On The Recent Fall in Income Inequality in Brasil

Technical Note

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SUMMARY

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1 EXECUTIVE SUMMARY

Inequality in *per capita* household income experienced a continuous and substantial fall in the 2001-2004 period, when it reached its lowest levels in thirty years.[1] In addition to being an important result *per se*, this deconcentration led to an impressive reduction in both poverty and extreme poverty. The analysis carried out in this document shows that the recent fall in inequality is due to different determining factors, all of which contribute to its sustainability. This continuous fall is a fundamental issue since, not withstanding the advances achieved in the period under analysis, Brazil still ranks among the most unequal countries in the world.

The Institute of Applied Economic Research (Ipea in its Portuguese acronym) invited a team of some of Brazil's most prominent experts in the subject area[2] to better evaluate and understand this process, and asked them to propose solutions that would enable this reduction not only to continue but also to increase. Based on the contributions presented in a first meeting, a team of Ipea researchers[3] drafted a preliminary text, which was submitted to a High Level International Committee coordinated by Manuela Carneiro da Cunha, an Anthropology professor at the University of Chicago, and formed by the following renowned professionals: Alvaro Comin, President of the Brazilian Center for Analysis and Planning (Cebrap); François Bourguignon, World Bank Vice-president and chief economist; Glauco Arbix, a Sociologist and professor at the University of São Paulo (USP); James Heckman, a professor at the University of Chicago and winner of the Nobel Prize for Economics; José Alexandre Scheinkman, an Economics professor at Princeton University; José Luis Machinea, Executive-secretary of the Economic Commission for Latin America and the Caribbean (ECLAC); Luiz Henrique Proença Soares, President of Ipea; Nanak Kakwani, chief economist of the International Poverty Center of the UNDP; Nora Lustig, Director of the Poverty Group of the UNDP in New York; and Rodolfo Hoffmann,

an Economics professor at the University of Campinas (Unicamp). This new text was drafted and subsequently consolidated by Ricardo Paes de Barros and Mirela de Carvalho, owing to the joint efforts of the aforementioned experts, who gathered in Rio de Janeiro on July 12-13, or sent their contributions to the meeting.

This report seeks to consolidate the recent and sharp fall in income inequality, evaluate its impact and relevance, identify its main determinants and, finally, draft public policy proposals, so that this fall will continue or even increase in coming years.

1.1 The importance of the fall in inequality

As measured by the Gini coefficient, which is the most commonly used indicator of income inequality, income concentration in the country fell by 4% between 2001 and 2004 from 0.593 to 0.569. Although at first sight this index might seem modest, it represents a substantial reduction in terms of inequality measure; among the 75 countries for which there is information on the evolution of income inequality in the 1990s, less than ¼ have shown inequality reduction rates higher than Brazil's.

A fall in income concentration of this magnitude has potentially high impacts on the reduction of poverty and extreme poverty, as income inequality will only fall when the average income of the poorest increases faster than the national average income. In fact, in the period under study the average income of the poorest 10% increased at an annual rate of 7% whereas the national average income fell by 1% a year. In the period as a whole, the average income of the poorest 20% was some 20 percentage points higher than that of the richest 20%. Therefore, while the perception of the poorest in Brazil was that they were living in a country with a high rate of economic growth, for the richest 20% the country was going through a period of economic stagnation.

In view of this sharp fall in inequality, it is not surprising that both poverty and extreme poverty have also declined. As the *per capita* income of the population did not grow in the period, poverty reduction can be fully attributed to the fall in inequality. In fact, the 4% fall in income inequality recorded between 2001 and 2004 led, by itself, to a 3.2% reduction in the number of extremely poor people, meaning that over 5 million Brazilians have grown out of this condition. Achieving the same results without any redistribution would require a growth of 6% a year.

1.2 Is the fall a methodological or a statistical illusion?

Although all the results indicate a sharp and important fall in income inequality, a question still remains: Do these results depend on

the methodology used to measure inequality or are they a consequence of mere statistical illusion?

The answer in both cases is absolutely no. Firstly because regardless of the measure used, the fall in inequality is substantial and, in some cases, well above that seen when the Gini coefficient is used. Secondly, the fall in inequality is definitely not a statistical illusion, the fruit of natural fluctuations in a household survey with the characteristics of the National Survey by Household Sample (Pnad). Statistical tests allow us to affirm that the observed fall has actually occurred, with a reliability of 99%.[4] In summary, the observed fall in income inequality can be attributed neither to the methodology chosen to measure it nor to statistical fluctuations arising from the sampling nature of the database used.

1.3 Some definitions and clarifications

Before moving on to summarizing the determinants of the fall in inequality, we should point out some fundamental issues that precede it. First of all, mention should be made of the difference between the determinants of inequality *level* and the determinants of the recent *fall* in inequality. This paper focuses on identifying the determinants of the *variation* in inequality rather than on the determinants of its *magnitude* in a given year.

Secondly, it is worth emphasizing that, amongst the different forms of inequality, this report is concerned only with the analysis of the *inequality of results* and, more specifically, of one result in particular: income. Income inequality has been chosen as an analysis variable owing to two basic attributes: because the result can be more precisely and easily measured and also because it is one of the main determinants of other results.[5] However, one still needs to determine the type of income inequality to be analyzed. In this study we have chosen to focus on analyzing the distribution of people based on *per capita household income*. The reason for doing so is due to the fact that the well-being of an individual depends not only on his/her own resources but also (and maybe to a large extent) on the resources of the household he/she lives in.

Finally, a word should be said about the nature and reliability of the information used in this study. The data come from Pnad, which is performed annually by the Brazilian Institute of Geography and Statistics (IBGE) and is the main source of information on income concentration in the country. Pnad is internationally recognized as an excellent source of information on inequality.[6] However, there are indications that income estimates based on household surveys like Pnad tend to underestimate the overall income.[7] Nonetheless, the fact that the proportion of under-declared income is relatively small and varied only slightly in the period

[4] It is important to emphasize that, in view of the sampling nature of Pnad, it would never be possible to achieve an accuracy level of 100% and this margin is therefore extremely favorable.

[5] It is not by chance that income inequality and insufficiency are given special attention in all contemporary societies and are among the Millennium Development Goals.

[6] Both the World Bank and the United Nations find Pnad data to be of excellent quality, even when compared to those from similar databases in developed countries. See Deininger and Squire (1996) and UNDP (2005).

[7] This fact stems from the difficulty in appropriately capturing some sources of income such as non-monetary incomes of agricultural workers, and asset earnings and volatile income sources (lottery and unemployment earnings, etc.).

under analysis, leads us to believe that its impact on the variation in the degree of inequality is probably limited, even where the impact on the level might be significant..

1.4 The proximate determinants of reduction

The analysis focuses on five proximate determinants of *per capita* household income namely: *(a)* demographic features of households; *(b)* income transfer; *(c)* asset earnings; *(d)* access to labor, and unemployment and participation in the labor market; and *(e)* labor income distribution. This last aspect involves several factors, among which is the role played by schooling, workers' experience, race and gender discrimination, and the different forms of labor market segmentation.

Starting with the *demographic features of households,* a first aspect to be noted is the fact that the number of adults has increased in the country over the past 20 years, although not uniformly. As a result, demographic inequality has decreased among households. However, the fall in demographic inequality is due more to a homogenization within the same income groups than to an approximation of the demographic pattern between poor and rich households. As a consequence, this factor has made a limited contribution to the redistribution of *per capita* household income: had the proportion of adults in each household not changed between 2001 and 2004, the fall in income inequality would have been a mere 2% below that which was actually recorded.[*]

Moving on to *income transfer,* we see that its effectiveness in reducing income inequality depends on the amount of the benefits paid as well as on the levels of coverage and assistance provided to the needy. The information available in Pnad allows us to distinguish between three types of government transfers: *(a)* government pensions and retirements; *(b)* the Continuous Monthly Benefit (BPC); and *(c)* the benefits of *Bolsa Família* (Family Grant) and other similar programs such as the Child Labor Eradication Program (Peti) and *Bolsa Escola* (School Grant). All together, government transfers have contributed to reduce income concentration by $\frac{1}{3}$ thus indicating the high relevance of this factor. An analysis of the contributions of each of the three components shows that they have been somewhat similar, at around 10% each. However, the costs of these policies are quite different: the cost of expanding retirements and pensions was, in the period, four to five times that of expanding *Bolsa Família* and BPC. As a result, the latter have proven much more effective in combating inequality than retirements and pensions.

The relative contribution of these different components is quite sensitive to the inequality measure used. The more sensitive the measure to the income of the poor, the more important the contribution of *Bolsa Família* and BPC, and the effect of the former is substantially stronger.

[*] It is worth mentioning that demographic changes consist in long term movements and a limited impact on the fall in inequality should therefore be expected, given the short period of time under analysis.

Furthermore, the expansion of *Bolsa Família* and BPC was based on increased coverage rather than on an increase in the amount of the benefit among those who were already receiving it. In the case of pensions and retirements, the reverse pattern held, as only an insignificant portion of its contribution to the fall in inequality resulted from expanded coverage.

The increase in coverage was followed by greater inclusion of the neediest population. Had this inclusion not occurred, the degree of inequality would have fallen 15% less than it actually has.

As for the *asset earnings*, it is worth pointing out that although these are indisputably underestimated by Pnad, there is no evidence that they have interfered in the recent fall in income inequality in Brazil.

The analysis of the labor market reveals that *access to employment*, *unemployment*, and participation are three of the key-factors. Over the period, these indicators have evolved favorably but their impact on reducing inequality, although positive, was very shy: all together, they accounted for a mere 3%. This contribution was limited because many of the jobs that had been generated were taken by workers from households in which other members were already employed. For the impact of greater labor absorption on inequality to be as high as possible, the increase in employment would have to have occurred in households with few employed adults.

Still as regards the labor market, a second fundamental issue is the *distribution of labor incomes*. Labor income inequality had been falling systematically since 1995. However, as in recent periods there has been an acceleration of this process, the fall in labor income inequality explains half of the fall in income inequality between 2001 and 2004.

Labor income inequality and its effects on the concentration of *per capita* household income can be broken down into two different groups: the inequality revealed by the labor market and that generated by it. In the first group, the two fundamental factors are *educational inequality* among workers and the magnitude of *wage differentials* among workers with different levels of schooling. Both factors declined in the 2001-2004 period and together contributed to a reduction of about $^1/_3$ in labor income inequality and 15% in *per capita* household income inequality.

As for *educational inequality*, between 2001 and 2004 the workforce became slightly more homogeneous thus explaining the falls of nearly 10% in labor income inequality and 5% in *per capita household* income.[9] Contrary to educational inequality, *wage differentials* by educational level had already been showing a continuous downward trend since 1995, but the process seems to have gained speed as of 2001. In fact, differences in wages by educational level fell considerably in the 2001-2004 period thus contributing to a reduction of about 20% in labor income inequality and

[9] The homogenization in workforce schooling is a recent phenomenon. In fact, up until 2001 educational inequality among workers had increased.

10% in *per capita* household income inequality. This factor was therefore twice as important as the fall in educational inequality.

Differences in workers' experience are a second important aspect of the income inequality generated by the labor market. Age and experience heterogeneity in the workforce are decreasing thus contributing to the reduction in labor income and *per capita* household income inequalities. Nonetheless, as these discrepancies are falling at a very slow pace, their contribution to reducing inequality has been limited. In the opposite direction, wage differentials by age or experience in the labor market have grown slowly and systematically over the past decade. The two forces are therefore acting in opposite directions and the net result, although still very shy, has been positive.

As for the inequality generated by the labor market, a first fundamental aspect to be noticed is *wage discrimination based on race and gender*.[10] As in nearly all countries in the world, the wages of Brazilian women are much lower than those of men. This differential has remained stable, with a slight rising trend between 2001 and 2004, and therefore has not contributed to the fall in income inequality. *Wage differentials by race* are also high in Brazil (although much lower than gender differentials) and despite the falls recorded in the past decade, their quantitative importance in explaining the recent fall in income inequality is close to none.

In addition to race and gender discrimination, the labor market can also be a generator of inequalities if it is segmented. As regards *spatial segmentation*, possible reductions in high wage differentials between the Units of the Federation (UFs)[11] could be a potential source to explain the fall in income inequality. However, over the past decade labor markets in the different UFs have not become more integrated and therefore this aspect has not contributed to reducing the degree of income inequality.

Even within a same UF there are significant differences between workers located in different markets – typically, wages are higher in the capitals and lower in small municipalities in the interior of the states.[12] Discrepancies between capitals and medium-size and small municipalities decreased sharply between 2001 and 2004 and this greater integration between labor markets in municipalities of different sizes has contributed significantly to reducing income inequality. Had the integration not occurred, the fall in both labor income and *per capita* household income inequalities would have been 20% and 10% lower respectively.[13]

However, discrepancies between different types of municipalities do not eliminate spatial inequalities, considering that within a given municipality wage differences among workers with identical productive capacity located in urban or rural areas still persist.[14]

[10] In 2004, the wages of men with the same characteristics as women were 70% higher. Whites with the same characteristics as blacks earned 30% more.

[11] Just to give an example, in 2004 the wages of workers in the state of São Paulo were 60% higher that those of workers in the state of Pernambuco with identical productive characteristics and equal labor market insertion.

[12] In fact, in 2004 the wages of workers in the metropolitan regions were nearly 20% higher than those of workers with the same characteristics and similar occupations in small municipalities in the interior of the country.

[13] It is important to point out that this is not a recent phenomenon, although in relation to small municipalities the differential of large and medium-size municipalities has decreased faster over the past three years.

[14] In 2004, urban workers' wages were almost 10% higher than those of rural workers with identical characteristics in similar jobs and equal productive characteristics.

Over the past decade, particularly since 2001, the degree of integration between urban and rural labor markets has increased significantly thus reducing the wage differential between the two areas. This increased integration has contributed to reduce both labor income inequality and *per capita* household income inequality, although in a limited fashion. Had this integration process not occurred, the fall in *per capita* household income inequality would have been 5% lower.

Finally, *formal-informal segmentation* is one of the most visible forms of discrimination in the Brazilian labor market.[15] Despite the decrease in the degree of labor market informality, wage differentials between formal and informal workers have increased substantially. These two factors have acted in opposite directions: the decrease in the degree of informality has contributed to reduce labor income inequality whereas the increase in formal-informal wage differentials has caused inequality to grow. The net effect of these two forces has been unfavorable: had the degree of segmentation between the formal and informal sectors not increased, the fall in household income inequality would have been 5% higher than it actually was.

1.5 The need for the fall to continue

Despite the recent fall, income inequality in Brazil remains extremely high: the income of the richest 1% of the population is equal to that of the poorest 50%. Furthermore, the country continues to occupy a negative position in the international scene, and 95% of the countries for which there are data available show concentration levels lower than Brazil's. Even at the accelerated pace at which inequality was reduced in the period under analysis, it would take Brazil twenty years to start showing a distribution pattern compatible with that of countries at a similar development level.

Although nationally representative data are not yet available for 2005 and 2006, evidence obtained from data on the six largest metropolitan regions alone indicate that the fall in inequality in the 2001-2004 period has probably extended beyond that triennial albeit the speed of the fall might have slowed down.

1.6 Paths for a more effective public policy in combating inequality

The results presented in this report are decisive: income inequality in Brazil fell sharply in the 2001-2004 period, leading to impressive reductions also in poverty and extreme poverty. This de-concentration is not the result of a single determining factor but rather of a host of factors, some of which are particularly important: the development of

[15] Typically, informal workers are paid 30% to 40% less than formal workers.

a more effective social protection network; greater integration of local labor markets; and the decrease in labor income inequalities caused by reductions in both educational inequality and income differences among educational levels.

However, although significant and important, the fall in income inequality has been insufficient to afford Brazil a position comparable to that of other countries at a similar development level. It will take the country many years for this to happen. Therefore, the question that comes out naturally from this analysis is: what policies can be developed to influence this inequality reduction process and ensure its sustainability in the future?

Recommendations on specific policies require evidence and more detailed and comprehensive results than the ones presented in this report. Nonetheless, it is possible to outline some strategies with respect to the paths to be followed in designing public polices that meet the objective of reducing inequality. In particular, it is possible to identify four aspects that should necessarily be contemplated by a broad-based strategy to combat inequality: *(a)* providing equal *capacity building* opportunities; *(b)* providing equal opportunities for the *productive use of the capacities built* (felt, mainly, in *access to labor*); *(c)* reducing workers' *unequal treatment* in the labor market; and *(d)* making the *tax system* and *government expenditures* more *efficient* and *progressive*.

Expanding access to education has two major impacts on income inequality. On the one hand, more educational opportunities tend to raise the average educational level of the poorest segments of the population thus reducing educational inequality in the workforce and, consequently, labor income inequality. On the other, an increased supply of qualified labor tends to reduce the premium for qualification thus contributing to the reduction of wage differentials among educational levels. Nonetheless, it is important to emphasize that educational expansion will only be effective in combating income inequality if it is accompanied by public investment in the quality of the education provided. Otherwise, inequality in the amount of education (years of schooling) would be merely replaced by inequality in the quality of education.

The negative impact of inequality on access to work is often greater than wage differences *per se* among occupied individuals. Reducing income inequality in a sustainable way therefore requires expanding access to employment. Furthermore, the quality issue is again fundamental, as bad quality jobs will cause inequality in the access to work to be replaced by inequality in the quality of jobs. Several policies can contribute to reduce heterogeneity in job opportunities, particularly policies aimed at micro and small enterprises (such as access to credit, technical assistance, and development of competitiveness clusters).

Moreover, it is imperative to realize that the more progressive the government expenditures and the tax system are the lower the degree of income inequality tends to be. Given its current characteristics, it seems possible to make the Brazilian tax system more efficient and progressive at the same time, so that inequality can be more successfully reduced without the need to raise the tax burden. As for government expenditures, it is indispensable that both its efficiency and efficacy be improved and assistance to the poorest prioritized. This would enable not only increasing the availability of services and improving their quality but also enhancing their impact on the well-being of the populations assisted with the resources already available.

Finally, it is worth pointing out that even when the public power succeeds in ensuring equal opportunities, the degree of the inequality of the results produced could be unacceptable to society. Part of the social expenditures should therefore be targeted toward directly affecting the inequality of results through a suitable social protection network. Despite the advances made, the Brazilian social protection network needs to become more efficient and effective and focused on those who need it the most. Moreover, it should bring with it an "exit door" to avoid dependency by beneficiaries. One way of doing it is by ensuring them priority access to a comprehensive set of programs that maximize and encourage their productive engagement in the labor market.

1.7 Structure of the report

This report contains five discursive sections and an executive summary. Section 2 presents a discussion on the choice of income as a variable of interest in the analysis of inequality as well as on the income measure used in the report, in addition to its respective advantages and disadvantages. Section 3 documents the recent fall in inequality and evaluates the magnitude and importance of the movement to the poorest segments of the population. Section 4 seeks to evaluate the strength of these estimates. More specifically, it investigates the extent to which this fall is sensitive to both the inequality measure and the income concept used. It also investigates if the fall is statistically significant and if the quality of the information used is appropriate. Section 5 is the very core of the report in analytical terms, as it studies the main proximate determinants of the recent fall in inequality. Finally, Section 6 presents the courses that public policies in the country should follow to make the recent fall in inequality sustainable.

2 INEQUALITY OF WHAT?

The objective of this report is to document the recent and significant fall in income inequality in Brazil, evaluate some of its causes, and identify

possible alternatives for public polices capable of sustaining and even enhancing this fall. Before that, however, it is necessary to define the type of inequality being addressed. This is the objective of this section.

2.1 Why income inequality?

It is possible to seek to reduce inequality in several dimensions. These can range from equal treatment, rights or freedoms to the reduction in inequality of results to equal opportunities and conditions. The objective of this report is to address the fall in the inequality of results, more specifically of one result: income.

What is the importance of the inequality of results? Wouldn't it be more important to address more basic inequalities such as inequality of treatment or opportunity? The answer is both yes and no. Yes, because the more basic the source of inequality the greater its relevance. Inequalities of results that stem from inequality of treatment, opportunity or conditions are much more undesirable than those that occur when there is perfect equality of treatment, opportunity and conditions. And no, because most of the inequality of results is a consequence of more basic differences. A high degree of inequality of results is necessarily the reflex of disparities of treatment, opportunity or conditions. By analyzing inequality of results we are therefore addressing all forms of inequality through their consequences. The systematic fall in inequality of results in a country as unequal as Brazil indicates that more basic disparities (of treatment, opportunity and conditions) may have declined.

Amongst the different results, why then focus on income inequality? There are certainly results which are much more comprehensive and important, such as well-being, human development or even happiness. The special emphasis placed on income inequality in all modern societies relates to the fact that income is the most easily measurable result as well as one of the main determinants of the other results. It is not by chance that the first Millennium Development Goal addresses precisely income distribution: to halve, between 1990 and 2015, the number of people living on a *per capita* income of less than $1 a day in terms of purchasing power parity.

In countries with a high degree of inequality, there is often great interest in other results as well. What is the degree of inequality in wealth and power distribution in the country? To a great extent, however, the interest in these results stems from the very interest in income inequality, as the results belong to the set of their determinants. If wealth and power distribution did not have an impact on income distribution would they still arouse so much interest?

2.2 What income inequality?

There are different types of income distribution. For example, the distribution of workers according to the pay they receive for the work they do and the distribution of households by total household income. A degree of income inequality is associated with each of these types of distribution.[16]

This report focuses on the distribution of individuals according to the *per capita* income of the household to which they belong. Individuals are used as a unit of analysis for the purpose of emphasizing that they are, ultimately, the subjects of development, well-being and happiness. We have chosen *per capita* household[17] because the well-being of people depends not only on their resources but mainly on the resources of the households they belong to.

The use of *per capita* household income, however, raises issues that deserve some explanations. Firstly, the use of *per capita* household income suggests that there are no disparities within the household, i.e., that all members of the household have the same income, regardless of their position, gender or age. Although we recognize the existence of important intra-household disparities, it is unlikely that these have changed significantly in the short period under analysis. So, even if they are important to define the level of inequality, they should not interfere in the short and medium term variations analyzed by this report.

Secondly, the use of *per capita* household income is based on the assumption that the situation of the members of a two-member household with a total income of R$ 400.00, for example, is identical to that of a four-member household whose total income is R$ 800.00, since in the two cases the per capita income is R$ 200.00. One could argue, however, that there are economies of scale, that a family twice as big does not need twice the resources of the other in order to achieve the same level of well-being. In this case, the per capita income would overestimate the living conditions of small households and underestimate that of larger ones. As there is no solid evidence on the importance of economies of scale, we have chosen to focus the analysis on *per capita* income. In the next section, however, which discusses the recent fall in inequality, we show that it does not depend on the assumption of possible impacts of economies of scale.

Finally, the choice of *per capita* household income disregards differences of needs among individuals. Individuals in households with the same *per capita* income are treated as equals, although elderly people might predominate in one family and children in another. Based on the *per capita* income criterion, the situation of an elderly couple or of a young

[16] It is also worth pointing out that this report addresses the evolution of income inequality and that the income captured is that received in the years under study (2001 and 2004). Obviously, to the extent that there is social mobility, people can go up or down the social ladder throughout their life cycle. Therefore, if we were to adopt as income concept the average income of a person throughout his/her life cycle, income inequality would be lower than the one found in this report. If these income fluctuations throughout the life cycle of individuals did not affect the level of well-being of each one of them, then it would be preferable to analyze the mean income inequality throughout the life cycle, as suggested by Heckman (2006). As the data available are cross-sectional rather than longitudinal, they do not allow for a follow-up on families throughout their life cycle. For this reason, we have chosen to use the income measured at different points in the life cycle of individuals.

[17] The concepts of household and family are empirically very close, although not perfectly equivalent. In fact, two or more families live together in about 5% of the households. The concept used in this paper to calculate the per capita income is that of a household. However, the concepts of household and family are used interchangeably throughout the text.

couple will be the same provided that their income is also the same. In this case, the possibility that the former suffer from a chronic disease and need continuous medication is not taken into account. If differences of needs were known, it would be very easy to obtain an equivalent to the *per capita* income that took this heterogeneity into account. In the absence of this datum, we have chosen to use per capita income. In the next section we will see that the fall in income inequality does not depend on the diversity of the needs of children, adults and the elderly.

3 THE RECENT FALL IN INEQUALITY[18]

Between 2001 and 2004, the degree of income inequality in Brazil fell sharply and continuously, having reached in 2004 the lowest level in the past 30 years. This reduction in income inequality has contributed substantially to reduce poverty and improve the living conditions of the poorest segments of the population, even in a period of relative *per capita* income stagnation. In spite of this decline, the degree of inequality in the country is still extremely high. Even at the fast pace at which it has fallen, it will take the country another twenty years to reach inequality levels similar to the average of countries at the same level of development. The objective of this section is to document these findings.

3.1 The magnitude of the fall

The most commonly used inequality measure is the Gini coefficient – see Insert 2. According to this measure, between 2001 and 2004 the degree of income inequality fell by 4% in the country from 0.593 to 0.569. In 2001 it was close to the average of the last thirty years; in 2004 it reached the lowest level in the period (Graph 1).[19]

Considering that the 4% fall in the Gini coefficient was reached within a three-year period, would it be correct to say that it was sharp? The answer seems to be yes. First of all because of the 75 countries for which there is information about the evolution of the Gini coefficient in the 1990s, less than ¼ were capable of reducing inequality at a pace faster than Brazil's in the 2001-2004 triennial.[20] The pace at which inequality has fallen in the country is therefore one of the fastest in the world.

Secondly, it is necessary to evaluate the importance of the fall in question, based on the impact it had on both poverty and the living conditions of the poorest. This impact is addressed in the next section.

[18] For a view of the historical debate held in the country on the evolution of income inequality see Insert No. 1.

[19] See also Soares (2006) and Hoffmann (2006b).

[20] See Barros *et al.* (2006c).

THE LONG TRADITION OF INCOME
INEQUALITY SURVEYS IN BRAZIL

Inequality in income distribution in Brazil is the subject of a large number of surveys and scientific articles. For over four decades the statistical data available (which most of the time are collected by IBGE) have been used to analyze what happens in income distribution as well as its main conditioning factors.

Following the publication of data from the 1970 Demographic Census, two studies show the sharp increase in income distribution inequality in Brazil between 1960 and 1970: Fishlow (1972), and Hoffmann and Duarte (1972).

As in present days, back then there were also those who doubted the statistical results. When referring to the works of Hoffmann and Duarte, an economist as prominent as Mario Henrique Simonsen stated that "the debate on the increase in income concentration between 1960 and 1970 can only be supported by a good dose of statistical frivolity" (Simonsen, 1972, p. 50).

The work of Langoni (1973) was fundamental to establish a consensus on inequality increase between 1960 and 1970. The controversial aspect now is the interpretation of the causes behind this phenomenon, with some authors placing the blame on government policies and the institutional environment and others believing that the problem lays in the growing demand for better qualified labor without the corresponding increase in supply.

In fact, as a result of the incentive of these pioneer works, Brazil witnessed a proliferation of studies on income inequality in the country. In the beginning, the central theme was the relation between minimum wage and inequality. Next, studies corroborating the strong relation between education and inequality sustained by Langoni gained relevance. In the 1980s, the focus switched to segmentation in the Brazilian labor market. Segmentation between the formal and informal sectors of the economy has been, undoubtedly, the most studied form of segmentation. In the second half of the 1980s and particularly in the first half of the 1990s, the relation between stability, inflation and inequality was in the limelight. Several studies on discrimination, mainly racial discrimination, have emerged in recent years.

INSERT 2

INEQUALITY MEASURES

Every inequality measure is a way of aggregating income differences among all segments of the population into a scale indicator. The large variety of ways to measure inequality therefore comes as no surprise.
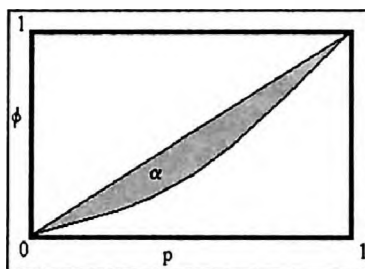
Although no inequality index can prove decisively better than the others, the most used is the Gini coefficient. Its construction is based on a curve known as "Lorenz curve", which is obtained by ranking individuals according to their income level. People are plotted from low to high along with their incomes. The graph illustrates a Lorenz curve, by plotting cumulative income shares (Φ) against cumulative percentages of the population (p).

The Gini coefficient corresponds to twice the area (α) between the Lorenz curve (which forms an arch in the graph) and the diagonal line (which represents the distribution in which everyone has exactly the same income and therefore it is called the perfect equality line). This means that the "farther" (measured by this area) the Lorenz curve of a distribution is from the perfect equality line the more unequal it is and the higher the Gini will be (it is not difficult to show that it varies between 0 and 1).[21]

Every progressive transfer, i.e., from the rich to the poor, reduces inequality. In a more general way, it is said that distribution A is less unequal than B whenever A can be obtained from B through a series of progressive transfers. It is possible to show that, in this case, the Lorenz curve associated with A will be entirely above that associated with B and therefore closer to the perfect equality line. As a result, the Gini coefficient of A will be lower than that of B thus indicating a lower degree of inequality.

The reverse can also be shown, i.e., that whenever the Lorenz curve of A is above that associated with B, then distribution A can be obtained from B through a sequence of progressive transfers (from the rich to the poor) and therefore inequality in A will be lower than in B. So, whenever the Lorenz curve of distribution A is above that associated with distribution B, all inequality measures should indicate that inequality is lower in A. When the Lorenz curves cross, the ordering will not be unequivocal, causing different inequality measures to also lead to different orderings.

[21] I addition to the Gini coefficient, the most commonly used inequality measures are the two measures proposed by Theil, known as the first Theil index, Theil-T; and the second Theil index, Theil-L. These measures are limit members of a family of indices characterized by the following general expression

$$D(c) = \frac{1}{nc(c-1)} \sum_{i=1}^{n} \left(\left(\frac{x_i}{\mu} \right)^c - 1 \right)$$ for the entire

$c \neq 0, 1$. When c converges to 1, we have Theil-T

$$D(1) = T = \frac{1}{n} \sum_{i=1}^{n} \frac{x_i}{\mu} Ln \left(\frac{x_i}{\mu} \right)$$ and

when c converges to 0, we have Theil-L

$$D(0) = L = Ln(\mu) - Ln(g)$$

where g is the geometric mean; i.e,

$$g = \sqrt[n]{\prod_{i=1}^{n} x_i}$$ when c=-1 we have

$$D(-1) = H = \frac{1}{2} \left(\frac{\mu}{h} - 1 \right)$$ where h is the

harmonic mean (the reciprocal of the arithmetic

mean of inverse values), i.e., $h = \left(\frac{1}{n} \sum_{i=1}^{n} \frac{1}{x_i} \right)^{-1}$

GRAPH 1
Temporal evolution of *per capita* household income in Brazil

Gini coefficient

Years
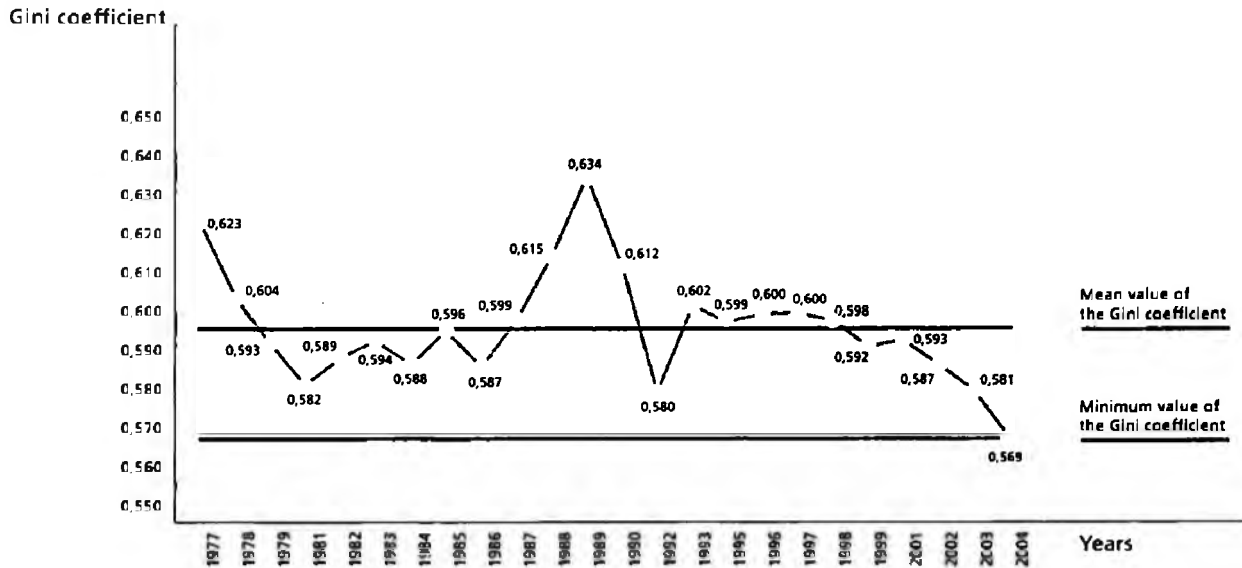
3.2 The importance of inequality reduction to the poor

Reducing poverty requires increasing the income of the poorest segments of the population. This implies economic growth or reductions in the degree of inequality. In this section we show the contribution of the recent fall in inequality to increasing the income of the poorest and consequently to reducing poverty and extreme poverty in the country.

3.2.1 Impact on the income of the poorest

When the poorest appropriate a larger share of society's total income, inequality is reduced. For this to happen, the average income of the poorest has to grow faster than the total average income.

Graphs 2a and 2b show the annual growth rate of the per capita income of the tenths accumulated by the poorest and by richest in the 2001-2004 triennial. The estimates show an annual growth of 7.2% for the poorest 10%, despite the fact that Brazilian *per capita* income decreased by 0.9% a year in the same period. By looking into the average income of the poorest 50% we see that it increased by 2.4% a year, whereas the average income of the richest 50% decreased by 1.4% a year. In the period as a whole, we see that in view of the 4% reduction in the Gini coefficient, the income increase of the poorest 20% was 20 percentage points higher than that of the richest 20%.

GRAPH 2a
Annual growth rate in the *per capita* income of the tenths accumulated by the
poorest between 2001 and 2004

Growth rate (%)

First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eigth	Nineth	Tenth
7,2	4,9	3,8	3,1	2,4	2,0	1,6	1,1	0,5	-0,9

Average income
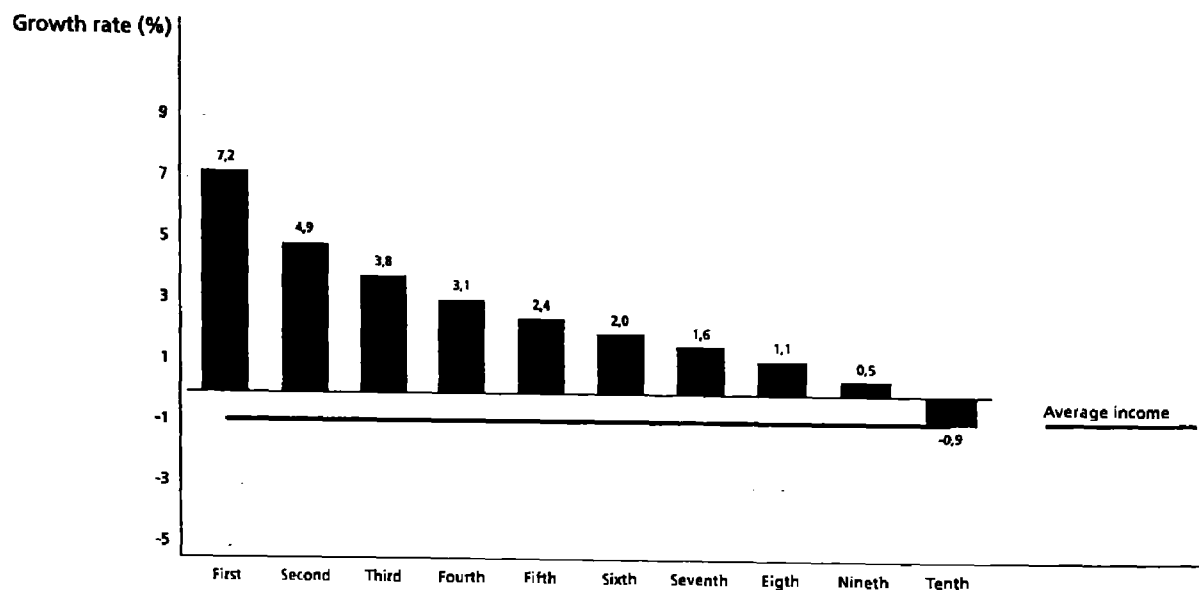
Source: Barros *et al.* (2006a and b).

GRAPH 2b
Annual growth rate in the *per capita* income of the tenths accumulated by
the richest between 2001 and 2004

Growth rate (%)

Tenth	Nineth	Eigth	Seventh	Sixth	Fifth	Fourth	Third	Second	First
-0,8	-0,9	-1,0	-1,1	-1,2	-1,4	-1,5	-1,6	-2,0	-2,4

Average income

Source: Barros *et al.* (2006a and b).

Technical Note
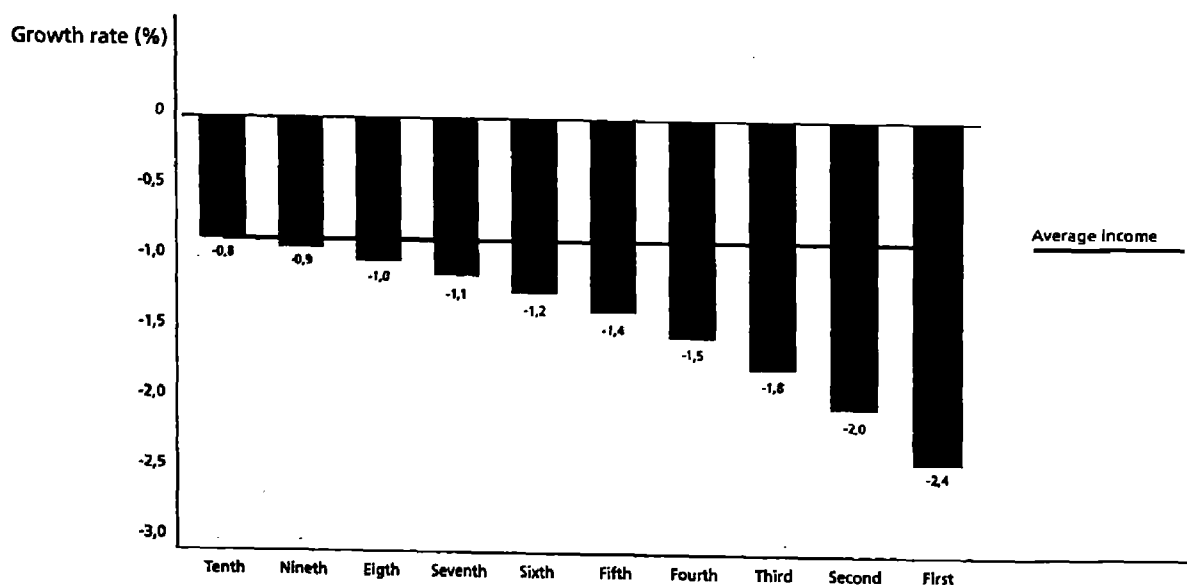
3.2.2 Economic growth as perceived by the poorest and the richest segments of the population

Graph 3 shows the distribution of the annual growth rate of *per capita* GDP between 1990 and 2003 for 170 countries. The graph also shows the annual income growth rates of the poorest 20% and the richest 20% in Brazil between 2001 and 2004. Over the past years, in 90% of the countries the annual growth rates in *per capita* income have been lower than those of Brazil's poorest 20%. Therefore, the perception of the poorest in Brazil is that they are living in a country with a high rate of economic growth. On the other hand, only 10% of the countries have shown an annual rate of economic growth lower than that perceived by the richest 20% in Brazil. The perception of this group therefore is that they are living in a stagnated country.
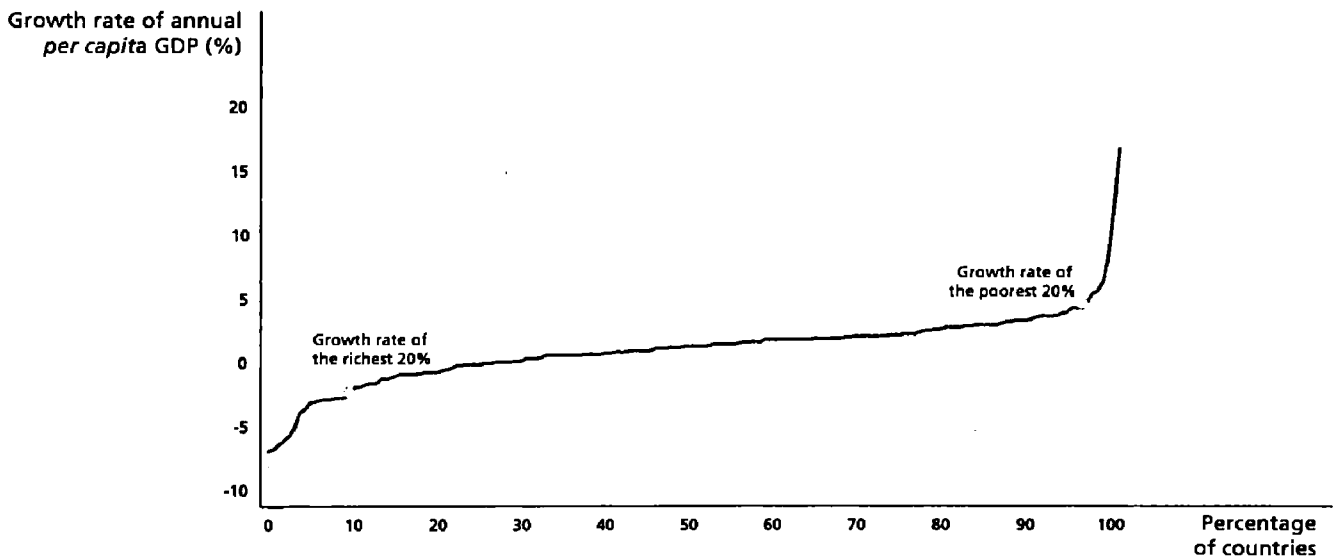
GRAPH 3
Distribution of countries worldwide according to the annual growth rate of *per capita* GDP between 1990 and 2003

Source: Barros *et al.* (2006a and b).
Note: Considering the 170 countries for which there was information available.

3.2.3 Impact on poverty and extreme poverty levels

Poverty and extreme poverty levels fell between 2001 and 2004, as seen on Table 1.[22] For both poverty and extreme poverty, the tree

[22] See Rocha (2006).

indicators used (percentage of poor, poverty gap and severity of poverty)[23] show a reduction between 1 and 2 percentage points. As *per capita* income declined in the period, all the reductions in poverty and extreme poverty levels were owed to the fall in income inequality.

The decline in per capita income led the effect of inequality reduction on poverty to be lower than it could have been if *per capita* income had not changed. In fact, if the reduction in *per capita* income had not mitigated part of the impact of redistribution, the number of extremely poor people would have dropped 3.7 percentage points instead of 2.3 percentage points.[24] In summary, the fall in inequality between 2001 and 2004 has led, by itself, to a reduction of more than 3 percentage points in the number of extremely poor people in the county. This means that some 5 million Brazilians have been taken out of extreme poverty.

It is worth pointing out that without the contribution of inequality reductions, the same reduction in extreme poverty would require a balanced economic growth of 20%. [25, 26] In other words, from the standpoint of the extremely poor, the recent 4% fall in inequality corresponds to a balanced growth of 20%.

It is true that to the poor, growth and inequality reductions are equally important. However, considering that a 4% reduction in the Gini coefficient corresponds to an increase of approximately 4% in *per capita* income, if the extremely poor had to choose between a 1% reduction in the Gini coefficient and a balanced growth below 5% in the country's *per capita* income, they would opt for the reduction in the Gini coefficient

TABLE 1
Poverty and extreme poverty indicators for Brazil

			(%)
Indicators	2001	2004	Variation (In percentage points)
Poverty			
Percentage of poor people	33.3	31.5	-1.8
Poverty gap	15.1	13.1	-1.9
Severity of poverty	9.3	7.7	-1.6
Extreme poverty			
Percentage of poor people	14.3	12.0	-2.2
Poverty gap	6.2	4.8	-1.4
Severity of poverty	4.0	3.0	-1.0

Source: Barros *et al.* (2006c).
Note: Poverty gap and severity of poverty are expressed as multiples of the poverty line.

[23] To measure poverty and extreme poverty we used the lines of ½ and ¼ of the minimum wage respectively. Poor and extremely poor are all those people living in households with *per capita* incomes below the poverty and extreme poverty lines respectively. Poverty gap means the number of poor people multiplied by the mean distance of their income from the poverty line, measured as multiples of the poverty line. This measure therefore takes into account not only the percentage of poor people but also the depth of poverty. The severity of poverty is given by the product of the percentage of poor people according to the mean quadratic distance from the poverty line, also measured as multiples of the poverty line. Therefore, it not only considers the number of poor people and the depth of poverty, but also gives higher weight to the poorest. For example, a poor individual whose income corresponds to half the poverty line will be given a weight four times lower than an individual with no income at all.

[24] Barros *et al.* (2006c).

[25] Barros *et al.* (2006c).

[26] Balanced growth is that in which the income of all social groups grow at the same rate and thus there is no variation in the degree of inequality.

3.2.4 Complementarity between inequality reductions and economic growth in combating poverty

We have seen that reductions in the degree of inequality can work by replacing economic growth in combating poverty. However, economic growth and reductions in the degree of inequality are also complementary. The lower the inequality in income distribution the higher the impact of economic growth on poverty. This is the reason why today the impact of a 10% balanced growth on poverty is 10% stronger than it would have been three year ago, when the degree of inequality was 4% higher.[27] In other words, inequality reduction not only has a direct impact on poverty but it also enhances the ability of economic growth to benefit the poorest segments of the population.

3.3 The need for continuity

Despite the recent fall, income inequality remains extremely high in Brazil. The share of total income appropriated by the richest 1% of the population is the same as that appropriated by the poorest 50%. Furthermore, the richest 10% hold more than 40% of the income whereas the poorest 40% account for less than 10% of the total income.[28]

In the international scene, the country still occupies an extremely negative position, as its degree of inequality is one of the highest in the world. In nearly 95% of the 124 countries for which there are data available on the degree of inequality in income distribution, distributions are less concentrated than in Brazil.[29]

An alternative means to verify if the inequality level remains very high is to compare the countries' distribution, according to their *per capita* income, with their distribution according to the *per capita* income of their poorest 20%. Graph 4 shows that whereas in 64% of the countries *per capita* income is lower than in Brazil, in only 43% the *per capita* income of the poorest 20% is lower than in Brazil.

In the distribution of countries according to the average income of the poorest 20%, for Brazil to occupy the same position it occupies in the distribution of countries according to *per capita* income, the proportion of the income appropriated by the poorest 20% would have to increase by more than twofold. Between 2001 and 2004, this proportion increased by some 0.4 percentage points. At this pace, it would take Brazil about 20 years to align its international position regarding the average income of the poorest 20% to its position regarding *per capita* income.[30]

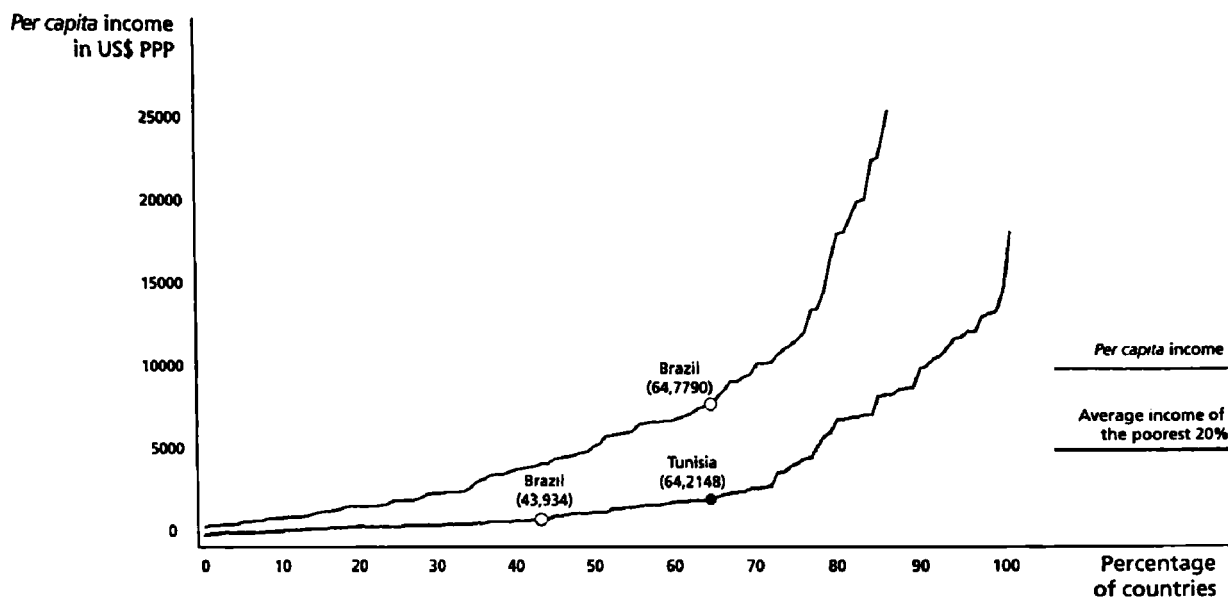[27] Barros *et al.* (2006c).

[28] Barros *et al.* (2006b).

[29] Barros *et al.* (2006b) and Hoffmann (2006b).

[30] Barros *et al.* (2006b).

GRAPH 4

Distribution of countries worldwide according to the *per capita* income
and average income of the poorest 20%

In summary, the degree of inequality remains extremely high in the
country. Even at the fast pace at which inequality has been recently reduced,
it will take two decades for inequality in Brazil to be aligned with that of
other countries at the same development level. The recent achievement
should therefore be seen only as the first step in a long journey.

3.4 Signs of continuity

To what extent did income inequality continue to fall in 2005 and
2006? To assess the even more recent behavior of income inequality
we've used information from the Monthly Employment Survey (PME).
Although the survey covers only the six main metropolitan regions (MRs)
in the country[31] and the idea of income one can get from it is restricted
to labor income, the survey provides information up to mid-2006 thus
allowing us to find out if the fall in inequality identified on the basis
of information from Pnad continued at least throughout 2005. Graph
5 shows the recent evolution of inequality – measured by the Gini
coefficient – based on PME. As seen in the graph, the fall in inequality
clearly continued during the first half of 2005 although it is not as clear

[31] The MRs included in the study are those of Recife,
Salvador, Rio de Janeiro, Belo Horizonte, São Paulo,
and Porto Alegre.

as regards the last months of the year. There are therefore signs that the fall in inequality recorded in the 2001-2204 period might have extended beyond that triennial, although at a slower pace.

GRAPH 5
Evolution of inequality in *per capita* labor income
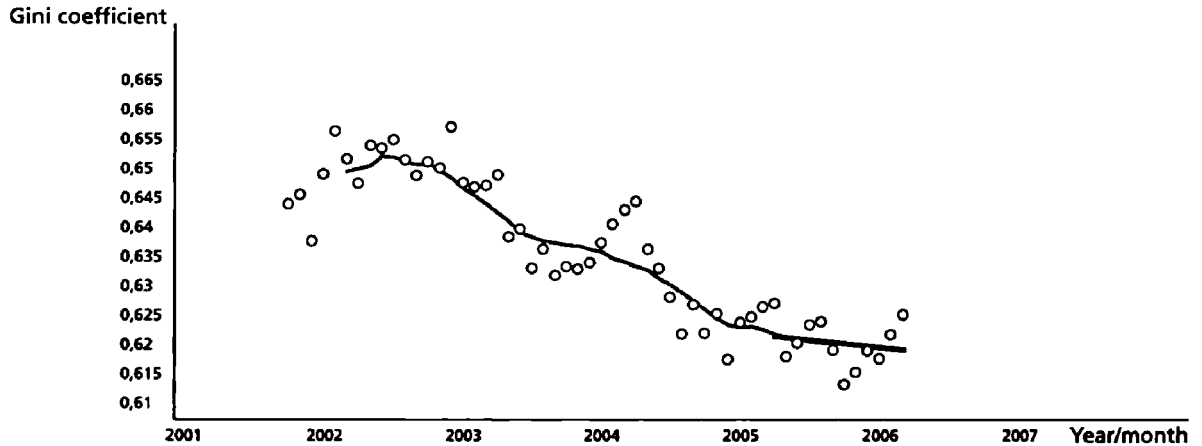
Source: Barros *et al.* (2006a and b).

4 STRENGTH OF THE RECENT FALL IN INEQUALITY

We have seen that the degree of income inequality fell substantially between 2001 and 2004, with important consequences for poverty. In this section, we will examine the strength of this fall. We will see to what extent it was sensitive to the measure of inequality and to the concept of *per capita* income used. We will also see if this fall was statistically significant and if the quality of the information used was appropriate.

4.1 Sensitivity of the fall to the inequality measure used

Measuring income inequality is a way of aggregating income differences of millions of people into one single indicator. It comes as no surprise therefore that there are alternative forms of measuring inequality. We have seen that according to the Gini coefficient, income inequality in Brazil has fallen by 4%. Is this fall underpinned by other measures of inequality?

On the Recent Fall in Income Inequality in Brazil

TABLE 2
Indicators of *per capita* income inequality in Brazil

Indicators	2001	2004	Variation (in percentage points)
			(%)
Income percentage appropriated by the tenths, accumulated by the poorest			
First	0,69	0,87	0,18
Second	2,36	2,79	0,43
Third	4,85	5,57	0,72
Fourth	8,24	9,25	1,02
Fifth	12,7	14,0	1,31
Sixth	18,5	20,2	1,66
Seventh	26,1	28,1	1,98
Eighth	36,6	38,8	2,22
Ninth	52,8	55,0	2,20
Inequality measures			
Gini Coefficient	0,593	0,569	-4,2%
Theil-T Index	0,719	0,656	-8,8%
Theil-L Index	0,649	0,592	-8,8%
Distance between the arithmetic and harmonic mean	2,56	2,28	-11,1%
Ratio between the income of the richest 10% and the poorest 40%	22,9	19,5	-15,1%
Ratio between the income of the richest 20% and the poorest 20%	26,9	21,9	-18,5%

Source: Estimates based on the 2001 and 2004 National Surveys by Household Sample (Pnads).

Table 2 shows that the answer to the above question is yes. It shows that the percentage of income appropriated by the poor, regardless of the cutting point used, increased in the period. As seen in Insert 2, whenever we have a generalized increase in the percentage of the income appropriated by the poorest segments of the population, we will also have a decrease in the degree of inequality, regardless of how it is measured. For example, the ratio between the income of the richest 20% and the poorest 20% shows that inequality decreased by nearly 20% between 2001 and 2004.

Graph 6 shows the evolution, over the past thirty years, of the Gini coefficient and three other inequality degree indicators commonly used. All of them confirm that inequality fell from a level close to the average of the past thirty years in 2001 to its lowest level in 2004.[32]

[32] See also Soares (2006) and Hoffmann (2006b).

Technical Note

GRAPH 6
Temporal evolution of inequality in *per capita* household income in Brazil
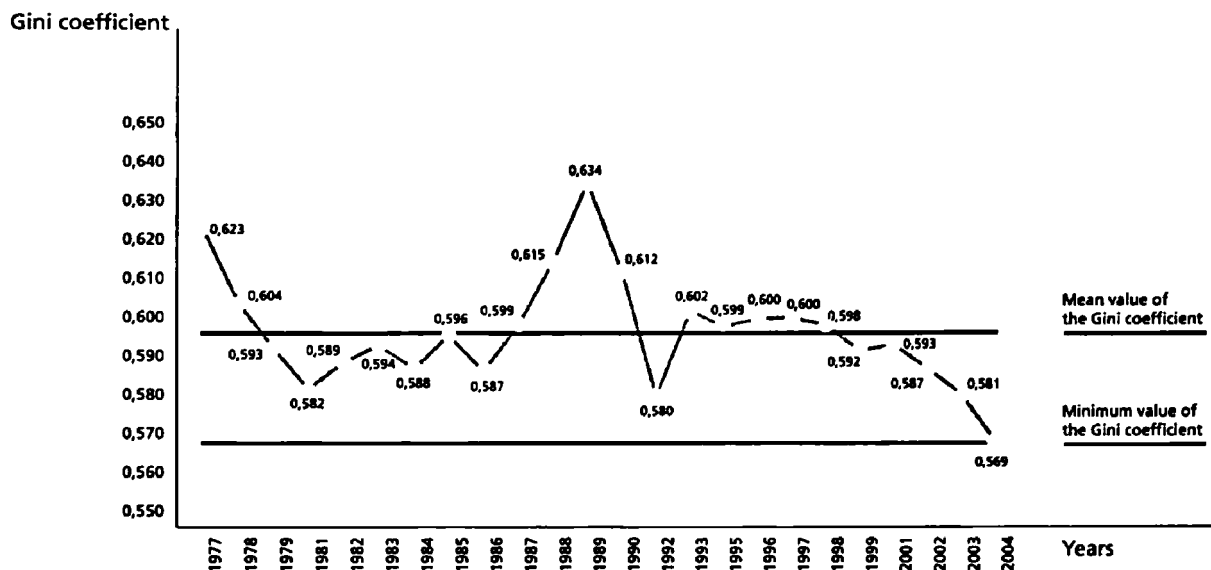
Gini coefficient

Mean value of
the Gini coefficient

Minimum value of
the Gini coefficient

Years

Source: Barros *et al.* (2006a and b).

Theil index

Mean value of
the Theil index

Minimum value of
the Theil index

Years
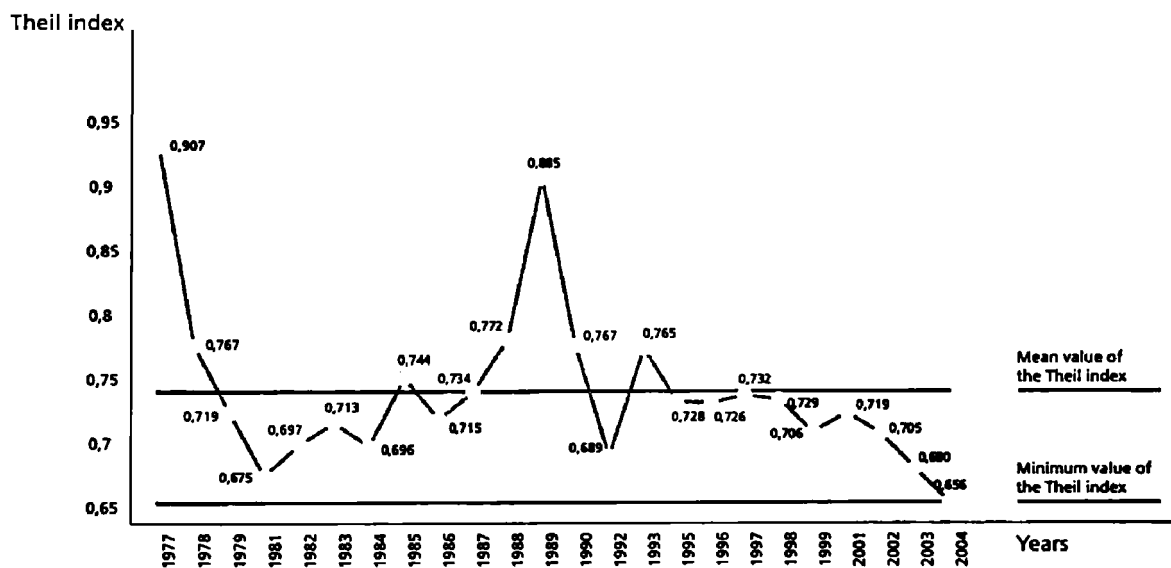
Source: Barros *et al.* (2006a and b).
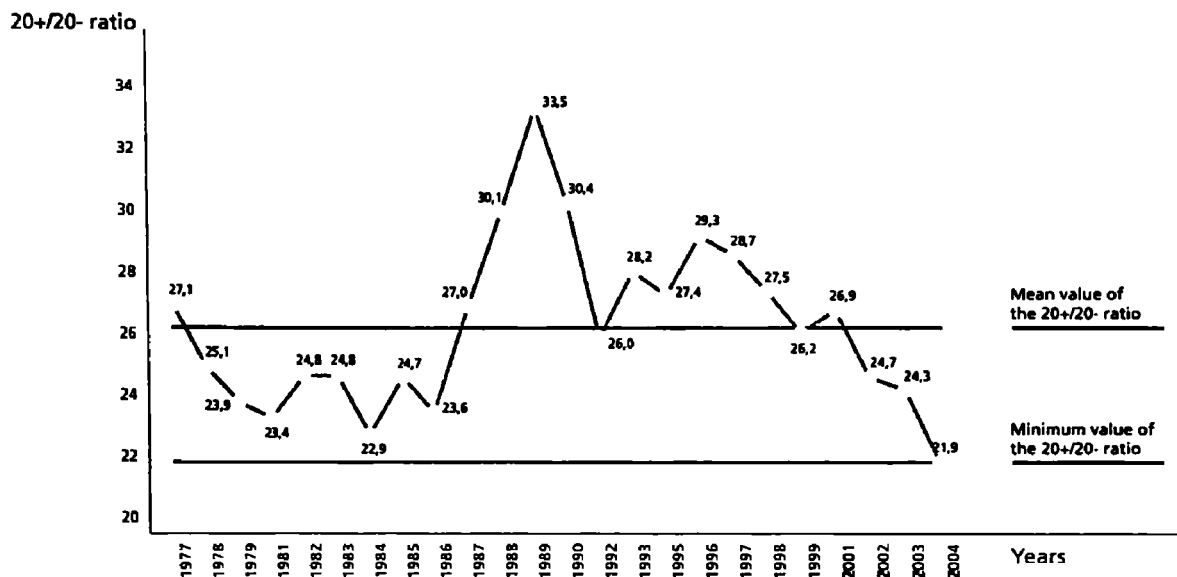
Source: Barros *et al.* (2006a and b).
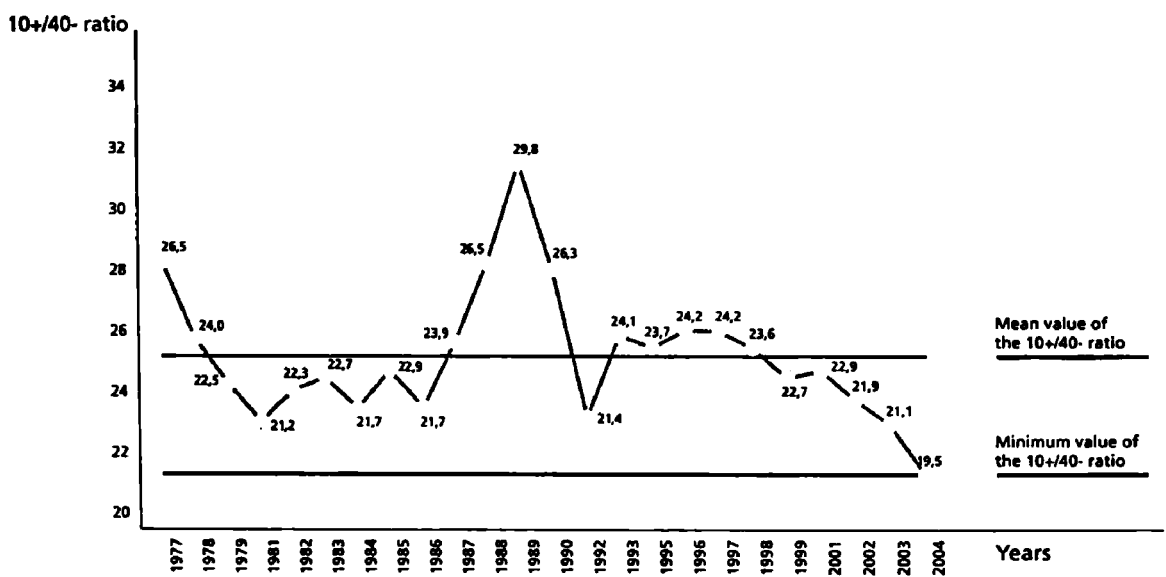
Source: Barros *et al.* (2006a and b).

4.2 Sensitivity of the fall in inequality to the income concept used

In section 2 we've indicated that the use of *per capita* household income suggests that: *(a)* there are no economies of scale in the household, i.e., the resources needed to meet the needs of a family twice as big

must also be twice as big; and *(b)* all members of the household need the same amount of resources. We know that neither of these assumptions is strictly true. In general, the need for income does not increase linearly with the size of the household and neither do the elderly, adults, and children need the same resources to live on. Since there is no information on either the importance of gains of scale or the needs of different types of people, we have chosen to use *per capita* household income, even in face of the simplification it implies.

More than the veracity of the previously suggested assumptions, it is important to assess their impact on the evolution of inequality. Table 3 shows that the fall in inequality does not change vis-à-vis them. The decrease in the Gini coefficient would be slightly higher if economies of scale did exist, and just slightly lower if the elderly needed more resources than children in order to meet their needs.

In short, the recent and sharp fall in the degree of income inequality is a solid reality. It can be seen regardless of the inequality measure used and there is no significant change even when economies of scale or needs differentiated by type of people are taken into account.

TABLE 3
Sensitivity of the fall in inequality to the economy of scale and to the differences in the needs of household members

Indicators	Gini Coefficient		Variation (%)
	2001	2004	
Without economy of scale	0,593	0,569	4,2
Small economy of scale	0,577	0,552	4,5
Mean economy of scale	0,566	0,539	4,7
Large economy of scale	0,558	0,531	4,8
Full economy of scale	0,555	0,529	4,7
Equal needs	0,593	0,569	4,2
Differentiated needs	0,596	0,572	4,0

Source: Barros *et al.* (2006c).

4.3 Nature and reliability of the information available[33]

As already mentioned, the empirical evidence of the fall in income inequality in Brazil and its determining factors presented in this report are based on Pnad. The data provided by that survey, which are collected by IBGE on an annual basis, are the main source of studies about income inequality in the country, given to both its scope and frequency as well as to the quality of the information provided. In fact, in international

[33] This section is based on Barros, Cury and Ulyssea (2006). See also Cury, Coelho and Pedroso (2006), and Tourinho, Costa da Silva and Alves (2006).

comparisons made by the World Bank and the United Nations, the information collected by Pnad is considered to be of excellent quality.[34]

Nonetheless, income inequality measures obtained from Pnad are somehow limited due to the difficulty the survey has to appropriately capture certain sources of income such as non-monetary income of small farmers, asset earnings, and volatile incomes that range from lottery gains to unemployment insurance or severance pay relating to dismissals for just cause. Income estimates based on household surveys such as Pnad tend to underestimate total household income. However, if the omissions are proportional to what has been captured, they will affect only the average income and not the degree of inequality. The difficulty therefore results not from the omissions per se, but from a possible imbalance in the way these omissions are distributed amongst the poorest and the richest segments of the population. On the one hand, the income of the richest is probably underestimated because asset incomes are underdeclared; on the other, the income of the poorest is probably underestimated because non-monetary incomes and occasional transfers (e.g. help from relatives) are underdeclared. It is not clear, a priori, that these omissions occur more often in a given income group. Determining the magnitude and direction of the impact of such underdeclared incomes on inequality is therefore an empirical issue for which there is little evidence available.[35]

In order to asses the issue and verify the validity of Pnad data for the analysis of income inequality, we have established a comparison between these data and those provided by the National Accounting System (SCN) and the Household Expenditure Survey (POF). The SCN provides the most thorough estimate of total household income and its distribution among large income categories, although it does not provide information disaggregated by household level. POF is a household survey (such as Pnad) oriented towards household expenditures and therefore provides more comprehensive and detailed information on income thus leading to a better estimate of the degree of income inequality.

A comparison between POF and Pnad data shows that the total household income assessed by the former is 20% higher than that assessed by the latter. This represents a significant difference. However, income inequality estimated on the basis of POF is only 0.3% higher than that obtained from Pnad thus allowing us to conclude that the way Pnad data are collected leads to an underestimation of the income of both the poorest and the richest. As a result, the impact of income underestimation on inequality is minimal. Moreover, this small difference in inequality level does not imply the existence of equally significant differences in temporal variation. On the contrary, it is possible that estimates of the variation in the degree of inequality in the 2001-2004 period were, according to

[34] See Deininger and Squire (1996) and UNDP (2005).

[35] It is worth emphasizing that if the proportion of underdeclared income is small, the distortion on the estimates of the degree of inequality should also be small. However, the reverse is not necessarily true; on the contrary, as it will be seen more clearly later on in this report, even where underestimation is meaningful, the impact on inequality could be small.

the two surveys, essentially identical. Unfortunately, as POF data were collected only once in that period, this assumption cannot be proven.

The comparison between the two household surveys and the national accounting system show three important aspects. Firstly, household incomes estimated from household surveys data are lower than those estimated from the national accounting system, and underestimation based on POF data is less than half that obtained from Pnad (Table 4a). Secondly, the difference found between POF and SCN is the same as that existing between POF and Pnad: POF income is 20% higher than Pnad's and 17% lower than SCN's. Finally, according to SCN and the household surveys, the most important component to explain income differences among households are the transfers received rather than asset earnings. As transfers should benefit primarily the poorest and asset earnings the richest, it is not clear that the use of household surveys or the National Accounting necessarily implies significant differences in the degree of income inequality. Actually, as the income captured by POF is only 17% lower than that captured by SCN, and 90% of this discrepancy is owed to differences in capturing transfers, it does not seem reasonable to assume that the inequality in household income captured by POF has been significantly underestimated. And this, in turn, is virtually identical to the inequality estimated from Pnad data.

Even if underestimation of household income by the household surveys leads to an underestimation of the degree of inequality, for this to influence the fall in inequality, underestimation would have to vary over time. Table 4b shows a comparison of estimates regarding the evolution of household income between 2001 and 2003, according to Pnad and SCN. The results show that, although the differential between the estimates obtained from these two sources of data increased by 5% in the period, this increase was not due to changes in asset earnings, since the difference in this item between the sources of data remained virtually unchanged in the period. On the contrary, the contribution of differences in this income source to explain the differences in total household income decreased more than 5% in the period. The main factor responsible for increasing the gap between Pnad and National Accounting was the growth in the portion of the gross operational surplus resulting from farming and cattle raising activities. As this income component captures, in part, labor income and is not particularly concentrated among the richest, this change could hardly have caused an increase in the degree of inequality that Pnad would have failed to capture.

TABLE 4a
Decomposition of household income based on Pnad, POF and the National Accounting System

Component	Level (current billion R$/year)			Composition (%)			Difference (%)			Contribution to difference (%)		
	Pnad-03	POF-03	SCN-03	Pnad-03	POF-03	SCN-03	POF/Pnad	SCN/Pnad	SCN/POF	POF/Pnad	SCN/Pnad	SCN/POF
Total income	827	995	1136	100,0	100,0	100,0	20	37	14	100	100	100
Imputed rent	87	125	108	10,5	12,5	9,5	44	25	-13	23	7	-11
Asset earnings (rent, interests and dividends)	18	40	78	2,1	4,0	6,8	129	342	93	14	19	27
Labor income and operational surplus	568	674	666	68,6	67,7	58,6	19	17	-1	63	32	-5
Labor income	568	674	470	68,6	67,7	41,4	19	-17	-30	63	-32	-144
Gross operational surplus	....	... ,.	196	....	....	17,3	... .	... .			....	....
Transfers	155	157	284	18,8	15,7	25,0	1	83	81	1	42	90

Source: Barros, Cury and Ulyssea (2006).

TABLE 4b
Decomposition of household income based on Pnad and the National Accounting System

Component	Level (current billion R$ per year)				Difference (%)		Contribution to difference (5)	
	Pnad		SCN		SCN/Pnad		SCN/Pnad	
	2001	2003	2001	2003	2001	2003	2001	2003
Total income	662	827	876	1136	32	37	100	100
Imputed rent	69	87	95	108	36	25	12	7
Asset earnings (rent, interest and dividends)	16	18	69	78	339	342	25	19
Labor income and operational surplus	461	568	509	666	10	17	22	32
Labor income	461	568	377	470	-18	-17	-39	-32
Gross operational surplus	....	....	132	196	....	....	....	....
Transfers	116	155	203	284	76	83	41	42

Source: Barros, Cury and Ulyssea (2006).

4.4 Statistical significance

All inequality measures used in this report were obtained from a sample of Brazilian households that make up Pnad. It is a large sample,

as each year Pnad interviews some 100,000 families. Although Pnad represents the universe of Brazilian households, it cannot be mistaken for it. In this regard, the data presented are but estimates that measure the true degree of inequality in the country within a margin of error.

It is therefore natural to ask whether – and to what extent the estimated fall results from a real decrease in the country's degree of inequality or from a random fluctuation. In statistical terms, the sampling design of Pnad allows one to assess the probability of observing a fall at least as high as the one actually seen (a 4% reduction in the Gini coefficient), based on the assumption that true inequality has remained unchanged.

Table 5 presents the result of two studies on this issue. It shows that, regardless of the inequality measure used, the probability of a fall higher than or equal to the estimated one - had inequality in the country not decreased, is lower than 1%. So, based on widely used statistical standards, we are forced to reject the assumption that there was no fall in the degree of inequality in Brazil between 2001 and 2004. In simpler terms, we are 99% sure that the fall was real and not just a statistical disturbance.

TABLE 5
Statistical significance of the recent fall in income inequality in Brazil

Inequality measures	Punctual estimate		Standard error		Inequality reduction			
	2001	2004	2001	2004	Estimate	Standard error	Statistics T	P-value
Gini coefficient	0,566	0,547	0,003	0,003	0,019	0,005	4,2	<1%
Theil-T	0,719	0,656	0,011	0,011	0,063	0,016	4,0	<1%
Theil-L	0,649	0,592	0,008	0,007	0,057	0,010	5,6	<1%
Distance between the arithmetic mean and the harmonic mean [1]	2,561	2,277	0,055	0,048	0,285	0,073	3,9	<1%

Source: Barros et al. (2006c).
Note:[1] See measure (H) described on footnote 21.

5 PROXIMATE DETERMINANTS OF THE RECENT FALL IN INEQUALITY

In this section we seek to answer why income inequality in Brazil fell so sharply in the 2001-2004 period, by focusing only on the factors that have affected it more directly, the so-called proximate determinants. It is worth pointing out that in this analysis the emphasis is not on the causes of high inequality in Brazil but rather on the causes that explain its recent fall.[36]

The following subsection contains the factors that can explain the recent fall in income inequality in Brazil as well as a brief discussion about the mechanisms through which these factors affect income inequality. In subsection 5.2 we investigate the importance of the evolution of demographic disparities to the recent fall in income inequality among households. In 5.3 we address the importance of the changes in government and private transfers, while in subsection 5.4 we go back to discussing the role of evolution in asset earnings. The importance of labor market changes to the recent fall in income inequality is analyzed in subsections 5.5 to 5.11. Initially, we investigate the absorption of workers by the labor market (subsection 5.5); next we concentrate on the evolution of inequality in wages (subsection 5.6) and its determinants (subsections 5.7 to 5.11). As we will see, the labor market can either generate inequalities or merely reveal preexisting ones. In subsections 5.7 and 5.8 we analyze how much of the fall in income inequality between households originates from changes in inequality revealed by the labor market, thereby emphasizing the role of the evolution of educational inequalities and experience. In subsections 5.9 to 5.11 we investigate the contribution of inequality generated by the labor market, more specifically discrimination and different forms of segmentation.

5.1 The analytical framework

Income inequality determinants are all the factors that cause the income of a household to be different from that of another. A factor that proportionally increases or decreases the income of all households has no impact on inequality and therefore would be incapable of explaining its reduction.

According to the analytical framework we've worked with, household *per capita* income depends on the demographic features of the household, on the labor income of adults as well as on other sources such as financial assets and government or private transfers. Labor income, in turn, depends on the proportion of occupied adults as well as on their wages, which, in turn, depends on how productive they are. Finally, labor productivity will be determined by the intrinsic characteristics of the workforce and by the quality of the jobs available. All these dimensions are taken into account in the analytical framework used (diagram 1).[37] Let us now see each one of them in sequence.

2001 and 2004 thus contributing to half of the fall in household income inequality. Although the reduction in labor income inequality has occurred systematically since the inception of the Real Plan, this process has gained intensity in recent years.

DIAGRAM 2
Proximate determinants of the fall in the degree of *per capita* household income inequality a

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                        ┌──────────────────────┐
                        │ Per capita household │
                        │    income 100%       │
                        └──────────────────────┘
        ┌──────────────────────┐        ┌──────────────────────────┐
        │     Demographic      │        │ Actual income generation │
        │ dependence ratio 2%  │        │  capacity of adults in   │
        └──────────────────────┘        │    the household 99%     │
                                        └──────────────────────────┘
```

Labor income 50% — Association between labor and non-labor income 15% — Non-labor income 35%

Labor wages 45% — Access to labor 3% — Transfers 34% — Asset earnings 1%

Labor productivity 18% — Other factors 14% — Labor market imperfections 13% — Private transfers 4% — Government transfers 30%

Labor market experience 2% — Schooling 16% — Discrimination 1% — Segmentation 12% — Government retirements and pensions & BPC 16% — Family granth 14%

Geographic segmentation 16% — Formal-Informal segmentation 5%

Urban-rural segmentation 5% — Capital-interior segmentation 11%

Source: Barros *et al.* (2006a, b and e).

One of the main factors behind this fall in labor income inequality is the decline in wage differentials by educational level, which also dates back to at least 1995 and gained speed between 2001 and 2004. Before 2001, its effects were not so visible because the increase in the educational inequality of the workforce neutralized them. About 15% of the recent fall in household income inequality is owed to the decrease in these educational differences.

Three out of every four Brazilians are adults (15 years of age or older) and their average income is approximately R$550.00/month. If children (under 15 years of age) are taken into account, the national *per capita* household income comes very close to R$ 400.00/month.

Demographic disparities are not necessarily a factor of income inequality promotion. For example, if the richest households were those with more children, then the demographic differences between the poor and the rich would act in the sense of reducing the degree of income inequality. Nonetheless, it is generally the poorest households that tend to show a higher dependence ratio (a higher number of children per adult in the household). This causes demographic disparities to end up contributing to increase *per capita* income inequality. In fact, if the proportion of adults were the same in all Brazilian households, income inequality would be 10% lower than the one actually observed.[39]

5.1.2 Transfers

Adult income originates from at least three sources: labor, government and private transfers, and asset earnings. In 2004, in Brazil, 76% of all household income came from labor, 21% from transfers, and 3% from assets. Most of the income inequality among households results from unequal access to these three sources.[40]

In Brazil, the share of government transfers to households is substantial. The amount captured by Pnad in 2004 alone totaled R$160 billion a year, or 90% of all transfers received by the families. Part of these resources is not linked to past contributions into the Social Security System thus representing, in its entirety, subsidies to the families benefiting from them. Such is the case of funds from the Continuous Monthly Benefit (BPC) and the Family Grant Program. However, most of these funds consist in transfers that are linked, to some extent, to past contributions (e.g. retirement/pension funds). But as the share of transfers is larger than the amount of such contributions, these transfers are also, in part, subsidies to the families that benefit from them.

Three characteristics of the transfers affect their impact on income inequality: *(a)* the magnitude of the benefits granted; *(b)* the level of coverage (the proportion of Brazilian households assisted); and *(c)* the degree at which assistance is focused on the neediest. The more generous the benefits and the higher the levels of coverage and assistance to the neediest are, the stronger their redistributive impact will be. Because they are better distributed than the other sources of income – despite the fact that they account for 20% of the overall income of Brazilian households, these characteristics are responsible for just some 10% of income inequality in the country.[41]

[39] See Herrán (2005, p. 63).

[40] See Lavinas and Nicoll (2006) for the comparison of income and its recent evolution.

[41] See Table 1 and Herrán (2005, p. 63).

5.1.3 Asset earnings

Pnad data enable identifying two types of assets: *(a)* rents; and *(b)* interests and dividends.[42] According to this source, in 2004 the amount of resources from rents received directly by the households was R$14 billion/year whereas earnings from interests and dividends totaled R$6 billion a year. As we have seen in subsection 4.3, a comparison with the National Accounting System shows a high level of underestimation. Based on that source, the monetary income of households originating from rents, interests and dividends is R$80 billion a year (Table 4a). Since it is clear that this level of underestimation has not changed in recent years, it probably had no significant impact on inequality reduction – see subsection 4.3.

Contrary to what occurs with transfers, asset earnings tend to concentrate mostly in higher-income households. So, although they represent just 3% of household incomes, about 10% of income inequality results from unequal access to asset earnings.[43]

5.1.4 The labor market

The labor market affects household income through two mechanisms: *(a)* access to labor, since only occupied individuals have labor income; and *(b)* the way occupied individuals are paid. The remuneration of family labor therefore depends on both the proportion of working members and on their wages.

In 2004, only 62% of the adult population (15 years of age or older) were economically active and of these, 9% were unemployed. The higher the participation rate and the lower the unemployment rate among the poorest, the lower also the degree of income inequality. In Brazil, some 5% of income inequality among households results from differentiated access to labor by their members.[44]

Labor wages bear a heavy weight in determining the income inequality observed. If all workers in the country were paid the same wage, over 60% of the inequality in *per capita* household income would be eliminated.[45] This large contribution results from the high participation rate of labor income in total household income as well as from significant wage differences among workers. For example, the average wage of the best paid 20% is 17 times that of the worst paid 20%.[46]

However, it is important to recognize that only part of wage inequality among workers is generated by the labor market. This, to a large extent, is restricted to revealing preexisting inequalities in workforce qualification and experience.[47]

Several studies indicate that the differences in years of schooling explain some 30% of wage inequality among Brazilian workers.[48]

[42] In fact, Pnad data on interests and dividends are collected together with information on transfers, such as those of BPC, *Bolsa Família* and others. The estimates presented here were obtained by separating transfers from financial earnings, based on the knowledge of the typical amounts of these transfers. For further detail see Barros *et al.* (2006d).

[43] See Herrán (2005, p. 63).

[44] See Herrán (2005, p. 63).

[45] See Herrán (2005, p. 63) and Barros, Carvalho and Franco (2004).

[46] Barros *et al.* (2006c) and Ramos (2006).

[47] The decomposition of wage inequality between the component revealed by the labor market and that generated by the labor market as well as the concepts involved can be found in Barros and Mendonça (1993; 1996).

[48] The analysis of the importance of education in explaining labor income inequality in Brazil dates back to the pioneer work of Langoni (1973). After an intensive academic debate, the topic was resumed late in the 1980s, having gained strength in the 1990s. In general, all papers indicate a high relevance of education in determining income inequality. See Almeida Reis and Barros (1991), Leal and Werlang (1991), Ferreira, Leite and Litchfield (2006), Barros, Henriques and Mendonça (2000), Fernandes and Menezes-Filho (2000), Menezes-Filho (2001a, b) and Ramos (2006).

Differences in experience generally account for the other 10%.[49] It is estimated that about 30% of income inequality among households results from wage disparities revealed by the labor market.[50]

The labor market generates inequality to the extent that workers with the same potential productivity are paid different wages.[51] There are essentially two ways through which the labor market can generate inequality.[52]

The first is segmentation, which occurs when workers with the same productive and non-productive characteristics in different segments of the labor market are paid differently. This inequality occurs typically among workers that have identical observable characteristics (color, age, gender, etc.), but are located in different sectors, regions or in the formal and informal markets. It is estimated that the different forms of segmentation of the Brazilian labor market explain some 20% of wage inequality among workers and 15% of income inequality among households.[53]

The second way is discrimination. In technical terms, we say that wage discrimination exists when equally productive workers holding equal jobs in the same productive segment of the labor market receive different wages. When equally productive black and white workers hold equal jobs in the same labor market segment and the whites have higher wages, we say that there is wage discrimination against blacks. In addition to color, workers can be discriminated against by reason of other characteristics such as age, sex, religion, etc. Although discrimination may be the most unfair expression of inequality, its quantitative relevance is limited, since it accounts for just 5% of inequality among workers as well as for a negligible fraction of inequality among households.[54]

5.2 The importance of demographic factors

In historical terms, the proportion of adults has increased in the country (Graph 7), since the number of children has remained unchanged over the past decade whilst the number of adults has increased by 2.5% a year. If this increase in the proportion of adults had been uniform among all households, it would have contributed to *per capita* income growth and poverty reduction, but would not have directly impacted on demographic inequality and income inequality.

[49] See Herrán (2005, p. 65).

[50] See Herrán (2005, p. 63).

[51] We say that two workers have the same potential productivity when they are perfect substitutes in production, i.e., regardless of the job they do, if one is substituted for the other, there will be no change in productivity.
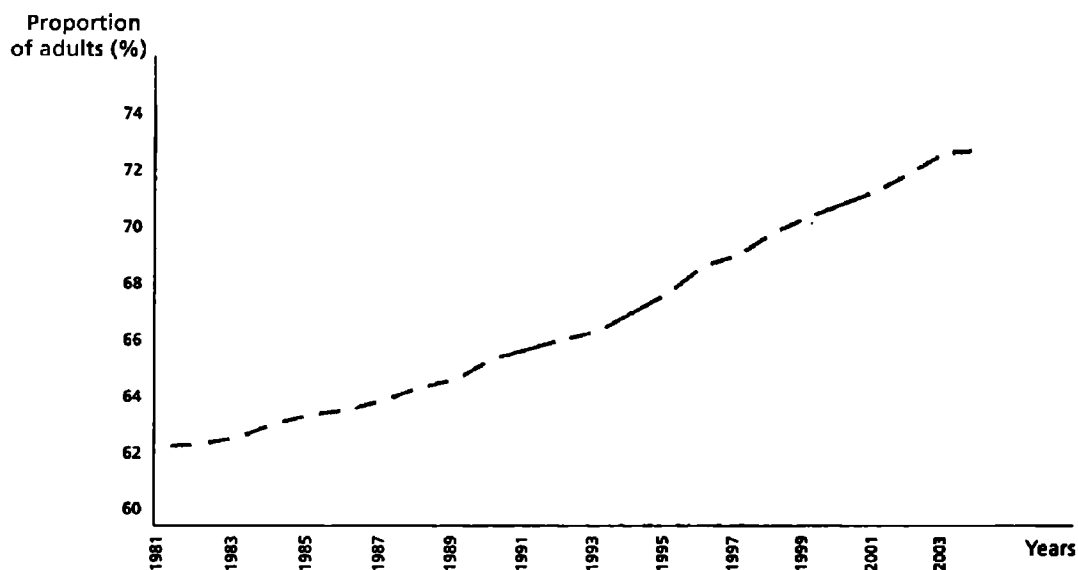
[52] For a broader picture of the two mechanisms through which the labor market generates inequality, segmentation, and discrimination, see also Barros and Mendonça (1993; 1996).

[53] See Herrán (2005, p. 63 and 65).

[54] See Herrán (2005, p. 65).

GRAPH 7

Evolution in the proportion of adults between 1981 and 2004

Source: Estimates based on the 1981 and 2004 Pnads.

Nonetheless, between 2001 and 2004 there was a reduction in demographic inequality among households and thus the proportion of adults did not increase uniformly. Unfortunately, this fall in demographic inequality did not result from an approximation of the demographic pattern between poor and rich households but rather from a homogenization within each income group. Table 6 shows that, although demographic inequality among income groups accounts for 25% of total inequality, its contribution to the fall in demographic inequality between 2001 and 2007 stood at a mere 7%.

TABLE 6

Evolution in demographic inequality in Brazil

				(%)
Demographic inequality[1]	2001	2004	Variation (in percentage points)	Contribution of variation to the decline in demographic inequality
Between hundredths	2,53	2,49	-0,03	7
Intra-hundredths	7,87	7,39	-0,47	93
Total	10,4	9,89	-0,51	100
Percentage of total inequality explained by inequality between hundredths	24	25	0,90	

Source: Estimates based on the 2001 and 2004 Pnads.
Note:[1] The inequality measure used is the square of the variation coefficient of the proportion of adults.

In order to evaluate the extent to which demography has contributed to the recent fall in the degree of income inequality, an estimate has been made of what the reduction in income inequality would have been like between 2001 and 2004 had the proportion of adults in each household not changed. In the absence of these changes, the fall in income inequality would have been just 2% below that which actually occurred.[55] In other words, demographic changes have contributed to explain the fall in income inequality between 2001 and 2004 but their impact was shy, far below even its contribution to the level of inequality in the country.

5.3 The importance of income transfers

As we have seen, the effectiveness of transfers in reducing inequality in *per capita* household income depends on changes in both the amount of resources mobilized and in the levels of coverage and focus on the neediest. Whenever there is an increase in the amount of transfers associated with an improvement in coverage and in the concentration of assistance on the neediest, a reduction in the degree of inequality is likely to occur.

The information available in Pnad allows us to identify the contribution to the fall in inequality of three types of transfer: *(a)* government pensions and retirements; *(b)* the Continuous Monthly Benefit (BPC); and *(c)* the benefits of *Bolsa Família* (Family Grant) and other similar programs such as PETI (Child Labor Eradication Program), *Bolsa Escola* (School Grant), etc.

Between 2001 and 2004 these three forms of protection had the total amount of their transfers increased. According to Pnad, when added to BPC the total amount of government pensions and retirements increased from R$140 billion to R$150 billion thus reflecting an increase of approximately R$10 billion in government expenditures. Transfers from *Bolsa Família* and similar initiatives jumped from less than R$2 billion to over R$4 billion a year.[56]

But how would these changes in government transfers have impacted on the recent fall in income inequality? In order to answer this question we have estimated what the fall in *per capita* household income inequality would have been like had government transfers not changed between 2001 and 2004. The results show that the fall in inequality would have been ¹/₃ lower than it actually was, thus indicating the high level of importance of this source of income.[57, 58]

For the purpose of isolating the specific contribution of each component, we have separately estimated how much inequality in *per capita* household income would have fallen if only one of the components had changed. The results obtained indicate that the three components have made similar contributions of around 10% each.[59, 60, 61] However, attention

[55] See Barros *et al.* (2006a and 2006b).

[56] See Barros *et al.* (2006d) and well as Kakwani, Neri and Son (2006a).

[57] See Barros *et al.* (2006d). Soares (2006) and Hoffmann (2006a) found a lower impact for this source of income (to them, the fall in inequality would have been ¼ lower than it actually was if transfers had not changed). Kakwani, Neri and Son (2006a), in turn, found a stronger impact (inequality would have fallen 50% less if transfers had not changed). See also Medeiros *et al.* (2006a and 2006b) for a similar analysis over a longer period of time (1995 to 2004). For an analysis including the effects of general balance see Cury, Leme and Pedroso (2006).

[58] The contribution of transfers to the fall in inequality is therefore much higher: both their 19% contribution to household income and their 12% contribution to the level of inequality among households (Herrán, 2005, pp. 63).

[59] See Barros *et al.* (2006d). This result is not supported by the work of Hoffmann (2006a), who finds a much more limited contribution to retirements and pensions.

[60] There are indications that the estimated growth of BPC has probably been overestimated as also has its contribution to the fall in inequality. The reason for that results from a combination of two factors. On the one side, the traditional difficulty of Pnad to separate BPC from other social security benefits, which characterizes the data for 2001. On the other, the fact that the introduction in 2004 of a special module containing specific requirements on BPC has substantially facilitated its separation from other social security benefits.

[61] As emphasized by Heckman (2006), although government transfers may immediately reduce income inequality, they can also generate dependence and discourage job supply, with negative long term consequences. The evidence on this issue in Brazil is controversial. On the one hand, Barros, Carvalho and Franco (2006) do not find any negative impact of *Bolsa Família* on the rate of women's participation in the labor market. Camargo and Reis (2005), on the other, find indications of negative impacts of social security on the supply of jobs for youths. As pointed out by Bourguignon (2006), one of the great advantages of programs such as *Bolsa Família* is exactly the requirement of conditionalities, which lead the program to, in addition to reducing inequality in the short term, have a structural long term impact, to the extent that it encourages investment in human capital.
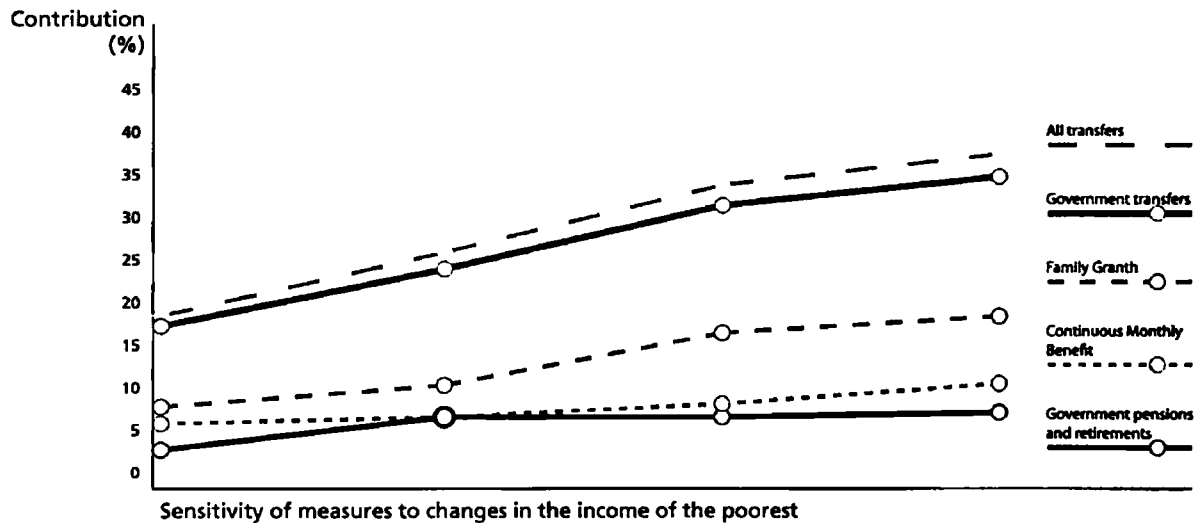
should be drawn to the fact that, in order to produce the same impact, the cost of expanding retirements and pensions in the period was 4 to 5 times higher than the cost of *Bolsa Família* and BPC.[62]

It is also worth emphasizing that the contribution of government transfers as a whole and mainly the private contributions of each component of the protection system are extremely sensitive to the inequality measure used. Graph 8 shows that the more sensitive the measure was to the income of the poorest, the more important the contribution of transfers to the fall in income inequality between 2001 and 2004 were. This indicates that the changes introduced in government transfers, particularly those resulting from the *Bolsa Família* Program, have benefited mainly the poorest segments of the population.[63]

In particular, when one considers the inequality measure obtained from the ratio between the income of the richest 20% and that of the poorest 20%, the positive effect of *Bolsa Família* exceeds by far the effects of both BPC and government pensions and retirements (Table 7).

GRAPH 8
Contribution of transfers to the reduction in inequality level, taking into account measures with different degrees of sensitivity to changes in the income of the poorest

Sensitivity of measures to changes in the income of the poorest

Source: Barros *et al.* (2006d).
Note: The measures used were, in order: D(2), D(1.5), D(1)=T, D(0)=L (See footnote n. 21 for a description of these measures).

[62] About the issue, see in particular Kakwani, Neri and Son (2006a).

[63] Hoffmann (2006a) also shows that measures that are more sensitive to changes in the lower end of income distribution indicate a bigger impact of transfers, although his definition of transfer does not include pensions and retirements.

Bolsa Família has not only benefited the poorest but also based its expansion in increased coverage rather than on an increase in the amounts

transferred to those that were already receiving it. In fact, its entire contribution to inequality reduction resulted from increased coverage.[64] The same applies to BPC. The opposite holds true for government pensions and retirements, with just an insignificant fraction of their contribution to inequality reduction coming from expanded coverage. These results are summarized in Table 7.

What about private transfers? According to the 2004 Pnad, some 2% of household incomes come from private transfers, which account for 10% of total transfers. Neither the amount of private transfers nor the benefits experienced a significant increase in the period. Consequently, these changes have contributed very little to the fall in income inequality under study.[65]

TABLE 7
Contribution of each transfer component and of the increase in the respective levels of coverage to inequality reduction in *per capita* household income

| | Contribution to reduction in *per capita* income inequality | | Contribution of increased coverage to the fall in *per capita* income inequality (Gini coefficient) |
	Ratio between the highest 20% e the lowest 20%	Gini coefficient	
Bolsa Família (Family Grant)	27	14	19
Continuous Monthly Benefit (BPC)	14	9	8
Social security or federal government retirements and pensions	1	11	1
Private transfers	3	3	0

Source: Barros *et al.* (2006d).

Finally, we see that over the past years transfers as a whole (both government and private) have begun to benefit the poorest segments of society . In fact, in 2001 their participation in the income of the richest 20% was higher than in the income of the poorest 20%. In 2004, a 5% increase in the participation of transfers in the income of the poorest turned the situation around. If the level of assistance to the poor had remained the same as in 2001, the degree of inequality would have fallen 15% less than it actually did.[66]

5.4 The importance of asset earnings

According to Pnad, asset earnings in 2004 totaled R$20 billion/ year and remained virtually unchanged during the period under analysis.

[64] Barros *et al.* (2006d).

[65] Barros *et al.* (2006d) estimate that changes in non-government transfers contribute less than 3% to the fall in inequality.

[66] Barros *et al.* (2006b) show that if the association between labor income and non-labor income had not changed, the fall in inequality would have been 15% lower.

The proportion of adults with access to this source of income also remained unchanged in that period at around 3%. Using the national accounting as a benchmark, one notices that the item "income from the land, interests, dividends and withdrawals (asset earnings)" has not changed either.[67] The nominal interest rate (the Selic rate) has even declined slightly by 1%.[68] In tune with these results, several studies show that asset earnings have contributed nothing to reducing the degree of income inequality in the country.[69]

The aforementioned scenario leads us to conclude that, on the one hand, it is undeniable that asset earnings have been underestimated by Pnad; on the other, there seems to be no evidence that they have interfered in the recent fall in income inequality in Brazil.[70]

5.5 The importance of access to labor as well as of unemployment and participation

Between 2001 and 2004, the number of available jobs increased from 73 million to 80 million, at a pace faster than that of the Active Age Population. As a result, there was an increase in participation rates and a decrease in unemployment rates. In fact, participation rates grew by 1.4 percentage points from 9.5% to 9.1%. Unemployment rates, however, declined by just 0.4 percentage points from 9.5% to 9.1%. Despite this fall in unemployment rate, the number of unemployed workers rose from 7.7 million to 8.0 million in the period.

These changes have contributed to reduce the degree of income inequality, although modestly. Had participation rates not grown and unemployment rates not declined, the fall in the degree of inequality would have been 3% lower than it actually was.[71] The contribution of job creation to reducing inequality was limited because many of those jobs were taken by workers in households where other people were already employed. For the impact of greater labor absorption to be as high as possible, beneficiaries of the increase in the number of jobs would have to be members of households where few adults are employed. Nonetheless, as shown in Graph 9, the recent variation pattern in the rate of employed adults has not particularly favored the poorest.[72]

[67] See section 4.3.

[68] Cf. Ipea / data.

[69] See Barros et al. (2006d) and Hoffmann (2006a).

[70] The contribution of changes in the distribution of asset earnings to the fall of inequality in per capita household income between 2001 and 2004 is much lower than the contribution of this source to household income level (3%) and also much lower than the relevance of this source to the degree of income inequality among households, which is 10% (Herrán, 2005, p. 63).

[71] See Barros et al. (2006a and b).

[72] See also Kakwani, Neri and Son (2006a).

GRAPH 9
Evolution in employment rates by tenth of *per capita*
household income distribution
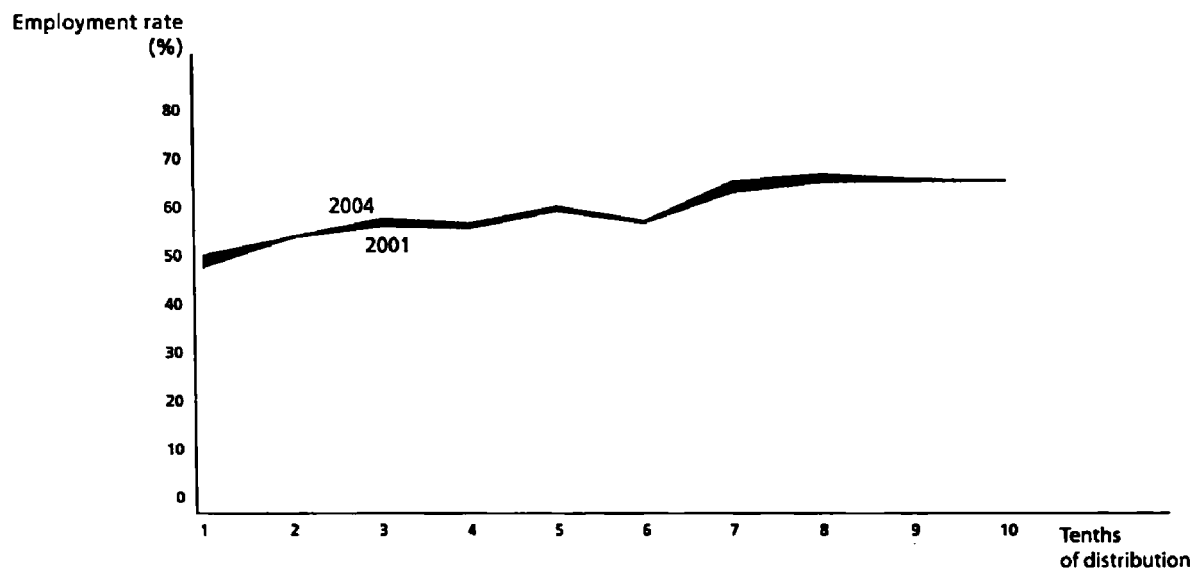
Source: Estimates based on the 2001 and 2004 Pnads.

5.6 The importance of labor income distribution

In Brazil, labor income inequality[73] fell sharply between 2001 and 2004 (Graph 10).[74] Since 76% of the income of Brazilian households comes from labor, the fall in the inequality of incomes from this source has substantially contributed to the fall in income inequality among households. Had these changes not occurred, *per capita* income inequality would have decreased only half of what it actually did.[75, 76]

Although the falling trend in income inequality among households is a recent phenomenon, labor income inequality fell in the last decade.[77] In fact, Graph 10 shows that at least since 1995 labor income inequality has fallen systematically. It also shows that, although this systematic fall started several years ago, it has clearly gained speed in recent years. Indeed, the decline in the Gini index foreseen for the 2001-2004 period, starting from its historical evolution, is only ²/₃ of that actually recorded. As a result, although labor income inequality has shown a falling trend in the post-Real period, the recent period has been characterized by an acceleration of this process thus explaining half of the recent fall in income inequality among households.

[73] In this case, we refer to income inequality of all types of jobs, and only among occupied workers.

[74] Using different inequality measures, Ramos (2006), Menezes-Filho (2006), Ulyssea (2006), Azevedo and Foguel (2006), and Hoffmann (2006b) also show that labor income inequality has not just declined over the 2001-2004 period but also shown a substantial decline throughout the Post-Real period. See also Kakwani, Neri and Son (2006a).

[75] Barros *et al.* (2006a) show that if labor income had not changed between 2001 and 2004, the fall in inequality would have been 45% lower. Using a different methodology, Barros et al. (2006e) find a contribution of 43% to the changes in labor income.

[76] Despite the great importance of this factor to the fall in inequality, its contributions to income level (76%) and to the degree of income inequality among households (61%) are even higher. Therefore, although it is one of the most important factors to explain the recent fall in inequality in the country, its contribution to the fall is much lower than its contribution to the levels of inequality and *per capita* income.

[77] Due to interpretation difficulties in the pre-Real Plan period, which was marked by high inflation rates, we have chosen to focus our attention on the post-Real Plan period.

GRAPH 10
Evolution of labor income inequality among workers

Gini coefficient
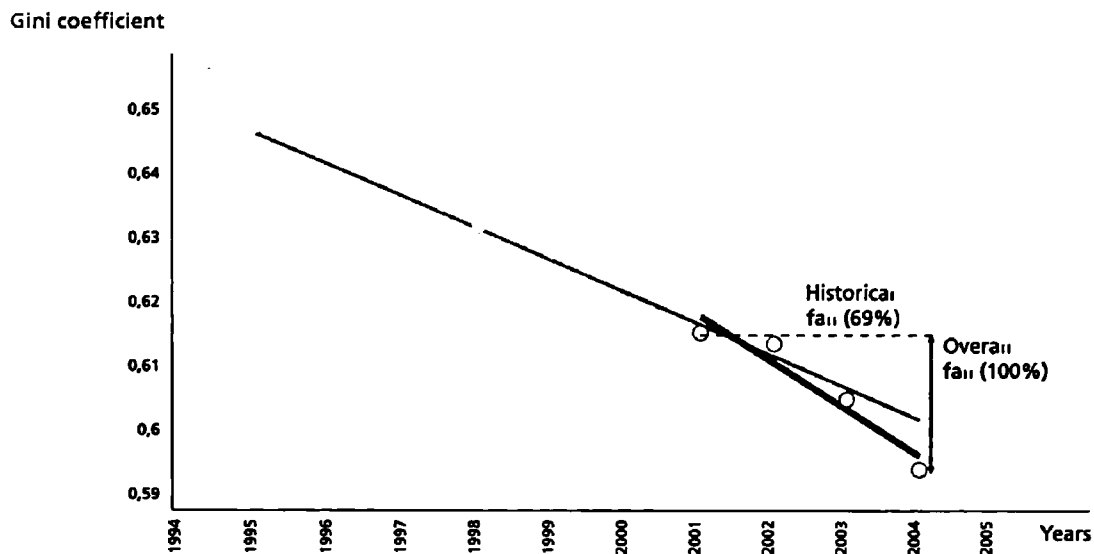
Surce: Barros *et al.* (2006e).

In the next sections we will analyze one of the possible determinants of the fall in labor income inequality. Our objective is to clarify the extent to which these changes have been generated by the market or just revealed by it. We will start by evaluating how much the labor market has revealed.

5.7 An inequality revealed: the importance of schooling

As mentioned before, about 30% of labor income inequality results from differences in schooling levels among workers and, in this case, the labor market is but a translator of educational inequality into income inequality.

However, the inequality revealed by the labor market is not determined just by the magnitude of educational inequality among workers. It also depends on how the market assesses these differences in schooling. In some markets, small educational differences can lead to small wage differentials whereas in others these same educational differences can lead to huge wage differentials. The income inequality revealed by the market depends therefore on both educational inequality and the magnitude of wage differences among workers with different levels of schooling (wage differences by educational level). In two markets with the same educational inequality, that with the lowest wage differential by

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educational level will also reveal the lowest income inequality. Similarly, in two markets assigning equal value to schooling differences, that with the lowest educational inequality will also reveal the lowest income inequality.

Therefore, for schooling to have contributed to the fall in income inequality and consequently to the reduction in *per capita* income inequality, either educational inequality among the workforce or wage differentials by educational level (or both) must also have declined. Both decreased during the 2001-2004 period thus contributing to the fall in income inequality among households. Together they account for $^1/_3$ of the fall in labor income inequality as well as for 15% of the fall in *per capita* household income inequality.[78]

As regards educational inequality, between 2001 and 2004 the workforce became slightly more homogeneous (Graph 11). This homogenization accounted for a little more than 10% of the fall in labor income inequality and for some 5% of the fall in *per capita* household income inequality.[79]

GRAPH 11
Temporal evolution of the standard deviation of schooling among employed individuals

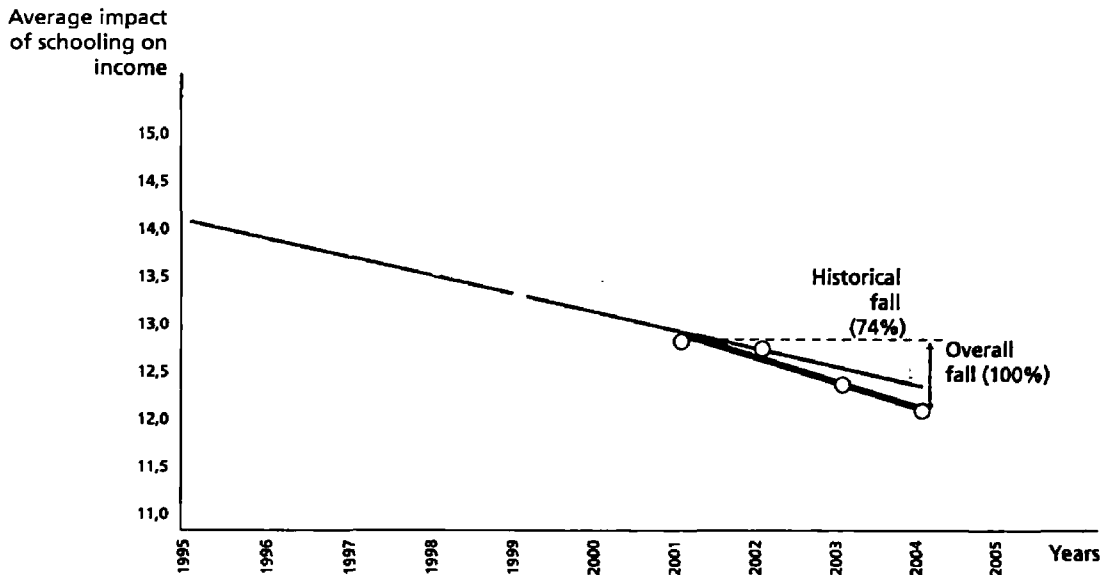
Standard deviation
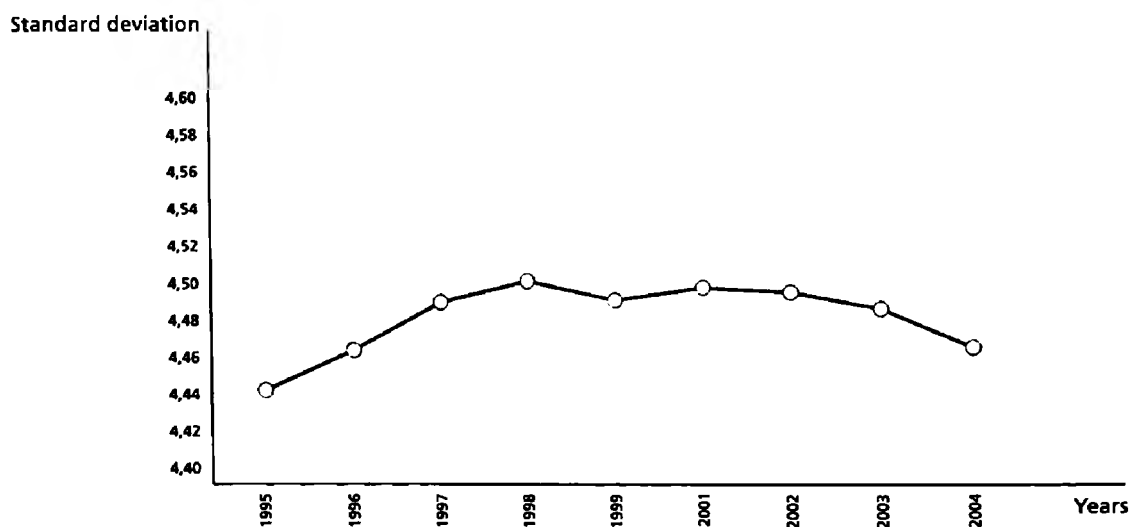
Source: Barros *et al.* (2006e).

As for wage differences by educational level, these declined considerably in the same period (Graph 12a) thus contributing almost 20% to the fall in labor income inequality and 10% to the fall in *per capita* household income inequality. This factor was therefore at least twice as

[78] See Barros *et al.* (2006e). Menezes-Filho (2006) obtained similar results by using an alternative methodology.

[79] See Barros *et al.* (2006e). Menezes-Filho (2006) obtained similar results by using an alternative methodology in this aspect as well.

important as the fall in educational inequality to explain the fall in *per capita* household income inequality.[80,81]

GRAPH 12a
Evolution of the impact of schooling on labor income

Average impact
of schooling on
income

15,0
14,5
14,0
13,5
13,0
12,5
12,0
11,5
11,0

Historical
fall
(74%)

Overall
fall (100%)

1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005   Years

Source: Barros *et al.* (2006e).
Note: See graph 10.

[80] See Barros *et al.* (2006e) and Menezes-Filho (2006).

[81] In general terms, several studies show that the fall in labor income inequality since the inception of the Real Plan results primarily from reductions in wage differentials among different groups of workers and, particularly, by educational level. Also according to these studies, changes in the composition and allocation of the workforce made a small contribution to the fall in inequality which, in some cases, was even perverse - see Menezes-Filho, Fernandes, and Picchetti (2003); Firpo and Reis (2006); Ulyssea (2006); Azevedo and Foguel (2006).

[82] For the evolution of educational inequality see also Ulyssea (2006) and Kakwani, Neri and Son (2006a).

[83] See Menezes-Filho (2006).

[84] See also Barbosa and Pessoa (2006), Menezes Filho (2001b) and Kakwani, Neri and Son (2006a).

The homogenization of workforce schooling is a recent phenomenon. Up until 2001 inequality was rising[82] and therefore did not contribute to reducing the labor income inequality seen until then. Because it is a recent event, homogenization explains in part the sharp fall in labor income inequality seen in the past years.[83]

Contrary to educational inequality, wage differentials by educational level have declined continuously since the inception of the Real Plan (Graph 12a). However, these differentials have not fallen in uniformly for all educational levels, since the fall was much sharper in basic education (Graph 12b).[84]

In fact, wage differentials between workers with secondary education and those with basic education have remained stable whereas differentials between workers with college education and those with secondary education have experienced a slight increase (Graph 12b). This decrease in wage differentials by educational level is one of the main factors responsible for the continuous fall in labor income in the period. However, there are indications that this fall has gained speed since

2001 (Graph 12a). This, in part, also helps to explain the concomitant acceleration in the fall of labor income inequality.[85]

GRAPH 12B
Evolution of the impact of schooling on workers' wages by educational level

Impact of an additional year of schooling on wages
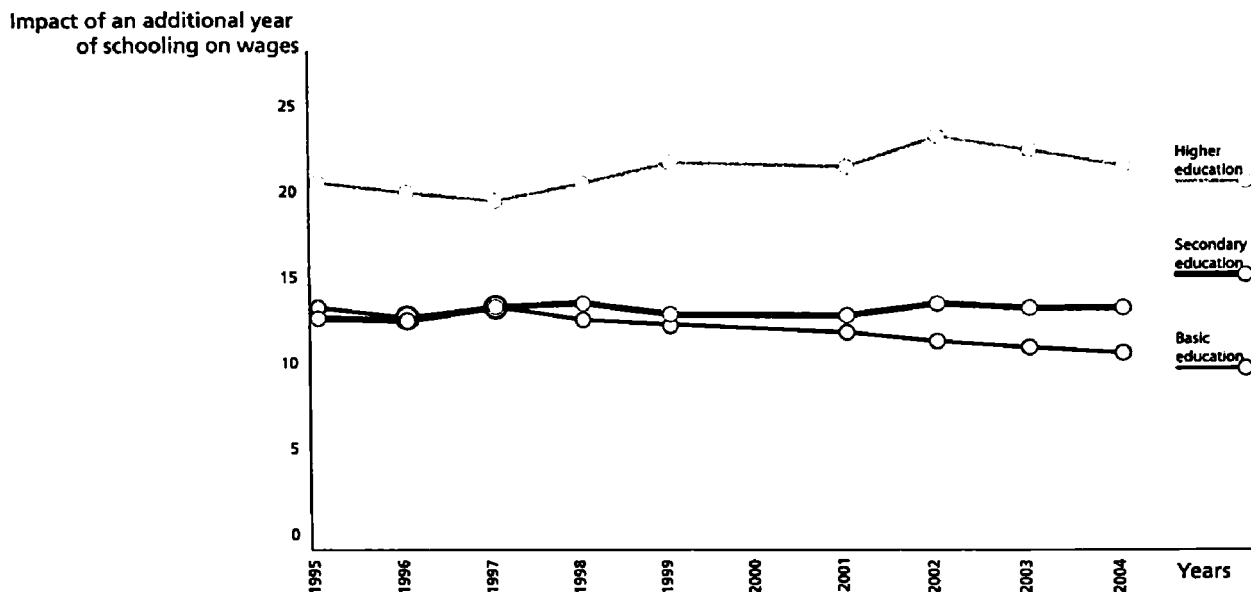
Source: Barros *et al.* (2006e).
Note: See graph 10.

5.8 Another inequality revealed: the role of experience in the labor market

The intrinsic productivity of workers is not determined by their level of schooling alone. Their overall experience in the labor market and particularly in their jobs also matters. As a consequence, part of the inequality revealed by the labor market results from experience differentials among workers. About 10% of labor income inequality in Brazil results from these disparities.[86]

The reduction in child labor, the rise in schooling, and the increasingly late entry of young people into the labor market have made the workforce older but less experienced (Graph 13a). Concomitantly, age heterogeneity and, to a lesser extent, heterogeneity in experience are decreasing thus contributing to the fall in wage and *per capita* household income inequalities (Graph 13b). Nonetheless, as these disparities are decreasing at a very slow pace, their contribution to inequality reduction has been limited.[87]

[85] See Menezes-Filho (2006) and Ulyssea (2006).

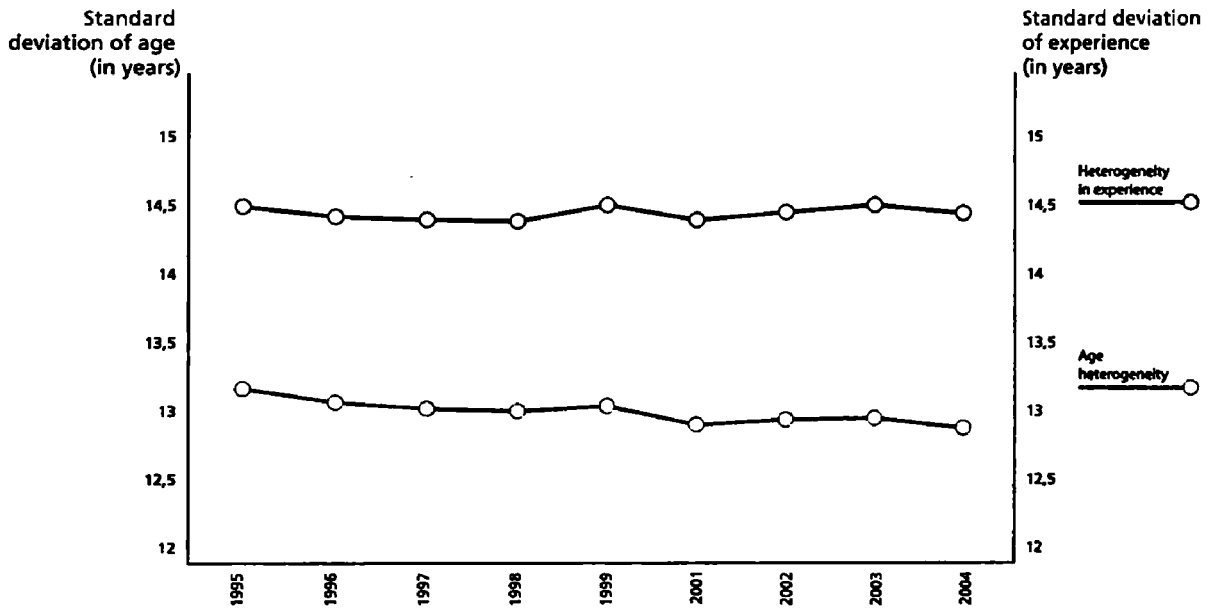[86] See Herrán (2005), and Barros, Carvalho and Franco (2004).

[87] See Barros *et al.* (2006e).

GRAPH 13a
Evolution of average age and experience

Age (in years)

Experience (in years)

Average age
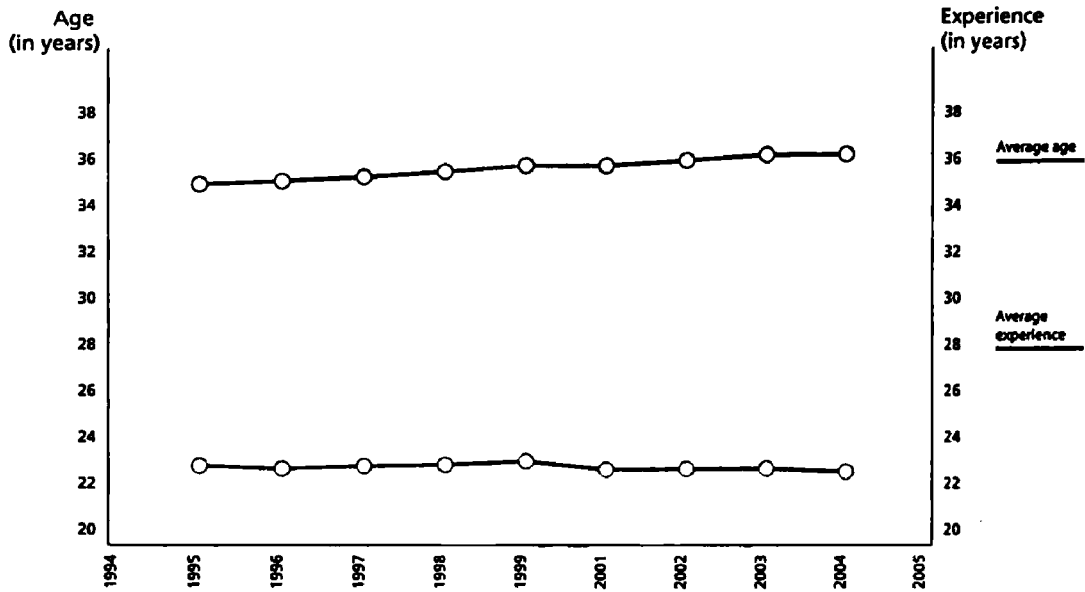
Average experience

GRAPH 13b
Temporal evolution of age and experience heterogeneity in the labor market

Standard deviation of age (in years)

Standard deviation of experience (in years)

Heterogeneity in experience

Age heterogeneity

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However, the contribution of experience to income inequality does not depend on its heterogeneity alone. As in the case of education, the inequality revealed depends also on how the market pays workers with different levels of experience. Wage differentials by age or experience in the labor market have grown slowly and systematically over the last decade (Graph 14) and therefore cannot explain the reductions in wage inequalities.[88]

GRAPH 14
Temporal evolution of the impact of an additional year of experience
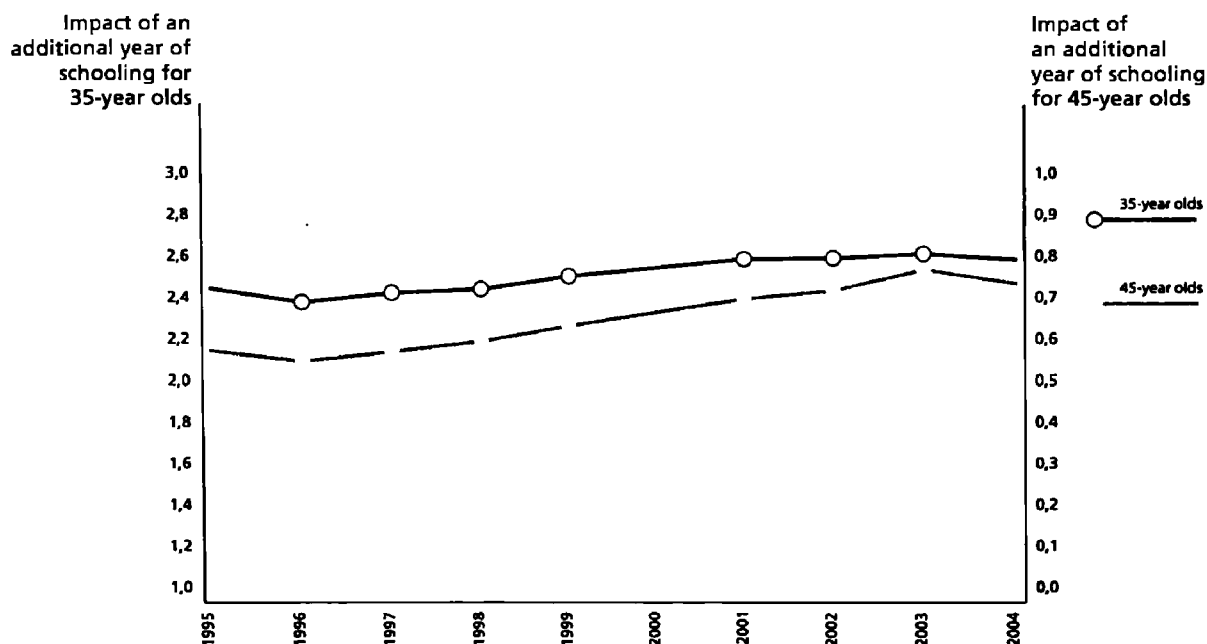
Source: Barros *et al.* (2006e).

In summary, these two forces are acting in opposite directions. While workforce heterogeneity has contributed to reducing income inequality, the increase in wage differentials by age and experience has had the opposite effect. The net result is negligible.[89]

### 5.9 Generated inequality: wage discrimination by race and gender

We have seen that the labor market not only reveals preexisting inequalities but also generates certain wage inequalities. In Brazil, as in virtually all countries, women's wages are much lower than men's: in 2004, men with the same observable characteristics as women's were paid 70%

[88] Ramos (2006) shows that the contribution of the workers' age component to wage inequality is low and remained stable between 2001 and 2004.

[89] See Barros *et al.* (2006e). Azevedo and Foguel (2006) show that inequality among experienced groups remained stable between 2001 and 2004.

more. Although these differentials decreased between 1993 and 2001, since then they have remained relatively stable, with a slightly rising trend in the 2001-2004 period (Graph 15).[90] Since gender discrimination has not declined, it was not one of the causes behind the recent fall in *per capita* income inequality in Brazil.[91]

GRAPH 15
Wage differential between men and women and blacks and whites –
1995 to 2004
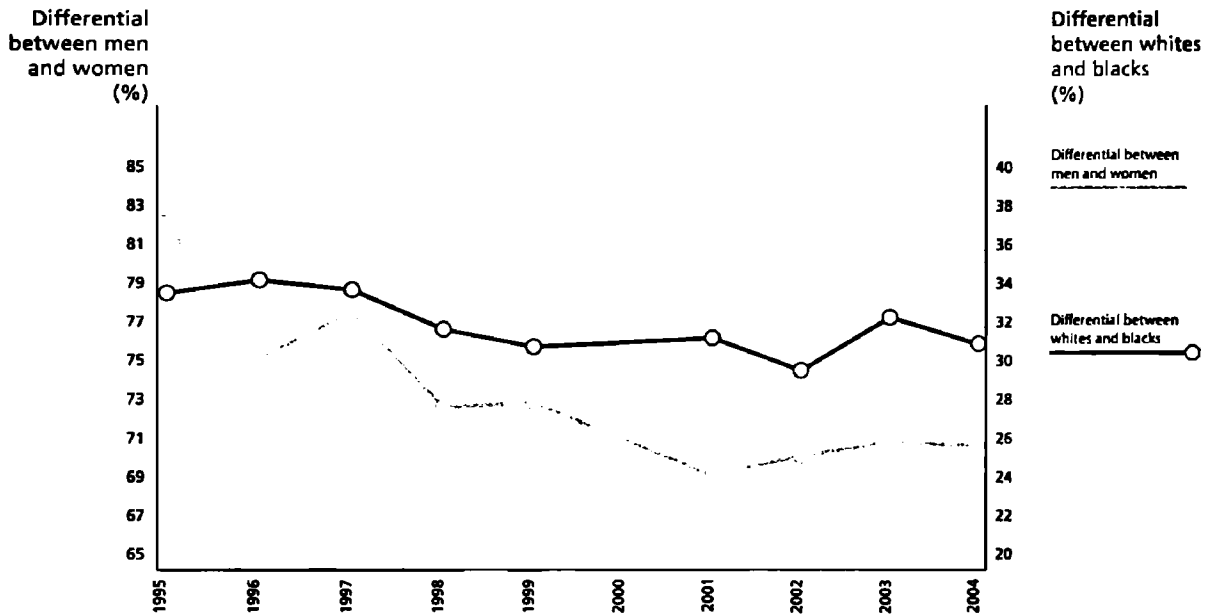
Source: Barros *et al.* (2006e).

Also high in Brazil are labor income differentials between whites and blacks. These differentials, however, are much lower than their corresponding gender differentials (Graph 15): whites with the same observable characteristics as blacks' are paid 30% more. Although these differentials have declined over the past decade, their quantitative importance to explain the recent fall in income inequality in the country is negligible.[92]

5.10 Other inequalities generated: spatial segmentation

In a continental country like Brazil, the ideal of integrating regional labor markets is hard to be attained. The information available allows us to investigate at least three types of spatial segmentation and their respective contributions to the recent fall in income inequality.

[90] See Barros *et al.* (2006e), and Ulyssea (2006). For a detailed analysis of the recent evolution of gender disparities see Lavinas and Nicoll (2006).

[91] Ferreira, Leite and Litchfield (2006), and Ramos (2006) also found that gender differentials have contributed little to inequality reduction in Brazil.

[92] Based on his decomposition exercise, Ramos (2006) finds a very small contribution of the color component, which represents a little less than half the contribution of the gender component.

First, we evaluated the segmentation of labor markets by Units of the Federation. How different, for example, are the wages of workers with the same productive characteristics in the states of Pernambuco and São Paulo? In 2004, the wage of São Paulo workers was 60% higher than that of Pernambuco workers with the same productive and labor market insertion characteristics.[93] Reductions in these high wage differentials among Units of the Federation represent a potential source to explain the recent fall in income inequality. Nonetheless, as shown in Graph 16, over the past decade labor markets in different Brazilian states have not become more integrated and therefore are not contributing to the reduction in the degree of income inequality.

GRAPH 16
Evolution of wage disparities among Units of the Federation
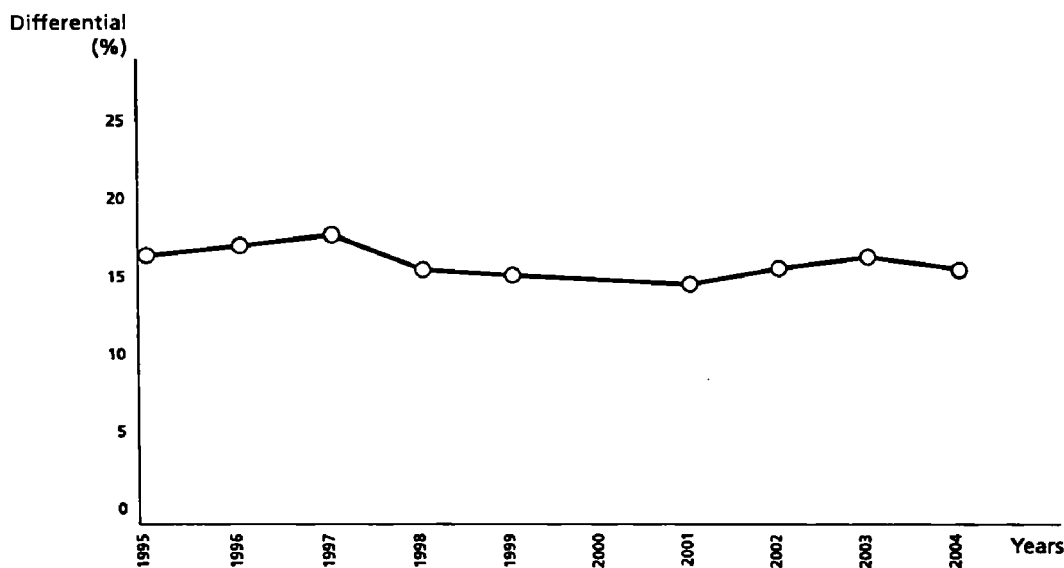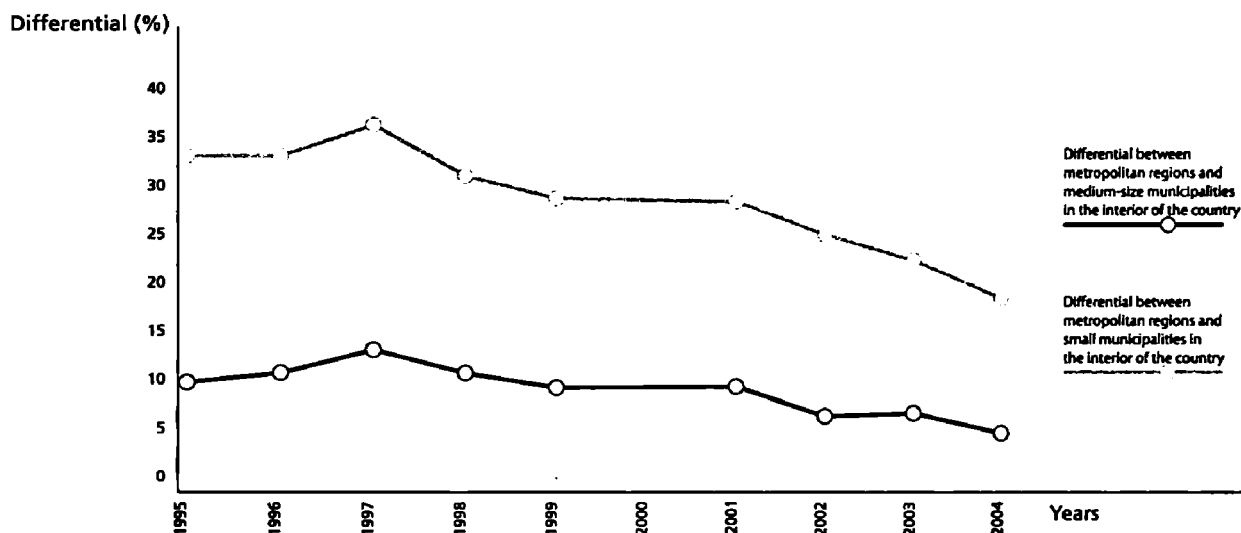

Source: Barros et al. (2006e).

Secondly, several markets co-existing in the same state are often little integrated. Typically, wages are higher in the capitals and lower in small municipalities in the interior of the country. In 2004 the wages of workers in metropolitan regions were nearly 20% higher than those of workers with similar characteristics and occupations in small municipalities in the interior.

As shown in Graph 17, disparities between capital cities and medium-size municipalities in the interior of the country as well as between medium-size and small municipalities in the interior of Brazil experienced a sharp

[93] See Barros et al. (2006e).

decline between 2001 and 2004.[94] This greater integration among labor markets in large, medium-size and small municipalities has contributed significantly to reducing inequality. Had this greater integration not occurred, the fall in labor income inequality would have been 20% lower and the fall in *per capita* household inequality would have stood below that actually recorded.[95]

GRAPH 17
Evolution of wage differentials by size of the municipality

Differential (%)

Source: Barros *et al.* (2006e).

Graph 17 also shows that this growing integration between capitals and the interior is not a recent phenomenon. It has been taking place at least since the inception of the Real Plan and has therefore been one of the contributing factors to the continuous fall in labor income inequality. It is worth pointing out, however, that while segmentation between medium-size municipalities in the interior of the country and metropolitan regions has decreased at virtually the same pace over the past ten years, the disadvantages of small municipalities in the interior of Brazil has declined at a faster pace in the past three years and therefore contributed to explaining the acceleration in the fall of labor income inequality between 2001 and 2004.

Finally, spatial wage disparities among workers with the same productive characteristics still persist even within the same municipality. The most outstanding are those between urban and rural areas. In 2004, the wages of urban workers were nearly 10% higher than those of rural

[94] See also Rocha, Ulyssea and Szerman (2006), and Ulyssea (2006).

[95] See Barros *et al.* (2006e). Ulyssea (2006) shows similar results.

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workers with the same observable characteristics in similar jobs. Over the last decade, but mainly since 2001, the degree of integration between urban and rural labor markets has increased substantially thus reducing the wage differential between the two areas (Graph 18). This greater integration has contributed to reducing both labor income inequality and inequality in per capita household income, although in a limited way. Had the integration process not occurred, the fall in *per capita* household income inequality would have been 5% lower.[96]

GRAPH 18
Evolution in wage differentials between urban and rural areas
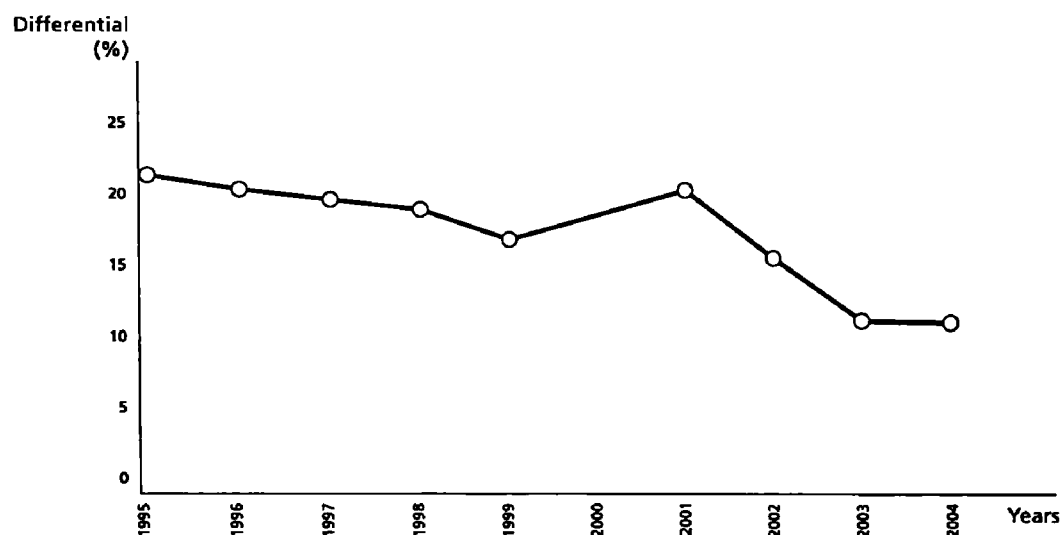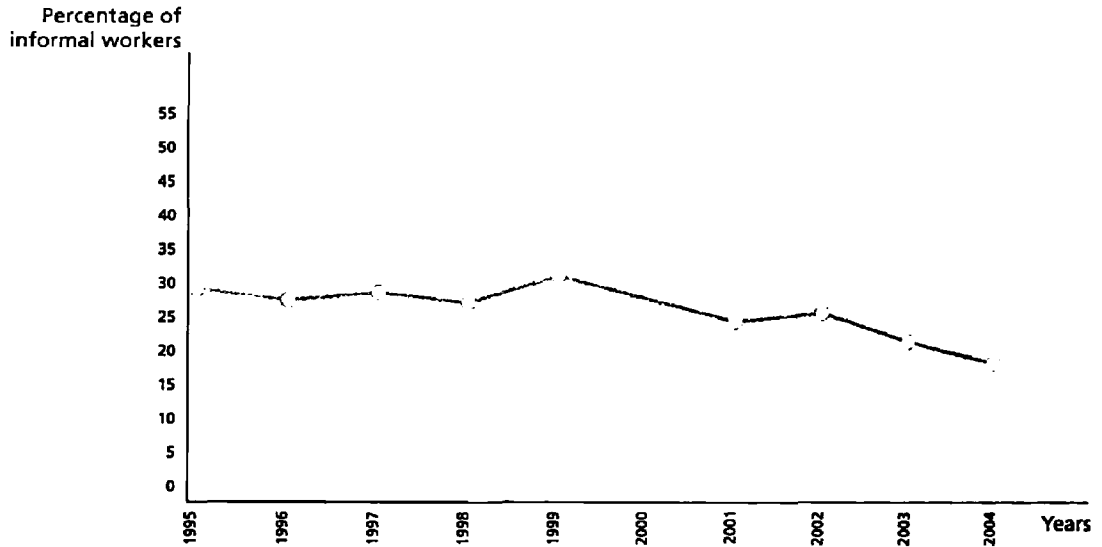

Source: Barros *et al.* (2006e).

5.11 Formal-informal segmentation

One of the most visible forms of segmentation of the Brazilian economy occurs between the formal and informal segments. Typically, the wages of informal workers are 30% to 40% lower than those of formal workers with the same productive characteristics.[97] Despite the decline in the degree of labor market informality (Graph 19), wage differentials between formal and informal workers have increased significantly over the years (Graph 20).

[96] See Barros *et al.* (2006e).

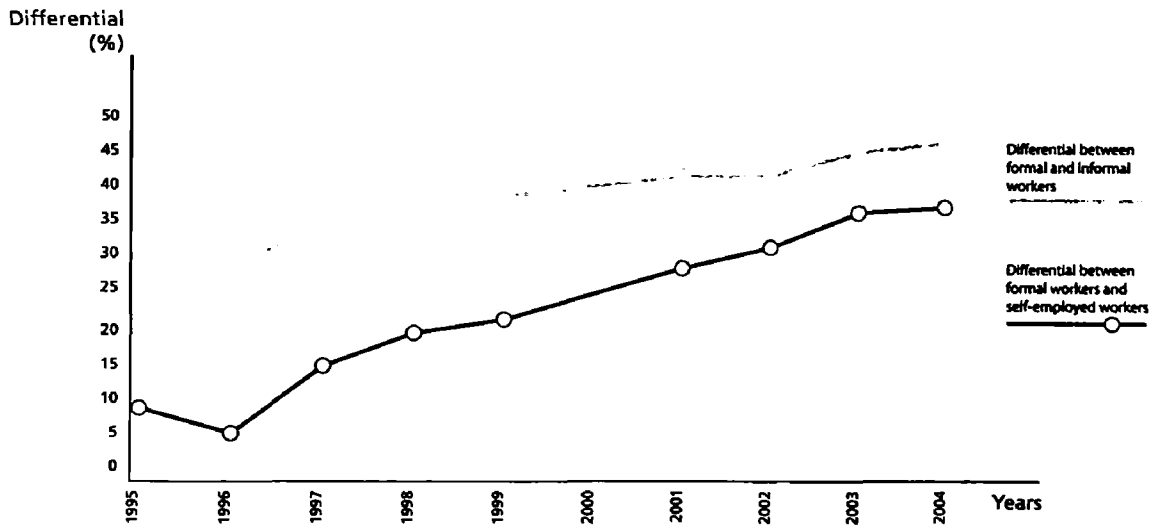[97] According to Pnad, informal workers are those who are employed without working papers or are self-employed. Formal workers are those employed with working papers or as civil servants.

GRAPH 19
Evolution in the degree of informality

Source: Barros *et al.* (2006e).
Note: See graph 20.

GRAPH 20
Evolution of wage differentials between the formal and informal segments

Source: Barros *et al.* (2006e)

The decrease in the degree of informality has contributed to reducing both wage inequality among workers and income inequality among households, but the increase in the wage differential among formal and informal workers has acted in the opposite direction. The increase in the degree of segmentation has prevailed over the reduction in the degree of informality and led these two forces, together, to contribute to an increase rather than to a decrease in the degree of inequality. Had the degree of segmentation between the formal and informal sectors not increased over the past years, the fall in income inequality among households would have been 5% lower than it actually was.[98]

5.12 Summary of the main results

The objective of this section is to identify the immediate causes of the significant fall in income inequality in Brazil in the 2001-2004 period. We have focused particularly on analyzing five factors: *(a)* demographic changes; *(b)* changes in the social protection network, which includes both government and private transfers; *(c)* job creation; *(d)* reduction in educational inequalities; and *(e)* greater labor market integration. A summary of the results found is shown in Diagram 2.

Over the past decade, demographic disparities have declined continuously thus contributing to reducing inequality in *per capita* household income, although its contribution has been modest in view of the sharp decrease recorded in the 2001-2004 period. The recent increase in participation rates and the fall in unemployment rates have also contributed, to some extent, to the fall in inequality. The most important factors, however, are those associated with the changes in both government transfers and labor income distribution.

Between 2001 and 2004, government transfers experienced a substantial increase. As regards government retirements and pensions, there has been no significant improvement in the level of assistance to the neediest segments of the population; most of the increase focused on raising the floor of benefits. BPC and *Bolsa Família*, in turn, had their coverage level increased and focused on assisting the neediest. Government pensions and retirements, *Bolsa Família* and BPC made similar contributions to reducing income inequality between 2001 and 2004: the use of the Gini coefficient as a measure of inequality allows us to conclude that each component was responsible for about 10% of the observed fall. The use of measures that are more sensitive to the income of the poor shows an increase in the contribution of the set of components, particularly as regards *Bolsa Família*.
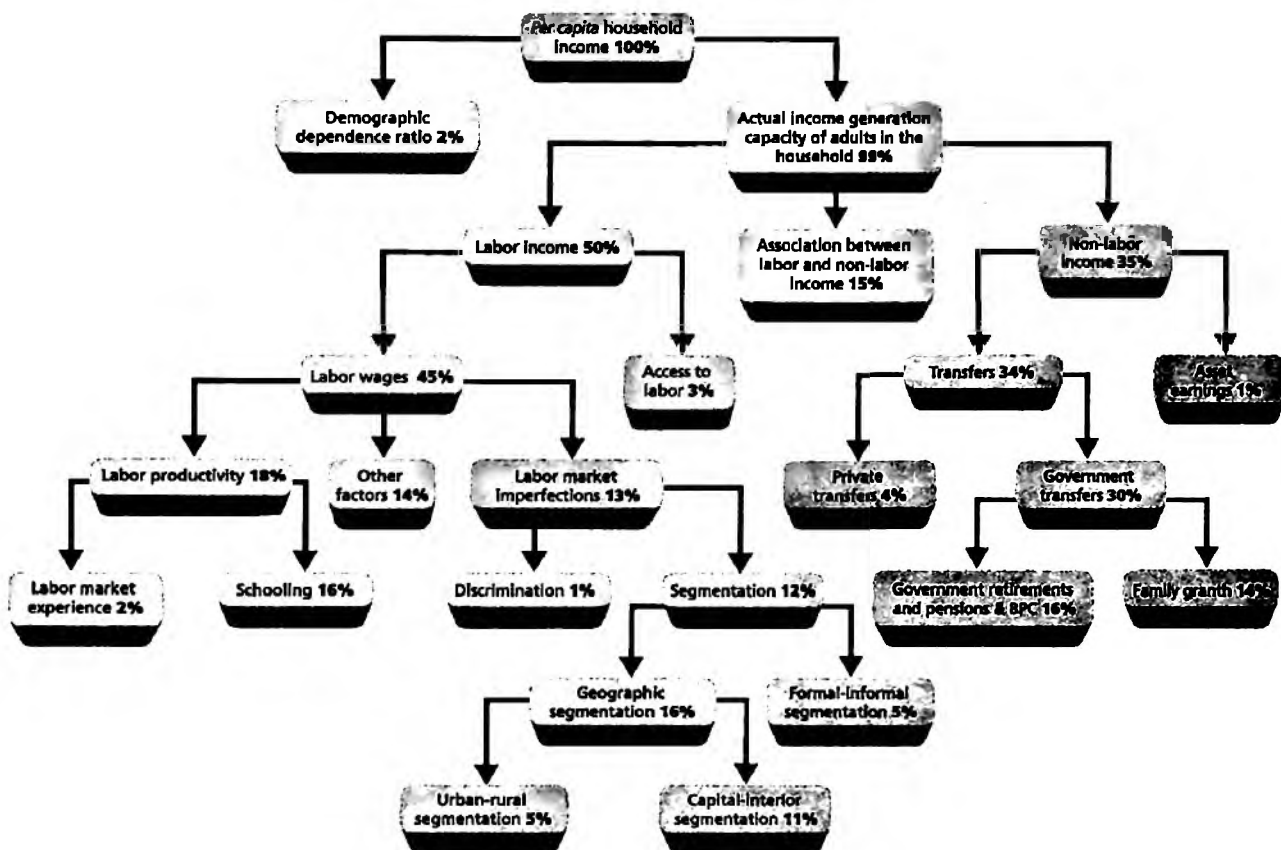
Reductions in labor income inequality have also played a fundamental role. In fact, labor income inequality decreased between

[98] See Barros *et al.* (2006e). The same result was found by Ulyssea (2006).

2001 and 2004 thus contributing to half of the fall in household income inequality. Although the reduction in labor income inequality has occurred systematically since the inception of the Real Plan, this process has gained intensity in recent years.

DIAGRAM 2
Proximate determinants of the fall in the degree of *per capita* household income inequality a

Source: Barros *et al.* (2006a, b and e).

One of the main factors behind this fall in labor income inequality is the decline in wage differentials by educational level, which also dates back to at least 1995 and gained speed between 2001 and 2004. Before 2001, its effects were not so visible because the increase in the educational inequality of the workforce neutralized them. About 15% of the recent fall in household income inequality is owed to the decrease in these educational differences.

The second factor that explains the fall in income inequality is the decrease in the degree of spatial labor market segmentation, particularly segmentation between capital cities and municipalities in the interior of the country. This growing labor market integration has also been operating since 1995 and gained intensity in recent years. The contribution of this factor to the fall in household income inequality between 2001 and 2004 also stood at round 10%.

6 SETTING NEW COURSES FOR A MORE EFFECTIVE PUBLIC POLICY IN COMBATING INEQUALITY

The empirical evidence presented in this report is indisputable: household income inequality in Brazil has fallen sharply and continuously since 2001. As a consequence, poverty and extreme poverty have also been reduced.

As we have attempted to show, this fall is not the result of a single determining factor but rather of a host of such factors.

Some have been more decisive than others: the development of a more effective social protection network, the grater integration of labor markets, and improvements in workforce qualification are the most outstanding factors.

The multiplicity of determinants behind the recent fall in income inequality in Brazil can be held as an indicator of sustainability. Undoubtedly, despite the good news we still have one of the highest levels of income inequality in the world. This important achievement is therefore but the first step in the long inequality reduction process Brazil needs to go through until it can line up with the reality of countries that are currently at the same development level.

How can we influence this inequality reduction process in order to ensure its sustainability? In fact, since this is the result of multiple social interactions, the decisions and actions of all players in society, whether aimed to reduce inequality or not, have an effect on what is going to happen. Furthermore, exogenous factors such as fluctuations in the world economy, among others, affect the evolution of inequality.

Anyway, public policies play a central role and deserve our special attention, not only because they are the collective instrument by excellence in the search for greater equality but also because, when implemented, they influence the behavior and actions of different social players.

Although recommendations for specific policies require a more in-depth knowledge of the determinants of the level and recent fall in

inequality in Brazil than the one presented in the previous section – see Insert 3, some important parameters for the courses to be followed may be outlined based on the results presented here. A broad-based policy to combat income inequality should be in place, at least in four fronts: *(a)* equal opportunities for capacity building; *(b)* equal opportunities for the productive use of the capacities built (which is felt mainly in access to labor); *(c)* reduction in the unequal treatment of workers in the labor market; and *(d)* actions to make both the tax system and government expenditures more efficient and progressive. Moreover, it is important to emphasize that inequality tends to respond only slowly and, at times, out of step with time; the continuity of public policies therefore is the key to their success.

6.1 Ensuring equal capacity building opportunities

As most of the income of households comes from labor, reducing wage differentials among workers will always be central in combating income inequality.

As mentioned in section 5, wage differentials are, in turn, closely related to differentials in skill levels among workers. Precisely because there are vast differentials in skill levels among workers, great wage differentials will always exist among them. Therefore, reducing inequality requires developing the skills of those who have few by expanding access to formal education or professional qualification.

Expanding workers' access to education and training affects income inequality either directly or indirectly. On the one hand, better educational opportunities directly increase the average schooling of the poor thus reducing schooling inequality in the workforce. More homogeneous workers in educational terms mean lower wage inequality. On the other, a larger supply of qualified labor causes the premium for qualification to decrease thus reducing wage inequality as well.

Finally, it is worth pointing out that educational expansion will only be effective in combating income inequality if two complementary actions are taken forward. The first of such actions is developing a scholarship program capable of ensuring the poorest segments of the population the necessary conditions to remain in school. The second one regards public investments in quality as, in the absence of such investments, inequality in schooling would be simply replaced by inequality in the quality of education.

6.2 Ensuring equal opportunities for the productive use of capacities

The benefits of high schooling levels cannot be fully felt if people do not have a job, which represents one of the greatest opportunities to use the capacities that have productively built.

Inequality in access to labor often affects income inequality more seriously than wage differences among employed workers. Therefore, reducing income inequality in a sustainable way requires expanding the availability of jobs.

Once again, attention must be focused on quality. If the jobs created are precarious, inequality in access to labor will be merely replaced by inequality in the quality of labor. Avoiding this perverse exchange requires increasing the number of good jobs and reducing existing quality disparities by regions, capitals and the interior of the country as well as disparities between the formal and informal sectors. Greater flexibility, lower labor costs, and economic growth play an important role in encouraging the demand for jobs. Improving the quality of jobs depends on technological progress which, to reduce disparities, should also privilege more traditional sectors and smaller enterprises.

Several public policies could act on to reduce job heterogeneity. The worst jobs tend to be in the informal sector or in small companies, which are chronically affected by the lack of access to basic productive services such as credit, technical assistance, and support for trade, among others. Actions aimed at facilitating the integrated access of small companies and workers – on their own – to these services could therefore be of great value. Along this line of intervention, mention should be made of the competitiveness clusters and the expansion of productive chains.

6.3 Ensuring equal treatment in labor relations

The most unfair forms of inequality are probably those generated by the labor market. When workers with the same skills are treated differently by reason of race, gender, religion, place of residence, or any other characteristics, we say that the labor market is generating inequalities. Discrimination is the unequal treatment of equally productive workers in the same labor market segment.

Public policies and changes to the legislation that seek to ensure equal treatment in the labor market are indispensable for the sustained fall in the degree of income inequality in Brazil. The need to strictly comply with all anti-discrimination legislation is indisputable.

6.4 The progressiveness of the tax system and government expenditures

The available income of a household is obtained by the sum of all its gross income less payable taxes. The sources of gross income, in turn, are labor and assets, in addition to transfers and benefits provided by the government.

Both the collection and distribution of government expenditures have changed income distribution. The more government expenditures benefit primarily the poor and the higher the taxes levied on the rich are, the lower the degree of income inequality will be.

In Brazil, neither do government expenditures benefit primarily the poorest nor are taxes proportionally levied on the richest. This means that the country ends up by using these two instruments in a limited way to reduce income inequality. This situation must change as well. It is possible to make the Brazilian tax system simultaneously more efficient and more progressive. This would enable acting on inequality reduction with greater success, without any increase in the tax burden. On the side of government expenditures, it is fundamental to improve its efficiency and efficacy as well as to prioritize assistance to the poor. Improving the efficiency of government expenditures will either enable or increase the availability of services, or even improve their quality, using the same resources already available. Greater efficacy, in turn, will raise the impact of these services on the well-being of the population assisted. Prioritizing the poorest will enable achieving sharper falls in poverty and inequality levels. It is worth pointing out, however, that prioritizing the poorest does not mean just ensuring them priority access to existing social programs. More than that, it requires that the design of social programs be actually adjusted to the real needs of this segment of the population.

Finally, it is worth emphasizing that promoting equal opportunities and conditions is not the only responsibility of the State in combating inequality. In fact, even when the public power is successful in ensuring opportunities and conditions to all, the degree of the inequality of results ultimately generated could be unacceptable to society. Part of the social expenditures should therefore directly interfere in the inequality of results through a transfer system that privileges the poorest. This transfer system is the so-called social protection network. In Brazil, special attention must be paid to improving the social protection network. In addition to being more efficient, effective, and targeted at the poorest segments of the population, this network must have an "exit door" to prevent dependence. One way of ensuring the exit of beneficiaries is by guaranteeing them priority access to a large set of programs that maximize and encourage their productive engagement.

INSERT 3

EXPANDING OUR KNOWLEDGE OF INCOME INEQUALITY: SOME SUGGESTIONS

Four decades of surveys on income inequality in Brazil have allowed us to expand our knowledge of the most important dimensions of this phenomenon. Nonetheless, several gaps still need to be filled for us to improve both inequality measurement and our understanding of its determinants. The following paragraphs summarize some of the themes which we believe should be the object of a significant investigation effort in the near future.

Measurement. Although Brazil has advanced substantially as regards measuring household income inequality, much remains to be done in some areas. As explained in section 3 of this report, there is consensus among scholars that both household non-monetary incomes and asset earnings are underestimated. As these sources of income tend to be distributed non-randomly among households, the underestimation of their amounts could have important consequences on the measurement of actual income inequality. This is therefore a critical area on the agenda of research into inequality in Brazil. A first initiative in this direction would be the development of a survey line that tapped into the several sources of information already available such as Pnads, POFs and the National Accounting System. This would ensure a more accurate diagnosis of existing gaps as well methodologies that could improve measurement of the actual level of income inequality among Brazilian households.

Determinants. We have seen throughout this report that the recent fall in income inequality is associated with a set of factors known as proximate determinants. However, these proximate determinants are also driven by other factors, i.e., the so-called primary determinants. For example, the greater spatial integration of local labor markets might have been caused by a combination of primary determinants such as changes in the spatial location of the Brazilian industry, increased productivity in agriculture, and variations in the exchange rate. A second example is the fall in income inequality associated with reductions in workforce educational disparities, which could have occurred as a consequence of both educational policies and technological changes. Investigating the mechanisms behind proximate determinants is therefore fundamental for us to draw more specific policy conclusions. An important part of the future agenda of inequality surveys in Brazil should therefore focus on investigating what these factors are and how they operate.

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