POVERTY, INEQUALITY AND SOCIAL POLICIES IN BRAZIL, 1995-2009

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ABSTRACT

Since the mid-1990s, Brazil has undergone extensive reforms that have finally reversed the dismaying economic performance of the 1980's. In particular, poverty and inequality indicators have improved dramatically, especially since the late 2000's. This paper provides an overview of such recent trends and discusses the role played by four major government interventions: public education, the minimum wage law, Social Security pensions and Social Assistance transfers. Additionally, available data sets and methods for policy evaluation are also discussed.

CONTENTS

TABLES

FIGURES

1. INTRODUCTION

By the end of the first decade of the 21st century, the most usual international depiction of Brazil is that of a burgeoning, upcoming country. Although in many ways frankly exaggerated, this marks a stark contrast with a not-so-distant past. Back in the early 1990's, such optimistic prospects were almost unimaginable by most Brazilians and rightly so. This turnaround has had a lot to do with favorable international circumstances during much of the 2000's, but they also owe a lot to extensive reforms that made possible something that was almost unprecedented in Brazil throughout the past century: sustained pro-poor growth.

This paper aims to place in context and summarize some of these transformations, focusing specifically on the evolution and assessment of poverty and inequality trends as well as of the major government interventions in these areas. This is not unwarranted, as some of the most important transformations of the past decade and a half are closely connected to an improved and increasingly effective social protection network which, as we shall see, contributed decisively to the decline in poverty and inequality.

As the currently existing institutions in these areas are obviously still far from perfect, there is a lot to like but also a lot to dislike about them. Hence, this paper provides an overview of the most important criticisms leveled at them.

Finally, it is worth noting that poverty and inequality research is a technical field of expertise that is heavily dependent upon high quality data and proper research tools. One of this paper's secondary goals, then, is to briefly describe the most used data sets and the most prevalent methodologies used by Brazilian researchers to monitor poverty and inequality trends and to assess the effects of those major social programs.

The rest of the paper is organized as follows: in the next section we provide an overview of the Brazilian macroeconomic context since the late 1980's; next, we describe more thoroughly the most important data sets available; in the fourth section, we report the overall income, poverty and inequality trends in Brazil since the mid-1990's; in the fifth section, we offer an in-depth look at four major governmental interventions, namely, educational and minimum wage policies, Social Security and Social Assistance; in the sixth section, we show the results for the most common decompositions of income

inequality in order to identify the major determinants of the swift decline observed between 2001 and 2009; finally, the seventh section summarizes our most important findings.

2. MACROECONOMIC CONTEXT[1]

After a stint of high GDP growth rates in the late 1960's and early 1970's – dubbed the "Economic Miracle" – the Brazilian economy entered a bleak period as it tried to grapple with the balance of payments crisis caused by that decade's oil shocks and mounting external debt. Between 1986 and 1991 no less than five economic plans were enacted in order to rein in on spiraling inflation rates and boost the erratic economic growth. None fully succeeded and, worse, the economic crisis became entangled with a political one as Fernando Collor de Mello, the first elected president since the 1964 Military coup, was forced to resign in 1992 in an attempt to stop his impeachment trial on charges of corruption.

By then, Brazil was in turmoil. During the 1980's, both poverty and inequality went up, but the downfall of the military regime, the new Federal Constitution of 1988 and free direct presidential elections had been celebrated as reasons for hope. In the early 1990's all that was already starting to fade, as the economy was in a shambles – in 1992, the annual inflation rate reached almost 1150% and the GDP contracted by 0.5% - and the political crisis continued after Collor's departure.

In that context, 1994's Plano Real [*Real Plan*] was a real turning point. The plan introduced a new currency (the Real) and sought to bring inflation under control through a combination of extensive trade liberalization, privatizations, contractionary monetary policies and high interest rates in order to attract foreign capital and finance the current accounts deficit. Even though the plan was successful – annual inflation rates dropped from a staggering 2500% in 1993 to 930% in 1994 and just 22% in 1995 – the lack of a serious fiscal adjustment resulted in an increased public sector debt and overvalued currency rates, which were necessary to keep demand-side inflation low.

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[1] For more detailed analyses of the Brazilian economy in the second half of the 20th century, see, among several others, Fishlow (1980), Sayad (1995), Abreu (2000) and Baer (2009).

Hence, the Asian and Russian crises of 1997 and 1998 set off a currency crisis in Brazil, as the Real suffered a severe devaluation.

This led to another round of reforms, as the Central Bank eschewed the fixed-exchange rates system and adopted inflation-targeting policies. Also, deficit-cutting policies were enacted, which entailed a period of very low growth rates: between 1994 and 1997, immediately after the Plano Real, GDP growth averaged 3.8% per year; between 1998 and 2003, the macroeconomic woes dragged down the average growth rates to just 1.6% per year.

Still, the basic conditions – both macroeconomic and institutional – were set for renewed economic growth. The circumstances became favorable in the mid-2000's, as the rapid industrialization of China and other developing countries resulted in rising commodity prices, which affected favorably Brazilian exports. Additionally, abundant international credit also increased foreign direct investment.

Overall, this created a new opportunity window which was seized by the Brazilian government with expansionary fiscal policies to jumpstart the economy. In particular, there was an aggressive expansion of both consumer and corporate credit and increased spending on social policies, such as Social Security pensions and Social Assistance transfers.

The end result was a robust consumer-led economic boom with an average GDP growth rate of approximately 4.4% per year between 2004 and 2010, the highest since the late 1970's[2]. Moreover, even though there was a 0.6% contraction in the wake of the global financial crisis in 2009, in 2010 GDP growth rebounded to 7.5% - the highest annual growth rate in over two decades.

Such favorable conditions were reflected in a thriving labor market that promoted vigorous formalization and job creation. Between 1999 and 2003, for instance, about 2.4m formal jobs were created; between 2003 and 2007, this number more than doubled, reaching 5.1m; finally, between 2007 and 2011 it soared to 8.7m .

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[2] Per capita GDP growth averaged 3.6% between 2004 and 2008, also the highest since the late 1970's.

Despite such promising performance, as the first decade of the 2000's came to an end there were renewed doubts regarding the sustainability of Brazilian growth. Low investment rates, the precarious state of the infrastructure in transports, an overvalued currency, the threat of rising prices and glum prospects for the global economy have revived some analysts' persistent suspicions that Brazil might just have benefitted from low-hanging fruit.

So far, this seems to be an inordinately pessimistic stance, although the debate is still open and the next few years should see somewhat slower growth rates. Still, both in terms of economic fundamentals and institutional arrangements Brazil is right now markedly different from the 1980's. The turmoil of the late 1980's seems long past as the economic growth of the past decade occurred under stable, democratic governments and brought about not only a sharp reduction in poverty rates but also – for the first time in decades – a steady decline in income inequality, as we shall see in the next sections.

3. DATA SETS

High quality data sets are obviously the number one requirement for poverty and inequality tracking and policy evaluation. Usually these are either household surveys with family-level and individual-level information or administrative data. Even though the latter can be potentially very useful, their usage in such studies is still incipient, mostly due to confidentiality clauses and their sheer size.

Fortunately, high quality household surveys have been available for decades now in Brazil. The first poverty and inequality studies were based on the 1960 and 1970 Population Census, but the most widely used data set is the Pesquisa Nacional por Amostra de Domicílios (PNAD), a national household survey conducted by IBGE, the central statistics office of the country. The PNAD is a multi-purpose survey that was first fielded in 1967 and, after some initial adjustments, settled on its current basic design in 1976. Since then it has been carried out yearly – except on Census years (1980, 1991 and 2000) and in 1994 – always in the last quarter of the year. Although it covers several broad areas – such as education, migration, fertility, income and

earnings, housing and household access to services and facilities – a special emphasis is accorded to labor market participation[3].

Other household surveys that are also used on poverty and inequality research are the Pesquisa de Orçamentos Familiares (POF), which is an income and expenditures survey fielded every five years (with limited coverage in 1987/1988 and 1995/1996 and full national coverage in 2002/2003 and 2008/2009), the Pesquisa Mensal do Emprego (PME), a monthly labor market-oriented survey that is restricted to metropolitan areas, and the National Population Census, which is carried out every 10 years.

The PNADs' popularity stems from some clear-cut advantages over those other surveys. First, obviously other than the Census, they have the largest sample sizes, roughly equivalent to 100,000 households per year. Second, unlike the Census, they have a long-term series with minimum comparability issues, especially since the early 1980's, as most changes have dealt with the survey's coverage extension to far-flung areas of the country. Third, they present generally very consistent and high-quality data. Fourth, they always cover several broad areas, providing researchers with lots of variables to examine. Finally, they permit fine-grained year-by-year analyses.

There are some drawbacks, though. First and foremost for poverty and inequality researchers, it is known that incomes – especially property-related income and non-monetary income – are underreported. This is a common issue of such surveys and affects mostly the very rich and the very poor and thus does not seem to cause any serious bias in income inequality measures (Barros; Cury; Ulyssea, 2006). Poverty indicators also remain somewhat unbiased if one takes into account that the PNADs are mostly useful to measure monetary poverty.

Second, the PNADs are purely cross-sectional data sets. This is not a problem in itself, but it must be stressed that there is a conspicuous lack of panel data and that is probably the single biggest hurdle for poverty and inequality research in Brazil. Very little is known about life trajectories, income volatility and such. Luckily, this seems to be about to change in the next decade as IBGE is updating its household surveys.

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[3] For more on the PNADs, see Martine *et al*. (1988), Médici (1988), Rocha (2003) e Martine (2005).

Finally, the PNADs' three-stage sampling design is slightly biased towards larger municipalities and therefore underestimates the scope of some social programs, like the Programa Bolsa Família, which has municipal quotas that favor the poorer and smaller towns (Souza, 2010). It probably also underestimates the overall level of poverty and inequality.

None of these limitations offset the advantages. All in all, it is safe to assume that even though the PNADs are less than perfect when it comes to estimating the overall levels of income, poverty and inequality, they are very useful to track trends and patterns.

4. TRENDS IN INCOME, POVERTY AND INEQUALITY IN BRAZIL

Unlike many other countries, in Brazil the standard income measurement unit is the gross household *per capita* income, after transfers but before taxes and without any equivalence scales. Figure 1 presents the income evolution since the mid-1990's in Purchasing Power Parity (PPP) US dollars[4] (see World Bank, 2008). It shows clearly that 2003 marked an inflection point: between 1995 and 2003, household *per capita* income grew just 1.3% per year; afterwards, between 2003 and 2009, it shot up more than 7% per year. The cumulative income growth throughout the entire 1995/2009 period reached almost 70% (3.8% per year).

Due to its methodology, the PPP factors slightly overstate the recent Brazilian income growth. Still, there has been substantial growth in the latter half of the past decade: *per capita* GDP rose a meager 3% between 1995 and 2003 and 17% between 2003 and 2009.

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[4] As in all other graphs, data points for 1994 and 2000 were obtained through linear interpolation.

Figure 1. Mean real household *per capita* income (US$ PPP) – Brazil, 1995/2009
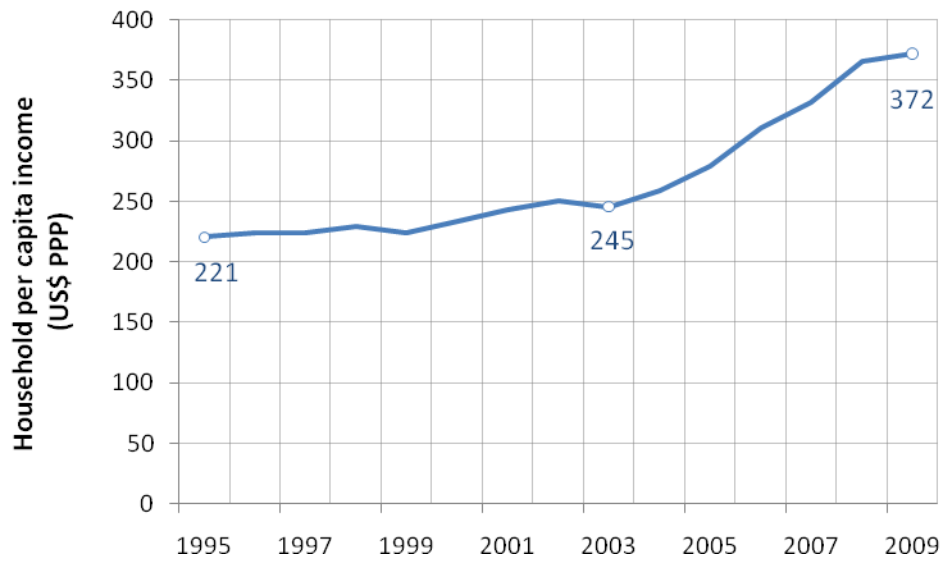
Source: Pesquisa Nacional por Amostra de Domicílios, 1995-2009.
PPP factors from: World Bank. Global Purchasing Power Parities and Real Expenditures - 2005 International Comparison Program. Updated by average annual inflation for Brazil and the United States: International Monetary Fund. World Economic Outlook 2009.

As usual, this income growth was unevenly distributed. However, unlike in the 1960's and 1970's, this time the gains accrued disproportionately to the bottom half of the income distribution, as seen on Figure 2. Between 1995 and 2009, the income growth for the bottom 20% reached 127% and for the top 20%, just 54%. Consequently, the ratio between the average incomes of the top 20% and the bottom 20% plummeted from 27 to 18 times – a whopping 32% decline, although it is still high.

Figure 2. Real income growth by centiles (%) – Brazil, 1995 and 2009
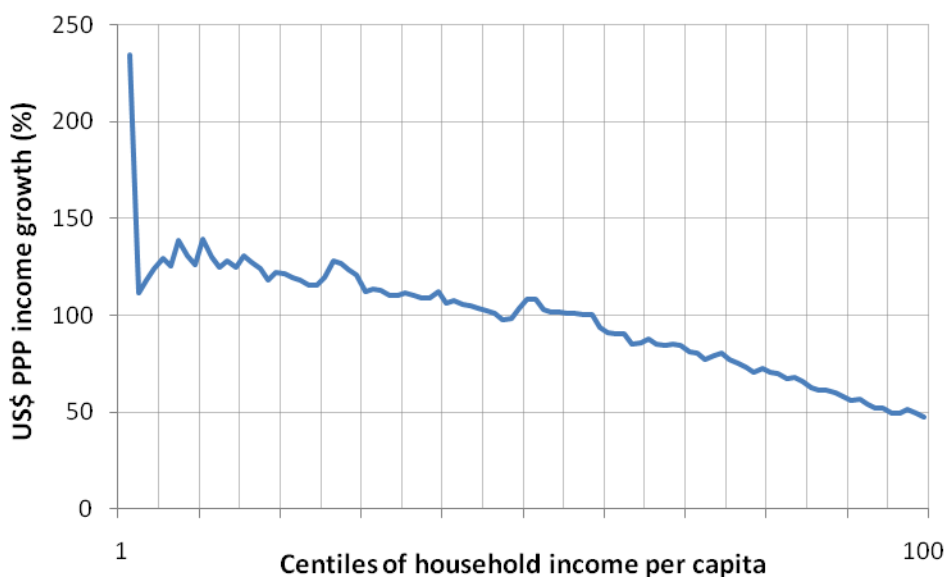
The magnitude of such pro-poor growth was considerable and both poverty and inequality indicators dropped noticeably. Figure 3 presents the evolution of extreme poverty as measured by the World Bank's and the Millennium Development Goal's poverty line of US$ PPP 1.25 per day. Poverty reduction dates back from the mid-1990's and picked up speed in the mid-2000's as the economic recovery was combined with the fall in income inequality. In 2007, Brazil achieved its own Millennium Development Goal, which was to reduce poverty until 2015 to one quarter of its level in 1990 (25.6%).

Figure 3. Extreme poverty (US$ PPP 1.25/day poverty line) – Brazil, 1995/2009

Poverty eradication was announced in 2011 as the top priority of the newly inaugurated president, Dilma Rousseff, who set an official poverty line very similar to the World Bank's. Furthermore, it must be noted that the 2009 income distribution displays first-order dominance over both the 1995 and 2003 distributions. This means that for any poverty line whatsoever the relevant poverty indicators should be lower in 2009 than in 1995 or 2003.

In Brazil, the most used synthetic inequality measure is the Gini index, as displayed on Figure 4. As mentioned, after decades of stagnant or rising inequality, the good news of the 2000's was the swift decline in the Gini index, which dropped by 9% between 2001 and 2009, reaching its lowest level since the 1970's (Barros *et al.*, 2006). Remarkably, income inequality began to fall before the economic recovery of the mid-2000's, highlighting the importance of some longer-term social policies, as will be discussed further below.

Figure 4. Gini index of the household *per capita* income – Brazil, 1995/2009
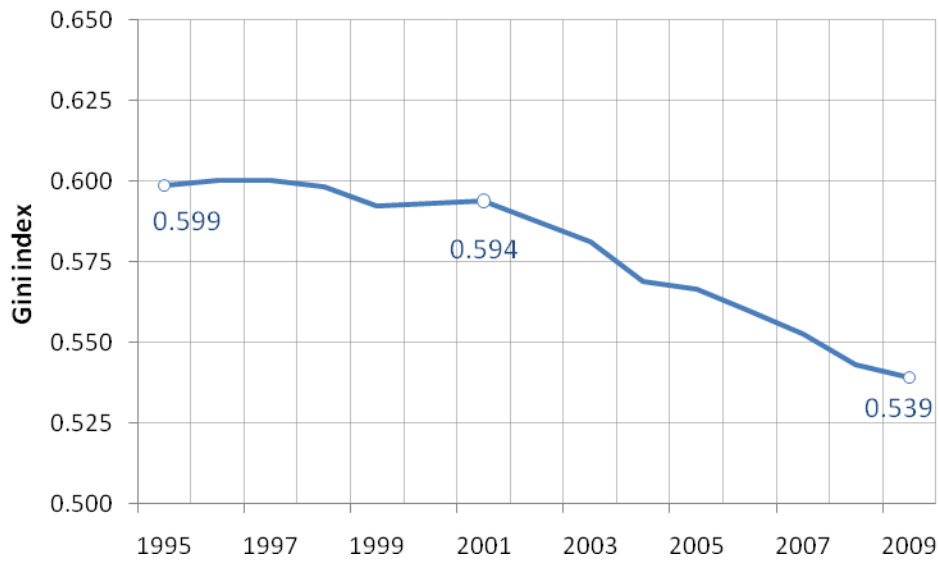
Nevertheless, Brazilian income inequality is still considerably large: even if the current pace is maintained, it would take another couple of decades to reach the inequality levels presently found in developed countries (Milanovic; Yitzhaki, 2002; Soares, 2008; López-Calva; Lustig, 2010)

Likewise, the recent performance should not be mistaken for any kind of Brazilian exceptionalism. The 2000's were a good decade for several developing economies, especially in Latin America. Table 1, for instance, shows the recent growth and inequality trends in the six largest Latin American countries. Brazil was not an outlier. All six countries went through a period of pro-poor growth, with Peru standing out as the top performer both in terms of economic growth and inequality reduction.

Table 1. Annual GDP growth and variation in the Gini index of household *per capita* income – Six largest Latin American countries, 2000's

Countries	GDP growth 2002-2009 (% per year)	Change in the Gini index in the 2000s (%)
Argentina	3.7	-15
Brazil	3.7	-9
Chile	4.2	-6
Colombia	4.4	-1
Mexico	2.8	-6
Peru	5.6	-13
Venezuela	4.4	-1

Sources: GDP Growth: United Nations. World Economic Situation and Prospects 2011. Inequality: Socio-Economic Database for Latin America and the Caribbean (CEDLAS and The World Bank). Note that in order to ensure comparability CEDLAS makes a wide range of adjustments to the original data sets. The years used to estimate the Gini coefficient are as follows: Argentina, 2003-2009; Brazil, 2001-2009; Chile, 2000-2009; Colombia, 2001-2004; Mexico, 2000-2008; Peru, 2003-2009; Venezuela, 2000-2006.

5. POVERTY, INEQUALITY, AND THE STATE

Brazil has a long-standing tradition of research on poverty and inequality and as such it is unsurprising that the changes spurred by the last decade drew widespread attention. A vast array of possible causes has been studied, dealing mostly with public policies and programs.

Naturally, state interventions can impinge directly and indirectly on poverty and inequality in a myriad of ways. Due to the popularity of the PNADs, some have been much more studied than others and the rest of this paper will focus on them. That leaves out some interventions – such as the expenditures on the Universal Health System and other public services – whose distributive effects are either ambiguous or hard to measure. More importantly, it also leaves out some interventions that are known to be notoriously regressive, like taxes. Previous research has shown that the Brazilian tax code, similarly to other developing countries, relies heavily on indirect consumption taxes which take a greater toll on the poor (Silveira, 2008).

In this section, four typical areas of intervention of the 20th century Welfare States will be discussed in detail: public education policies, the minimum wage law, Social Security pensions, and Social Assistance transfers.

The expenditures linked to those major areas are listed on Table 2 and comprised a hefty 16% of GDP, or almost 50% of the total tax revenues in 2006. As noted by many authors (for instance, Rocha and Caetano, 2008), Social Security expenditures stand out in a relatively young country like Brazil. On the other hand, a much publicized program like the Bolsa Família only amounts to a tiny fraction of the GDP.

Table 2. Selected government expenditures (% of GDP) – Brazil, 2006

Expenditures	Share of GDP (%)
Public education	3.8
Social Security and pensions	11.1
Private sector	6.8
Civil servants	4.3
Social Assistance cash transfers	0.8
Benefício de Prestação Continuada (BPC)	0.4
Programa Bolsa Família (PBF)	0.4
Total	**15.7**
Total tax revenue	**34.1**

Source: Mostafa, J; Souza, PHGF; Vaz, FM. Efeitos econômicos do gasto social. In: Castro, JA; Ferreira, H; Campos, AG; Ribeiro, JAC (Org). Perspectivas da Política Social no Brasil. Brasília: Ipea, 2010. Total tax revenue from Ribeiro, MB. Uma análise da carga tributária bruta e das transferências de assistência e previdência no Brasil no período 1995-2009: evolução, composição e suas relações com a regressividade e a distribuição de renda. In: Castro, JA; Santos, CHM; Ribeiro, JAC. Tributação e eqüidade no Brasil: um registro da reflexão do Ipea no biênio 2008-2009.Brasília: Ipea, 2010.

EDUCATION

Historically, Brazil has been plagued by overall low levels of educational attainment and a very unequal distribution of educational opportunities favoring the upper middle classes and the rich. Most of the latter half of the 20th century was characterized by very limited access to primary education, especially in the North and Northeast regions, while the government poured substantial resources on free public post-secondary education. It is no wonder then that education has been singled out for decades as the

main determinant of inequality in Brazil (Langoni, 1973; Jallade, 1978; Ramos, 1991; Barros; Mendonça, 1995; Ferreira, 2000; Barbosa Filho; Pessoa, 2008).

The Brazilian educational system has undergone extensive reforms since the 1988 Constitution. A stronger focus on primary and secondary education was accompanied by more effective funding arrangements[5]. Public expenditures on education added up to only 2.7% of the GDP in 1980 but since the mid-1990's they have hovered around 4% or 4.5%. One of the results was that school attendance for children between 7 and 14 years old – which is mandatory – finally became nearly universal by the late 1990's.

Amid the recent economic growth there was not only an increase in real terms in the public investment on education per student but also such investment became considerably less biased towards post-secondary education. According to data from the Ministry of Education, between 2000 and 2009 the real public investment per student expanded by 94% - almost entirely after 2003/2004 – while the ratio between expenditures on post-secondary and primary students dropped from a lofty 11.1 times to a more palatable 5.2 times[6].

All these developments were reflected on quickly improving educational standards, as seen on Tables 3 and 4. Illiteracy rates remain high mostly due to the inertial influence of past generations; among the 15-24 age bracket it is already quite low. Attendance rates improved across the board, especially among teenagers between 15 and 17. This has already resulted in a much more educated labor force: only about one-third of the economically active population – which comprises those who are employed and the unemployed who are actively looking for jobs – had completed the mandatory primary education in 1995; that percentage almost doubled in less than 15 years. Similarly, the supply of workers with higher educational credentials also enlarged significantly.

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[5] For more details, see Ipea (2009).

[6] See <http://portal.inep.gov.br/estatisticas-gastoseducacao-despesas_publicas-p.a._paridade.htm>

Table 3. Illiteracy and attendance rates (%) – Brazil, 1995 and 2009

	1995	2009
Illiteracy rates		
Ages 15+	15.5	9.7
Ages 15-24	7.1	1.9
Attendance rates		
Ages 6-14	88.7	97.6
Ages 15-17	66.7	85.2

Source: Pesquisa Nacional por Amostra de Domicílios, 1995 and 2009.

Table 4. Educational attainment of the economically active population (%) – Brazil, 1995 and 2009

Completed at least…	1995	2009
Primary Education	34.5	61.7
Secondary Education	20.7	44.1
Tertiary Education	5.6	10.2

Source: Pesquisa Nacional por Amostra de Domicílios, 1995 and 2009.

The pace of the changes can be better appreciated on Figure 5. In less than 15 years, the mean years of schooling[7] increased from 5.8 to 8.3 years, a 42% hike. Unlike in the 1960's, when there also an expansion of the schooling system, this time the heterogeneity in educational attainment diminished: the Gini index of years of schooling fell abruptly by 30%, from 0.413 in 1995 to 0.288 in 2009. In other words, for the first time in decades Brazil finally succeeded both in boosting educational levels and providing less unequally distributed educational opportunities. This has been one of the pivotal reasons for the rapid decrease of labor market inequality in the past few years and has also contributed significantly for the overall reduction in household *per capita* income inequality (Barros; Franco; Mendonça, 2006; see below).

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[7] Years of schooling vary from 0 (no schooling) to 15 (completed post-secondary education).

Figure 5. Mean years of schooling and Gini index of years of schooling for the economically active population – Brazil, 1995/2009
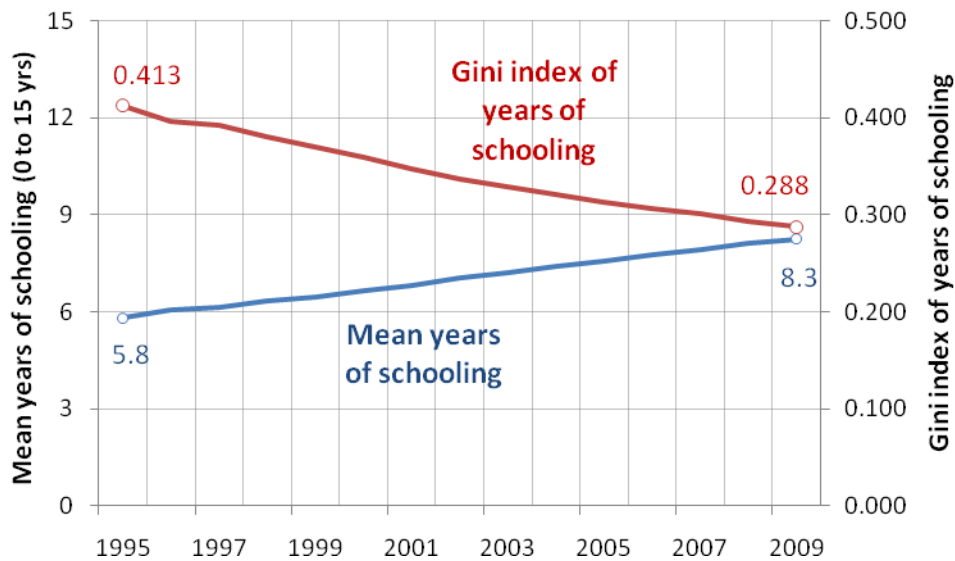
Source: Pesquisa Nacional por Amostra de Domicílios, 1995/2009.

Even better, as a long-term policy that has already spanned several presidential mandates, there is reason to believe that this trend will probably persist in the foreseeable future. This is absolutely crucial for Brazil's development because there is still much to be done. On the one hand, 8.3 mean years of schooling is still very low, as it barely covers the mandatory primary education (8 years). On the other hand, in spite of recent improvements, the Brazilian students' scores in standardized international cognitive tests are still lagging behind, which reflects the poor quality of public schooling system (Soares; Nascimento, 2011).

MINIMUM WAGE LAW[8]

The federal Minimum Wage law was first enacted in Brazil in the late 1930's and established more than a dozen regional minimum wages in order to take into account differences in cost of living. Initially, it applied only to formal urban workers, being extended to rural workers – then the vast majority of the Brazilian work force – only in

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[8] For a detailed historical analysis of the minimum wage in Brazil, see Dieese (2010).

the 1960's, and even so only for formal rural workers, a tiny minority of that group even today. Later, in 1984, a new unified national minimum wage was created[9].

For decades there were no laws regulating minimum wage adjustments, which were granted at the president's discretion. As such, its real value has fluctuated wildly over time. Many authors who have studied the increase in income inequality in the 1960's, for instance, blame specifically the Military government's decision to depreciate the minimum wage in real terms during that decade (Fishlow, 1972; Hoffmann; Duarte, 1972).

Since the 1988 Constitution the importance of the minimum wage grew considerably. On the one hand, the Constitution reaffirmed the existence of a single national minimum wage, applicable to all (formal) workers, and imposed that it should be periodically adjusted in order to recoup losses due to inflation. On the other hand, the minimum wage also became tied to other government programs, being enshrined as the minimum value of all Social Security and some Social Assistance benefits.

During the high inflation period of the 1980's the minimum wage was adjusted monthly to try and recoup losses, with no real gains. After the macroeconomic stabilization, its real value started to increase consistently albeit slowly. Since the mid-2000's, with the economic recovery in full swing, the government and employers' and workers' associations finally came to an agreement that was set to provide rapid real gains: each annual minimum wage adjustment would recoup the previous' year inflation compounded with the real GDP growth of the year before the last[10].

This agreement, which was signed into law earlier this year, has resulted in larger real minimum wage gains over the past few years (see Figure 6). The period between the unification of the national minimum wage and the macroeconomic stabilization had – if anything – a declining real minimum wage. Afterwards, between 1995 and 2005, the real value of the minimum wage grew at a rate of roughly 7% per year. Finally, between

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[9] It is worth noting that states and municipalities can also set their own minimum wages as long as they are higher than the federal one. Nevertheless, this has seldom been the case and the federal minimum wage remains the truly relevant one.

[10] An example might make this point clearer: if the cumulative inflation was 5% between years *t-1* and *t* and real GDP growth in year *t-2* was 3%, then the minimum wage adjustment in *t* should be 8%.

2005 and 2011, this rate rose to 10% per year. Overall, the real minimum wage in early 2011 was almost three times higher than in 1995, which implies an annual growth rate of about 8%.

Figure 6. Real monthly minimum wage (US$ PPP) – Brazil, 1985/2011
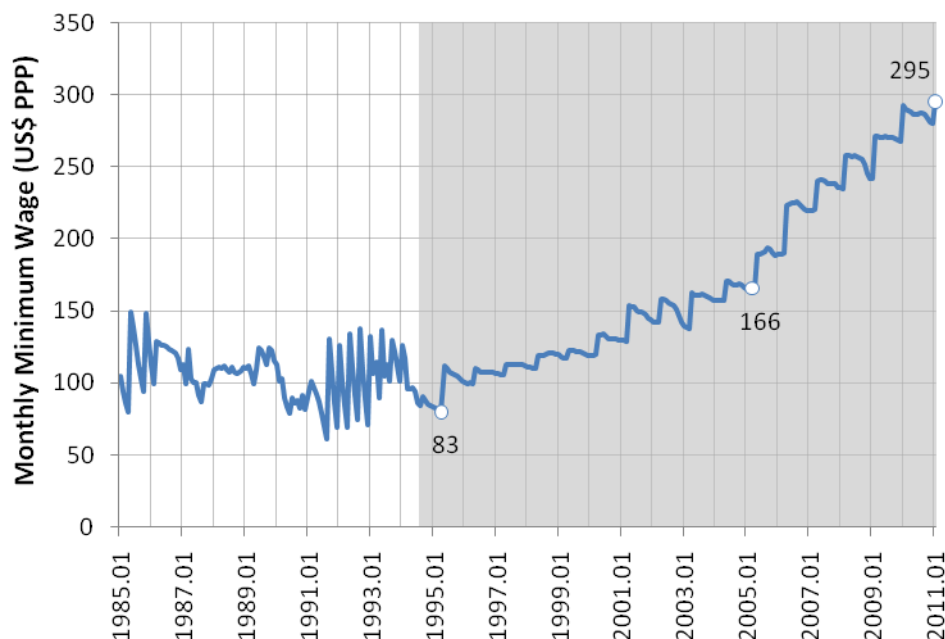
Source: Pesquisa Nacional por Amostra de Domicílios, 1995/2009.
* The shaded area marks the post-stabilization period.
PPP factors from: World Bank. Global Purchasing Power Parities and Real Expenditures - 2005 International Comparison Program. Updated by average annual inflation for Brazil and the United States: International Monetary Fund. World Economic Outlook 2009.

This has also contributed to both the decline in labor market inequality and overall income inequality and poverty (Foguel *et al.*, 2000; Firpo; Reis, 2006; Saboia, 2007; see below). In fact, nowadays the minimum wage is high enough to insure that only very few families with at least one recipient remain extremely poor. Only very large families – which are increasingly rare – with at least one formal worker or one beneficiary of Social Security pensions remain below the poverty line.

According to the PNAD, in 2009 there were about 9 million workers who received the minimum wage as remuneration, adding up to roughly 11% of the employed labor force. Furthermore, more than 13 million individuals – almost 60% of all pensioners – had retirement benefits equal to the minimum wage and another 1.5 million people benefitted from the Benefício de Prestação Continuada (BPC), a Social Assistance

benefit paid to poor people over 65 or with a disability that is also tied to the minimum wage[11]. These benefits are heavily subsidized by the Federal Government and profoundly redistributive, though expensive (see Table 1).

More recently, it has been speculated that the minimum wage policy has reached its limits for two main reasons: new adjustments imply a mounting fiscal burden while their positive redistributive effects are rapidly diminishing because the poorest groups remain disconnected from the formal labor market and Social Security (Barros, 2007; Giambiagi; Franco, 2007). There is certainly a grain of truth to those accounts but so far there are no plans to modify the current policy.

SOCIAL SECURITY

Brazilian Social Security dates back to the late 19th century industry-specific Funds for Retirement and Pensions which were progressively unified under a framework inspired by the Bismarckian German model. It became fully state-run in the 1960's and only after the 1988 Constitution it became entirely separate from the health care system[12].

To this day it has at least two main branches – one for private sector workers and one for civil servants. As a mandatory and contributory pay-as-you-go system that benefits mostly formal workers, it has traditionally left out a considerable proportion of the Brazilian population.

Since the 1988 Constitution, however, the Private Sector branch has been expanded considerably. For instance, the so-called "Rural Social Security", which is almost non-contributory as it encompasses mostly small farmers and poor rural workers, went from 4 million monthly benefits in 1991 to 7 million in 2003, a 75% increase in just 12 years (Ipea, 2009). This helped in reducing income inequality and poverty in rural areas. Likewise, tying its minimum benefits to the minimum wage was also crucial (see

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[11] In fact, these numbers understate the scope of the minimum wage benefits, as it is known that the BPC, alongside the Programa Bolsa Família, is one of the social programs that is heavily underestimated by the PNADs (Souza, 2010). According to administrative data, the BPC had in 2009 approximately 3 million beneficiaries.

[12] For more details on the development of Brazilian Social Security and its institutional framework, see Ipea (2009).

above). More recently, the rapid creation of formal jobs has been another key factor in enlarging the reach of the Social Security.

All of these reforms turned the Brazilian Social Security, or at least its Private Sector branch, into a powerful tool to reduce poverty among the elderly. In 2009, about 90% of the population over 65 received a Social Security benefit and poverty levels were below 1% for this group. In contrast, among children 15 or younger the poverty levels were much higher, around 8%.

According to the PNADs, in September of 1995 about 14 million individuals – slightly under 10% of the population – benefitted from Social Security pensions; in 2009, there were already over 22 million recipients, or about 12% of the population. In absolute terms, this represents a 59% expansion of the number of pensioners. The average pension value also climbed sharply, from US\$ PPP 305 in 1995 to US\$ PPP 575 in 2009, an 88% raise. Hence, Social Security pensions went from 13% of the total income reported in the PNADs in 1995 to almost 19% in 2009.

The flipside of this system is that it amounts to a disproportionate percentage of the GDP when compared to other countries and, worse, runs significant annual deficits: about 1.3% of GDP for the Private Sector and 2.1% for the Civil Servants' Social Security (Ipea, 2011). This and the general ageing of the population have put the Social Security system under scrutiny, with recent reforms trying to limit expenses by tightening the retirement conditions.

It can be argued that the deficits are not a particularly worrisome issue for the Private Sector Social Security, as those can be partially swayed if the recent trend of formalization continues. Also, the benefits paid are generally progressive and very important when it comes to alleviating poverty among the elderly.

On the other hand, the Civil Servants' Social Security covers just a tiny fraction of the population and its large paychecks actually contribute to worsen income inequality (Silveira, 2008; Rangel, 2011). Therefore, those deficits are far more troublesome. It is still too early to assess the impact of the 2003 reform, but preliminary evaluations suggest it may have far-reaching positive consequences (Soares, 2011).

SOCIAL ASSISTANCE

Traditionally, social assistance programs in Brazil have been highly fragmented and spearheaded by non-profit charitable foundations, with government interventions either restricted to particular emergencies, like droughts, or marred by clearly clientelist practices. As with other areas, this started to change since the 1988 Constitution, which enshrined Social Assistance as one of the fundamental social rights.

To this day, the field of Social Assistance consists of two major areas: the provision of services and targeted cash transfers. There is not much to say about the former as it is still – quite understandably – largely a work in progress, considering that the Sistema Único de Assistência Social (SUAS – *Unified System of Social Assistance*) dates back just to 2004 and its legal framework is still being laid out[13].

Cash transfer programs, in contrast, are in a certain sense much more developed. Since the mid-1990's, due to their widespread popularity, they have been the most visible side of social assistance in Brazil. There are essentially two major federal programs: the Benefício de Prestação Continuada (BPC – *Continuous Cash Benefit*) and the Programa Bolsa Família (*Family Benefit Program*).

The BPC was the earliest one, created by the 1988 Constitution in order to replace its more modest predecessor, the Renda Mensal Vitalícia (RMV – *Lifelong Monthly Income*). Legally, though, it was only fully spelled out in 1993 and only effectively began its transfers in 1996, paying benefits equal to the minimum wage.

As an unconditional monthly cash transfer, the BPC is targeted to those with family *per capita* income below ¼ of the minimum wage who belong to either one of two groups: individuals of any age with severe disabilities and the elderly over 65. Being a constitutional right, anyone who meets the eligibility criteria must automatically receive the benefit after applying for the program. One the main advantages of this legal status is that it has assured significant political independence for the program (Medeiros; Diniz; Squinca, 2006; Medeiros; Britto; Soares, 2008).

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[13] For further information, see Ipea (2009); Jaccoud, Hadjab and Chaibub (2010).

The Programa Bolsa Família is by far the most renowned cash transfer program in Brazil. Its origins date back to municipal-level experiences in the mid-1990's, which were then espoused by the Federal Government in the late 1990's as a series of fragmented programs that were finally unified under the aegis of the Programa Bolsa Família in late 2003. Unlike the BPC, the Bolsa Família is not an entitlement: the number of beneficiaries depends largely on budget constraints and thus it is possible that an eligible family may apply but be denied the benefit (see Soares *et al*., 2006; Soares *et al*., 2007; Soares, 2011) .

The Bolsa Família has two types of benefits that are targeted to somewhat differing groups. As of 2010, extremely poor families – families whose *per capita* income was under approximately US$ PPP 40 per month – were eligible to receive an unconditional basic transfer of US$ PPP 38.40. In addition, all families with children of up to 17 years old whose income *per capita* was no higher than US$ PPP 80 were eligible to receive US$ PPP 12.40 per child up to 15 years old (with a maximum of three benefits per family[14]) and US$ PPP 18.65 per youngster between 16 and 17 years old (with a maximum of two benefits per family). The maximum benefit value – for extremely poor families with at least three children younger than 16 and another two younger than 18 – was therefore US$ PPP 113 per family[15]. The conditionalities for the children's benefits deal mostly with school attendance, children's immunizations and pre- and post-natal care.

Tables 5 and 6 present information for 2010 regarding both the BPC and Bolsa Família. Due to the real gains of the minimum wage, the BPC became quite bigger than the Bolsa Família in budgetary terms (compare with Table 2 above).

The logic underlying both programs is radically different: focused on individuals, the BPC has a much smaller number of recipients who in turn receive a much larger monthly sum. The Bolsa Família has a much larger clientele, but its benefits pale in comparison. Whereas a beneficiary of the BPC is almost certain to be above the income

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[14] Earlier in 2011 president Dilma Rousseff announced that this cap would be increased to five children per family, but this is yet to be implemented.

[15] In 2011, all benefits were adjusted, although only the conditional ones had real gains.

poverty line, the same does not apply to Bolsa Família families: for a typical four-person family the mean benefit amounts to less than US$ PPP 14 *per capita*, which is only 35% of the poverty line. In order words, while the BPC can almost always lift its recipients' families out of poverty by itself, the Bolsa Família families can only escape extreme poverty if they have income from other sources.

Table 5. Benefício de Prestação Continuada (BPC) – Brazil, 2010

Target Group	# of benefits (December)	2010 budget (% of GDP)	Eligibility line (family *per capita* income, US$ PPP)	Mean monthly benefit (per individual, US$ PPP)
Elderly	1.8m	0.28		
Disability	1.6m	0.26	72	288
Total	**3.4m**	**0.55**		

Source: Ministry of Social Development.
PPP factors from: World Bank. Global Purchasing Power Parities and Real Expenditures - 2005 International Comparison Program. Updated by average annual inflation for Brazil and the United States: International Monetary Fund. World Economic Outlook 2009.

Table 6. Programa Bolsa Família – Brazil, 2010

Program	# of families (December)	2010 budget (% of GDP)	Eligibility line (family *per capita* income, US$ PPP)	Mean monthly benefit (per family, US$ PPP)
Bolsa Família	12.8m	0.39	40 (no children) 80 (with children)	55

Source: Ministry of Social Development.
PPP factors from: World Bank. Global Purchasing Power Parities and Real Expenditures - 2005 International Comparison Program. Updated by average annual inflation for Brazil and the United States: International Monetary Fund. World Economic Outlook 2009.

The BPC and especially the Bolsa Família have been extensively studied. Both seem to be extraordinarily well targeted, insofar as the inclusion errors are only moderate and mainly involve the "quasi-poor". Exclusion errors, in contrast, seem to be larger, which suggests that both programs could be scaled up. Negative effects on the incentives to work and Social Security contributions have been found to be either non-existent or otherwise irrelevant. The same applies to fertility rates: Bolsa Família has apparently no effect on them. Finally, both programs are tremendously pro-poor and have helped decisively to reduce income inequality and poverty (Barros; Carvalho; Franco, 2006; Soares; Sátyro, 2009; Soares *et al.*, 2009; Soares *et al.*, 2010).

While this last point will be more extensively discussed in the next section, it is very well illustrated by Figure 7[16]. The BPC and the Bolsa Família are stunningly well targeted. This is no mean feat, especially for the latter, as its sheer size presumably should make it quite hard to maintain its accuracy. As mentioned, most of the supposedly non-eligible beneficiaries are relatively close to the eligibility lines and thus it is plausible that – due to income volatility – they were in fact eligible at some point in time.

Figure 7. Individuals who benefit directly or indirectly from transfers by centiles of household per capita income – Brazil, 2009
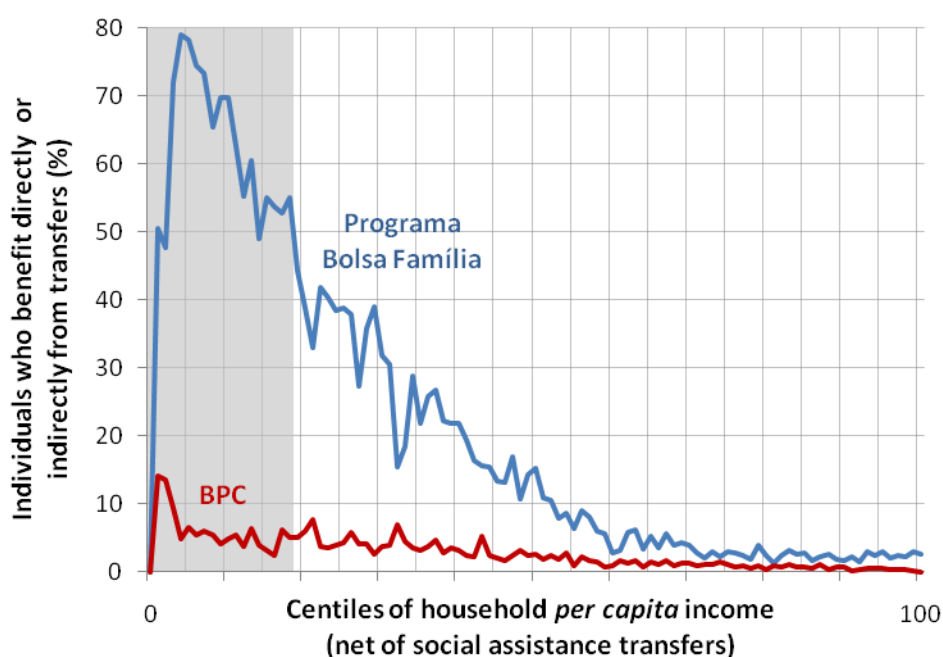
Source: Pesquisa Nacional por Amostra de Domicílios, 1995/2009.
* The shaded area marks the upper eligibility line of the Programa Bolsa Família (US$ PPP 80).

6. DECOMPOSING INCOME INEQUALITY

One general way of evaluating the impact of those four kinds of interventions – education, minimum wage, Social Security and Social Assistance – on income inequality is through the standard decompositions of the Gini and Generalized Enthropy

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[16] As the PNADs do not explicitly identify the recipients of either program, this paper used the well-tested "typical values" methods developed – among others – by Barros, Carvalho and Franco (2006) and Soares *et al.* (2010) to disaggregate income transferred by the BPC and the Bolsa Família.

indexes. Although they are somewhat crude, they are simple and very informative and therefore remain one of the most used tools by Brazilian researchers.

FORMULAS

In the first case, the Shorrocks (1982) decomposition of the Gini index by factor components allows us to assess the relative contribution of different types of income to the overall inequality and to changes in inequality over time.

For the static decomposition – the decomposition of the Gini index at one point in time – the formula is quite straightforward. Suppose that an individual's income *per capita* (x_i) is equal to the sum of all incomes he or she receives from h different sources ($x_i = \sum_{h=1}^{k} x_{hi}$); then the Gini index can be expressed as the sum of each income source's coefficient of concentration weighted by its relative income share ($\phi_h = \dfrac{\mu_h}{\mu}$):

$$G = \sum_{h=1}^{k} \phi_h C_h \qquad (1)$$

The coefficient of concentration of each income component is a measure of how unequally distributed it is and varies from -1 (all income from that factor component goes to the overall poorest person in the population) to +1 (all income from that factor component goes to the richest person). If one income source has a perfectly egalitarian distribution its coefficient of concentration will be zero. As a rule of thumb, any income component whose coefficient of concentration is higher than the overall Gini index can considered regressive – i.e.: it increases income inequality – and vice-versa. The formula for the coefficient is:

$$C_h = \frac{2}{n} \text{cov}(i, \frac{x_{hi}}{\mu_h}) \qquad (2)$$

Of course, this formula is very similar to the standard algebraic formula of the Gini index itself:

$$G = \frac{2}{n\mu} \text{cov}(i, x_i) \qquad (3)$$

The dynamic decomposition compares changes in the Gini index between two points in time and can be expressed as[17]:

$$\Delta G = \sum_{h=1}^{k} ((\overline{C}_h - \overline{G})\Delta\phi_h + \Delta C_h \overline{\phi}_h) \qquad (4)$$

The first term captures, for each h income component, the "composition effect", that is, the change in the Gini index caused by variations in the relative income share of that component. The second term is the "concentration effect", that is, the change in the Gini index resulting from variations in the distribution of that component.

The second type of inequality decomposition that is also very useful is the decomposition by population subgroups of the Generalized Enthropy family of inequality indexes (see (Mookherjee; Shorrocks, 1982). Given the prominence of regional, racial and educational disparities in Brazil, this type of decomposition has always been of interest.

In this paper, the decomposition will be applied to the GE(0) index – also known as the Theil-L index or the mean log deviation – because it allows a counterfactual interpretation of Between-Group inequality. In other words, if the inequality between two groups, A and B, is responsible for X% of total inequality, this means that the total inequality would be X% lower if the average income of both groups were the same.

The static and dynamic decompositions of the GE(0) index are given by:

$$GE(0) = I_{within-group} + I_{between-group} = \sum_{j=1}^{k} f_j GE(0)_j + \sum_{j=1}^{k} f_j \ln(\frac{1}{\lambda_j}) \qquad (5)$$

$$\Delta GE(0) = \sum_{j=1}^{k} \bar{f}_j \Delta GE(0)_j + \sum_{j=1}^{k} \Delta f_j \overline{GE(0)}_j + \sum_{j=1}^{k} \Delta f_j [\bar{\lambda}_j - \overline{\ln(\lambda_j)}] + \sum_{j=1}^{k} (\bar{v}_j - \bar{f}_j)\Delta\ln(\mu_j) \, (6)$$

Where f_j is the population share of the subgroup j; $GE(0)_j$ is the GE(0) index for

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[17] The over-bar is a simple average between the two data points.

subgroup j; λ_j is the relative mean income of subgroup j ($\frac{\mu_j}{\mu}$); v_j is the income share of

subgroup j; and μ_j is the mean income of subgroup j.

In the dynamic decomposition, the first term is the "pure inequality" effect, that is, the contribution of changes in intra-subgroup inequality to the overall change in inequality; the second and third terms are the "allocation" effect, that is, the effect caused by changes in the relative sizes of the subgroups; and the fourth term is the "income" effect, that is, the result of changes in the subgroups' relative mean incomes.

GINI DECOMPOSITION BY FACTOR COMPONENTS

Considering that income inequality started to fall around 2001 (see Figure 4), the inequality decomposition presented in this section will compare that year with 2009. The relevant income variable is the household income *per capita*, which can be divided in seven components: labor income equal to the minimum wage; other labor income; pension income equal to the minimum wage; other pension income[18]; Bolsa Família (and its predecessors) income; BPC income; and other incomes.

Table 7 shows the results of the static decompositions for 2001 and 2009. Starting with the coefficients of concentration, it is clear that all income components tied to the minimum wage are very progressive – i.e.: pro-poor, helping to decrease income inequality – although the real minimum wage gains over the decade have made them slightly less so. The Bolsa Família transfers also stand out: they were already incredibly progressive in 2001 and became even more so during the decade.

In contrast, the Social Security pensions higher than the minimum wage have been found to be the most regressive income component of all seven. This is due mostly to the Public Sector (Civil Servants) Social Security and has an inequality-augmenting effect. This is particularly startling as Social Security in Brazil is a State-subsided pay-as-you-go system without individual accounts, so that one worker's contribution to

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[18] Unfortunately, the PNADs do not discriminate between the Private and Public sectors' Social Security. Nevertheless, the two income components presented above – pensions tied to the minimum wage and pensions higher than the minimum wage – work as a decent albeit far less than perfect identification strategy: over 60% of the Private Sector pensions fall in the first group whereas the Public Sector pensions are almost entirely concentrated in the latter.

Social Security bears only an imperfect relation to his or her future benefits. In this sense, the high, positive coefficient of concentration suggests that parts of the State's expenditures are actually helping to increase income inequality.

It is also worth commenting that all regressive income sources – labor and pensions income higher than the minimum wage and other income – have remained stable or become less unequally distributed. For example, the coefficient of concentration for labor income higher than the minimum wage dropped from 0.608 to 0.576 and thus became more pro-poor (or less regressive). In this particular case, this development stems mainly from the educational improvements mentioned above.

Table 7. Gini decomposition by factor components of household *per capita* income – Brazil, 2001 and 2009

Income sources		Coefficient of Concentration		Income Share		Contribution to Gini		% of Gini	
		2001	2009	2001	2009	2001	2009	2001	2009
Labor	*Minimum wage*	-0.115	-0.091	0.021	0.036	-0.002	-0.003	-0.4	-0.6
	Other	0.608	0.576	0.759	0.726	0.461	0.418	77.7	77.5
Pensions	*Minimum wage*	0.097	0.157	0.037	0.057	0.004	0.009	0.6	1.7
	Other	0.743	0.742	0.134	0.131	0.099	0.097	16.7	18.0
Bolsa Família and predecessors		-0.315	-0.526	0.001	0.007	0.000	-0.004	0.0	-0.7
BPC		-0.081	-0.016	0.001	0.006	0.000	0.000	0.0	0.0
Other		0.672	0.603	0.048	0.037	0.032	0.022	5.4	4.2
Gini				1.000	1.000	0.594	0.539	100	100

Source: Pesquisa Nacional por Amostra de Domicílios, 2001 and 2009.

Regarding each component's income share, the most salient change over the decade was that all pro-poor income sources increased their participation in the total income reported by the PNADs. Thus, the decline in income inequality observed between 2001 and 2009 was made possible not only by a reduction in the coefficient of concentration

of the regressive transfers but also by an expansion of the income share of the inequality-reducing components.

Table 8 features the dynamic decomposition of the changes in the Gini index between 2001 and 2009. Overall, changes in labor income were responsible to 63% of the decline in income inequality, highlighting the pivotal role of both the educational and the minimum wage policies. The BPC and the Bolsa Família added up to another 18%, which is no mean feat considering they stand for just slightly over 1% of the total reported income. Finally, Social Security, the one social intervention with dubious results in the static decomposition, also played a relevant role, contributing to 11% of the fall in inequality, thanks mostly to the expansion of benefits indexed to the minimum wage.

Table 8. Dynamic decomposition of the Gini index of household *per capita* income – Brazil, 2001-2009

Income sources		Composition effect	Concentration effect	Total	As % of ∆Gini
Labor	*Minimum wage*	-0.010	0.001	-0.010	17.9
	Other	-0.001	-0.024	-0.025	45.5
Pensions	*Minimum wage*	-0.009	0.003	-0.006	10.5
	Other	0.000	0.000	-0.001	1.0
Bolsa Família and predecessors		-0.006	-0.001	-0.007	12.7
BPC		-0.003	0.000	-0.003	5.7
Other		-0.001	-0.003	-0.004	6.7
Total		-0.031	-0.024	-0.055	100

Source: Pesquisa Nacional por Amostra de Domicílios, 2001 and 2009.

In short, it is very encouraging to see Brazil's major social programs getting more effective when it comes to reducing income inequality. The real challenge now, of course, is to remain on track as it might get increasingly more difficult to keep this pace. Again, one reason for optimism is that there is probably still room for further decline in labor market inequality as long as the current educational and minimum wage policies are maintained and improved upon.

DECOMPOSITION BY POPULATION SUBGROUPS

Given the decisive role of labor market inequality to overall income inequality, it is appropriate to investigate it further. The method of choice is the decomposition of the GE(0) index of labor income inequality among all employed workers with positive earnings. Unlike the previous section, the comparison is now between 2002 and 2009[19].

Six of the most studied inequality-generating dimensions were considered: schooling (16 population subgroups, from 0 to 15 years of schooling); industry (8 sectors: agriculture; manufacturing; construction; services; education, health and social services; domestic services; government; other); race (5 categories: white, black, brown, oriental, indigenous); regional segmentation (27 categories: 26 States and the Federal District); urban/rural areas; and gender (male/female). Moreover, a seventh dimension was generated by the combination of three of the most important dimensions – schooling, industry and states – which partitioned the population in 3.456 subgroups.

The results for the static GE(0) decomposition are presented in Table 9. Between 2002 and 2009 the GE(0) index of inequality for all employed workers with positive earnings fell by 16%. Likewise the absolute value for all between-group components also declined. In most cases, it actually fell faster than the overall inequality and therefore the percentage of the total inequality accounted for by between-group differences decreased over time. For instance, in 2002 the earnings inequality between workers with varying years of schooling accounted for 47% of the total earnings inequality; in 2009 this percentage had dropped to 43%, as the between-group inequality declined faster than the intra-group inequality.

This is a very consequential development because it suggests that the structure of earnings inequality is possibly being reshaped. This is especially true regarding educational credentials, which are shown to be far more relevant than the other dimensions.

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[19] In 2002 the PNADs featured slightly modified classifications for some variables. Even though the changes were somewhat minor, we opted to use the 2002 data set – and not the 2001 one - in order to ensure perfect comparability.

Finally, the fact that the explanatory power of the combined Schooling/Industry/State partition is much lower than the sum of each dimension's between-group component should serve as a reminder of the strong correlation between several of the major dimensions of inequality in Brazil.

Table 9. GE(0) decomposition labor income by population subgroups for all employed workers with positive earnings – Brazil, 2002 and 2009

	Absolute			Relative		
	2002	**2009**	**Δ (%)**	**2002**	**2009**	**Δ (p.p.)**
GE(0)	0.582	0.491	-16	100	100	-
Between-Group Components						
Schooling + Industry + State	0.275	0.211	-23	47.2	43.1	-4.1
Years of schooling (16 groups)	0.209	0.158	-24	35.9	32.2	-3.9
Industry (8)	0.085	0.072	-15	14.6	14.8	+0.2
Race (5)	0.057	0.039	-33	9.9	7.9	-2.0
State (27)	0.050	0.032	-36	8.6	6.6	-2.0
Urban/rural areas	0.033	0.019	-43	5.6	3.8	-1.8
Male/female	0.014	0.013	-5	2.4	2.7	+0.3

Source: Pesquisa Nacional por Amostra de Domicílios, 2002 and 2009.

The dynamic decomposition featured on Table 10 shows how changes in the educational attainment of the workforce contributed to the decline in earnings inequality. The educational improvement documented above entailed a negative allocation effect, but a more homogeneously educated labor force sustained a dominant income effect as declining returns to education narrowed the income gaps among the different levels of educational attainment. Within-group inequality – which in this case can be best interpreted as a residual – also contributed to the overall drop of the GE(0) index.

Table 10. Dynamic decomposition of the GE(0) index of labor income by educational subgroups – Brazil, 2002-2009

	Δ2002-2009	%
Pure inequality effect	-0.041	45.3
Allocation effect	0.013	-14.9
Income effect	-0.062	69.2
Total	-0.091	100

Source: Pesquisa Nacional por Amostra de Domicílios, 2002 and 2009.

7. CONCLUSIONS

Since the mid-1990's, and especially in the past decade, Brazil underwent a period of rapid poverty and inequality reduction that was made possible by a consumer-led economic boom but also by more effective social policies. Nonetheless, Brazil is still a middle-income country with an unacceptably high level of income inequality, and thus it is imperative to remain on track and keep the recent trajectory of pro-poor growth going.

As with all countries, this means that the challenges will probably be increasingly more difficult, but there are reasons for optimism. Social expenditures are one of them: the renewed commitment to social programs since the 1988 Constitution has largely turned them into extremely valuable tools to reduce poverty and inequality, although they do come at a hefty price. Still, educational and minimum wage policies have had a great positive impact on the labor market while Social Security and Social Assistance formed a social protection network that has greatly diminished poverty among the elderly and, to a lesser extent, children. The end result is that for the most part these policies and programs have played a central role in bringing about the reduction in income inequality observed in the past decade.

Furthermore, it is clear that the social programs as a whole still have plenty of room for improvement. As argued above, Bolsa Família is formidable, but its benefits are too low and it could be scaled up as there are eligible families that are still excluded from the program. Similarly, educational attainment is still at a very low level and the overall

quality of public schools is substandard. A lot could be done on both areas if, for instance, the Civil servants' Social Security was fixed as it is inordinately expensive and runs huge annual deficits that drain resources away from pivotal areas. Finally, some policies that could a lot to further reduce poverty and inequality – such as land reform – have largely been cast aside and it would do wonders to bring them back to the political agenda.

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