

PRELIMINARY VERSION – PLEASE DO NOT CITE

**The Continuing Fall in Brazilian Inequality: A Review of the
Evidence**

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1 The Still Recent Fall in Brazilian Inequality

Brazil can boast of some impressive titles. We have the world's largest rain forest, the most World Cups in soccer, and certainly the world's most exuberant carnival. Until a decade ago, we also held a more somber title: world champions in income inequality¹. To our fortune, we have definitely lost this sad position over the last ten years: income inequality in Brazil has been steadily falling since 2001 and today we are far from being the most unequal nation in the world. That title would belong today to South Africa or Namibia.

The recent fall in income inequality becomes all the more interesting since it came after decades of stubbornly high levels. Brazilian inequality was born somewhere in our distant colonial past and persisted through independence, the proclamation of the Republic, and incipient industrialization in the 1900s. Luis Bértola and his co-authors (2009) estimate our Gini Coefficient (x100)² in 1872 at 56.4³, which is above today's inequality levels but below the high peaks of the nineties. Like most of Latin America, we discovered social policy through formal labor markets, which was in keeping with our longstanding traditions of benefits for only a few and exclusion of the rest. The 1930s *Estado Novo* model left us with reasonably good social protection for urban, formal, predominantly white industrial workers and nothing at all for the rest. This means that we entered the post-war era with the same unacceptably high levels of inequality and Gini Coefficients (x100) of around 50.4, according to Rodolfo Hoffmann and João Carlos Duarte (1972). Import substitution and rapid industrialization between the end of the war and the second oil crisis saw inequality increase from high to very high levels as we made it to the top of the world's inequality rankings with Gini Coefficients (x100) over 60 points. These very high levels persisted through the military dictatorship and the onset of democracy, through the debt crisis, through hyperinflation and subsequent price stabilization, and finally through the end of import substitution and the liberalization of the economy.

For those of us who hoped for a more equal country, there was little to take heart in the income distribution statistics until 1999. Then, from 2001 to 2002, inequality fell. Most of us who work with the subject made nothing of it since fluctuations in the Gini Coefficient are nothing new. When the Gini Coefficient fell again in 2003, we were still blinded by our historical pessimism. Only with the 2004 household survey and a fall lasting three years did we realize that inequality was really falling in an apparently sustainable fashion.

Once the facts were noticed, there was a frenzy of studies as all those who had thought they would never be the bearers of good news on income distribution suddenly were faced with the enticing perspective of saying to the world that Brazilian inequality had, at long last, begun to fall. Books were published, special editions of scientific periodicals were devoted to the issue⁴, newspaper headlines were made, international organizations such as the World Bank and the United Nations' Economic Commission for Latin America got involved, and the fall in inequality was extensively documented in

¹ These inequality tournaments always suffer from different measuring instruments. For example, Francisco Ferreira and his co-authors state that at "0.625 in 1989 ... Brazil's inequality was the second highest in the world, narrowly behind Sierra Leone's Gini of 0.629." We do not disagree with them but believe that the two countries are not really comparable.

² Strictly speaking, the Gini Coefficient varies from 0 to 1, but we are used to reading indicators that vary from 0 to 100, which is why often it is multiplied by 100.

³ Like inter-country comparisons, comparing the Brazilian distribution before the advent of household surveys in the 1970s is also fraught with measuring difficulties.

⁴ The Institute for Applied Economic Research (IPEA) published a two-volume book edited by Ricardo Paes de Barros, Miguel Foguel and Gabriel Ulyseu on the fall in Brazilian inequality in 2007. The first number of volume 8 of *Econômica* in 2006 is entirely devoted to the fall in Brazilian inequality.

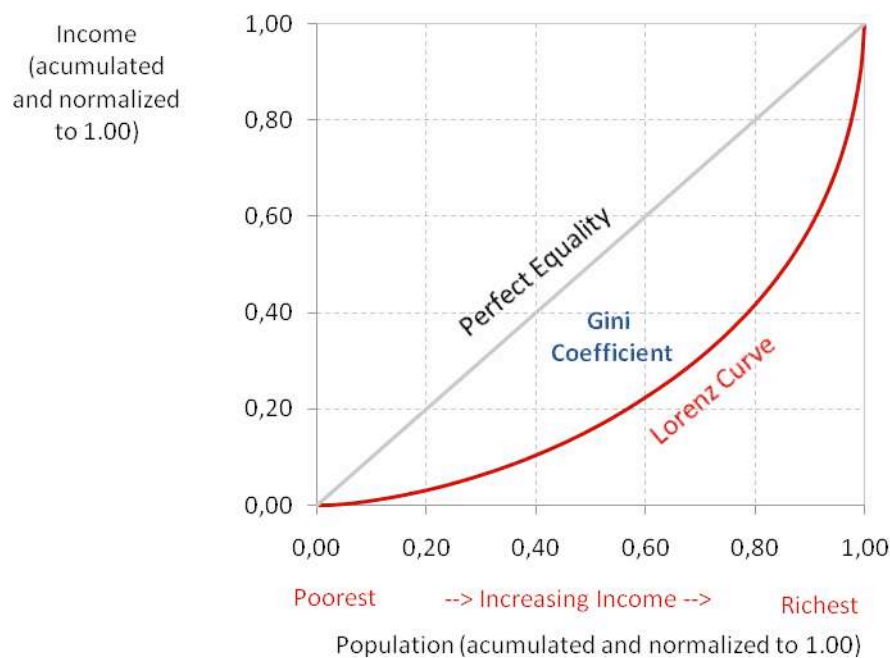
various publications over the last five years. As far as we know, though, the state of our knowledge has not yet been gathered into a single literature review, which is what we hope to do in this text.

The obvious starting point is to state the facts: the evolution of inequality according to various sources in the last couple of decades and where we stand in comparison with the rest of the world. After reviewing the facts, we will move onto the two groups of explanations for the fall in inequality: public cash transfers, whose effects today are well-known, and labor market incomes, where we are still searching for answers. We will conclude with perspectives for the future of income distribution in Brazil.

2 The Facts (with just a little theory)

In this text we will measure inequality using mostly the Gini Coefficient. It is the best known among the inequality measures with good properties⁵. This means that a few lines should be devoted to explain this inequality measure and its associate, the Lorenz Curve.

Figure 1 – Lorenz Curve for Brazil in 2009



Source: Pnad microdata.

Think of a long line of people ordered by their household per capita income (household per capita income is the total income of all members of the household from all possible sources divided by the total number of people in the household). Now, suppose a burglar begins stealing their income and putting it into a bag. The number of people stolen and all the money stolen by the burglar is all we need to define the Lorenz Curve. This curve is defined, on the horizontal axis, by the normalized number of

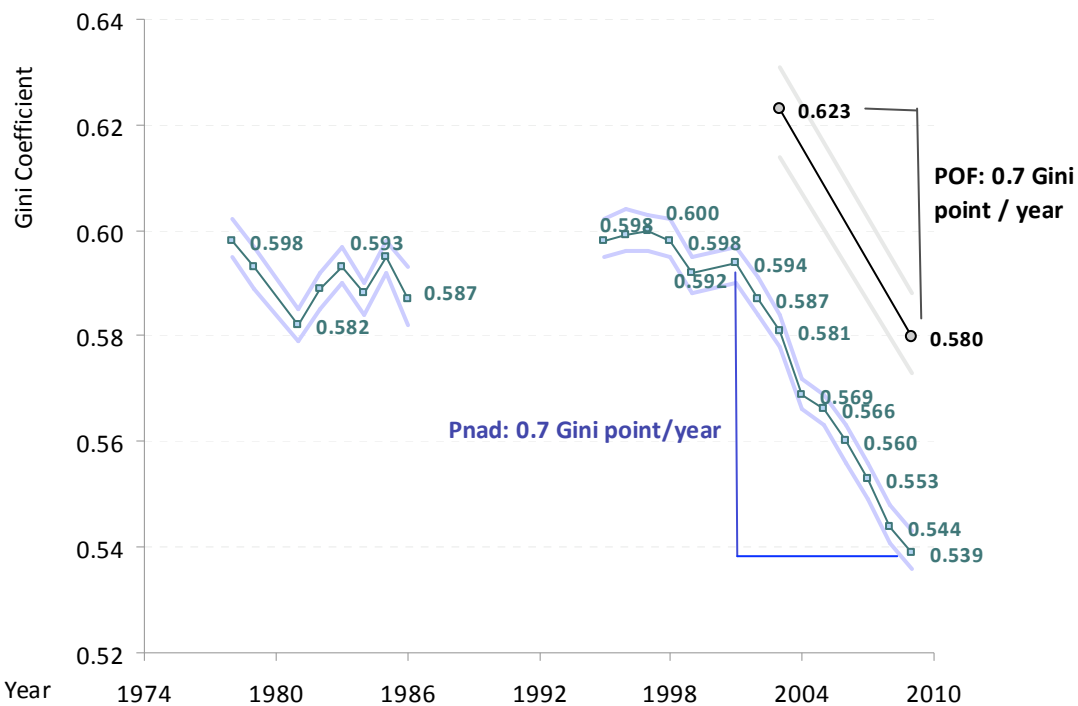
⁵ The Gini index obeys the Pigou-Dalton Transfer Principle which states that a transfer from a richer person to a poorer one will always decrease inequality. Measures such as the ratio between the 10% richest and 50% poorest do not follow this principle so, in spite of their popularity, they will be ignored here.

people robbed and, on the vertical axis, by how much money is in the burglar's bag, once again normalized to one. Normalization is necessary for comparison since total population and total income will vary from year to year and country to country.

What we have is a Lorenz Curve that begins at the point (0,0), because if no one was robbed there is no money in the burglar's bag and ends at point (1,1) since once all the people have been robbed, all the money is in the bag. The Curve, visible for Brazil in Figure 1, is always increasing if each person robbed has some money.⁶ If the income distribution were perfectly equal – if every man, woman and child in Brazil had exactly one Real, for example – the Lorenz Curve would be a straight line. In the real world, all Lorenz Curves will line entirely underneath this Line of Perfect Equality.

An immediately intuitive inequality measure is the area between the Line of Perfect Equality and the actual measured Lorenz Curve. Multiply this area by two to obtain a measure that varies between 0 and 1 and you have the Gini Coefficient. In case the explanation above was too complicated, just remember that the Gini Coefficient is an inequality measure and the closer it is to zero the more equal an income distribution.

Figure 2 – Evolution of the Gini Coefficient: 1995 to 2009 (Household per Capita Income⁷)



Source: Pnad microdata. POF microdata. Bootstrapped confidence intervals.

⁶ If there are people with zero income, the Lorenz Curve will be flat until the first person with positive income gets robbed, and then be always increasing. .

⁷ Household per capita income is the sum of every income source from every member of a household divided by the number of members.

Back to falling income inequality, Figure 2 shows the evolution of the Gini Coefficient between 1978 and 2009, according to our main household survey, the Pnad (*Pesquisa Nacional por Amostra de Domicílios*) Household Survey with a hiatus in the middle. We also plot the two available years of the POF (*Pesquisa de Orçamentos Familiares*) Consumption Survey, whose monetary income inequality is higher because it captures much better income from capital. The thin lines are the 95% confidence intervals.

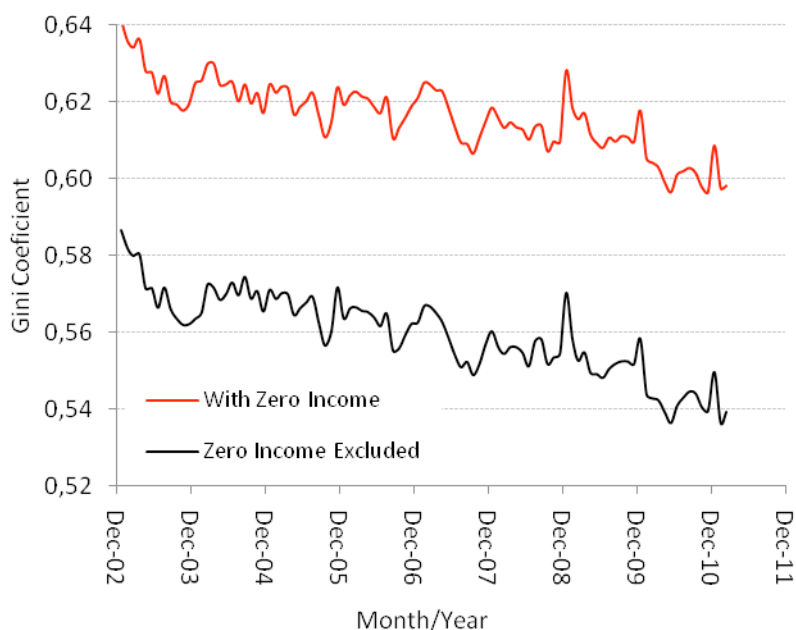
Why these dates? While the Pnad began in 1976, the income questionnaire changed quite a bit in its early years and produced some wild results. Only from 1978 onwards do we trust the data. The hiatus from 1986 to 1994 exists because comparing with precision inequality measurements during this period is fraught with difficulties due to the very high inflation suffered by Brazil during these years. It ends in 2009 because that is the date of the last available PNAD. Due to a statistical blackout caused by the 2010 Census, we will only have new household survey data available sometime in the second half of 2012.

We can see that the Gini Coefficient began to fall sometime between 1999 and 2001 and has been falling in a very stable fashion since then. It has fallen about 0.7 Gini point (x100) per year. Further below we will discuss whether this is fast or slow. But for now, it suffices to say that inequality has fallen almost linearly since the turn of the century to 2009. We also see that, while the POF inequality estimates are higher than those of the Pnad, the trend is exactly the same.

Can we say anything about the last three years?

We can use incomplete data from the PME (*Pesquisa Mensal de Emprego*) Monthly Employment Survey to track in inequality over the statistical blackout period. The PME data are really incomplete because they only cover only six metropolitan areas, leaving out 75% of the Brazilian population. More serious is that they include only labor income, leaving out crucial government transfers, which, as will be seen, are a crucial part of the recent income distribution story.

Figure 3 – Monthly Evolution of the Gini Coefficient from January of 2003 to March of 2011 (Household per Capita Labor Income)

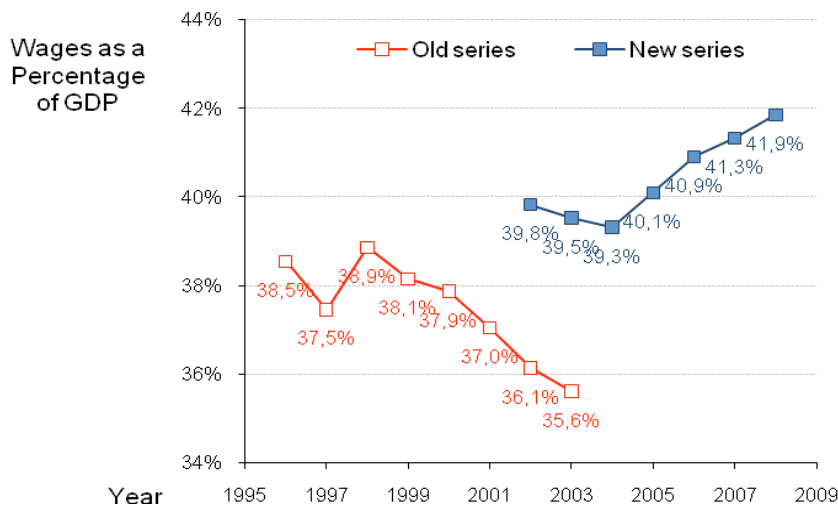


Source: PME microdata.

Figure 3 shows the Gini Coefficient of Household per Capita Labor Income. This is not a very meaningful statistic from the point of view of individual welfare, but it does show that whatever trends may have been responsible for the fall in this measure of inequality continue active past 2009. We believe these same trends will show a reduction in inequality when the 2011 PNAD household survey becomes available.

Finally, an ancillary statistic is the functional distribution. The percentage of Gross Domestic Product (GDP) appropriated by wages is not *per se* a relevant statistic in welfare terms. What matters for well-being is how much income each person has available to spend, not where it comes from. If income from capital were equally spread out and labor income concentrated, a lower share of labor in GDP would be desirable. However, in any country in the world capital income is much more concentrated than labor income and this means that the functional distribution of income is relevant, even if only as an intermediate measure of inequality.

Figure 4 – Wages as a Percentage of GDP 1996 to 2008



Source: National Accounts. Old and new series.

Wages as a share of GDP have been falling for a long time, but from 2004 to 2005 the trend inverted and now wages have been gaining ground over the other components of GDP. The reversion should not be overstated. Employee compensation is about 54% of GDP in the United States and at present trends it will take Brazil two decades to reach this figure.

Back to the Gini Coefficient, how relevant is the trend shown in Figure 2? Three objections have been persistently raised by cautious spirits when some of us get carried away with the “Inequality is falling!” commemoration. The first is on the limitations of the Pnad household survey. Specifically, it has long been known that income from capital is very poorly captured and many argue that what is really improving is inequality within labor but the great inequality between labor and capital has not been touched. The second objection is that the fall may not necessarily be statistically significant. Maybe we are seeing mostly fluctuations. The third is that perhaps 5.4 Gini points (x100) is really much ado about nothing. Inequality fell a little bit, the cautious spirits concede, but the magnitude of the fall is certainly not worth the fuss and we still have a long way to go.

Let us take each objection in turn.

Household surveys, unless specifically designed not to do so, will underestimate highly concentrated income and the Pnad is no exception. As we said above, if labor income were highly concentrated, then surveys would underestimate labor income for the same sampling reasons that lead them to underestimate capital and business income. In addition, calculating business and capital income is difficult and, unless the questionnaire was specifically designed with these income sources in mind, the interview process is also likely to lead to an underestimate. While all agree that there is a bias against capital and business income, there is still little consensus on its gravity.

Ricardo Paes de Barros, Samir Cury and Gabriel Ulyssea (2007) compare the Pnad with the POF Household Consumption Survey and the National Accounts and argue that the missing capital income is not as serious as might appear at first sight. While income from interest and dividends is underestimated in the Pnad by a factor of more than four, imputed rent is underestimated by about 10%. Claudio Dedecca (2007) and Claudio Salm (2007) argue, although not with much empirical support, that the underestimate is both large and variable, which would mean that the estimates shown in Figure 2 do not tell the story very accurately. Although neither Dedecca nor Salm deny that inequality is falling, they do argue that other researchers are overly optimistic and read too much into the data.

Our own personal opinion is that under-reporting of capital and business income is quite serious in establishing the level of inequality. We also believe that the incomes of the very rich is an issue deserving much closer scrutiny in Brazil than has been the case so far. However, we do not think their Concentration has changed in a way so as to compromise the evolution of the Gini Coefficient shown on Graph 2. The strongest evidence we can put forth is on Graph 2. The POF Consumption Survey, whose questionnaire measures capital and business income much better than the Pnad, shows exactly the same trend in the Gini Coefficient as the Pnad.

The second objection – whether the fall in the Gini Coefficient is statistically significant – is easier to answer. The confidence intervals in Graph 2 are evidence that the fall is statistically significant. In addition, João Pedro Azevedo (2007) calculates the relevant static and dynamic confidence intervals both analytically and numerically⁸, and they are close 0.3 Gini Points (x100), which means that all the year to year reductions in inequality are statistically significant. This is a closed issue and no more needs be said about it.

Finally, we have the question of whether the rate of reduction of inequality merits the attention it has been receiving. Inequality fell by 5.5 Gini points (x100) over a decade. Is this a lot? In other words, does one Gini point represent a lot of inequality or just a little? Two ways of analyzing how relevant the 2001 – 2009 Brazilian reduction was are to compare how other countries fared when they were reducing their inequality and also to calculate how many years it will take us to reach present levels of inequality found in various countries which today are more egalitarian than Brazil.

The problem with the first approach is that finding good historical data on income distribution is not easy. No country in the world had high quality data on income distribution around 1900 and this is more or less when inequality began to fall in many of the countries that today make up the OCDE.

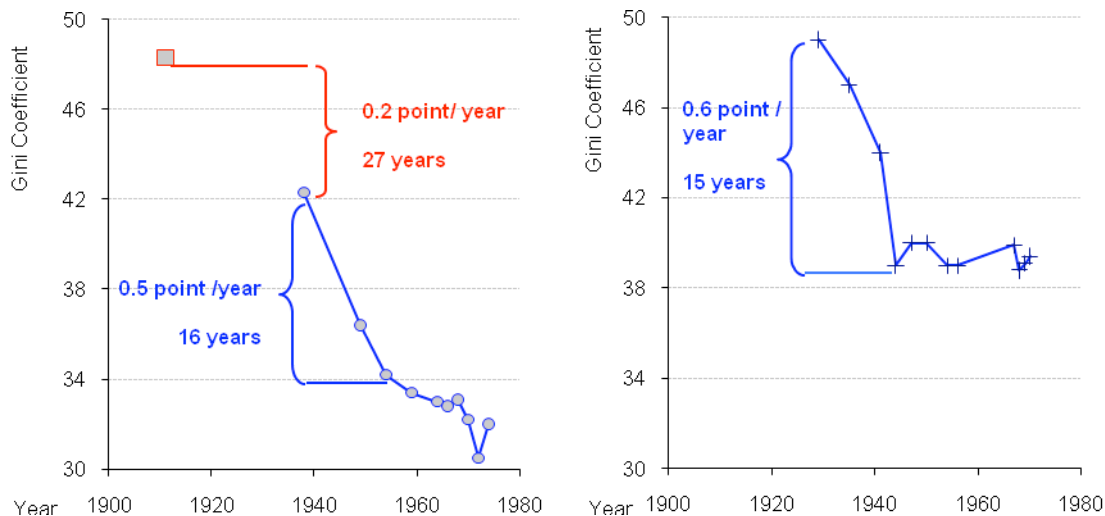
The best data come from the United Kingdom, which has a good household survey, the Survey of Personal Incomes, since 1939 and lower-quality estimates composed from partial surveys from much

⁸ Analytically means using mathematical formulae, numerically means using the brute force of computers.

earlier, and the United States, which counts on reasonably good data from 1929 onwards.⁹

The two panels of Figure 5 show how fast the United Kingdom and the United States reduced their Gini Coefficient over time. The rate at which inequality fell in both the UK and the US was inferior the Brazilian rate since 2001. While the Brazilian measure fell at about 0.7 Gini point per year since 2001, British and American inequality fell by 0.5 and 0.6 points/year, respectively, during each country's fastest inequality-reduction spell.

Figure 5 – Long Run Evolution of the Gini Coefficient in the UK and US



Source: Lindert (1997).

A second, and important, conclusion is that building a more equal society occurs rapidly only through cataclysmic events. Very rapid reductions in the Gini Coefficient occurred in the US and the UK from 1929 until 1945. Needless to say, the Great Depression and Second World War made these the most cataclysmic years of the last century. Although they concentrate on the incomes of the very rich, Anthony Atkinson, Thomas Piketty, and Emmanuel Saez (2009) argue that very rapid reductions in inequality during the 20th Century only happened as a result of very traumatic events such as wars, revolutions, or the Great Depression. Apart from such undesirable events, inequality can only change slowly.

The comparison between the UK and US is also instructive. Imagine an equality tournament between the US and UK. Both countries began with similar Gini Coefficients, close to 50 points. During the cataclysmic years between 1929 and 1944, the US ran faster than the UK during any period, but the UK crossed the finish line during the 1960s almost ten points ahead of the US. The British tortoise beat the American hare because the Americans stopped running in 1944.

Changing significantly an income distribution is a commitment to be kept for decades, not years.

The second comparison is to measure the distance between Brazil and other countries using how long it will take us to get there as a metric. Comparing Brazil with, say, Denmark is not very instructive. Denmark is a small, culturally and ethnically homogeneous country and Brazil will never match the Danish income distribution. We are looking for large, federative countries that are culturally

⁹ More information on this data can be found in Lindert (1997).

and ethnically heterogeneous. Three come to mind: Mexico, the United States and Canada.

Mexico is a large, federative, Latin-American country with gaping ethnic wounds, but thanks to a thorough agrarian reform in the first decades of the 20th century, is one of the more equal among Latin-America's large nations. If Brazil keeps up its pace, it will attain Mexican inequality levels in another three to four years. Considering the endpoint of the PNAD series is 2009, this means that the 2011 household survey may already show Mexico and Brazil side by side.

The United States is, by far, the most unequal among the OCDE countries. At today's pace, we will reach present American inequality levels in 2018. Since American inequality has been increasing for the last four decades and since Americans seem determined to do nothing about it, we may well overtake the US in equality well before 2018.

Finally, we have Canada another large, strongly multiethnic and multicultural, and federative country, but one in which the Welfare State is taken seriously and one whose inequality would be quite an ambitious target for Brazil. Well, given present rates, we would reach current Canadian inequality in 2030.

Completing our review of the facts would be an analysis of where we stand, let us compare the recent evolution Brazilian Gini Coefficient with that of other comparable countries. Once again, international comparisons are always limited by the availability of comparable data, which is not high. The best data source for comparisons with other Latin-American countries is the SEDLAC database (available at <http://sedlac.econo.unlp.edu.ar/esp/>) calculated by CEDLAS at the Universidad de La Plata. They calculate all their statistics using microdata from household surveys using the same algorithm and the surveys, while different, are much more similar amongst themselves than with those of other regions.

Table 1 – Gini Coefficients in Latin America Close to 2000 and 2010

| Country | Gini Close to 2000 | Gini Close to 2010 | Δ Gini |
|----------------------|--------------------|--------------------|--------|
| Bolivia | 57,64 | 57,19 | -0,45 |
| Brazil ¹⁰ | 59,20 | 53,80 | -5,40 |
| Chile | 55,21 | 51,94 | -3,26 |
| Costa Rica | 45,79 | 50,21 | 4,43 |
| Ecuador | 54,51 | 48,93 | -5,58 |
| El Salvador | 51,90 | 46,55 | -5,35 |
| Mexico | 53,85 | 50,52 | -3,33 |
| Panama | 56,47 | 52,09 | -4,38 |
| Venezuela | 44,10 | 43,47 | -0,63 |

Source: SEDLAC.

Using SEDLAC data to compare how inequality in different Latin-American countries has fared over the last decade by plotting today's Gini Coefficients against those observed ten years ago yields Table 1, which shows that while the distance has narrowed, Brazil is still the most unequal country in

¹⁰ Note that for the sake of comparison we use the SEDLAC Ginis here and not our own estimates.

the sample. This happens because other unequal countries, whose Gini Coefficient might have passed the Brazilian one, such as Chile and Panama, also saw inequality reductions over the last ten years. The Brazilian reduction in inequality, however, was one of the largest, only inferior to that of El Salvador.

Now that the scale of the fall in Brazilian inequality is clear, we will ask your forgiveness and will make a methodological intermezzo before going into causes.

3 How to Map Out Why Did Inequality Fell

One way to look into the anatomy of the fall in inequality is called decomposition by factor components of the Gini Coefficient. Many (perhaps even most) families do not draw all their income from a single source. They may have labor income, government transfers or capital income. Even if all their income comes from one of these traditional categories, it is still possible to subdivide it. For example, labor income can be subdivided into minimum wage labor income and other labor income or government transfers can be subdivided into retirement pensions and conditional cash transfers.

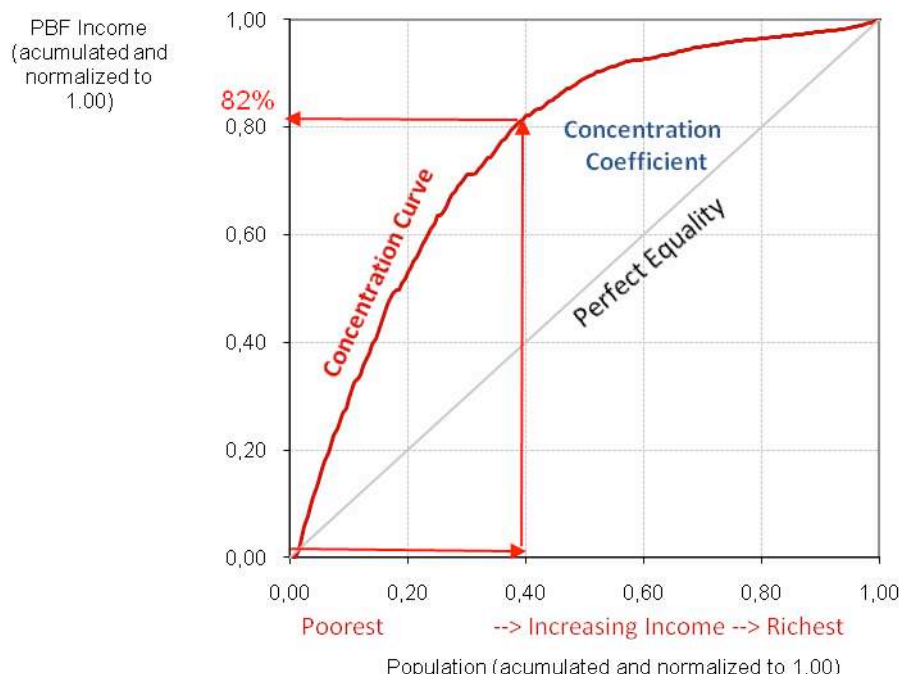
It is possible to define the contribution to equality, also called progressivity, of a given income source as a Concentration Coefficient, which can be calculated much in the same way as a Gini Coefficient, except that individuals are ordered differently. In drawing the Lorenz Curve, individuals are ordered according to the same income that is accumulated and plotted on the vertical axis. In drawing the Concentration Curve, individuals are ordered by one type of income, usually total income, and only one component of this income, say conditional cash transfer income, is accumulated and plotted on the vertical axis.

In more detail, the procedure for drawing a Concentration Curve is the following. First, we call the burglar introduced in Figure 1 back to work, but this time his work will be less rewarding since he will be stealing only a part of the incomes of the Brazilian population. This population will be lined up in the same order as before (when the Lorenz Curve and Gini Coefficients were calculated), only this time they will have separated their income into different pockets. In one pocket they will have, for example, the income from the *Bolsa Família* Conditional Cash Transfer. As our burglar steals the meager money in these pockets, what we will plot on the vertical axis the normalized accumulated *Bolsa Família* income only.

Note that the Concentration Curve, like the Lorenz Curve, will also always begin at (0,0) and end at (1,1). The same argument applies: if nobody's pockets have been picked there will be no money in the burglar's bag and if everyone has had their income stolen, all the stolen income will be in the bag. Likewise, the Concentration Curve will never decrease. But there is one important difference. While the Lorenz Curve lies everywhere and anywhere below the Line of Perfect Equality, it is quite possible for a Concentration Curve to be above this line. The reason for this is that while the Lorenz Curve plots all the income the Concentration Curve plots only one income component. It is impossible for, say, the bottom half to have more than half of the total income (if they did, they would not be the bottom half), but it quite possible for the bottom half to have more than half of all the unemployment benefits or *Bolsa Família* income.

The Concentration Coefficient is calculated in the same way as the Gini Coefficient (twice the area between the Concentration Curve and the Line of Perfect Equality) but with one important difference: areas above the Line of Perfect Equality count negatively. This also means that it is possible for a Concentration Coefficient to be negative.

Figure 6 – A Concentration Curve: *Bolsa Família* in 1999



Source: Pnad microdata.

Figure 6 shows the Concentration Curve and Coefficient for *Bolsa Família* and shows, for example, that the 40% poorest account for 82% of the program's transfers. This means that the Concentration Curve will lie above the Line of Perfect Equality, a fact that can be easily verified by looking at the Figure.

Now, one of the most interesting results in the calculus of inequality is that the Gini Coefficient of an income distribution is nothing more than the weighted sum of the Concentration Coefficients of its constituent factor components where the weights are their Income Shares. In symbols:

$$(1) \quad G = \sum_k C_k \mu_k \quad \text{where } G \text{ represents the Gini Coefficient, } \mu_k \text{ the Income Share of component } k \text{ in total income, and } C_k \text{ its Concentration Coefficient.}$$

This static equation can be easily differenced to provide a dynamic result:

$$(2) \quad \Delta G = \sum_k [\bar{\mu}_k \Delta C_k + (\bar{C}_k - \bar{G}) \Delta \mu_k] \quad \text{where the } \Delta \text{ symbol represents the difference between one period and the next and the bar over a given variable represents the average between the two periods.}$$

Equation (2) allows us to map changes in inequality according to what happens to each income source. Both an increase in the weight (μ_k) of an income source *less* concentrated than the Gini Coefficient and the diminution of the concentration of *any* income source will lower inequality. Conversely, if an income source *more* concentrated than the Gini Coefficient becomes more important or if any income source becomes more concentrated, inequality will increase.

Now that we have our base methodology past us, let us return to the causes of the fall in Brazilian inequality. Table 2 shows a Gini decomposition by factor shares according to equation (2). The income division we used is in three broad aggregates: Labor Income, Income from government transfers, and

everything else (including capital income).

General-purpose household surveys are normally not very good at measuring income from capital and high business incomes. They are too concentrated and too difficult to measure using standard questionnaires. So, in spite of their potentially important role in income distribution in Brazil, what we do not see we cannot explain. So we will concentrate on government transfers and the labor market. We will see that these two are already quite a mouthful.

Table 2 – Gini Decomposition by Factor Components: 1996 to 2009

| From 1995 to: | Labor Income | Government Transfers | Other Income | Δ Gini |
|---------------|--------------|----------------------|--------------|---------------|
| 2009 | -3,76 | -1,49 | -0,59 | -5,84 |
| 2007 | -2,79 | -1,31 | -0,45 | -4,55 |
| 2005 | -2,21 | -0,74 | -0,20 | -3,15 |
| 2003 | -1,18 | -0,19 | -0,31 | -1,68 |
| 2001 | -0,37 | 0,08 | -0,14 | -0,43 |
| 1999 | -0,64 | 0,23 | -0,14 | -0,56 |
| 1997 | 0,39 | -0,05 | -0,09 | 0,25 |

Source: Pnad microdata.

Table 2 shows the accumulated contribution, from 1995 to all odd years up to 2009, of each factor component to the change in total inequality. Accumulated means that, for example, while labor income took 1.18 Gini points (x100) off of inequality from 1995 to 2003 (since 1.18 is the number in the “Labor Income” column and “2003” line), by 2009 it had taken 3.76 points (“Labor Income” column and “2009” line). Table 2 shows that labor income and public transfer income account for 90% of the reduction in income inequality from 1995 to 2009.

We will see that we know quite a bit about how public transfers operated but that our knowledge on the labor market and its contribution is still quite speculative.

4 Public Transfers (of all types)

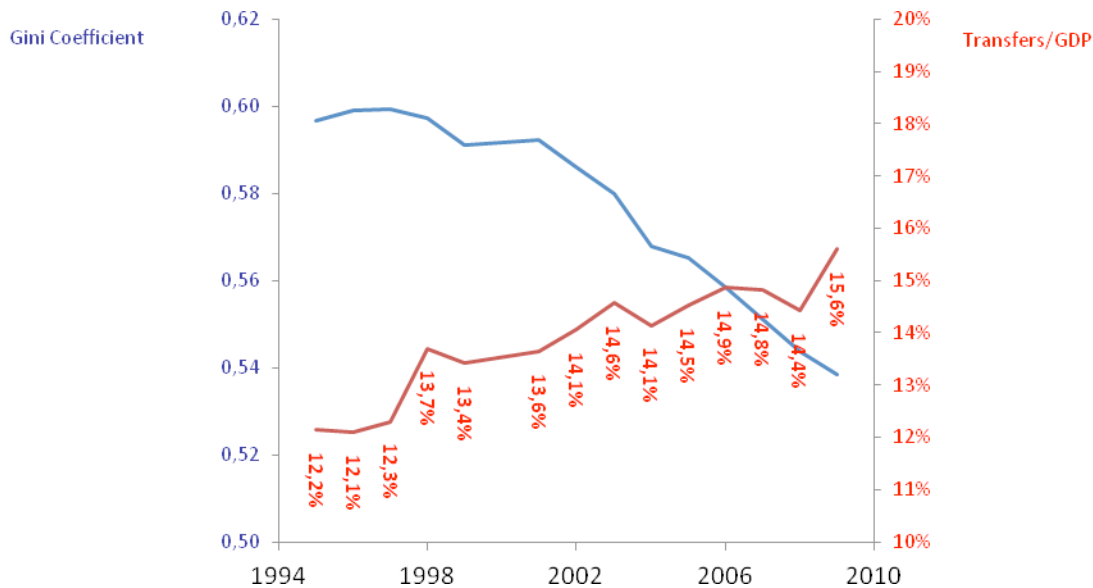
In addition to the fall in inequality, another very important fact over the last fifteen years has been the remarkable rise in government expenditures, particularly in public transfers to individuals. Figure 7 shows the same Gini Coefficients as Figure 2 but also the evolution cash transfers to individuals as a percentage of GDP over the same period. Only cash transfers as a percentage of GDP have value labels since Figure 2 shows the Gini labels.

Two facts stand out. The first is that transfers have increased from roughly 12% of GDP in the mid-nineties to almost 16% of GDP in 2009. Sixteen percent of GDP is more than many Latin-American countries collect in taxes for all expenditures. One should not forget that these transfers did not come free: paying for them is one of the reasons that the total tax burden has also risen from about 27% to 34% of GDP.

The second is that as transfers have risen, inequality has fallen.

Are the two facts linked?

Figure 7 – Public Transfers and Inequality



Source: Santos et alii (2010)

The answer to the question is a definitive “Yes”, but as usual, the story is somewhat more complicated. So, before going into the hows and whys of transfers and inequality, we need a brief description of public transfers in Brazil.

In addition to being a high percentage of GDP, public transfers in Brazil are also quite varied. They go from the highly pro-poor *Bolsa Família* Program to the highly pro-rich public sector pensions and higher education scholarships. Fernando Gaiger Silveira (2010) shows that the Concentration Coefficients of public transfers vary from a highly regressive 0.90 for Civil Servant and Military Pensions to a highly progressive -0.21 for Conditional Cash Transfers.

Let us take a brief look at how each type of major monetary transfer to individuals or families, ordered by progressivity, works.

Bolsa Família

Much has been written on the *Bolsa Família* Program and this is not the place to dwell upon its details. For our purposes, it suffices to say that targeted and conditioned cash transfers began hesitatingly and somewhat chaotically in Brazil in 1995 and have grown in relevance ever since. From 1995 to 2003 there were many CCT programs, run by all levels of government and, within the Federal Government, by five different ministries, with very little coordination among them. In 2003 they were merged into a single program, called *Bolsa Família*, with about eight million beneficiaries, which accounted for about one in six Brazilian families at the time. Since 2003, more and more families were incorporated into the program and today there are close to 15 million of them – about one in four Brazilian families.

Bolsa Família benefits are very well targeted on the poor. One reason for this is that the benefit

is quite modest, which makes the incentives for fraud and capture also small. Today (November 2011) these benefits vary from R\$ 29 to R\$ 218, which can be translated into US\$ 16 to US\$ 118 using Purchasing Power Parity conversion¹¹. These benefits amount to slightly more than 0.4% of Brazil's GDP and slightly less than 0.7% of household income.

A final relevant fact is that *Bolsa Família* has very small labor market effects, almost entirely concentrated on women with small children.

There is, of course, much more to *Bolsa Família* than the above description. Interested readers can find much more detail in the reviews by Sergei Soares (2011) or Fabio Soares, Rafael Ribas, and Rafael Osório (2010).

Benefício de Prestação Continuada (BPC)

Article 203 of the 1988 Constitution mandates that the State must guarantee one monthly Minimum Wage to elderly or disabled individuals who can prove they have no means for their own survival. In 1993, social assistance legislation defined this as individuals whose per capita income is less than $\frac{1}{4}$ Minimum Wage. This means that the State must pay one Minimum Wage to all individuals who are either judged disabled by a medical committee or are 65 or over and live in families whose income is less than $\frac{1}{4}$ of the current Minimum Wage. This benefit is called the *Benefício de Prestação Continuada* (BPC).

During the last decade, the number of BPC beneficiaries has grown due to the fact that the real value of the Minimum Wage has grown considerably (more on this on the section on inequality and the labor market). This means that both the number of beneficiaries and value of their benefits have grown and today the program costs about 0.6% of GDP – not much, but more than the much better known *Bolsa Família*. The BPC is not conditional, and it is targeted and is the second most progressive transfer in Brazil.

Our Minimum Wage today (November 2011) stands at R\$ 545, which is roughly US\$ 296 in PPP terms.

For more on the BPC, see reviews by Marcelo Medeiros, Debora Diniz and Flavia Squinca (2006) or Marcelo Medeiros, Tatiana Britto, and Fabio Soares (2007).

One Minimum Wage Social Security Benefits

Brazilian Social Security is divided into two systems, the Civil Servant Pension System, which applies only to the military and civil servants, and the General Regime, which applies to everyone else. One of the characteristics of our Social Security system is that all benefits must be at least one Minimum Wage. Knowing this, we can subdivide the General Regime into benefits equal to and greater than one Minimum Wage. Since the heavily subsidized Civil Servant regime is also quite generous, we find almost no Minimum Wage pensions among its benefits, so there is no need to split it up like the General Regime. In doing this we group all pensions into three categories: the regressive Civil Servant Pension System, the more or less neutral General Regime with benefits greater than one Minimum Wage, and the progressive General Regime with Minimum Wage benefits.

¹¹ The official World Bank Purchasing Power Parity (PPP) conversion factor is 1.84 Brazilian Reais for each American Dollar. These are the best estimates available, but beware PPP conversions (see Reddy and Pogge (2002) on why they can be quite misleading)..

Minimum Wage benefits also are progressive in another sense. Our General Regime is a pay as you go system in which what you get back is more or less – depending on the actuarial hypotheses – what you paid in. However, since the Minimum Wage is the floor and since it has increased by about 111% in real terms since the end of hyper-inflation in 1994, individuals who paid Minimum Wage contributions all their lives are now being paid out much more than they paid in. In addition, there are almost eight million rural beneficiaries (about 35% of the total) who never contributed anything at all and their Minimum Wage pensions are completely redistributive, including in a temporal perspective.

Social Security coverage in Brazil is quite high, as 77% of individuals aged 60 or more are among the 23 million individuals who receive Social Security benefits and 87% of households with elderly individuals receive at least one Social Security benefit. Furthermore, 14.5 million benefits, or 62% of the total, are Minimum Wage benefits. This means that they comprise by far the most expensive progressive transfer, costing 2.9% of GDP – almost three times the cost of BPC and *Bolsa Família* combined.

Social Security: The General Regime

As explained above, the nine million General Regime benefits are more or less neutral both temporally and in relation to cross-sectional inequality. Their Concentration Coefficient as calculated by Fernando Gaiger Silveira for 2003 (0.584) is quite close to the value the Gini Coefficient. They cost about of 4.1% of GDP.

Workers contribute about 10% of their income and employers pitch in another 20%. An argument based on elasticity of labor demand and labor supply can be made that employees pay most of their employer's contribution in the form of reduced wages. The ceiling for both contributions and benefits has not changed in real terms at R\$ 3691, which is about US\$ 2005. Since the ceiling has stayed put and the floor has risen rapidly in real terms, the General Regime as a whole has become much more egalitarian over the last few years.

An important debate in Brazil, which is bound to have important distributional consequences if it leads to legislative action, is that our retirement age is too low.

For a more detailed description of our Social Security system, see Fernando Gaiger Silveira (2010), Roberto Rocha and Marcelo Abi-Ramia Caetano (2008), or else the Brazil Page of the US Social Security Administration: <http://www.ssa.gov/policy/docs/progdesc/ssptw/2008-2009/americas/brazil.html>.

Unemployment Insurance

Close to one-third (38%) of the 83.6 million Brazilians who were gainfully employed in 2009¹² were formal sector employees and thus eligible for unemployment insurance if they lose their jobs. Another 8% were public sector employees who cannot be fired. The remainder was either self-employed (27%) or employed without a labor card (27%). If they lose their livelihoods, their only alternative is the much more modest *Bolsa Família*.

A formal sector employee who loses his job without committing a crime is eligible for Unemployment Insurance. If you lose your (formal sector) job, you will receive:

- a. 80% of your income if it was less than R\$ 891 (about US\$ 484 PPP) per month,

¹² The numbers are unlikely to have changed much since 2009.

- b. 50% on the portion of your salary that fell between R\$ 891 and R\$ 1485 (US\$ 807 PPP), and
- c. A flat R\$ 1010 (US\$ 549 PPP) if you made more than R\$ 1485.

The benefit is calculated marginally so no one loses by going up one salary bracket. The longer you had been employed previous to losing your job, the longer you will be paid, up to a five month limit. Unemployment Insurance is non-contributive and paid for by a specific tax.

Silveira (2010) estimates the Concentration Coefficient of Unemployment Insurance at 0.3, which would perhaps classify it as progressive and not really neutral. But since this is a very transitory income source focused on what (we hope) is a very transitory period in a person's life, we will classify it both as neutral and as progressive in Figure 8.

Regressive Transfers: The Civil Servant Pension System

There are two types of regressive transfers in Brazil: graduate scholarships and Civil Servant Pensions¹³. While graduate scholarships are undoubtedly government transfers and they are undoubtedly regressive, they are not relevant in budgetary terms. Civil Servant Pensions, on the other hand, are very relevant in budgetary terms and very regressive. According to Fernando Gaiger Silveira and his co-authors (2011), the Civil Servant Regime pays 3.3 million benefits whose average is more than R\$ 3700 (US\$ 2010 PPP), as opposed to about R\$ 700 (US\$ 380 PPP) for the 23 million beneficiaries of the General Regime. Silveira (2010) calculates their Concentration Coefficient at a staggering 0.9.

The Civil Servant Regime is also severely underfunded. It pays out R\$ 149 billion (4.7% of GDP) annually in benefits and R\$ 78 billion (2.4% of GDP) comes not out of past or present contributions but from general taxation. This about the same as R\$ 67 billion (2.1% of GDP) paid out to 14 million Minimum Wage pensions every year. If there is one thing that could be done to make public transfers more egalitarian, it would be to reduce privilege in Civil Service Pensions.

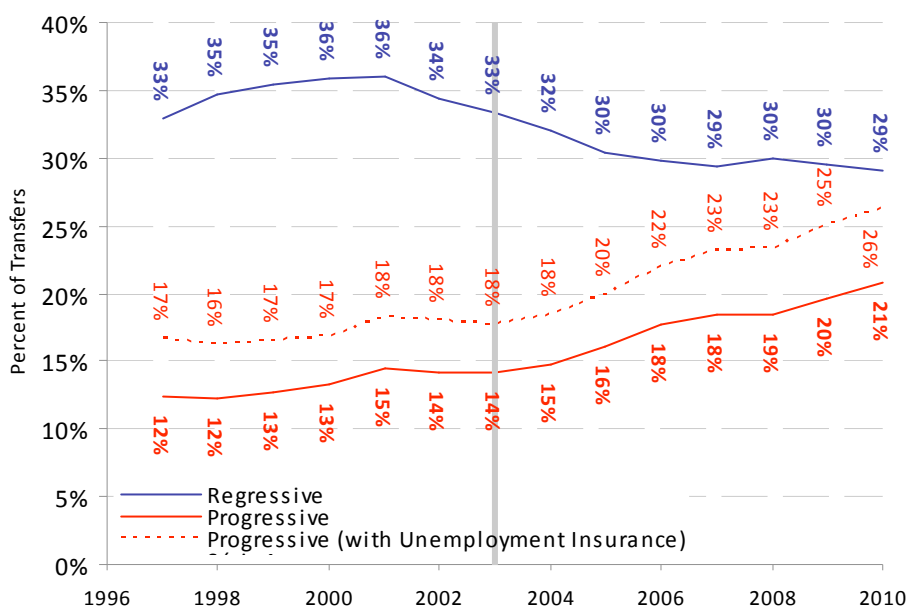
This, in fact, has been done. In 1998 the Fernando Henrique Cardoso Government increased retirement age for public employees. This was nothing much but generated considerable outcry. Then, in one of these surprising turns history sometimes takes, a President with union background and an important electoral base among civil servants passed through Congress reforms that considerably reduced civil service privileges. In 2003, the Lula Government hit public employees and pensioners with a triple whammy: (i) 11% taxation of benefits that exceed the ceiling of the General Regime for those already retired, (ii) minimum retirement age of 55 for women and 60 for men for those already in the civil service but not yet retired, and (iii) reduction of future benefits for those not yet in the civil service as they now retire on the average of their 80% highest wages, not their very highest wage any more. While Civil Servant pensions remain much higher than those of the General Regime and remain an important source of inequality, the effects of the Lula reforms will be clearly seen on Figure 9.

Nevertheless, more needs to be done to reduce privilege in our Social Security system. As of writing (November, 2011), a project is in the legislature that will unify the two systems and create a private pension fund for future civil servants. While the project in the legislature suffers from serious shortcomings, this is undoubtedly the way to go.

¹³ The term "Civil Servant Pensions" is slightly misleading, since they also include military pensions, but we will use it since it has become the established term in the literature.

Now that we have an operational knowledge of the workings of public transfers in Brazil, we can use their Concentration Coefficients to divide them into regressive and progressive transfers and track their evolution on Figure 8. Regressive transfers are only civil servant pensions and Clearly Progressive transfers are *Bolsa Família* Program, the *Benefício de Prestação Continuada* transfer and Social Security pensions from the General Regime indexed to one Minimum Wage. We will also see how progressive transfers fare when Unemployment Insurance is also included among their ranks. Finally, the vertical grey line shows 2003, the year of both the creation of *Bolsa Família* and of Lula's Civil Service Pension reform.

Figure 8 – Composition of Public Transfers



Source: Santos et al (2010).

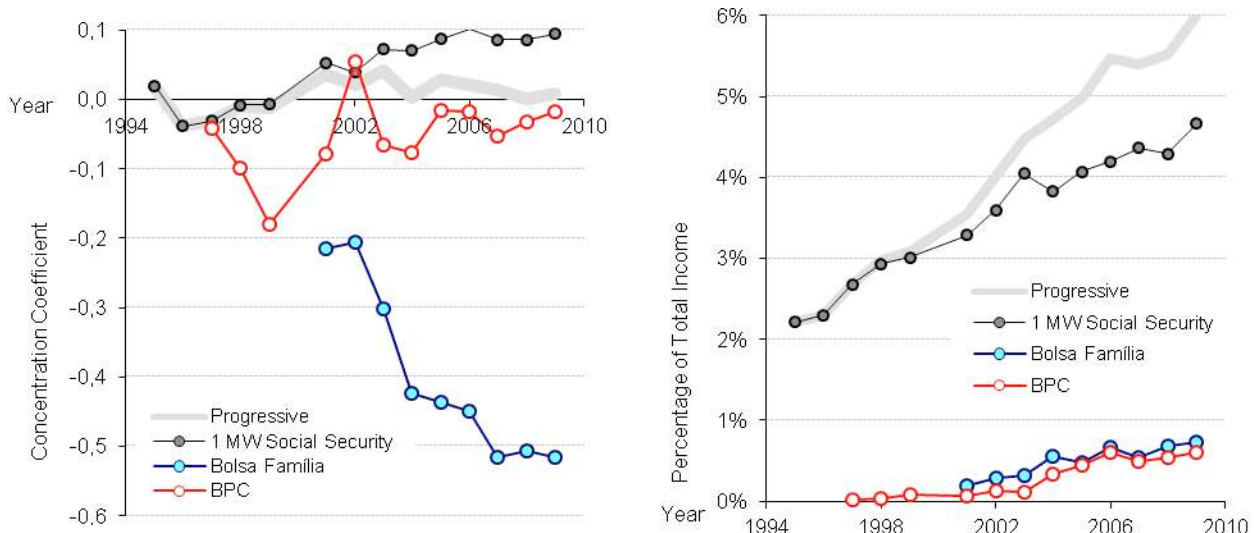
The basic story is that while regressive transfers fell from 36% of total transfers in 2001 to 29% in 2009, progressive transfers almost doubled as a percentage of total transfers from 1997 to 2010. This means that over the last fifteen years not only have transfers as a percentage of GDP increased by more than three percentage points but also that their composition has become far more progressive, with the progressive share almost doubling in relative size.

So what has been their impact on income inequality? As we have said before, the effect of transfers on income inequality has been extensively studied. Sergei Soares (2006); Rodolfo Hoffmann (2006 and 2010); Fabio Soares and his co-authors (2006), Sergei Soares and his co-authors (2007), Ricardo Paes de Barros, Mirela Carvalho, and Samuel Franco (2007), Sergei Soares, Rafael Ribas, and Fabio Soares (2009), and Sergei Soares and another group o co-authors (2010) have quantified the effects of *Bolsa Família* on inequality (this relatively small program really has exceptional sex-appeal for researchers) and most of them also quantify the effects of BPC. Hoffmann (2006, 2009, and 2010), Barros, Carvalho e Franco (2007), Carlos Ferreira and Solange Souza (2008), Silveira (2010) quantify the impacts of pensions on inequality. It would not be too ambitious to say that no major mysteries

remain in the general picture and new research will only fill in small details. The general conclusion is that transfers contributed substantively to the reduction in inequality, but in different ways. All studies have this same general conclusion, although the numbers vary quite a bit according to the decomposition methodology and income identification strategy. We will neither go into the technical details of each study nor present a catalogue of findings and comments on their minor differences. Instead we will borrow freely from the whole literature and some calculations of our own to paint a picture of the effect of each type of transfer.

Let us first look at the distributive heroes of the public transfer system: the progressive *Bolsa Família*, BPC and one minimum wage Social Security benefits. The two panels of Figure 9 show their Concentration Coefficients and Income Shares. Remember from Section 3 that progressive transfers reduce the Gini Coefficient either through further reduction in their Concentration Coefficients or increases in their income shares.

Figure 9 – Concentration Coefficients and Income Shares of Progressive Transfers
Panel 1 – Concentration Coefficients **Panel 2 – Income Shares**



Source: Pnad 1995 to 2009.

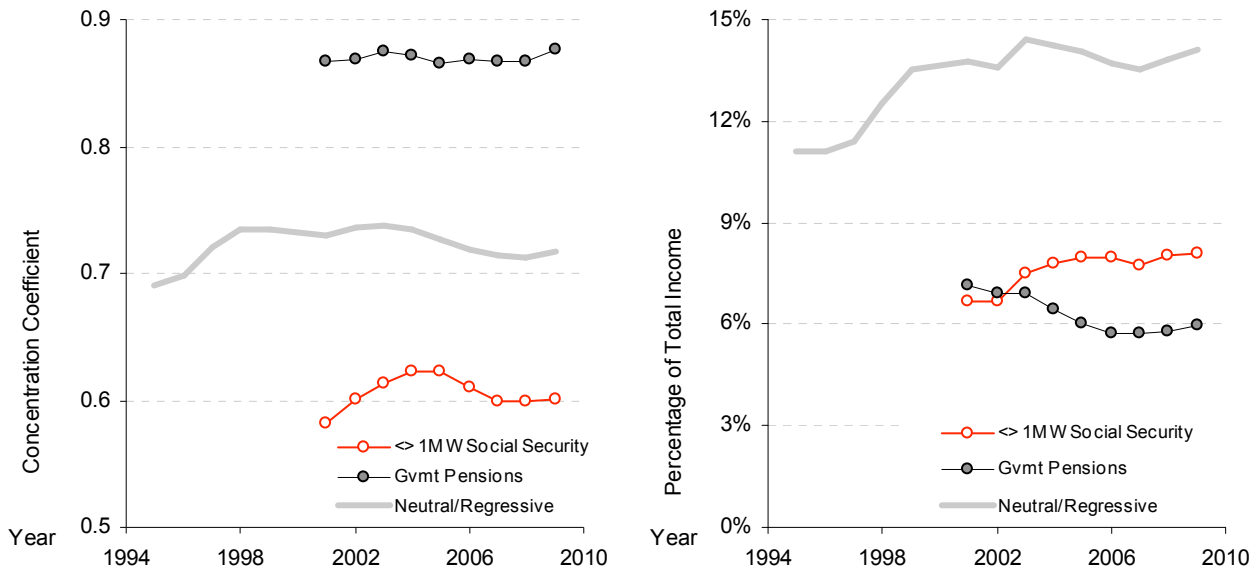
Panel 1 shows that the Concentration Coefficients of progressive transfers are either going up or oscillating and the thick grey curve that describes the Concentration Coefficient of progressive transfers as a whole has stayed more or less stable at close to zero. The exception is *Bolsa Família*, but its falling Concentration Coefficient may not be entirely real.¹⁴ This means that their contribution to equality has been entirely through increases in their Income Shares. Panel 2 shows that this is indeed the case: Income Shares of progressive transfers gave risen from just over 2% of total family income in 1995 to more than 6% in 2009.

Now let us look at the picture for regressive and neutral transfers, shown in the two panels of Figure 10.

¹⁴ The Pnad survey bundles *Bolsa Família* income together with interest and dividends and a statistical procedure is necessary to unbundle them. It is likely that part of the increase in progressivity of the *Bolsa Família* Concentration Coefficient results purely from the application of the this procedure. See Soares, Souza, Guerrero, and Silveira (2010) for more details.

How can regressive transfers contribute to inequality? Well, either by becoming less regressive or by vanishing. Figure 10 shows that the real villain of income distribution among transfers to individuals, the pension system of pampered government employees, has not become and less regressive, but since 2003 it has lost Income Share¹⁵. This loss has been only about one percentage point of total household income but since they are so regressive, this has been quite relevant to the reduction of inequality. This is almost certainly a result of the 2003 reform of retirement privileges of government employees.

Figure 10 – Concentration Coefficients and Income Shares of Neutral and Regressive Transfers
Panel 1 – Concentration Coefficients **Panel 2 – Income Shares**



Source: Pnad 1995 to 2009.

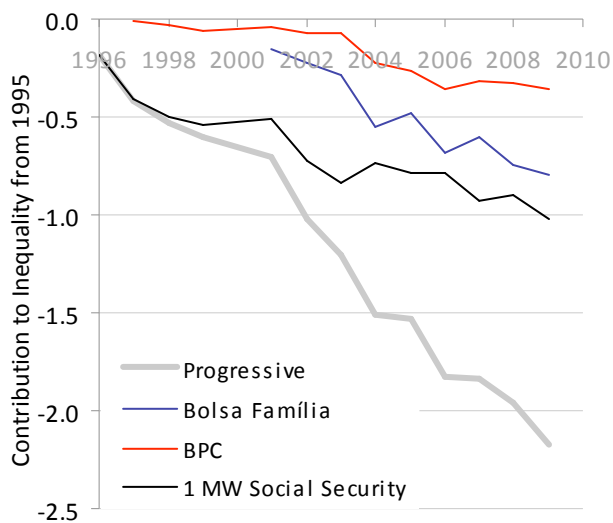
The General Social Security Regime with benefits not indexed to the minimum wage has contributed to the reduction of inequality not through a reduction in its Income Share but through and increase in its progressivity. While its Income Share has grown its Concentration Coefficient has become more progressive from 2004 onwards. This is probably due to reduction in the Social Security ceiling as a percentage of average income. The Social Security ceiling has been readjusted for inflation but since income growth took off in 2004 it has been reduced as a percentage of income. This has led to a modest increase in its progressivity.

How does it look when we put everything together? Figure 11 shows the accumulated contribution of each factor component from 1995 up to every year from 1996 to 2009. Figure 11 is not to be read in the same way as the previous figures with time on the horizontal axis. All previous figures show, or a given year, the value of some variable *in that year*. For example, Panel 2 of Figure 10 shows that the Income Share of the Civil Servant Pension System was 6% of household income *in 2009*. The curves in Figure 11, in contrast, show the accumulated contribution from 1995 *up to that year*. For example Panel 1 shows that Social Security benefits indexed to the minimum wage reduced inequality by slightly more than 1 Gini point (x100) *from 1995 to 2009*.

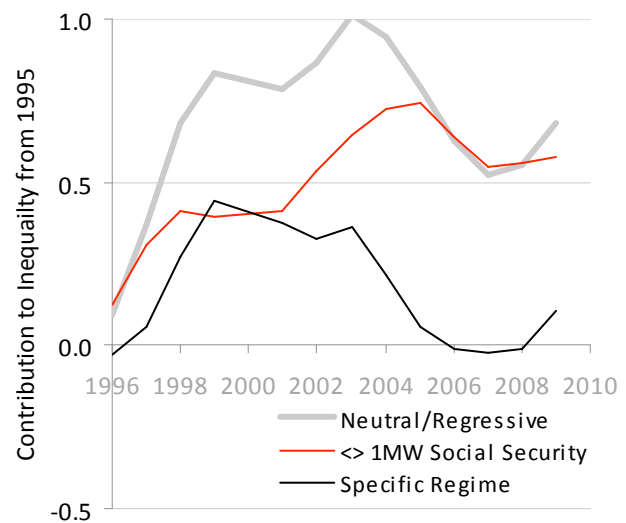
¹⁵ The Pnad survey does not identify from which system government pensions come from. We used a regression imputation method for identification, which is why we do not present any results previous to 2001.

Figure 2 shows clearly that the increase in Income Shares of progressive transfers was clearly more important than the reduction of regressive ones. The total accumulated contribution from 1995 to 2009 of progressive income transfers has been almost 2.5 (x100) Gini points. Regressive and neutral transfers led to an increase in the Gini Coefficient of almost one point from 1995 to 2003 and then turned around and helped to reduce inequality by almost half a point.

Figure 11 – Contribution to Inequality of Transfers
Panel 1 – Progressive



Panel 2 – Neutral and Regressive



Source: Pnad 1995 to 2009.

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The message is clear. The reduction in inequality would have been much weaker had there not been an increase in taxation to fund an increase in progressive transfers, which was only partially offset by a reduction in regressive ones.

Where does Brazil go from here? There is still room for growth in progressive transfers. After all, they are still only about 3.2% of GDP. *Bolsa Família*, in particular, still can contribute mightily to fighting inequality. This is because it is so strongly targeted on the poor. Archimedes is known for saying “Give me a lever long enough and a fulcrum on which to place it, and I shall move the world.” If we think of the progressivity as measured by the Concentration Coefficient as the lever and the Income Share as the force applied to it, *Bolsa Família* is undoubtedly the factor component of income that gives us the most leverage to further reduce inequality in Brazil.

On the other hand, clearly there still much room for improvement in further reducing the retirement privileges of government employees. This, however, is a long and difficult road due to the strong political power wielded by these groups, particularly the military¹⁶ and judiciary, in defending

¹⁶ Military pensions are a disgrace in Brazil. Not only do they contribute much less and retire much earlier than other government employees, but also their daughters (and in some cases grand-daughters) inherit their full pensions for life.

their pensions.

Luckily, reductions in income inequality can also come from the labor market, which we will analyze in turn.

4 Labor Income

If in the case of public transfers their role in income distribution is by and large known and we are now looking at minor details, with labor income we are still largely in the dark and speculating about what has been going on. While a factor component decomposition shows that more equally distributed labor income was and in all likelihood still remains vitally important for a more egalitarian income distribution, there is little consensus about the causes of the phenomenon.

Lack of consensus does not mean we know nothing. There are at least some clear candidates for the income distribution hero award: the Minimum Wage and education. Let us look at each in turn, but before we do so, a note on terminology is necessary.

To this point, the only distribution we have dealt with is the *per capita* household income distribution, which, as explained in the footnote to Figure 2, is the sum of all income sources of a household divided by the number of members. When talking about labor income, however, much of the debate will center on the individual earnings or individual wage distribution – in which both the redistributive role of households and people with no labor income are ignored. The *per capita* income distribution is still our preferential measure of welfare, but the individual earnings distribution, or just earnings distribution, will figure strongly in the debate. Now, on to the minimum wage and its distributional effects.

The Minimum Wage

The distributional impact of the Minimum Wage is something economists never tire of debating. Possibly the best-known recent controversy on the issue was spawned by the lack of employment effects in the fast-food industry which pitted David Card and Alan Kruger (1994) against a wide array of adversaries, the most prolific of whom were David Newmark and William Wascher (2000). There are, however, vigorous debates and arguments, both theoretical and empirical, which repeat themselves time after time and in country after country.

Success in the minimum wage battle depends on winning the argument on four issues. The first, usually won hands down by the champions of the minimum wage, is whether the minimum wage reduces inequality among those that remain employed after it is introduced or increased. Even its worse enemies will usually concede that a binding Minimum Wage does indeed reduce earnings inequality. The magnitude of this reduction, however, is quite an important empirical issue.

What is main distributional argument of the enemies of the Minimum Wage? Unemployment, of course – and this is the second, and most hotly debated, issue. If the Minimum Wage reduces wage inequality for some at the expense of unemployment for many others, it is not a good distributive policy. This is why much of the battle rages on and around employment effects.

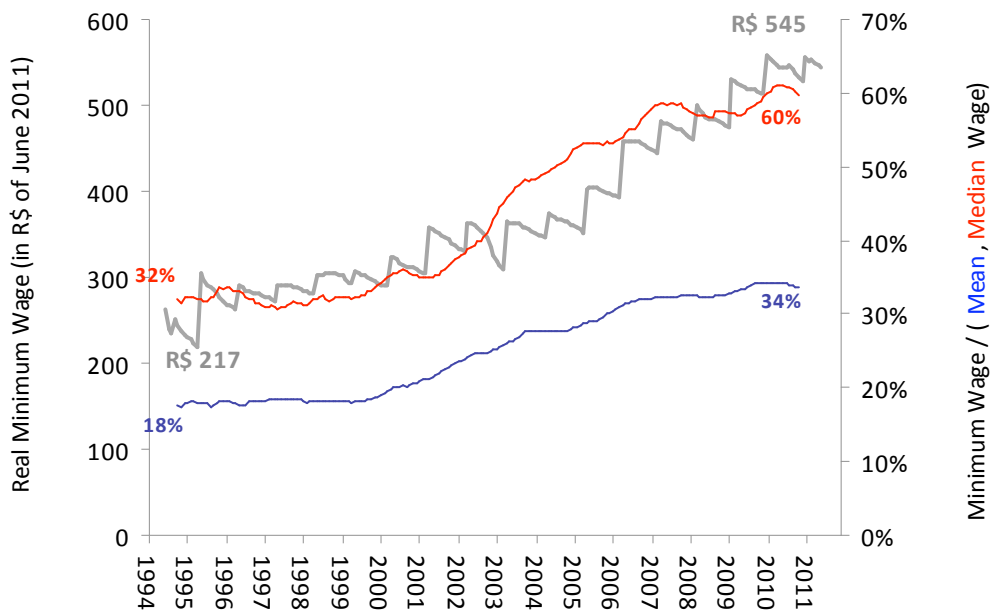
To add insult to injury, the microdata on military pensions are considered a national security issue and thus secret, so we do not even know who is receiving how much.

The third issue – much more important in developing countries with large informal sectors – is on how binding a floor on wages is. If rising Minimum Wages are ignored by a large part of the earnings distribution, then they are not much good.

The final issue is how Minimum Wage earners – who are usually at or near the bottom of the income distribution of individual earnings – are distributed throughout the per capita income distribution. If they are not overwhelmingly concentrated in the lower tail, then Minimum Wages will not do much to alter the per capita income distribution.

In Brazil, a vigorous battle was joined in the late nineties and has been an engagement of epic proportions. The backdrop to this debate has been a rising minimum wage, shown in Figure 12.¹⁷

Figure 12 – Real Minimum Wage and as a Percentage of Mean and Median Income



Source: IPEADData; PME 1994 to 2011.

The real Minimum Wage more than doubled over the last 16 years; it also rose from 18% to 34% of the mean wage and from 32% to 60% of the median wage. Another interesting feature is that after 2005, the rate of increase of minimum wage accelerated. Contrary to the United States and the United Kingdom, where the debate occurred against a backdrop of stagnant or falling minimum wages or even its abolition, in Brazil rising floors on wages have been part of the landscape since 1994.

How does the Brazilian debate divide up according to the four issues above?

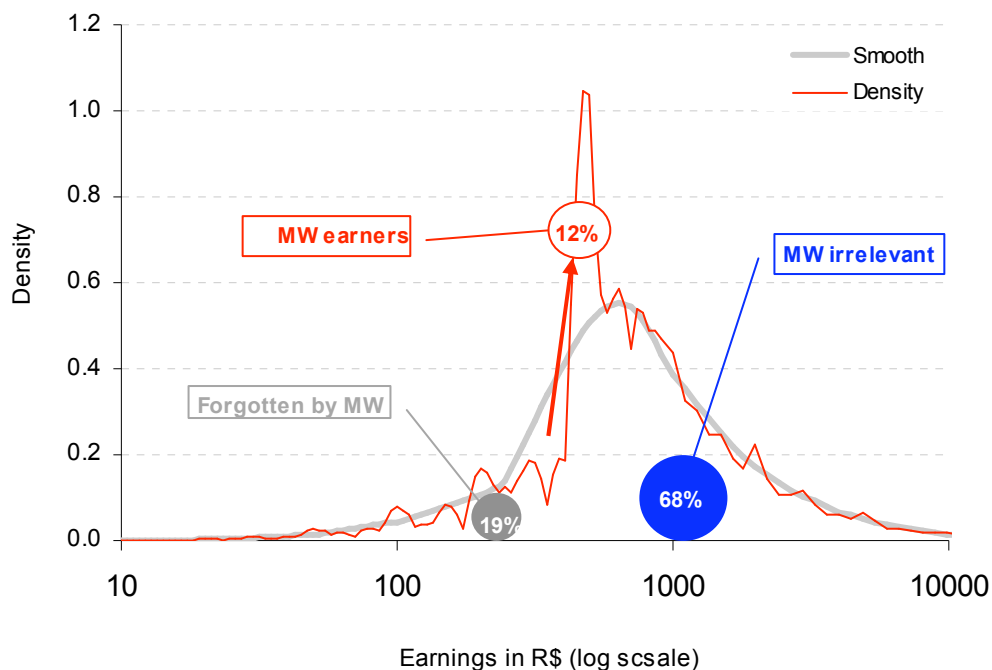
On the first issue – whether a rising Minimum Wage leads to a more equal individual income distribution – there is wide agreement among Brazilian researchers that the answer is an unqualified yes. From Lauro Ramos and José Guilherme Reis (1994), who have little sympathy for the minimum wage, to Sara Lemos (2004a, 2004b, 2004c, 2005), and João Saboia (2007a, 2007b, 2010), who are among its most steadfast supporters, all agree that a higher wage floor leads to a less dispersed earnings

¹⁷ Figure 12 was built using the monthly employment surveys that cover only the six major metropolitan areas, but the national annual data paint a very similar picture.

distribution. Miguel Foguel, Lauro Ramos, and Francisco Carneiro (2001), Pablo Fajnzylber (2001), Sergei Soares (2001), Marcelo Neri (1997), and Carlos Henrique Corseuil (2001), just to name some other authors, not necessarily identified with pro or anti-minimum wage positions, all argue strongly the same case.

Figure 13 shows the distribution of wages in Brazil for 2009. This is a graph of the earnings density for workers with positive earnings (including self-employed workers). The height of the red line shows concentration of workers at or close to a given earning level with little smoothing. The very high spike at R\$ 465 shows that there is a high concentration – 12%, to be exact – of workers earning exactly one minimum wage. The height of the grey line shows the same but with considerable smoothing – the idea is that while the red line shows observed earnings, the grey line shows some kind of underlying labor productivity distribution.

Figure 13 – Earnings Distribution in Brazil



Source: Pnad 2009 microdata.

The very visible spike at R\$ 465 and the almost empty space to its left show quite clearly the compression the Minimum Wage exerts on the lower tail of the earnings distribution. The fact that there are quite a few – 19% to be exact – workers earning less than one minimum wage also shows that the issue of how binding a floor on wages is quite relevant in Brazil. As emphasized by Ramos and Reis (1994), in some sectors – agriculture, for example – and in some regions – the poorer North and Northeast – the Minimum Wage is really not very binding at all. Finally, for 68% of Brazilian workers making more than one Minimum Wage, it is largely irrelevant¹⁸.

¹⁸ For a long time – from 1960s to the early 1990s – the effect of the minimum wage on earnings in the upper tail of the distribution was perhaps the most important issue in the debate. Today this is a dead issue, as it is clear that there are few, if any, minimum wage effects in the upper tail of the earnings distribution. See Corseuil and Servo (2002) for a good review of the now dead debate.

wage earners are secondary workers in families far from lower end of the income distribution. Once again, Ramos and Reis (1994) emphasize this fact when arguing against the Minimum Wage as distributive policy. On the other side of the battlefield, Saboia (2007a) uses microsimulation to emphasize that increases in the wage floor do have distributional effects even after families are accounted for.

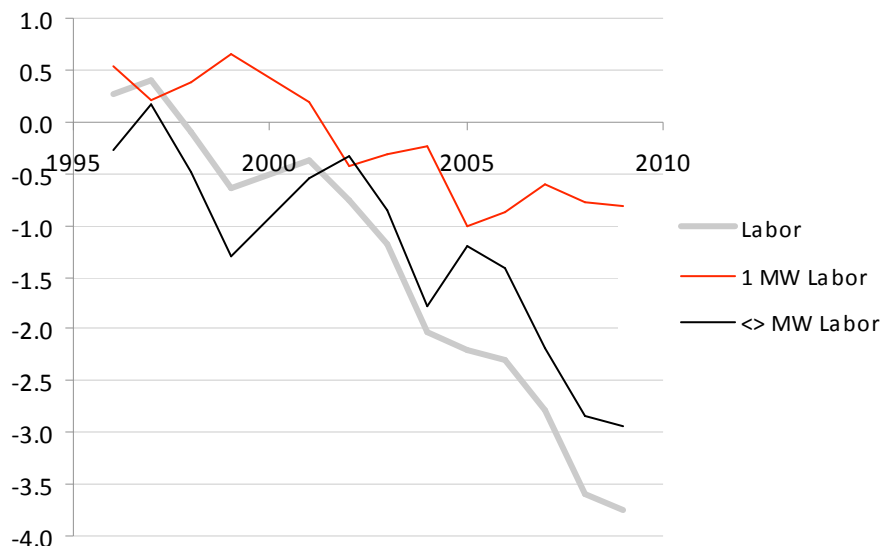
We will follow João Saboia and estimate Concentration Coefficients (relative to the per capita income distribution, of course) and income shares of labor income, divided into minimum wage labor income and other labor income, to estimate their contribution to inequality. The two panels of Figure 14 show the data.

The interpretation of decomposition by factor components for labor income is more difficult than it is for transfers. Unless you are a political scientist, causality is not an issue for transfers – if some legal instrument decrees that a given transfer will increase or decrease, it does. But in the case of labor income, causality is *crucial*. While the analysis below will assign to the minimum wage a one Gini point reduction in inequality, we cannot know whether this was really due to the minimum wage or to the fact that workers at the bottom of the earnings distribution are poorly educated and returns to schooling have fallen or to some macro-economic change. So take the graphs below with a grain of salt.

The first fact we see is that, in spite of the role of households in watering down the effects of the Minimum Wage, it remains a very progressive income source. Its Concentration Coefficient has varied between -0.18 and -0.6 but has always been negative. It has also lost some progressivity, but this is a mere mathematical consequence of the increase in its value, which can be clearly seen in Panel 2.

How does the picture look when we put Concentration Coefficients and Income Shares together? It looks like Figure 15.

Figure 15 – Contribution of Labor Income to Inequality, by MW Indexation



Source: Pnad microdata.

The importance of labor income is quite clear Figure 15 Changes in labor income accounted for a reduction of 3.7 Gini points (x100) in inequality, which is 64% of the total change in the Gini Coefficient. This is of course due to the fact that labor income is overwhelmingly important – $\frac{3}{4}$ of all

income is labor income. Minimum wage earnings accounted for ¼ of the inequality reduction due to labor. This is relevant, but there is certainly much more to explain.

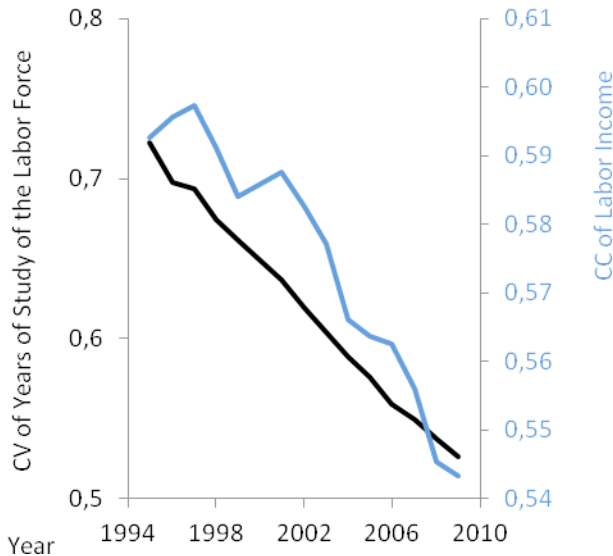
Education

Many researchers have long maintained that education is fundamental in explaining our dismal inequality. Long before inequality began to fall, Carlos Geraldo Langoni (1973), Ricardo Paes de Barros and Rosane Mendonça (1995), among others, have argued that a great deal of our inequality in incomes was due to inequality in education. This view was strongly influenced both by the data and by Human Capital Theory. Many left of center economists have never been entirely comfortable with an explanation that explains inequality not as a market failure but essentially a government failure to provide decent schooling.

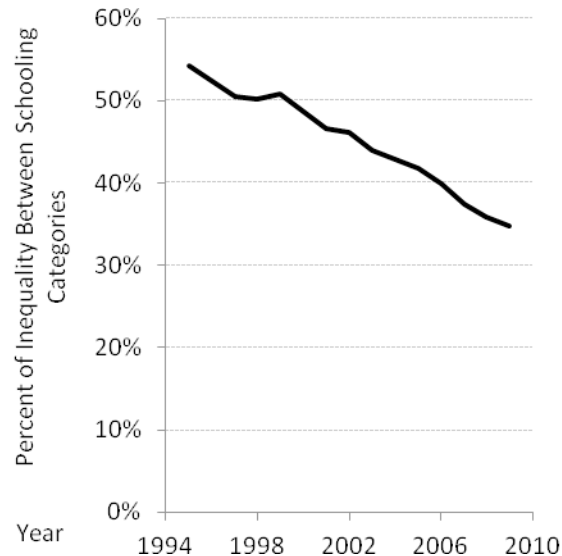
The evidence, however, was very strong in favor of schooling as an important factor explaining income inequality. Furthermore, changes in our really abysmal schooling system which began in the early eighties lead to considerable improvements in the educational profile of the labor force from the mid-nineties onwards.

The first panel of Figure 16 shows the Coefficient of Variation of the educational attainment of the labor force as well as the Concentration Coefficient of labor income from 1995 to 2009. Inequality in education and earnings inequality are falling at the same time.

Figure 16 – Education and the Labor Force
Panel 1 – Mean and Coefficient of Variation



Panel 2 – Theil Decomposition



Source: Pnad microdata.

The second panel shows another decomposition exercise. We take the Theil T inequality measure of individual earnings and calculate the within and between inequality using as our partition a division three education categories: primary schooling or less, from primary to secondary schooling, and higher education or more. The exact explanation of the Theil decomposition is too long for the scope of this essay. It suffices to say that Panel 2 of Figure 16 shows the percentage of total earnings inequality that occurs between the three crudely defined education categories. If education is important, between

schooling category inequality should be high and within schooling category inequality low. This means that Panel 2 shows that education is becoming rather rapidly less important as a determinant of earnings inequality over time.

The crucial question, of course, is whether this is happening because educational progress is reducing income inequalities due to schooling or whether education is just becoming unimportant, period. Figure 16 cannot give a definitive answer, but the two panels do suggest that schooling inequalities have fallen and have led to a reduction in earning inequalities.

What does the literature say? Curiously, given how often education pops up in the debate on inequality previous to the fall and the importance given to the fall in inequality, relatively little has been written on the role schooling played in reducing either earnings or per capita income inequality. Miguel Foguel and João Pedro Azevedo (2007) have an article in which they analyze schooling and individual earnings inequality using microsimulation. Their findings are somewhat paradoxical.

The expected result of an educational leveling is that newer cohorts would hit the labor market with more educational attainment and that income inequality would fall first as a composition effect and only secondly as a price effect due to high-schooling workers bidding down their own relative wages. According to Foguel and Azevedo, however, most of the reduction in inequality was due to not to a composition effect, but a price effect – the earnings of less educated workers increased faster than those of more educated ones. While this is entirely coherent with a supply and demand response story for education (more and more educated workers bid down their own wages), it is also coherent with stories that have nothing to do with education. If, for some reason completely exogenous to schooling, earnings of low wage workers began to gain on those of high wage workers, a fictitious schooling effect would be produced. This fake schooling effect would be due to the fact that high schooling workers are usually also high wage workers.

The timing of the two falls, however, suggests that there is considerable causality at work. The 1995-2009 period saw considerable changes in economic conditions. The exchange rate fluctuated violently from a strong real up to 1998, to a weak real from 1999 to about 2004, and more recently back to a strong real. From 1996 to about 2004, we had a relatively weak economy and from 2005 onwards relatively strong growth. Through all these changes labor income has become steadily less concentrated. We cannot find any other candidate (other than the Minimum Wage, whose limits we have already discussed) that has varied smoothly from 1995 to 2009, reducing labor income inequality.

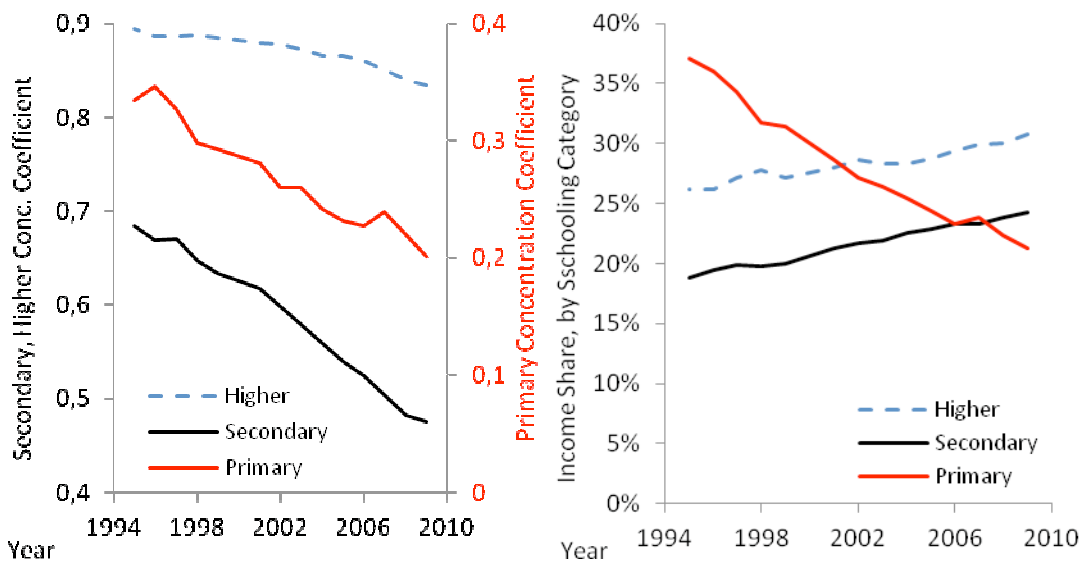
To finish this section, we will look at our omnipresent Concentration Coefficients and Income Shares, only this time by schooling category. But, once again, remember that they do not tell a causal tale for labor income.

What do we see? For starters, all three Concentration Coefficients are falling.

One explanation for is that as higher levels of schooling expand, more educated workers expand from the right to the left (from rich to poor) of the income distribution. Suppose less than 1% of the population has higher education, they can all be concentrated in the top centile of the incomes distribution, but if half of the population does, at best they will be in the fifty top centiles.

Another explanation is that it may be, at least partly, due to other factors which remain hidden in a purely educational analysis. While nobody claimed that education was the entire story behind falling labor earning inequality, these factors have remained as mere speculation in the distributive debate so far.

Figure 17 – Concentration Coefficients and Income Shares of Labor Income, by Schooling
Panel 1 – Concentration Coefficients **Panel 2 – Income Shares**



Source: Pnad microdata.

And how do Income Shares behave? The Income Share of those with only primary schooling has fallen drastically. Since their relative incomes have risen, this is entirely due to rising educational attainment. Due to better schools and the fact that old people eventually retire or die, every year there are fewer individuals with only a primary education.

Most of the fall in the income share of labor earnings of the poorly educated was picked up by the more or less and the highly educated. Their share in total household income rose by about five percentage points each over the period.

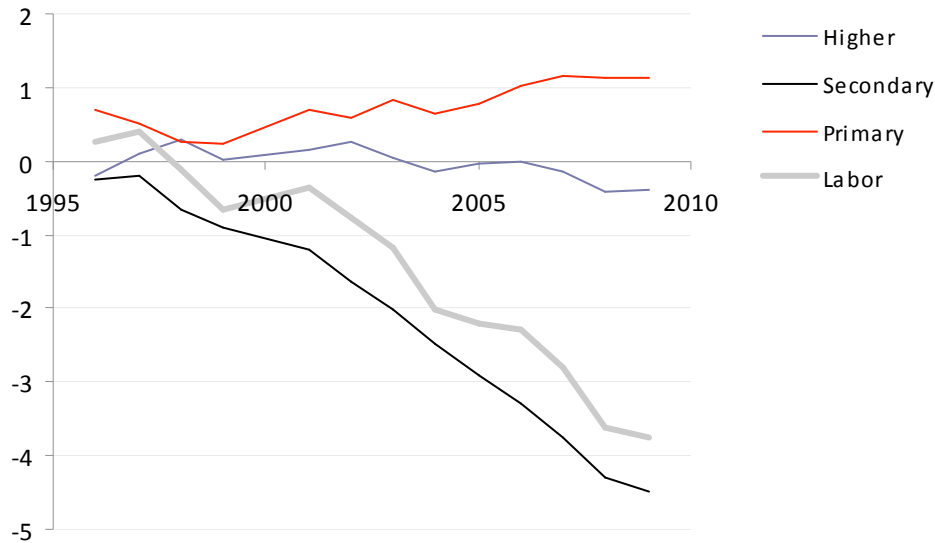
When you put Concentration Coefficients and Income Shares together, you get Figure 18.

Figure 18 shows that different educational categories of labor income contributed in totally different ways to inequality. Labor income from those with a higher education contributed very little to either equality or inequality. This is because its contribution to equality due to reduction in the Concentration Coefficients was offset by the fact that it remains a concentrated income source whose Income Share has grown.

Labor income from people with a primary education also, paradoxically, contributed to higher inequality but this is merely because its Concentration Coefficient is much less than the Gini Coefficient and its Income Share fell considerably.

The great equalizer was labor income from those with a secondary education, whose concentration fell from being greater than the Gini Coefficient to considerably less at the same time that its income share grew.

Figure 18 – Contribution of Labor Income to Inequality, by Education Category



Source: Pnad microdata.

In sum, although a simple Gini decomposition is not a smoking gun, it does suggest that the equalization of schooling contributed to a more equal income distribution and that it was the expansion of secondary schooling that really contributed.

5 Conclusions

We hope to have shown that there are two different states of the art when talking about income distribution in Brazil. When the issue is government transfers, we (we, the authors) believe that we (we, the research community) know much of what is relevant about how they contributed to a more equal income distribution and, consequentially, also know which roads to take in the near future and how far to drive on them. Alas, when the issue is the labor market, we (the authors) believe that we (the research community) guess a lot, have some evidence on our guesses, but know with reasonable certainty considerably less.

Regarding transfers, we know that targeted transfers, specifically *Bolsa Familia*, have an impact upon inequality totally out of proportion with their modest Income Share. This, allied to the fact that we (both the authors and the majority of the research community) are pretty sure that its impacts upon labor market participation are quite negligible or even positive, means that we can and should devote more budgetary resources to increasing both coverage and benefits.

Transfers indexed to the Minimum Wage have also shown considerable firepower against the demons of inequality. While their bang for the buck is nowhere near that of *Bolsa Familia*, the fact that the minimum wage is backed by a winning political coalition of beneficiaries and organized labor make this an attractive strategy to continue pursuing in the near future.

In order to have money to pay a higher Minimum Wage, however, money must be saved elsewhere. We hope to have shown that the prime candidates are the regressive transfers to retired civil and military servants. These are absurdly expensive and regressive privileges financed by taxpayer money. It is without doubt an uphill battle, but President Lula's courageous 2003 reform showed that it

is not impossible to touch privileges financed by taxpayers.

Regarding the labor market, there is still so much that we (the research community) do not know that we (the authors) feel uncomfortable making strong recommendations. But this does not mean we cannot say anything at all. The data appear to show – surprisingly, at least to a neoclassical economist – that the price in terms of unemployment of the Minimum Wage hikes has been much less than what would have been expected. There are increasing numbers of people left behind by the wage floor, but we are not sure if it actually hurts them. Most probably, the Minimum Wage has no effect at all on these individuals at the lower tail of the earnings distribution and the unfortunate families that depend on them. These are clientele for an expanded *Bolsa Família*.

Regarding the other $\frac{3}{4}$ of inequality reduction of labor market incomes, in spite of the absence of a smoking gun, education remains a prime candidate for the slayer of inequality prize. The evidence, although somewhat paradoxical due to the absence of strong composition effects, is certainly coherent with an important role played by more and more equally distributed Human Capital. We believe that it is almost inconceivable that better teachers and schools are not once of the best investments that can be made using taxpayer money.

On the other hand, looking at the rearview mirror is rarely a good way to drive. If we hope to keep hacking away at inequality over another twenty years, then we must address other important sources of inequality not yet addressed in this essay. Brazil suffers from very high regional inequality and reasonably high racial inequality, neither of which have really been touched.

We also have a very burdensome and unfair tax system, heavy on regressive indirect taxes and light on progressive direct taxes. Our high interest rates lead to close to 3% of GDP being transferred as interest on the public debt mostly to the wealthiest families in the nation. At the same time we tax labor income – mostly through social security taxes – at almost 50%, we subsidize capital through official development banks to the tune of one or two GDP percentage points. Commodity exports, which generate little employment but huge rents, are not taxed at all. None of this has been touched in the last decade and there is plenty of room for improvement.

Inequality is so perverse and ingrained feature of our society that we must use every weapon at our disposal in the fight against it. Five centuries is more than enough time of a society in which children born in the wrong income stratus are almost certainly condemned to die there, having been denied opportunities to share in the production and consumption of wealth by society. It is time for a better and more equal Brazil.

6 References

- Atkinson, Anthony B.; Piketty, Thomas; Saez, Emmanuel. Top Incomes in the Long Run of History. NBER Working Paper No. 15408. October 2009. Available at: <http://www.nber.org/papers/w15408>.
- Azevedo, João Pedro. Avaliando a significância estatística da queda na desigualdade no Brasil. In: Paes de Barros, Ricardo; Foguel, Miguel Nathan; e Ulyseia, Gabriel (eds). *Desigualdade de Renda no Brasil: uma análise da queda recente - Volume I*. Capítulo 4, pp. 163-174.
- Barros, Ricardo Paes de e Mendonça, Rosane Silva Pinto de. *Os Determinantes da Desigualdade no Brasil*. Rio de Janeiro: IPEA. Texto para Discussão no. 377. 1995. Disponível em: http://www.ipea.gov.br/pub/td/1995/td_0377.pdf.

- Barros, Ricardo Paes de; Carvalho, Mirela de; Franco, Samuel. O Papel das Transferências Públicas na Queda Recente da Desigualdade de Renda Brasileira. Pp. 41-86 in *Desigualdade de Renda no Brasil: Uma Análise da Queda Recente*, vol. 2. ed. Barros, Ricardo Paes de; Foguel, Miguel N.; and Ulyssea, Gabriel. Brasília: Ipea. 2007. (available at: <http://www.ipea.gov.br/sites/000/2/livros/desigualdaderendanobrasilv2/Cap16.pdf>)
- Barros, Ricardo Paes de; Cury, Samir; Ulyssea, Gabriel. A Desigualdade de Renda no Brasil Encontra-se Subestimada? Uma análise comparativa usando Pnad, POF e Contas Nacionais. In: Paes de Barros, Ricardo; Foguel, Miguel Nathan; e Ulyssea, Gabriel (eds). *Desigualdade de Renda no Brasil: uma análise da queda recente - Volume I*. Capítulo 7, pp. 237-273.
- Bazen, Stephen and John P. Martin. The Impact of the Minimum Wage on Earnings and Employment in France. OECD Economic Studies No. 16, Spring 1991.
- Bértola, Luis; Castelnovo, Cecilia; Willebald, Henry. Income Distribution in Brazil, 1870-1920. Mimeo. 2009. Available at: http://sgfm.elcorteingles.es/SGFM/FRA/recursos/doc/Actos/2009/Ponencias_ingles/446799748_452009134332.pdf
- Blanchflower, David G. and Richard B. Freeman Youth Employment and Joblessness in Advanced Countries. University of Chicago Press. 2000.
- Bonelli, Regis e Sedlacek, Guilherme. Distribuição de Renda: Evolução no Último Quarto de Século. IPEA Texto para Discussão no 145: Rio de Janeiro, 1988. Available at: http://www.ipea.gov.br/pub/td/1988/td_0145.pdf
- Card, David and Alan B. Krueger, 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *American Economic Review* 84(4): 772-793.
- Carlos Henrique Corseuil e Luciana M. S. Servo / Rio de Janeiro, 2002 Salário Mínimo e Bem-Estar Social no Brasil: Uma Resenha da Literatura. (Texto para Discussão, 880). http://www.ipea.gov.br/pub/td/2002/td_0880.pdf
- Corseuil, Carlos Henrique and Francisco Galvão Carneiro / Rio de Janeiro, 2001. Os Impactos do Salário Mínimo sobre Emprego e Salários no Brasil: Evidências a partir de Dados Longitudinais e Séries Temporais. Available at: http://www.ipea.gov.br/pub/td/2001/td_0849.pdf
- Corseuil, Carlos Henrique and Francisco Galvão Carneiro. Os Impactos do Salário Mínimo sobre Emprego e Salários no Brasil: Evidências a partir de Dados Longitudinais e Séries Temporais. 2001. Available at: http://www.ipea.gov.br/pub/td/2001/td_0849.pdf
- Dedecca, Cláudio Salvadori. Capítulo 9 - A redução da desigualdade no Brasil: uma estratégia complexa. In: Paes de Barros, Ricardo; Foguel, Miguel Nathan; e Ulyssea, Gabriel (eds). *Desigualdade de Renda no Brasil: uma análise da queda recente - Volume I*. Capítulo 9, pp. 299-330.
- Fajnzylber, Pablo. Minimum wage effects throughout the wage distribution: evidence from Brazil's formal and informal sectors. Cedeplar/UFMG, 2001 (Texto para Discussão, 151). http://agencia.ipea.gov.br/sites/000/2/publicacoes/tds/td_1290.pdf
- Ferreira, Carlos Roberto and Souza, Solange de Cássia Inforzato de. "Aposentadorias e Pensões e desigualdade da renda: uma análise para o Brasil no período 1998-2003. *Revista de Economia Contemporânea* [online], Vol.12, no.1, pp. 41-66. 2008. Available at: <http://dx.doi.org/10.1590/S1415-98482008000100002> .
- Ferreira, Francisco H.G.; Leite, Phillippe G.; and Julie A. Litchfield. The Rise and Fall of Brazilian Inequality: 1981-2004. World Bank Policy Research Working Paper 3867, March 2006.

- Foguel, Miguel N.; Ramos, Lauro; Carneiro, Francisco. The Impacts of the Minimum Wage on the Labor Market, Poverty and Fiscal Budget in Brazil. (Texto para Discussão, 839). Available at: http://www.ipea.gov.br/pub/td/2001/td_0839.pdf
- Foguel, Miguel and Azevedo, João Pedro. Uma Decomposição da Desigualdade de Rendimentos do Trabalho no Brasil: 1995-2005. In: Paes de Barros, Ricardo; Foguel, Miguel Nathan; e Ulyseia, Gabriel (eds). *Desigualdade de Renda no Brasil: uma análise da queda recente - Volume II*. Capítulo 27, pp. 343-364.
- Giambiagi, Fábio and Samuel Franco. O Esgotamento do Papel do Salário Mínimo como Mecanismo de Combate à Pobreza Extrema. (Texto para Discussão, 1290). 2007. Available at: http://agencia.ipea.gov.br/sites/000/2/publicacoes/tds/td_1290.pdf
- Hoffmann, Rodolfo. Desigualdade da distribuição da renda no Brasil: a contribuição de aposentadorias e pensões e de outras parcelas do rendimento domiciliar per capita. *Economia e Sociedade* (UNICAMP), v. 18, p. 213-231, 2009.
- Hoffmann, Rodolfo and Duarte, João Carlos. A Distribuição de Renda no Brasil in *Revista de Administração de Empresas*, Vol. 12 no. 2. 1972.
- Hoffmann, Rodolfo. “Transferências de Renda e Redução da Desigualdade no Brasil e em Cinco Regiões, entre 1997 e 2005” Pp. 17-40 in *Desigualdade de Renda no Brasil: Uma Análise da Queda Recente, vol. 2*. ed. Barros, Ricardo Paes de; Foguel, Miguel N.; and Ulyseia, Gabriel. Brasília: Ipea. 2007. (available at: <http://www.ipea.gov.br/sites/000/2/livros/desigualdaderendanobrasilv2/Cap15.pdf>)
- Hoffmann, Rodolfo. Desigualdade da renda e das despesas per capita no Brasil, em 2002-2003 e 2008-2009, e avaliação do grau de progressividade ou regressividade de parcelas da renda familiar. *Economia e Sociedade* (UNICAMP. Impresso), v. 19, p. 647-661, 2010.
- Hofmann, Rodolfo. “The evolution of income distribution in Brazil: what promotes and what restricts the decline in inequality.” Presented at the conference *A comparative analysis of growth and development: Argentina and Brazil* University of Illinois, April 22-23, 2010.
- Langoni, Carlos Geraldo. 2005. *Distribuição de Renda e Crescimento Econômico do Brasil – 3ª Edição*. Rio de Janeiro. Editora FGV. (1ª edition 1973).
- Lemos, Sara. Are wage and employment effects robust to alternative minimum wage variables? IZA, 2004a (Discussion Paper, 1.070). Available at: <http://ftp.iza.org/dp1070.pdf>
- _____. Minimum wage effects on wages, employment and prices: implications for poverty alleviation in Brazil. University of Leicester, 2005 (Working Paper, 05/15). Available at: <http://hdl.handle.net/2381/4449>.
- _____. Minimum wage policy and employment effects: evidence from Brazil. *Economia*, Vol. 5, No. 1. p. 219-266, 2004b.
- _____. Political variables as instruments for the minimum wage. IZA, 2004c (Discussion Paper, 1.136). Available at: <http://ftp.iza.org/dp1136.pdf>
- Medeiros, Marcelo; Britto, Tatiana; Soares, Fábio Veras. Transferência de renda no Brasil. *Novos Estudos CEBRAP*, v. 79, p. 5-21, 2007.
- Medeiros, Marcelo; Diniz, Debora; and Squinca, Flávia. Cash Benefits to Disabled Persons in Brazil: an Analysis of BPC - Continuous Cash Benefit Programme. IPEA Texto para Discussão no 1331:

- Brasília, 2006 Available at: http://www.ipea.gov.br/pub/td/2006/td_1184.pdf.
- Neri, Marcelo Cortes, Gustavo Gonzaga and José Márcio Camargo, 2000. “Efeitos Informais do Salário Mínimo e Pobreza.” EPGE / FGV, Ensaios Econômicos No. 372.
- Neri, Marcelo Cortes. 1997. “O Reajuste do Salário Mínimo de Maio de 1995.” Anais da Sociedade Brasileira de Econometria, Recife.
- Neri, Marcelo Cortes. Efeitos Informais do Salário Mínimo e Pobreza. IPEA Texto para Discussão no 724: Rio de Janeiro, 2000. Available at: http://www.ipea.gov.br/pub/td/2000/td_0724.pdf
- Neumark, David, and William Wascher. 2000. Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania: Comment. *American Economic Review* 90(5): 1362-1396
- Newmark, David; M. Schweitzer and W. Wascher, 2000. “The Effects of Minimum Wages throughout the Wage Distribution” National Bureau of Economic Research, Working Paper No. 7519.
- Ramos, Lauro, Reis, José Guilherme. Minimum wage, income distribution and poverty in Brazil. Rio de Janeiro: IPEA, 1994 (Texto para Discussão, 359). Available at: http://www.ipea.gov.br/pub/td/1994/td_0359.pdf
- Ramos, Lauro. A desigualdade de rendimentos do trabalho no período pós-Real: o papel da escolaridade e do desemprego. *Economia Aplicada* [online]. 2007, vol.11, n.2, pp. 281-301. ISSN 1413-8050.
- Reddy, Sanjay and Thomas Pogge. How Not to Count the Poor! — A Reply to Ravallion. August 15, 2002. Mimeo. Available at: <http://en.scientificcommons.org/43557087>
- Rocha, Roberto de Rezende and Caetano, Marcelo Abi-Ramia. O Sistema Previdenciário Brasileiro: Uma Avaliação de Desempenho Comparada. IPEA Texto para Discussão no 1331: Brasília, 2008. Available at: http://www.ipea.gov.br/sites/000/2/publicacoes/tds/td_1331.pdf.
- Saboia, João, Efeitos do Salário Mínimo sobre a Distribuição de Renda no Brasil no Período 1995/2005 – Resultados de Simulações, *Econômica*, v.9, n.2, 2007b.
- Saboia, João, Elasticidades dos Rendimentos do Trabalho em Relação ao Salário Mínimo: A Experiência de um Período Recente de Crescimento do Salário Mínimo, *Economia e Sociedade*, v.19, n. 2, 2010.
- Saboia, João. O Salário Mínimo e seu Potencial para a Melhoria da Distribuição de Renda no Brasil, in Barros, R., Foguel, M. e Ulyssea, G., orgs., *Desigualdade de Renda no Brasil: Uma Análise da Queda Recente*, v. 2, IPEA, Brasília, 2007a.
- Salm, Cláudio. Capítulo 8 - Sobre a recente queda da desigualdade de renda no Brasil: uma leitura crítica. In: Paes de Barros, Ricardo; Foguel, Miguel Nathan; e Ulyssea, Gabriel (eds). *Desigualdade de Renda no Brasil: uma análise da queda recente - Volume I*. Capítulo 8, pp. 279-298.
- Santos, Claudio Hamilton M. dos; Silva, Antonio Carlos Macedo e; Ribeiro, Márcio Bruno. Uma Metodologia de Estimação da Carga Tributária Líquida Brasileira Trimestral no Período 1995-2009. in *Revista de Economia Contemporânea*, Vol. 14, No. 2, p. 209-236, maio/ago. 2010
- Silveira, Fernando Gaiger. Tributação, Previdência e Assistência Sociais: Impactos Distributivos. Mimeo. 2010.
- Silveira, Fernando Gaiger; Mostafa, Joana; Caetano, Marcelo Abi-Ramia; Santos, Maria Paula Gomes dos. Previdência dos Servidores Públicos: Reflexões em Torno da Proposta de Instituição da Previdência Complementar. In press. IPEA 2011.

- Soares, Fabio Veras; Ribas, Rafael P.; Osório, Rafael Guerreiro. "Evaluating the Impact of Brazil's Bolsa Família: Conditional Cash Transfers in Perspective". Pp. 173-190 in *Latin American Research Review*. Vol. 45 No. 2. 2010.
- Soares, Fabio Veras; Soares, Sergei; Medeiros, Marcelo; Osório, Rafael Guerreiro. Programas de transferência de renda no Brasil: impactos sobre a desigualdade. Brasília: Ipea, 2006 (Texto para Discussão, n. 1.228).
- Soares, Sergei. Análise de bem-estar e decomposição por fatores na queda da desigualdade entre 1995 e 2004. *Econômica*: revista do programa de pós-graduação em Economia da UFF. Rio de Janeiro: UFF, v. 8, n. 1, 2006, p. 83-115.
- Soares, Sergei. O impacto distributivo do salário mínimo: a distribuição individual dos rendimentos do trabalho. Rio de Janeiro: Ipea, 2002 (Texto para Discussão, 873).
- Soares, Sergei; Osório, Rafael Guerreiro; Soares, Fabio Veras; Medeiros, Marcelo; Zepeda, Eduardo. "Conditional Cash Transfers in Brazil, Chile and Mexico: Impacts upon Inequality" Pp. 207-224 in *Estudios Económicos*, Número Extraordinario. (Available at: <http://ideas.repec.org/>). Mexico. 2009.
- Soares, Sergei; Ribas, Rafael Perez; Soares, Fabio Veras. *Targeting and Coverage of the Bolsa Família Programme: Why Knowing What You Measure Is Important In Choosing the Numbers*. (IPC Working Paper no 71, available at: <http://www.ipc-undp.org/pub/IPCWorkingPaper71.pdf>) Brasília: IPC. 2010.
- Soares, Sergei; Souza, Pedro H. G. F.; Osório, Rafael Guerreiro; Silveira, Fernando Gaiger. "Os Impactos do Benefício do Programa Bolsa Família Sobre a Desigualdade e Pobreza." Pp. 27-52 in *Bolsa Família 2003-2010: Avanços e Desafios - Volume 2*. ed. Castro, Jorge Abrahão de and Modesto, Lúcia. Brasília: IPEA. 2010.
- Ulyseia, Gabriel and Miguel N. Foguel. Efeitos do Salário Mínimo sobre o Mercado de Trabalho Brasileiro. Rio de Janeiro, 2006