should have the security that they can count on the transfers while they are still vulnerable, and be effectively supported to finally overcome the determinants of such vulnerability. For this reason, we believe that the above data indicate that the programmes are well targeted, and that the challenge is in increasing their coverage among eligible families.

Finally, for us to have a general overview of the contribution of the cash transfer programmes to the fall in inequality that was verified during the 1995-2004 period (Soares, 2006; Hoffmann, 2005; Ferreira, 2006), we present a graph with the total household *per capita* income (calculated using all of the sources of income from the first concept that was established in the last section). Figure 6 shows that while the *Bolsa Família* concentration curve remains

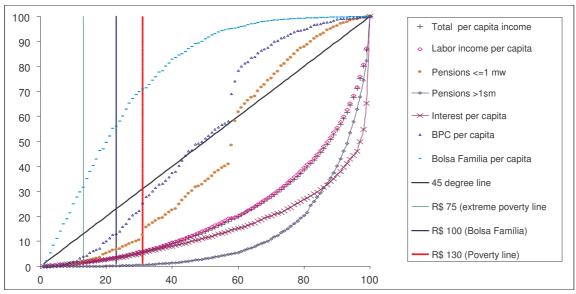
above the 45 degree line, the BPC, and especially, the curve for pensions and retirement funds that are indexed with the minimum wage are situated, for a large part of the distribution, below the 45 degree line. This occurs because of the great difference between the benefits values, while the BPC and the pensions and retirement funds that have the social security floor have a value that is equal to one minimum wage, the other cash transfers have a value that (theoretically) could not be superior to 37% of the value of the minimum wage (R\$ 95 would be the maximum value of the *Bolsa Família*, without considering possible complements on the part of state and/or municipal governments).

The interpretation of this difference in the concentration of the BPC and of the retirement funds and pensions that are linked to the minimum wage when one considers the incomes from this source in the household income is unequivocal: while the BPC and the minimum wage retirement funds and pensions are capable of excluding a large part of the benefited destitute and poor families, the *Bolsa Família* improves the situation of these families, without necessarily pushing them over the poverty line, which leads one to believe that the impact of the other cash transfer programmes (*Bolsa Família*) is greater on the intensity of the poverty than on the proportion of the poor.

Observe that in Figure 8 the extreme poverty line is now situated at the 13th percentile and the poverty line at the 31st percentile. If we compare the points where these lines cut the population distribution in Figure 6, we can conclude that the cash transfer programmes (BPC and *Bolsa Família*) are responsible for a reduction of 2 percentage points in the proportion of extreme poor and of poor. If one includes Figure 7 in the comparison, we can include that the retirement funds and pensions that are connected to the minimum wage, in turn, are responsible for a reduction of 5 percentage points in the proportion of poor as well as in the proportion of extreme poor. Summarizing, the retirement funds and pensions that are connected to the social security floor, the BPC and the other cash transfer programmes, are directly responsible for a reduction of 7 percentage points in extreme poverty and poverty. Without those programmes the headcount ratio would be 19% for extreme poverty and 38% percent for poverty, instead of the current 12% and 31%.¹⁴

FIGURE 8

Concentration Curves for All Income Sources



Source: 2004 PNAD Microdata (IBGE).

Returning to the concentration of the different components, it is interesting to observe that the most concentrated component is the one that refers to the income from rents with a concentration index of 77.80, followed by the pensions and retirement funds that are above the social security floor, with a concentration index of 75.78, and by the residual income component that we associate with interest, with a concentration index of 68.75. Observe, however, that the concentration curves of these three components cross — thus, the necessity to evaluate the concentration indices — being that the interest is especially important for the superior percentiles of the accumulated population, particularly in the 6% richest, even though they are the least regressive of the three most concentrated components.

The *per capita* income presents a concentration index (Gini coefficient) that is very similar to the concentration index for income that comes from labor, 57.20 and 56.40, respectively. While the income from inter-household transfers (donations) presents a concentration index of 47.42, and other pensions and retirement funds present a concentration index that is superior to the *per capita* household income: 58.04. In the next sub-section, we will decompose the variation of the Gini index between 1995 and 2004 to gauge the contribution of each of the income components — the variation of the participation of each component in the total income and the variation in the concentration index — to explain the fall in inequality between 1995 and 2004.

In order to have an idea of the correlation between the different income sources as well as to check the consistency of our methodology for the disaggregation of the "other incomes" component, Table 6 shows the correlations between all sources of income and their p-value (in italics). P-values equal to or below 0.050 indicate that the correlation is statistically significant at a 5% significance level. The most interesting results are:

- A negative and statistically significant correlation between labor income and the incomes from Bolsa Família, from pensions below or equal to the minimum wage and form BPC. The strongest negative correlation is with Bolsa Família, which means that Bolsa Família is particularly important in households with a lower proportion of the income coming from labor;
- 2. A negative and statistically significant correlation between *Bolsa Família* income and income from pensions below or equal to the minimum wage; which indicates that the income of *Bolsa Família* is going to families that cannot rely on the pension of an older member of the household. Younger families also have access to some social protection with *Bolsa Família*.
- 3. A positive and statistically significant correlation between BPC and income from pensions below or equal to the minimum wage;
- 4. A positive, but statistically insignificant correlation between BPC and *Bolsa Família*, 15 and
- 5. The worrying positive correlation between interests and BPC which could mean that our disaggregation methodology was not so accurate is low and is not statistically significant.

TABLE 6

Pairwise Correlation Between all income sources

| | Drivete | | | | | | | | |
|------------------|---------|------------------|-----------------|----------------|--------|-------------------------------------|---------|------------------|-----------|
| | Labor | Pension <=1mw | Pension >1mw | Other pensions | Rents | Private transfers (donations) | BPC | Bolsa Família | Interests |
| | | | | | | | | | |
| Labor | 1.000 | | | | | | | | |
| | | | | | | | | | |
| Pension<=1mw | -0.102 | 1.000 | | | | | | | |
| | 0.000 | | | | | | | | |
| Pension >1mw | 0.042 | -0.038 | 1.000 | | | | | | |
| | 0.000 | 0.000 | | | | | | | |
| Other pensions | 0.012 | -0.015 | 0.044 | 1.000 | | | | | |
| | 0.000 | 0.000 | 0.000 | | | | | | |
| Rents | 0.096 | 0.004 | 0.070 | 0.013 | 1.000 | | | | |
| | 0.000 | 0.155 | 0.000 | 0.000 | | | | | |
| Private | | | | | | | | | |
| transfers | -0.007 | 0.006 | 0.005 | 0.012 | 0.004 | 1 000 | | | |
| (donations) | | | | | | 1.000 | | | |
| DDO | 0.015 | 0.060 | 0.093 | 0.000 | 0.154 | 0.000 | 4 000 | | |
| BPC | -0.038 | 0.013 | -0.015 | -0.006 | -0.005 | -0.002 | 1.000 | | |
| 5 . | 0.000 | 0.000 | 0.000 | 0.053 | 0.115 | 0.494 | | | |
| Bolsa Família | -0.128 | -0.049 | -0.065 | -0.019 | -0.023 | -0.016 | 0.002 | 1.000 | |
| | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.515 | | |
| Interests | 0.065 | -0.007 | 0.051 | 0.089 | 0.085 | 0.001 | 0.001 | -0.009 | 1.000 |
| | 0.000 | 0.017 | 0.000 | 0.000 | 0.000 | 0.774 | 0.707 | 0.004 | |
| Total per capita | 0.000 | 0.044 | 0.422 | 0.140 | 0.244 | 0.056 | - 0.005 | 0.107 | 0.202 |
| income | 0.890 | -0.044 | 0.433 | 0.149 | 0.244 | 0.056 | 0.025 | -0.137 | 0.203 |
| | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

3.2 ROBUSTNESS ANALYSIS OF THE DISAGGREGATION OF THE "OTHER INCOMES" COMPONENT

In order to analyze the robustness of the disaggregation of the "other incomes" component, we will use the distribution of this component in 1995 (at 2004 values) as our reference parameter. Let us assume that the average real incomes from "interest" (the original 2004 other incomes) appropriated by each percentile of the population did not suffer any alterations between 1995 and 2004, and as such, extract the income component that refers to the "cash transfer programmes" as the difference in real values between the 1995 and 2004 distribution of "other incomes". It is worth noting that we will not work with the BPC and "other cash transfer programmes" separately since the residual will consist of the joint income from these two components. In the case that the difference between the two components is negative, we will assume an income of "cash transfer programmes" to be equal to zero, being that it is possible for this to happen in the last percentiles of the distribution.

$$(BPC + BFdif 1995)_{2004}^{p} = OI_{2004}^{p} - OI_{1995}^{p}$$
(1)

Where OI are other incomes at 2004 values and p is the percentile of the distribution.

Figure 9¹⁷ shows that the concentration curve from other cash transfers calculated using methodology that we propose (BPC+BF 2004) is slightly more distributive than the concentration curve that results from the simulation (BPC+BF dif 1995), assuming that the

average income from interest appropriated by each percentile has remained constant in real terms. The concentration index for our methodology is -36.18 and for the methodology with the simulation is -31.42. In the case of the simulation of interest, one can observe a significant reduction in the degree of concentration for 2004 using our methodology. But it is important to highlight that a large part of this was due to a significant reduction in the number of people in the highest percentiles of the distribution who reported income from "other incomes". Among the 5% richest, the proportion of people in households who did not report receiving any other income from "other incomes" was 7% greater in 2004. Among the 10% richest, this possible fall in the declaration of income from interest (assuming that among the 10% richest, the number of BPC and other programme beneficiaries is very small) was 6%. This fact could indicate that the richest people declared less income from interest in 2004, which would explain the difference between the interest concentration curves based on our methodology, and the concentration curve based on the simulation that the average of real interest per percentile has remained constant.

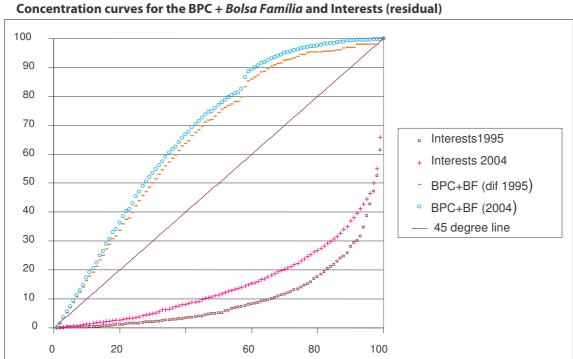


FIGURE 9

Concentration curves for the BPC + *Bolsa Família* and Interests (residual)

Source: 2004 PNAD Microdata (IBGE).

At any rate, the result of the comparison between the concentration curves for the cash transfer programmes using both our methodology and the simulation reveals very similar results, indicating, as such, that we are probably not committing any great error in our disaggregation of the "other incomes".

3.3 DECOMPOSITION OF THE EFFECTS ON INEOUALITY

The recent reduction in inequality in Brazil is already a known fact. Soares (2006) shows that the 2004 Gini Index (0.568) is the lowest since the National Household Survey started in the mid-1970's. Bespite the tremendous weight of the labor income which comprises 73% of the total income, an important part of the reduction in inequality can be attributed to the "other incomes" component, which doubled its participation in the total income, which was (and continues to be) quite reduced, and whose degree of concentration fell sharply. Soares (2006) attributed 25% of the fall in inequality to changes in the "other incomes" components. In this section, we will try to deepen the investigation done by Soares by taking advantage of the methodology that allowed us to disaggregate this component. We will separate the effects of the BPC from the "other cash transfer programmes" (Bolsa Família) and from interests in the reduction of inequality.

But before this, it is important to observe that the corrections that we make in the income variables affect the comparability of the data that we are going to present in the next section with the data from the studies that have already been done on the reduction of inequality. For example, while working with a sample without the adjustments described in Section II, but excluding the Rural North to maintain comparability with 1995, the Gini index fell from 0.599 to 0.568, the latter of which was reported in 2004 by the other studies; with a sample that was adjusted to deal with the cash transfer programme data in a separate way, the fall was slightly less, 0.571. Yet, for the disaggregation of "other incomes", we believe it to be advisable that one work with the sample that excludes information from the households that, even though they declare receiving some income from cash transfer programmes, present missing data of the type "not applicable" in the variable "other incomes".

Kakwani (1980, p.179) shows that using Pyatt's approach the Gini Coefficient could easily be decomposed into two parts: the concentration coefficient of each income component in relation to the total income and the weight of each income in the total income, according to what was described in Section III. In this way, we can write the following decomposition:

$$G = \sum_{k} c_{k} \mu_{k} \tag{2}$$

Where *G* is the Gini index, c_k represents the Concentration Coefficient of type *k* income in relation to the total rent and μ_k is the percentage of income *k* in the total income.

Table 7 shows the participation of each component in the total income and the concentration component of each one of them for the years 1995 and 2004. Among the changes that call the most attention are the reduction of the participation of labor income, the large increase in the participation of the income from retirement funds and pensions, particularly from those that are above the social security floor (1 minimum wage), and the increase in the participation of "other incomes", whose increment was basically due to the cash transfer programmes. In relation to the concentration indices, the reduction of the indices of concentration of labor income, the strongly distributive character of the income from cash transfer programmes with negative concentration indices, and the increase in the concentration coefficient from retirement fund income call attention.

| TABLE 7 |
|--|
| Average Income as a Proportion of Total Income and Concentration Index |

| | Share in the | Total Income | Concentra | ation Index |
|-------------------------------|--------------|--------------|-----------|-------------|
| | 1995 | 2004 | 1995 | 2004 |
| Total income | 100% | 100% | 59.9 | 57.1 |
| Labor income | 82.0% | 72.6% | 59.4 | 56.3 |
| Pensions <= 1 minimum wage | 2.3% | 4.6% | 1.9 | 11.1 |
| Pensions > 1 minimum wage | 11.0% | 16.5% | 69.9 | 75.5 |
| Other pensions | 0.9% | 1.6% | 64.9 | 57.8 |
| Private transfers (donations) | 0.6% | 1.1% | 39.8 | 47.6 |
| Rents | 2.2% | 1.9% | 81.2 | 77.7 |
| Interests | 0.9% | 0.9% | 78.9 | 68.6 |
| BPC | 0.0% | 0.3% | 0.0 | -6.3 |
| Bolsa Família | 0.0% | 0.5% | 0.0 | -52.7 |

Source: 2004 PNAD Microdata (IBGE).

It is possible to decompose the change in the Gini coefficient according to the weight in the total income and the concentration coefficient of each income. We begin with the product formula:

$$\Delta G = \sum_{k} \overline{c}_{k} \Delta \mu_{k} + \sum_{k} \overline{\mu}_{k} \Delta c_{k} \tag{3}$$

The first term in the sum is the composition effect of incomes and the second term is the sum of concentration Coefficients. It is still possible to individualize the contribution of each income k according to the formula:

$$\sum (\mu_k \Delta c_k + c_k \Delta \mu_k) - \sum G \Delta \mu_k \tag{4}$$

The first term represents how much the total Gini changes in function of a variation in the concentration of an income, or the effect of the concentration, and the second, how much it changes in function of the increase or decrease of the weight of an income in the total income, or the composition effect of the income. It is worth noting that the change in the weight of the income is multiplied by the difference between the concentration coefficient and the total Gini and not only by the concentration coefficient.

Table 8 shows that the greatest part of the fall in the Gini coefficient¹⁹ occurs due to the concentration effect. The concentration effect of the labor income contributed with 2.39 points of the fall in the Gini index from 1995 to 2004 (85% of the total fall); the income effect of the retirement funds and indexed pensions contributed with 1.19 (32% of the total fall). Note that the expansion of this income as a share of the total income was the major factor driving inequality down. Its concentration effect, on the other hand, acted to increase inequality.

TABLE 8

Decomposition of the variation in the absolute value of the Gini Coefficient: 1995-2004

| | Concentration Effect | Income Effect | Total Effect | Participation |
|-------------------------------|----------------------|---------------|--------------|---------------|
| Gini (total income) | -1.64 | -1.103 | -2.743 | 100% |
| Labor income | -2.393 | 0.057 | -2.336 | 85% |
| Pensions <= 1 MW | 0.317 | -1.195 | -0.878 | 32% |
| Pensions > 1 MW | 0.771 | 0.774 | 1.545 | -56% |
| Other pensions | -0.089 | 0.02 | -0.069 | 3% |
| Private transfers (donations) | 0.065 | -0.078 | -0.013 | 0% |
| Rents | -0.074 | -0.073 | -0.147 | 5% |
| Interests | -0.092 | 0.002 | -0.09 | 3% |
| BPC | | | -0.184 | 7% |
| Bolsa Família | | | -0.571 | 21% |

Source: 2004 PNAD Microdata (IBGE).

In order to have an exact decomposition of the changes between the two years, it is necessary to use the average of the concentration index and of the share in total income. Therefore, it is possible to calculate the decomposition for the *Bolsa Família* and the BPC components; however, we believe this is a bit tricky since both programmes did not exist in 1995. For this reason, we only report the total effect for these two components. According to this approach, *Bolsa Família* was responsible for a reduction of 0.571 (21% of the total effect) and the BPC was responsible for a reduction of 0.184 (7% of the total effect).²⁰

Note that the only income component in which both the concentration and income effects counteract the fall in inequality was that of the pension and retirement funds above one minimum wage.²¹ The BPC, as described in Section III, did not contribute as much as the *Bolsa Família* to the reduction in inequality even though it had the capacity to — and the *Bolsa Família* did not — raise the families of the beneficiaries above the extreme poverty and/or poverty lines.

4 CONCLUSION

The Brazilian programmes for the direct transfer of cash to the low income population are important because, without them, it would hardly be possible to eradicate poverty or reduce inequality to tolerable levels within a reasonable time frame. Even without a long history and without reaching all of the eligible population, they have the virtue of alleviating the poverty of millions of Brazilians. Even though these programmes surely do not constitute the only and permanent solution for the country's social problems, there is no doubt that they should be part of any proposal that would promote a more just society.²²

The analysis of the distributive effects of these programmes contributes to the correction of the existing deficiencies and to the planning of their future expansion. Beyond this, it is an essential component of any cost estimate that intends to subsidize the planning and budgeting of strategies for reducing poverty and inequality. Nonetheless, until recently, the information available for this type of analysis was scarce.

The lack of information was partially reverted with the publication of the 2004 PNAD. This survey raised data that permit one to analyze the impact of the Brazilian direct cash transfer programmes on the levels and the distribution of incomes in Brazil. Beyond the traditional questionnaire about labor incomes, retirement funds, pensions, rents, capital gains, and other sources of incomes, the 2004 PNAD also collected information about the receipt of transfers from the principal Brazilian programmes, particularly the Continuous Cash Benefit (BPC), the *Bolsa Escola* and the *Bolsa Família* allowances, Cooking Gas Stipend, and the Food Card from the Hunger Zero Programme, among other smaller programmes.

However, due to the way in which the data were collected, the analysis of each programme was a complex task. The study of the transfer programmes was done using a supplementary questionnaire which was revealed to be partially inadequate for the proposed objective. The questions asked about the existence of programme beneficiaries in the household, but did not identify the beneficiary. Moreover, the registration of the received transfers was, paradoxically, put into the same variable in which one registers the incomes from financial investments and does not distinguish from which programme the transfer came originally.

As a result, even though the simple identification of a household in which there is the receipt, for example, of the BPC and the *Bolsa Família*, it is not possible to say directly who the beneficiaries of this programme are or how much of the transfer is due to each programme. It is also not possible to determine if the amount received came from the more progressive State transfers, the hunger fighting programmes, or from the more regressive among the programmes, the financial market income.

To get around these obstacles, we developed a methodology of imputations that permits the identification, with reasonable quality, of some of the programmes from which the transfer originated. Basically, our methodology distinguishes the incomes that came from the BPC from the other cash transfer programmes. The analyses based on the 2004 PNAD have, for the most part, the goal of permitting inferences about the current programmes. As a great process of programme unification occurred around the *Bolsa Família* programme, with the exception of the BPC programme and other smaller, less influential programmes, our methodology is particularly adequate for this type of inference.

A good part of the studies about the theme that have been undertaken up to the present moment do not distinguish interest from social transfers, nor do they identify the programme from which the transfers originated. In the present study, we make the distinction and analyze the contribution of the principal programmes for the reduction of inequality and poverty in Brazil. This distinction is particularly useful for the understanding of what is behind the systematic fall in the inequality in the personal income distributions observed between 2001 and 2004.

Even though the 2004 PNAD data are clearly inadequate for the estimation of absolute values, the distribution of the beneficiaries and their characteristics are clearly reproduced, in relative terms. In this regard, for example, for the regional distribution of the beneficiaries or even the distinction among the disabled people and the elderly in the BPC, the PNAD presents few divergences in relation to the administrative records.

Yet, even though the PNAD could be taken as a good reference for comparisons of relative values, it is prudent to remember the vulnerability of the conclusions based on these data. The truth is that, when the PNAD data collection, as well as the collection and compilation of the information in the administrative records are not improved, the precision of the

affirmations about the effects of transferences will be compromised. However, given the underestimation of the beneficiaries, it would not be absurd to speculate that if we had access to better information, maybe the picture that emerges from the study of the impacts of these programmes on poverty and inequality would be even more positive.

In spite of these limitations, the evidence indicates that all of the cash transfer programmes are well targeted. The poorest families receive the most of the transferred resources from these programmes and the number of beneficiaries from among the highest income population is particularly irrelevant. Moreover, the transfers reduce the incidence and the intensity of poverty, as well as of inequality. There still are, however, holes in the coverage that need to be fixed.

This picture is exactly the opposite of that which one observes with respect to the incomes from rents, interest, pensions and retirement funds that are above the social security floor of one minimum wage. Even if we disregard our probable underestimation of the quantities which came from these sources of income among the richest part of the population in the country, it is possible to say that these incomes reproduce or increase the inequalities. This is an especially important point since the incomes from interest largely consist of remunerations from public bonds and, therefore, are one type of transfer from the State to the richest part of the population.

The differences in the characteristics of income of the different beneficiaries exist, but are small. Among the programmes, the BPC is the most important for a larger portion of the extreme poor than the other cash transfer programmes. Yet, for the poor above the extreme poverty line, the contrary occurs. Strictly speaking, it is not possible to unequivocally say which programme is best targeted since their concentration curves cross. Even when concentration indices that take the distribution of the transfers in all of the population into consideration are considered, the results vary according to the methodology used to isolate the incomes from the programmes, and also according to the choice of indices used.

As expected, all of the cash transfers promote poverty reduction. Due to the larger unit values (1 minimum wage) transferred, the BPC, the pensions and the retirement funds at the one minimum wage floor are capable of removing families from extreme poverty and from poverty; the rest of the cash transfer programmes improve the situation of the families without, nonetheless, being sufficient for the removal of all of them from poverty. In other words, while the BPC and retirement funds and pension floors have a clear impact on the incidence and the intensity of poverty, the rest of the transfers have a strong effect only on the intensity of poverty, something that is important, but that contributes little to alter the proportion of poor in the population.

The cash transfer programmes have a relevant role in explaining the fall in inequality observed between 1995 and 2004. The inequality varied as much in function of the alterations in the role that each source of income possesses in the composition of the total family income as a result of the changes in the concentration of each source of income. Most of the fall observed in the inequality is the result of the reduction in the concentration of some sources of income.

Regarding the effects of the composition, the fall in the participation of the labor income in the total income, a strong increase of the part that corresponds to the income from retirement funds and pensions above the social security floor, and the increase of the

participation of the incomes of the cash transfer programmes in the family incomes call attention. Regarding the concentration effects, we call attention to the fact that the worst distribution of the incomes is from retirement funds and pensions above the floor — the only factor that contributes to the fact that the inequality does not fall more; the reduction in the concentration of the labor incomes — which is associated with average gains among the poorest part of the population and losses among the richest — and the strongly progressive character of the cash transfer programmes.

In synthesis, the application of a methodology that permits one to impute the value of the cash transfers in the incomes of families leads to results that indicate that all of the cash transfer programmes are well targeted, all are capable of alleviating poverty, being that the BPC and the social security floor pensions are more capable of taking families out of poverty, and all contribute in a relevant fashion to the fall in inequality that occurred from 2001 to 2004. Evidently, these programmes still require improvements, but it is worth noting that, compared to international references, the Brazilian programmes have a very good performance.

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NOTES

- 1. Obviously we are aware that Interest payments are not simple transfers, they are conditioned by the general macroeconomic policy and options made by the monetary authority. Nonetheless, given the high interest rates observed in Brazil for such a long period of time, we do think that a good amount of those payments made by the government can be considered as transfers to the richest part of society.
- 2. See the discussion on page 19 and note 13 below about the definition of "family" for the BPC eligibility criteria in the paper.
- 3 In some cases, the value of the transfer can be above R\$ 95 if there is some extra cash made available by state or municipal governments. Moreover, if before the unification of the programmes the family received more than R\$ 95, it would continue to get the former amount.
- 4. According to the IBGE, this last question aimed at maximizing the chances of identifying the beneficiaries of the BPC. But if this was the objective, it would have been better addressed with a single question about the BPC without mentioning "besides an elderly or disabled person who benefited from the programme". It goes against the tradition of the IBGE to use questions that imply, initially, a "confession" or "accusation" of irregularity on the part of the respondent. Moreover, the concept of "elderly" used in the first question can be interpreted in a very subjective way by the respondent; it is not clear that "elderly" is a person who is 65 years of age or older. The answer, in this case, will depend on the instruction given by the enumerator if the respondent asks him for clarification of the "concept" of elderly. It is interesting to observe that in the case of the School Stipend, the Food Stipend, and PETI, where the beneficiaries are also individual members of the household (as in the BPC) and not the family, a similar question was not used, and there is no plausible explanation for such a difference regarding the treatment received by these programmes in the questionnaire.
- 5. Observe that we use the term "analysis" and not "evaluation" because the PNAD does not intend to be used to "evaluate" the social programmes. We understand that the evaluation of the programmes implies in the utilization of specific surveys and methodologies that are beyond the mission that a national representative household study should have.
- 6. It is important to remember that the magnetic cards for the respective programmes were not changed when the families began to migrate from the other programmes to Family Stipend.
- 7. The data from the Food Card are from December 2004 and those from the Food Stipend are from September 2004 (PNAD reference month). Regarding the over-estimation, see note 7 as well.
- 8. The PETI was excluded from this analysis because the data was not available by family, but by beneficiary. Besides this, the data are collected by the Mayors' offices and passed on to the Ministry of Social Development through a process that is different from that of the other programmes in Table 1. The BPC will be analyzed separately. It is not possible to identify the other cash transfer programmes (state and municipal programmes) from the Ministry of Social Development administrative recordsprogramme.
- 9. Note that the Administrative Records (AR) refer to the beneficiaries while the PNAD data refer to the households. In this case, the discrepancy between the two data tend to be larger than the error in Table 2 since the cash transfer programme administrative records in that table refer to the number of families that are beneficiaries, even when the programme is not based on the family, but on the individual as in the School Stipend programme.
- 10. Here we understand retirement funds and pensions as those that are paid by federal, state or municipal Social Security Institutions (INSS). Complementary pensions, complementation or supplementation of retirement funds paid by insurance agencies or private pension funds, or alimony are grouped into the category "other pensions".
- 11. Article 34, Only Paragraph of the Law 10,741 from 01/10/2003.
- 12. The procedure used to generate these new incomes is available for those who are interested. Requests can be sent to fabio.veras@undp-povertycentre.org .
- 13. **The concept of family**, for the effects of the calculation of the per capita monthly family income, was originally defined in LOAS (Organic Law for Social Assistance), Article 20, 1st paragraph, as being "the **mononuclear unit**, living under the same roof, whose economy is maintained by the contribution of its members". The Provisional Measure no. 1,473-34, published on 08-11-97, converted into Law no. 9,720, on 11-03-98, altered this concept of family to be considered as "the **group of people identified in art. 16 of Law no. 8,213/91**, as long as they live under the same roof", which are understood to be: the petitioner; the spouse or significant other; the parents; the siblings under 21 years of age, or the permanently disabled and their peers, including the step-children and minor children who are students; and the siblings under 21 years of age, or the permanently disabled (MDS, 2006).
- 14. Remember that both BF (0.52%) and BPC (0.3%) are small shares of total income. Thus, their overall impact on poverty headcount have got to be small based on their weight. Despite being very well targeted, their effect on poverty and inequality differ due to their overall number of beneficiaries. The 0.52% of the BF is distributed across 14.5% of the households where as the 0.3% of BPC is distributed across 1.5% of the households. For this reason the beneficiaries of BPC which are not as many as the beneficiaries of the BPC are able to overcome the extreme poverty line as one can see from the difference in the BPC income incidence (concentration) curve ex-ante (Figure 2) and ex-post (Figure 8) of the BPC transfer. The much larger impact of the pensions linked to the minimum wage is due to its larger share on total income: 4.6%.
- 15. Bolsa Família is negatively correlated with all other sources of income, except the BPC.
- 16. This year was chosen because it was the year immediately before the implementation of the BPC, and as a result, the component "other incomes" can be considered as basically made up of interest and dividends.

- 17. Note that to make the data from 2004 compatible with the data from 1995, it was necessary to discard the information that referred to the Rural North (with the exception of the state of Tocantins) since only after 2004 did this region begin to be included in the PNAD sample.
- 18. Recent studies on Brazil inequality (Soares(2006) and Hoffman(2005)) have concentrated on the fall in inequality between 2001-2004 as the latter year indicate the start of the continuous fall in inequality. Nevertheless, in order to separate out the effect of "other income" in its three major components: interests, *Bolsa Família* (other cash transfer programmes) and BPC, we do think that the baseline has got to be 1995 when neither BPC nor *Bolsa Família* (even considering state and municipal led cash transfer programmes) were been implemented. This is even more necessary when one reckons that the data collection instruments (the questionnaire and the enumerator standard procedures) have changed in 2004 in order to better collect the information on "other income" related to the cash transfer programmes. Therefore, any comparison between 2001 and 2004 aiming to separate out those three components are bound to be overestimating the impact of those programme between those years on poverty and inequality within that period.
- 19. Negative numbers in Table 8 indicates that the effect has acted in the direction of bringing inequality down.
- 20. Note that the positive contributions to the fall in inequality add up to more than 100%. This is so due to the negative contribution of pensions and retirement funds above the minimum wage. The latter was the sole component of the income whose changes would have caused more inequality.
- 21. The fact that the two components of pensions the one above the minimum wage and th ones at the minimum wage had different contributions to changes in inequality between 1995 and 2004 reveal that the common approach of treating the pensions component as a single income source is inappropriate as it loses many interesting aspects of its impact in the distribution of income.
- 22. Nanak et al. (2006) show that despite the fall in the per capita income between 1995-2004, a "poverty crisis" did not take place, this was so, because incomes derived from social security and from other cash transfer programmes cushioned the overall poor labour market performance, specifically among the poorest segments of Brazilian society.



International Poverty Centre

SBS – Ed. BNDES,10° andar 70076 900 Brasilia DF Brazil

povertycentre@undp-povertycentre.org www.undp.org/povertycentre Telephone +55 61 2105 5000 Fax +55 61 2105 5001