The Decline in Inequality in Brazil, 2003 – 2009: The Role of the State

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Abstract

We employ methods of static and dynamic factor decomposition of income inequality to examine the role of the State in the decline of Brazilian inequality between 2003 and 2009. The data comes from two rounds of the Brazilian Consumption and Expenditure Survey (POF). We found that about one third of the decline was related to direct income flows between the State and the families, but not all State actions contributed to reduce inequality. The contribution of different factors to the decline in inequality was 20% for social assistance, 10% for pensions and 8% for different types of unemployment insurance incomes. Behind these contributions there is more than a simple expansion of social transfers: these transfers became less concentrated. Tax policy was altered with the primary goal of increasing revenue, but ended having inequality-reducing consequences, with all direct tributes contributing with 5% of the decline. An increase in State regressive transfers, particularly a systematic increase in salaries of workers of the public sector, had a negative effect on inequality, with a contribution of -10%. Such negative effect was sufficient to offset the egalitarian consequences of changes in most State-related factor components, if each is considered separately.

Keywords

Income Distribution; Income Inequality; Welfare State; Social Policies; Public work; Pensions

JEL

D31; D33; D63; H22; H23; H53; H55; I38; J45

1. Introduction

Latin America has historically been one of the most unequal regions in the world. However, in contrast with the increasing concentration of income in most OECD and BRICS countries, income inequality fell rapidly in Latin America during the 2000s (Gasparini; Cruces; Tornarolli, 2011; López-Calva; Lustig, 2010). In Brazil, the largest country of the region, the Gini coefficient dropped 10% since the turn of the century after decades of stagnant or even increasing inequality (Barros *et al.*, 2006; Bonelli; Sedlacek, 1988; Ferreira *et al.*, 2006; Hoffmann, 1973; Soares, 2006).

Part of this decline can be related to the micro determinants of inequality, such as the characteristics of individuals and families. Studies have highlighted recent improvements in the Brazilian educational system as one of the key forces behind inequality reduction (Barros; Franco; Mendonça, 2006; Menezes-Filho; Fernandes; Picchetti, 2006).

In this study we adopt a complementary approach and focus on the role of the State in the dynamics of inequality in Brazil. Based on dynamic decompositions of the Gini coefficient, we assess the double-folded argument that i) the State contributes to a large share of total inequality and therefore public policies can potentially have a large effect on the dynamics of inequality; and ii) the Brazilian State took a redistributive turn during the 2000s and thus played a major role in reducing inequality.

This type of analysis is more or less present in comparative studies since at least the late 1970s (Stack, 1978) and recently became more frequent in studies highlighting the influence of the State on inequality. These include analyses of the role of taxes and transfers from social security in OECD countries (Atkinson, 2003; Brown; Prus, 2006; Gottschalk; Smeeding, 1997; Gustafsson; Johansson, 1999; Roine; Vlachos; Waldenström, 2009; Smeeding, 2005) and Africa (Odedokun; Round, 2004), and of social security and social assistance, but not taxes, in Latin America (Gasparini; Cruces; Tornarolli, 2011; Gasparini; Lustig, 2011; López-Calva; Lustig, 2010; Soares *et al.*, 2009; Székely; Hilgert, 2011) and in Brazil (Barros, Carvalho, & Franco, 2007; Ferreira, 2006; Soares, 2006).

Most of these studies relate the State to broad categories of incomes such as taxes and social policies. We, however, move in a slightly different direction. To

examine how the State influences the evolution of inequality we have another way of classifying incomes, which can be summarized in three points.

First, we do not limit the State to social policies and taxes, but also include wages in the public sector as part of the State-related income flows. We argue that the impact of the State on inequality goes beyond a tax-and-benefit transfer system and should include other types of gains received by various interest groups; in the case of salaries of public sector workers, State politics play an important role as the institutional setting (both the 'rules of the game' and the organizational and political environment) conditioning these wages is very different from that observed in the private sector.

Second, we try to disaggregate broad categories of social policies, such as social security, according to the social groups these policies were designed to benefit; in particular, we partition the public pension system into subsystems, one for workers in the public and another for those in the private sector. We do this because pensions for public servants in Brazil, as in many other countries, follow different rules than those for public pensions for private sector workers. Finally, differently from what has been done in the studies about Latin America (Brazil included) mentioned above, we also look at the effect of direct taxation on inequality, which is key to express the distributional conflict that underlies State actions.

By following this scheme we are better able to evaluate three ideas commonly discussed in the literature about the static determinants of social inequality, as well as to relate these ideas to the dynamics of income distribution in Brazil: i) that work in the public sector contributes to lower inequality; ii) that the level of inequality is inversely related to the level of direct taxation, thus they should move in different directions, *coeteris paribus*; iii) and that social expenditure is intrinsically progressive, therefore the more of it, the less inequality.

There is ample evidence that in several developed countries public sector work reduces inequality (Blau; Kahn, 1996; Gustafsson; Johansson, 1999; Milanović, 1994; Wallerstein, 1999). In addition, the level of taxation in OECD countries often has a stable inverse association with the level of inequality, although this relation is not always linear due to the fact that the tax base depends on other determinants of inequality (Atkinson, 2003; Brown; Prus, 2006; Goñi; López; Servén, 2008; Gottschalk; Smeeding, 1997; Roine; Vlachos; Waldenström, 2009). Regarding the level of social

spending, the existing evidence is not so conclusive. There seems to be an inverse correlation between total spending and inequality (Mahler; Jesuit, 2006; Moene; Wallerstein, 2001; Roine; Vlachos; Waldenström, 2009) and some studies argue that the level of total expenditure matters more to inequality than its progressiveness, as a higher universalistic spending legitimizes more targeted policies (Korpi; Palme, 1998; Smeeding, 2005). However, when more refined methods of decomposition are used, total expenditure, by itself, has limited explanatory power (Caminada; Goudswaard, 2001; Wang; Caminada; Goudswaard, 2012). Whether this correctly describes the Brazilian case is, of course, a matter of empirical testing.

Analyzing two rounds of the major consumption and expenditure survey in Brazil we found that the State contributed decisively to the decline in inequality observed between 2003 and 2009. About one third of this decline relates to changes in the level and in the distribution of direct flows of income between the State and the families. In spite of that, the State did not become uniformly more redistributive. Some regressive policies such as the wage policy for workers in the public sector offset some of the redistributive gains from progressive measures. As a result, the net contribution of the State to the level of inequality remained regressive, that is, State-related income flows remained more concentrated than private sector income flows.

Although we believe these general conclusions are robust, a number of limitations of this study need to be taken into account. First, our analysis is restricted to the direct monetary income flows between families and the State. These direct transfers encompass a large share of all State expenditures: as of 2006, they accounted for 21% of GDP, whereas the total tax revenue reached slightly over 34% of GDP (Mostafa et al. 2010; Santos 2010). However, our analysis excludes the distributive impacts of three major types of State intervention: indirect taxes, transfers to firms (indirect transfers to individuals) and the provision of public services (in kind transfers). Given the existing data it is not possible to produce a reliable estimate of how these interventions affect income inequality in Brazil. The use of indirect methods to produce these estimates would depend on strong hypothesis and would be very likely to introduce a gross bias in the results. Notwithstanding, given the literature on the subject (Mostafa; Souza; Vaz, 2010; Pintos-Payeras, 2010; Silveira, 2010) we can speculate that the net effect of the remaining indirect income flows and non-monetary transfers is regressive.

Another limitation is that we do not take into account the dynamic effects over the distribution of incomes of macroeconomic changes induced by the State flows. As far as we are concerned, there is no computable general equilibrium model capable of producing reliable estimates by thousandths of the population, as required by our methodology. Neither there is data to feed such model. In spite of recognizing the limitations above, we conducted the decompositions, interpreting them with reservations and highlighting the shortcomings of our conclusions when we supposed it was the case.

2. Data and methods

2.1. Data

This study relies on microdata from two comparable rounds - 2002-3 and 2008-9 - of the Brazilian Consumption and Expenditure Survey (POF - Pesquisa de Orçamentos Familiares) conducted by the country's central statistics office (Instituto Brasileiro de Geografia e Estatística – IBGE). The POF's sample has national coverage and total sample sizes of approximately 180,000 individuals in 48,000 families in 2002-2003 and 190,000 individuals in 55,000 families in 2008-2009, representing populations of, respectively, 174 and 189 million people.

Besides collecting data on consumption, the POF is also one of the most reliable sources for household incomes in Brazil for three main reasons: a) it covers a wider range of income sources than other surveys, leading to more accurate estimates, especially in what refers to capital incomes and social assistance transfers; b) all income data has a twelve-month reference period, as opposed to the one-month time frame used by other surveys; c) interviews are carried out over a twelve-month period in order to control for seasonality.

Our main variable of interest is the household disposable *per capita* monetary income, which encompasses monetary labor earnings, capital incomes (excluding capital gains) and private and public monetary transfers of all kinds, minus direct taxes and employees' Social Security contributions. A negligible number of households with negative disposable income were left out of our analysis.

In order to facilitate meaningful international comparisons, we present our results in 2005 PPP$, that is, we first deflated both rounds to 2005 and then applied the

Purchasing Power Parity (PPP) factors provided by the United Nations Development Programme's Millennium Development Goals Indicators, which yield a rate of R$ 1.57 per PPP$ for that year. For the sake of simplicity, data from the 2002-2003 and 2008-2009 surveys are referred to as 2003 and 2009 values.

2.2. Gini decomposition

Our measure of inequality is the Gini coefficient, which varies between 0 (no inequality) and 1 (all income belongs to a single individual). The Gini is useful for our purposes as it is additively decomposable by income sources or factors (Lerman; Yitzhaki, 1985; Rao, 1969). Factor is a term used to indicate different sources of income (positive incomes) and taxes (negative incomes), as well as subdivisions or aggregations of income sources (ie. negative and positive wage differentials, pensions of the public and private sectors and so on). In the factor decomposition, total inequality can be represented as the sum of the concentration coefficient of each factor weighted by the share of this factor in total income. Using the notation of Pyatt et al. (1980):

$$G = \sum_{k=1}^{K} \phi_k C_k \qquad (1)$$

Where ϕ_k is the share of income source (factor) *k* in the total income, and C_k the concentration coefficient of income *k.* The absolute contribution of each factor *k* to total inequality is given by $\phi_k C_k$ and its relative contribution by $(\phi_k C_k)/G$. The concentration coefficient C_k is given by the product of the Gini coefficient for source *k* (G_k) and the "Gini correlation" between source k and total income (R_k):

$$C_k = G_k R_k = G_k \frac{\text{cov}(y_k, F)}{\text{cov}(y_k, F_k)} \qquad (2)$$

The concentration coefficients stay within the (-1, +1) range when factors have only positive or only negative values, with -1 indicating that all the income from that factor is received by the poorest person and + 1 the opposite. However, when a factor has both positive and negative values but the distribution of total incomes has only positive values, the coefficients may stay outside the (-1,+1) range (Chen; Tsaur; Rhai, 1982; Pyatt; Chen; Fei, 1980; Rao, 1969).

As we show below, this occurs in the case of the concentration coefficient of one of our factors, the public-private wage gap. In order to deal with this, we opted to divide

the unusual factor into subfactors and, simultaneously, accepted an unconventional scale for the concentration coefficient of the total wage differential. By doing this we granted comparability with other studies at the cost of having to make a careful interpretation of the concentration of only one factor component of less importance to inequality.

An income source can be considered progressive if its concentration coefficient is lower than the overall Gini and regressive if it is higher.

The decomposition of changes in the Gini coefficient over time follows the approach developed by Soares (2006) and Hoffmann (2006), both in Portuguese, and presented in English in Soares et al. (2009) and Hoffmann (2013):

$$\Delta G = G_2 - G_1 = \sum_{k=1}^{K} (\bar{\phi}_k \Delta C_k + (\bar{C}_k - \bar{G}) \Delta \phi_k) \qquad (4)$$

The first term ($(\bar{\phi}_k \Delta C_k)$) refers to changes in the concentration coefficient (the *concentration effect*) and the latter ($((\bar{C}_k - \bar{G}) \Delta \phi_k)$) to changes in the income share of factor *k* (the *share effect*). The overbar denotes the average values between *t* and *t+1*.

One shortcoming of the dynamic decomposition of the Gini coefficient is that it is not perfectly consistent when an income factor *k* is disaggregated into k_i subfactors. In this case, the sum of the contribution of all k_i subfactors to changes in inequality equal the overall contribution of factor *k*; however, the sum of the share effects of the k_i subfactors is usually different from the share effect of the aggregated factor *k*. The same applies to the concentration effect. In other words, the disaggregation of factor k into k_i subfactors changes the relative weights of the concentration and share effects. Fortunately, this is just a minor issue that does not interfere with our analysis.

2.3. Factor components of the disposable household per capita income

All monetary incomes were first grouped into two major components: income flows between the State and families and private sector incomes. The former includes five broad income sources - public servants' earnings; Social Security; Social Assistance; unemployment benefits; and direct taxes - which are discussed in detail below. The so-called "Gross State incomes" are the sum of all incomes flows from the State to the families; the "Net State incomes" subtract direct taxes and contributions

from the gross incomes. The private sector incomes are not the focus of our analysis and thus were only disaggregated into labor and other incomes.

Our income definition excludes from the analysis several important State activities that can influence the income distribution, such as non-monetary transfers (goods and services), indirect taxes, subsidies and so on. Unfortunately, it is simply not possible to estimate accurately their distributive profile. Even something so simple as public education is so heterogeneous that the assumptions needed to ascribe them monetary values would be highly arbitrary.

The analysis of direct income flows is of interest by itself since they comprise the bulk of total public spending. For instance, in 2006, public servants' earnings and government transfers were 21% of the Gross Domestic Product (GDP), while the tax burden was slightly over 34% of GDP (Mostafa; Souza; Vaz, 2010; Santos, 2010). The expansion of such government transfers was also the main reason public expenditures have been increasing since the end of the 1990s (Ribeiro, 2010; Santos, 2010).

In any case, the sparse evidence available suggests that the direct income flows between the State and families are the most progressive part of all State interventions, since indirect taxes, subsidized loans and tax exemptions most likely contribute to increase inequality and offset the moderately redistributive profile of health and education expenditures (Mostafa; Souza; Vaz, 2010; Pintos-Payeras, 2010; Silveira, 2008).

2.3.1. Public servants' earnings

The regulation of the labor market in Brazil is very different between the public and private sectors. Public servants have to pass entrance exams and are subject to specific rules, organizational goals and collective bargaining institutions. In general, they either have tenure *de jure* - no civil servant hired under the *Regime Jurídico Único* can be fired after a few years in service - or *de facto*, unlike their private sector counterparts. As a result, unions are much stronger in the public sector.

This institutional segmentation translates to higher wages in the public sector, which can be subdivided into two components: the estimated market earnings and the public-private wage differential (often called ‘wage premium’, although it can be negative). The first component is what public sector employees would presumably earn

in the private sector labor market given their individual attributes; the second is the difference between their observed earnings and the counterfactual wages.

This counterfactual was estimated using the method proposed by Juhn, Murphy and Pierce (JMP), which separates price, quantity and residual effects using linear regressions (Juhn; Murphy; Pierce, 1993). Given a vector of independent variables *X*, the basic wage equations used to estimate the wages of the workers in the public and private sectors (w_i and q_i, respectively) were written as:

$$\ln(w_i) = X\beta_w + u_w \quad (5)$$

$$\ln(q_i) = X\beta_q + u_q \quad (6)$$

The residuals of the wage equations for the workers in the private sector (u_q) can be disaggregated in two parts: the distribution function of the residuals (F_q) and the rank of the individuals in the quantile distribution of residuals (τ_{iq}). Thus:

$$u_q = F_q^{-1}(\tau_{iq} \mid X) \quad (7)$$

Where $F_q^{-1}(. \mid X)$ is the inverse of the accumulated distribution function for the workers in the private sectors with the characteristics *X*. The counterfactual wages, cf_i, of the workers in the public sector were estimated by:

$$\ln(cf_i) = X\beta_q + F_q^{-1}(\tau_{iw} \mid X) \quad (8)$$

In other words, we estimated the counterfactual wages using the coefficients and the distribution of residuals estimated for comparable workers in the private sector. To define 'comparable worker' we restricted the comparison to public sector employees and formal workers in the private sector aged 16 and over. Domestic workers were excluded from the latter group. Military personnel and rural workers could not be excluded from the definition of 'comparable worker' due to the lack of data, but from other surveys we know they account for less 5% of all public sector and formal private sectors employees.

Equations 5-8 assume that the allocation of workers between sectors is random. Since this is not a very plausible assumption, there can be a significant selection bias affecting the parameters. To verify this bias we tested four different models: the first was the model described by equations 5-8 (the "uncorrected model"); the other three

include different specifications of correction for censored data, which adds to wage equations the Inverse Mills Ratios derived from *probit* selection equations. Thus, the first of the three followed a *probit* to model the choice between the formal private labor market and the public sector; the second alternative model employed as its selection equation a *probit* to account for the choice between not working and working; the third employed a bivariate probit to simultaneously model the choice between not working and working and working in the private or public sectors. This last model generated two Inverse Mills Ratios calculated from the predicted probabilities.

Other than the Inverse Mills Ratios, the wage equations were exactly the same in all four models, using a standard set of independent variables: education (elementary school or less; incomplete middle school; complete middle school; incomplete high school; complete high school; incomplete higher education; complete higher education); age and age squared; job tenure (three months or less; 11 months or less; one year or more); gender (dummy for men); race (dummy for whites and Asians); and region (nine dummy variables for 10 regions: non-metropolitan areas of the Northern region; metropolitan areas of the Northern region; non-metro areas of the Northeast; metro areas of the Northeast; non-metro areas of the South; metro areas of the South; non-metro areas of the Southeast; metro areas of the Southeast; non-metro areas of the Center-West; metro areas of the Center-West). The dependent variable was the log of the monthly earnings.

The selection equations used the same variables plus a specific set of variables used to identify the distribution between sectors, that is, the exclusion restrictions: relationship to the household head (head, spouse/partner, child, other relative, other); the presence of children between 0 and 6 years old in the household (one dummy variable); the presence children between 7 and 15 in the household (one dummy variable); and the presence of other public sector workers in the household (one dummy variable).

All four models yielded remarkably similar results. The public-private wage gaps – the average difference between observed and counterfactual earnings for public sector workers, expressed as a percentage of the counterfactual earnings – were 12%-13% in 2003 and rose to 23%-24% in 2009. In other words, according to all four models, in 2003 the average public sector worker earned a bit over 10% more than he or

she would if he or she worked in the private sector, whereas in 2009 this figure jumped to almost 25%.

The decomposition presented below is based on the result of the bivariate *probit* model, but the results are thoroughly consistent across models. They are also compatible with findings based on different data sets and methods (Barbosa; Souza, 2012; Braga; Firpo; Gonzaga, 2009; Daré, 2011; Souza; Medeiros, 2013; Vaz; Hoffmann, 2007).

2.3.2. Social Security pensions

The Brazilian public pensions are organized as a mandatory pay-as-you-go system with two subsystems operating under different rules (two regimes, in Brazilian terminology), one for private sector workers and another for public sector workers. Both regimes are subsidized and run significant annual deficits.

The most important difference between them is a legal cap that limits the values of pensions paid to private sector workers. As of January 2009, the pension cap was 2005 PPP$ 1640 per month, approximately seven times the minimum wage. This cap does not apply to current public sector pensioners. Due to recent reforms, public servants hired from 2012 onwards will be (partially) subject to it. In other words, for the next thirty years or so the absence of a legal cap will remain a distinctive feature of the public sector regime.

Benefits are also adjusted according to different rules. Both regimes have a legal floor equal to the minimum wage, which was raised in real terms from approximately $180 in 2003 to $250 in 2009 (both in 2005 PPP$). While there are very few public sector pensioners at this legal floor, about two-thirds of the private sector pensions are tied to the minimum wage. Thus, the impacts of the rising minimum wage were much stronger for the private sector regime. It is also worth noting that all other private sector pensions were generally adjusted just to recoup inflationary losses, whereas public sector retirees enjoy the so-called "benefit parity" with active public servants, that is, their pensions are automatically adjusted whenever the government grants wage hikes to their active counterparts. Recent reforms have also changed these rules, but, again, it will take decades for their effects to kick in.

Since it is not possible to separate public from private sector pensions in the 2003 data, all pensions in the Gini decomposition were disaggregated into three major income factors: pensions lower than or equal to the minimum wage; pensions higher than the minimum wage but lower or equal to the legal cap; and pensions higher than the legal cap. The first income factor encompasses mostly former private sector workers, as there are very few retired civil servants earning the legal floor. The second income factor is more heterogeneous, but the third comprises exclusively former public sector workers. Those pensions above the cap were further split into two additional income factors, one equal to the cap and the other representing the 'premium' some retired public servants enjoy as their pensions do not have a cap.

2.3.3. Social Assistance transfers

Social assistance or welfare transfers encompass all non-contributory cash benefits, but two programs are responsible for almost all transfers: a) the Continuous Cash Benefit (Benefício de Prestação Continuada - BPC), an unconditional monthly benefit established by the 1988 Constitution and targeted to poor people aged 65 and over or with severe disabilities; b) the Bolsa Família program, a conditional monthly cash transfer targeted to poor and extremely poor families, especially with children. As of 2009, the BPC and the Bolsa Família transferred each approximately 0.5% of GDP.

2.3.4. Unemployment benefits

There are two major types of unemployment benefits in Brazil: the traditional unemployment insurance, a temporary monthly benefit paid upon dismissal to formal workers, and lump-sum withdrawals from the *Fundo de Garantia por Tempo de Serviço*, a mandatory savings account for formal workers. In the first case, the monthly transfers have both a floor (the minimum wage) and a cap (slightly less than twice the times the minimum wage). The lump-sum payments have neither of the two and are entirely dependent on prior contributions.

2.3.5. Direct taxation

The income flows from families to the State comprise direct taxes and the employees' Social Security contributions. The POF is the only household survey in Brazil that collects data on both.

Direct taxes are composed mostly of income, vehicle, land and property taxes and are presented both gross and net of restitutions. Social Security contributions are

paid mostly by formal workers: public sector employees pay a flat rate around 11% of their total wages; formal private sector workers, who are subject to a cap, pay a rate of 11% of their wages up to the value of the cap. Since 2003, public sector pensioners also pay 11% of the share of their benefits that exceeds the value of the private sector cap, whereas private sector pensioners do not have to contribute because, by definition, their benefits do not exceed the cap.

In order to simplify the analysis, we divided the Social Security contributions into two income factors: contributions linked to earnings lower than or equal to the legal cap and contributions linked to earnings above that threshold. Thus, whenever public sector workers earned twice as much as the legal cap, their contributions were split evenly between the latter two income factors. It is also worth noting that all contributions made by retired public servants are considered as part of the last income group. The contributions of pensioners of the subsystem for public sector workers had to be imputed, as POF only collects disaggregated data on the contributions of active workers.

Finally, it must be noted that a large share of the funding of both pension regimes is covered by contributions made by employers and other indirect taxes, which were not taken into account.

3. Results and discussion

Table 1 shows the absolute and relative contribution of each income factor to this fall in inequality. Negative absolute values indicate a contribution to reduce the Gini, and vice-versa. However, to facilitate understanding we inverted the signs of the relative contributions so they express values in terms of the effect on the decline in inequality. Therefore, positive relative values mean that a given factor contributed to reduce inequality. The table also shows the share and concentration effects for each income factor. Table 2 shows the static decompositions for 2003 and 2009 that provided the parameters - income shares and concentration coefficients - for the dynamic decomposition presented in Table 1.

TABLE 1. Dynamic decomposition of the Gini coefficient by income factors – Brazil, 2003-2009

Factor components	Absolute contribution (Gini points)			Relative contribution (% of the fall in the Gini)		
	Share	Concen-tration	Total	Share	Concen-tration	Total
A) Public servants	**0,003**	**0,000**	**0,003**	**-9**	**-1**	**-10**
Counterfactual wages	0,001	-0,003	-0,002	-2	8	6
Public-private differential	0,005	0,000	0,005	-15	-1	-16
Positive differential	0,003	0,001	0,004	-10	-3	-13
Negative differential	0,000	0,001	0,001	1	-3	-3
B) Social security pensions	**0,001**	**-0,004**	**-0,003**	**-2**	**13**	**10**
Pensions <= floor	-0,010	0,004	-0,006	29	-12	17
Pensions > SM and < cap	0,001	0,001	0,002	-4	-2	-6
Pensions > cap	-0,001	0,001	0,000	4	-4	-0
Share = cap	0,000	0,001	0,001	-0	-2	-2
Share > cap	-0,001	0,001	-0,001	4	-2	2
C) Social assistance	**-0,006**	**-0,001**	**-0,007**	**18**	**3**	**20**
Bolsa Família and predecessors	-0,003	-0,001	-0,004	8	4	12
BPC (Old age and disability)	-0,002	-0,001	-0,003	6	2	8
D) Unemployment benefits	**-0,001**	**-0,002**	**-0,003**	**2**	**6**	**8**
E) Direct taxation	**-0,002**	**0,000**	**-0,002**	**6**	**-1**	**5**
Net direct taxes	-0,002	0,001	-0,001	6	-2	4
Gross direct taxes	-0,002	0,001	-0,001	6	-3	3
Restitutions	0,000	0,000	0,000	1	1	1
Social security contributions	0,000	0,000	0,000	1	1	1
Share <= cap	0,000	0,000	0,000	0	-1	-1
Share > cap	-0,001	0,000	-0,001	2	1	2
F) Private sector incomes	**0,001**	**-0,023**	**-0,022**	**-2**	**68**	**66**
Labor market earnings	0,002	-0,028	-0,026	-6	84	77
Other incomes	0,003	0,001	0,004	-8	-4	-11
State, gross *(A+B+C+D+E.restitutions)*	**0,004**	**-0,014**	**-0,010**	**-13**	**43**	**30**
State, net *(A+B+C+D+E)*	**0,002**	**-0,013**	**-0,011**	**-6**	**40**	**34**
Total disposable income	**-0,004**	**-0,029**	**-0,033**	**13**	**87**	**100**

Source: Pesquisas de Orçamentos Familiares 2002/2003 and 2008/2009.

TABLE 2. Static decompositions of the Gini coefficient by income factors – Brazil, 2003 and 2009

Factor components	Concentration coefficient (C_k)		Income share (ϕ_k)		Relative contribution to the Gini coeff. ($100x\phi_k C_k / G$)	
	2003	2009	2003	2009	2003	2009
A) Public servants	**0,732**	**0,734**	**0,146**	**0,166**	**18**	**22**
Counterfactual wages	0,710	0,690	0,130	0,134	15	17
Public-private differential	0,912	0,922	0,016	0,031	3	5
Positive differential	*0,819*	*0,857*	*0,023*	*0,036*	*3*	*5*
Negative differential[1]	*0,594*	*0,404*	*-0,007*	*-0,004*	*-1*	*-0*
B) Social security pensions	**0,606**	**0,582**	**0,155**	**0,204**	**16**	**21**
Pensions <= floor	0,051	0,142	0,034	0,054	0	1
Pensions > SM and < cap	0,619	0,627	0,062	0,096	6	11
Pensions > cap	0,917	0,940	0,058	0,055	9	9
Share = cap	*0,888*	*0,915*	*0,026*	*0,026*	*4*	*4*
Share > cap	*0,940*	*0,961*	*0,033*	*0,029*	*5*	*5*
C) Social assistance	**-0,211**	**-0,347**	**0,003**	**0,010**	**-0**	**-1**
Bolsa Família and predecessors	-0,215	-0,539	0,003	0,006	-0	-1
BPC (Old age and disability)	0,296	-0,077	0,000	0,004	0	-0
D) Unemployment benefits	**0,697**	**0,590**	**0,022**	**0,013**	**3**	**1**
E) Direct taxation[1]	**0,704**	**0,701**	**-0,096**	**-0,113**	**-11**	**-14**
Net direct taxes	0,742	0,732	-0,060	-0,073	-8	-10
Gross direct taxes	*0,750*	*0,735*	*-0,064*	*-0,076*	*-8*	*-10*
Restitutions	*0,878*	*0,825*	*0,004*	*0,003*	*1*	*0*
Social security contributions	0,639	0,644	-0,036	-0,040	-4	-5
Share <= cap	*0,592*	*0,581*	*-0,031*	*-0,033*	*-3*	*-3*
Share > cap	*0,909*	*0,938*	*-0,005*	*-0,007*	*-1*	*-1*
F) Private sector incomes	**0,580**	**0,550**	**0,770**	**0,720**	**75**	**70**
Labor market earnings	0,567	0,526	0,702	0,636	67	59
Other incomes	0,718	0,735	0,067	0,084	8	11
State, gross *(A+B+C+D+E.restitutions)*	**0,664**	**0,625**	**0,329**	**0,395**	**37**	**44**
State, net *(A+B+C+D+E)*	**0,644**	**0,592**	**0,230**	**0,280**	**25**	**29**
Total disposable income[2]	**0,595**	**0,562**	**1,000**	**1,000**	**100**	**100**

Source: Pesquisas de Orçamentos Familiares 2002/2003 and 2008/2009.

[1] Direct taxes, social security contributions and the negative public-private wage differentials are negative incomes and thus the coefficients should be interpreted with inverted signs: figures close to 1 are progressive and close to -1 are regressive.

[2] The concentration coefficient for the household disposable per capita income is the Gini coefficient itself.

Between 2003 and 2009, the disposable *per capita* income rose by 24%, from 2005 PPP $ 269 to 2005 PPP $ 333 (see Table 3 below), while the Gini coefficient fell

by 6%, from 0.595 to 0.562 (-0.033 points). The most important determinant of the dynamics of inequality in this period were changes in earnings from work in the private sector of the economy, which responds for +66% of the fall in inequality (that is, -0.022 Gini points). This is not surprising given that private sector earnings account for more than 70% of disposable income and therefore any changes in these earnings have potentially large effects on total inequality.

The State-related income flows also played an important role, accounting for about one third of the fall in inequality. Social assistance transfers had the largest impact among the State interventions under scrutiny here (20%), followed by Social Security pensions (10%), unemployment benefits (8%) and direct taxes (5%). These positive effects were partially offset by the increased regressiveness of the public servants' earnings, which slowed down the reduction in inequality by 10%.

At first sight, these results seem to support both our hypotheses, namely, that the State can have a potentially strong influence on the dynamics of inequality and that the Brazilian State turned its redistributive profile and became pro-equality during the first decade of the 2000s.

However, a more careful examination strengthens the case for the former hypothesis and at the very least introduces some important *caveats* regarding the latter. There are at least three aspects that deserve to be discussed in detail: a) changes in the State-related income flows were partially contradictory, as not all of them contributed to reduce inequality over time; b) there is no positive correlation between the State's factor components contribution to the fall in inequality and their income share, which highlights that the largest programs and policies only became marginally more redistributive; and c) the State's influence on the levels of inequality remains regressive. These three aspects call our attention to the fact that, notwithstanding the State's effective contribution to reduce inequality, a lot more could have been achieved.

TABLE 3. Static decompositions of the Gini coefficient by income factors – Brazil, 2003 and 2009

Factor components	2005 PPP $ per capita, all		2005 PPP $ per capita, recipients		% of population*	
	2003	2009	2003	2009	2003	2009
A) Public servants	39	55	266	359	15	15
Counterfactual wages	35	45	236	291	15	15
Public-private differential	4	10	30	67	15	15
Positive differential	6	12	86	149	7	8
Negative differential	-2	-1	-24	-20	8	7
B) Social security pensions	42	68	146	221	29	31
Pensions <= floor	9	18	52	92	18	20
Pensions > SM and < cap	17	32	155	208	11	15
Pensions > cap	16	18	752	1238	2	1
Share = cap	7	9	329	582	2	1
Share > cap	9	10	422	656	2	1
C) Social assistance	1	3	6	16	15	21
Bolsa Família and predecessors	1	2	6	10	14	20
BPC (Old age and disability)	0	1	28	60	0	2
D) Unemployment benefits	6	4	27	27	22	16
E) Direct taxation	-26	-38	-40	-50	65	75
Net direct taxes	-16	-24	-31	-37	52	67
Gross direct taxes	-17	-25	-33	-38	52	66
Restitutions	1	1	23	23	4	4
Social security contributions	-10	-13	-20	-25	50	52
Share <= cap	-8	-11	-17	-21	50	52
Share > cap	-1	-2	-31	-58	5	4
F) Private sector incomes	207	240	210	260	99	92
Labor market earnings	189	212	194	236	98	90
Other incomes	18	28	89	110	20	26
State, gross *(A+B+C+D+E.restitutions)*	89	132	144	200	62	66
State, net *(A+B+C+D+E)*	62	93	73	103	85	91
Total diposable income	269	333	270	334	100	100

Source: Pesquisas de Orçamentos Familiares 2002/2003 and 2008/2009.

* The column "% of population" describes the percentage of the population in households that benefit from each factor component. Since households may benefit from multiple subfactors, the figures often exceed that of the main factor. Total disposable income differs between columns 1 and 3 due to a negligible number of households with zero income.

The rise in both wages and the wage differential between public and private sector workers is a recent phenomenon. Back in the 1970s, wages in the public sector were on average lower than those in the private sector and even after controlling for characteristics of workers the disadvantage in the public sector remained around 14%

(Vergara, 1991). During the 1990s the two sectors were equalized and in the following decade wages in the public sector quickly became higher than those of the rest of the labor force (Marconi, 2003; Vaz; Hoffmann, 2007). Part of this increase can be traced to a composition effect, related to improvements in the qualification of the public sector labor force, but since the late 1990s and especially during the 2000s there was also a sharp rise in the segmentation effect, that is, the public-private wage differential (Barbosa; Souza, 2012).

The composition effect of wages in the public sector is important to explain the level of inequality in Brazil. The segmentation effect, by its turn, is more relevant to explain the dynamics of inequality. As there is no evidence that public services improved dramatically during the 2000s, it is hard to reconcile these findings with an alleged redistributive turn by the Brazilian State. On the contrary, the results suggest that the specific institutional framework of the public sector gave some public sector workers a great leverage in reaping the benefits of economic growth in the past decade. It is also worth noting that, unlike most OECD countries, public sector wages are more unequally distributed in Brazil than private sector earnings. As it is, work in the public sector certainly does not contribute to lower inequality.

The second aspect refers to fact that there is no correlation between size (ie: income share) and degree of redistribution among the State factor components. Similarly to many other Latin American countries, Brazil scaled up its cash transfer programs, which in turn drove down income inequality (Gasparini; Cruces; Tornarolli, 2011; Gasparini; Lustig, 2011; Soares *et al.*, 2009). In 2003, 15% of the population lived in households that benefitted from Social Assistance transfers; in 2003, this proportion rose to 21% (see Table 3). Most of them are beneficiaries of Bolsa Família, the country's flagship conditional cash transfer. Nevertheless, since average benefits are very low, it is not surprising that even in 2009 such transfers barely accounted for 1% of disposable income.

Social Security pensions, on the other hand, were much larger and increased their income share from 165% to 20% of disposable income, but only reduced inequality by 10%. In other words, although pension expenditures are twenty times bigger than welfare transfers, their effect on bringing down inequality was only half as large. The system as a whole remains regressive and only improved marginally due to

the share effect of pensions tied to the rising minimum wage. Pensions above the legal cap remain highly regressive and only improved slightly between 2003 and 2009.

The Brazilian pension system was designed following the model of corporatist European welfare states, as it is the case of many other Latin American countries (Mesa-Lago, 1978). By differing protection according to segments of the labor force, corporatist pensions have limited capacity to reduce preexisting inequalities (Palme, 2006; Pedraza; Llorente; Rivas, 2009; Wang; Caminada; Goudswaard, 2012). Due to specificities of the history of Latin America, this corporatist character was aggravated by the fact that social security was used politically to co-opt working elites, becoming marked by high levels of regressiveness (Esquivel, 2011; Hoffmann, 2003; Lavado, 2007; Soares *et al.*, 2009).

After the 1990s these countries began reforming their pension systems in different directions. On one extreme, Chile assumed the huge transition costs of quickly switching from a pay-as-you-go to a fully funded system of individual accounts. That option tends to be neutral or even regressive as, by definition, such systems replicate in benefits what were once labor market inequalities. On the other, Brazil reformed its pay-as-you-go system in order to make it more egalitarian, expanding noncontributory and heavily subsidized protection and introducing floors and caps for the value of pensions. Thus, the national minimum wage was defined as the floor to all pensions in the late 1980s and eventually a legal cap will be applied to former public sector workers' pensions.

From an egalitarian point of view, the Brazilian reforms were a step in the right direction. However, it is also clear that the generous transition rules will delay the process for decades - the system will become more progressive at a very slow pace, similar to what happened between 2003 and 2009. While both minimum wage pensions and pensions above the cap account for about 5% of disposable income each in 2009, the former benefit either directly or indirectly 20% of the population while the latter accrue to just 1%, as seen on Table 3. Public sector pensions higher than the private sector cap have the highest concentration coefficient among all disaggregated income sources analyzed here. Since it is unlikely that the minimum wage will keep rising indefinitely – and the concentration effect of minimum wage pensions was already pro-

inequality between 2003 and 2009 –, it is possible that in the near future Social Security transfers will cease to contribute to reduce inequality.

The other State-related income flows display the same pattern of no correlation between expenditures and redistributive effects. Public servants' earnings, as we have noted, account for almost 17% of the disposable income and became more regressive over time. The share of unemployment benefits is small – slightly over 1% of disposable income – but they had almost as large an impact on inequality reduction as Social Security transfers (8%). Since these transfers were regressive – although they became less so over time – they helped to diminish income inequality mostly because their income share declined (share effect).

Direct taxation increased its income share by almost 2 p.p. - from 10% in 2003 to 11% in 2009 - but its concentration coefficient remained stable. Consequently, its contribution to decrease inequality was modest. This is disappointing because, given the distributive profile of the income flows from the State to the families, direct taxation could be a viable option to combat income inequality. After all, Brazil has a fiscal capacity close to that of some developed countries, with a total tax burden hovering around 34% of GDP, and a tax system with much room for improvement, as it is still heavily reliant on regressive indirect taxes (Silveira, 2008; Pintos-Payeras, 2010).

In fact, there is evidence that reforms in specific taxes - like income and land taxes - could simultaneously increase revenues and reduce inequality (Carvalho Jr, 2010; Hoffmann, 2002; Pintos-Payeras, 2010; Soares *et al.*, 2010). Nothing of the sort happened between 2003 and 2003. For instance, the top marginal tax rate for income taxes was stable at 27.5% and regressive exemptions for private education and private health insurance payments remained in place. The positive contribution of direct taxes to curb inequality in this period was a result of the expansion of the tax base following economic growth and job expansion. In short, direct taxes do lower inequality, but they correspond to just a minor share of total tax revenues in Brazil.

This leads us to the third aspect listed above: it is hard to conclude that there was a redistributive turn when most changes were merely marginal and the contribution of the State's income flows remains regressive. In 2009, the concentration coefficients for both gross and net total State incomes were, respectively, 0.625 and 0.592, higher than

the concentration coefficient of overall private sector incomes (0.550) and the Gini coefficient (0.562).

About two-thirds of the population receive some sort of income flow from the State and 85% (in 2003) and 91% (in 2009) either receive or pay something to the State (Table 3). Still, only two of the six types of State factor components - Social Assistance and Direct taxation - had negative marginal effects on the Gini coefficient. Among the rest, only part of the Social Security system - pensions tied to the minimum wage - does the same. Accordingly, the Brazilian experience does not endorse the view that more public spending - at least when it comes to direct income flows between the State and families - automatically translates to lower inequality.

In sum, these three aspects simultaneously strengthen the first hypothesis and weaken the second. The Brazilian State contributes decisively for the high levels of income inequality in Brazil; *ergo*, changes in its direct income flows have the potential to influence strongly the trends in inequality. To a certain extent, this is what happened between 2003 and 2009: the State was directly responsible for about one-third of the fall in the Gini coefficient. In spite of that, we are still far from exhausting the redistributive capacity of the Brazilian State, given its size and the continuing regressiveness of its major income flows to the families.

These findings are not compatible with the hypothesis that the State changed and became vastly more egalitarian. There were contradictory moves, the largest State-related income sources were made only marginally more redistributive and their net effect is regressive when one looks at levels instead of trends.

One could argue, of course, that the second hypothesis would be more persuasive if we extended the analysis back to the 1980s, particularly the years prior to the redemocratization. The contrasts would certainly be more clear-cut, but there would remain the problem that net State income flows are still more regressive than private sector incomes. On the other hand, the results highlight the challenges lying ahead for the continuation of these gradual improvements. The minimum wage doubled in real terms between 1995 and 2012; it is very unlikely that it will keep rising at the same pace in the next two decades, and even if it does, there are diminishing redistributive returns already kicking in (ie: the concentration effect for changes in minimum wage pensions is already negative). It is also difficult to envision Social Assistance transfers

accounting for more than 1% of GDP. Meanwhile, it is mostly business as usual regarding the truly regressive income flows from the State: reforms in the public sector's Social Security will take decades to be fully effective and there is no sign that public-private wage differential is going anyway anytime soon. Likewise, reforms to make the tax system even more progressive are not a political priority so far.

4. Conclusions

This paper sought to explain the State's role in the decline in inequality in Brazil in the first decade of the 2000s. Using detailed income and expenditures surveys for 2002-3 and 2008-9, we assessed two main hypotheses pertaining to the political underpinnings of inequality in Brazil: a) the State contributes to a sizable share of total inequality and thus policy change can have a potentially large influence on the dynamics of inequality; b) the State became uniformly and significantly more redistributive during the 2000s. Due to lack of data, the analysis was restricted to direct incomes flows between the State and the families, which were grouped into five major types: public servants' earnings, Social security pensions, social assistance transfers, unemployment benefits, and direct taxes.

Income inequality in Brazil dropped 6% during this period, from 0.595 to 0.562. Most of the fall – almost two-thirds – was a consequence of declining inequality in the labor market, but about one third was caused by changes in State-related income flows.

The results corroborate the hypothesis that State contributes to a sizable share of total inequality, but there is no evidence that State-related income flows became significantly less concentrated during the 2000s. Income inequality in Brazil dropped 6% during this period, from 0.595 to 0.562. Most of the fall – almost two-thirds – was a consequence of declining inequality in the labor market and about one third was caused by changes in State-related income flows, which also increased from 25% to 29% of total disposable income. Social assistance transfers had the largest effect, accounting for 20% of the fall in inequality. Social security pensions contributed to 10%, unemployment benefits, 8% and direct taxation, 5%. Public servants' earnings, on the other hand, had a negative contribution (-10%), hampering State redistribution.

It seems unwarranted to conclude that the State took an all-encompassing redistributive turn during the decade. First, although all other income flows became more progressive over time, the public servants' wages played an important regressive role. Moreover, their pro-inequality contribution was a exclusively a result of an increase in the public-private wage differential. This should not be underestimated: the rising differential entirely offset the redistributive gains spurred by any other disaggregated State-related income bar the minimum wage pensions. It entirely counteracted the positive effect of the Bolsa Familia transfers on inequality, for instance. Work in the public sector does not contribute to lower inequality in Brazil, as opposed to many OECD countries: wages are much higher on average and more unequally distributed.

Second, most of the State's positive effect on reducing inequality resulted from the expansion of Bolsa Familia and social assistance transfers, which also happened elsewhere in Latin America. The problem here is that these well-targeted transfers are barely 1% of disposable income. The largest State-related income flows only improved marginally: social security pensions, for example, are twenty times larger but had only half as large an impact on inequality. In fact, given the generous transition rules included in the last round of reforms, it is possible that for the next twenty years or so social security will even have a diminishing impact on lowering inequality, as most of its positive impact was linked to the share effect of minimum wage pensions. It is unlikely that the minimum wage will keep indefinitely rising at the same pace and, even if it does, its concentration effect is already negative – ie: pro-inequality – and tends to become even more so as benefits increase.

The other State-related income show the same lack of correlation between size – measured by the income share – and redistributive influence over time. Direct taxes are a good example: although they are quite progressive, they account only for a small share of total tax revenues in Brazil. Many reforms to simultaneously increase revenues and foster redistribution have been suggested, but none were implemented during the past decade. Therefore, direct taxes had a very modest contribution (5% of the fall inequality) that was entirely attributable to the increased formalization of the Brazilian economy during this recent period of growth.

Finally, it is worth highlighting that the State's influence on the levels of inequality remains regressive, that is, even in 2009 the net income flows from the State had a higher concentration coefficient than private sector incomes (0.592 and 0.550, respectively). All but two State income sources – social assistance and direct taxes – displayed the same pattern. *Coeteris paribus*, unlike in many OECD countries, a linear expansion of public expenditures – measured as direct income flows between the State and the families – in Brazil would not drive inequality down.

In conclusion, these findings suggest that recent changes and innovations the State-related income flows, as important as they were, are more adequately interpreted as gradual or marginal improvements that did not abruptly reshape the Brazilian State's redistributive profile.

Since more drastic reforms to the largest expenditures – pensions and public servants' earnings – and revenues – direct taxes – seem to be politically off limits, one could even question whether this redistributive momentum will be brought to a halt in the near future. The 2000s were a decade of recovery for Brazil, from both stagnation during the 1980s and hyperinflation in the early 1990s. It was also a decade when social security and welfare policies instituted in the 1990s were fully implemented. Wages in the lower end of the distribution benefited much from this economic recovery and those who were not benefited by better wages found protection in pensions and assistance. There are not many low hanging fruit left to pick and it is possible that Brazil will enter a new phase in which inequality reduction will depend more on structural changes in the labor market and on the progressiveness of the tax system.

There are reasons to believe the substantive results of this analysis are robust to changes in methods or sources of data. The use of a suitable inequality measure other than the Gini coefficient is likely to change the estimated values of factor components shares and contributions, and perhaps the order of importance to the decline in inequality of some factor components, but would hardly lead to different substantive conclusions. We also tested different models to estimate the public-private wage differentials and the main conclusions hold the same in all of them. Finally, we checked the robustness of the results against a different, but somewhat comparable household survey (the PNADs from 2001 to 2009) and arrived at similar conclusions.

Finally, there are some limitations in this study which deserve mentioning. First, the period covered is of less than a decade; our conclusions refer to a recent phenomenon – the decline in inequality – and not to the long term dynamics of inequality. Second, by using survey data we most probably lost information on top incomes, that is, the richest families. Third, taxes in our study refer only to direct taxes; which are a minor share of total taxation in the country. Given that the bulk of tax revenues comes from value added taxes, which are often neutral or regressive, taxation as a whole may actually contribute to increase inequality. A similar line of thought can be applied to indirect transfers, such as production subsidies, which are probably very regressive; if so, the State may contribute much more to inequality and its dynamics than we have estimated.

5. References

ATKINSON, A. B. Income Inequality in OECD Countries: Data and Explanations. **CESifo Economic Studies**, v. 49, n. 4, p. 479–513, 1 jan. 2003.

BARBOSA, A. L. N. DE H.; SOUZA, P. H. G. F. Diferencial salarial público-privado e desigualdade dos rendimentos do trabalho no Brasil. **Boletim Mercado de Trabalho - Ipea**, v. 53, p. 29–36, 2012.

BARROS, R. P. DE *et al.* A queda recente da desigualdade de renda no Brasil. *In*: BARROS, R. P. DE; FOGUEL, M. N.; ULYSSEA, G. (Eds.). **Desigualdade de renda no Brasil: uma análise da queda recente**. Brasília: Ipea, 2006. v. 1.

BARROS, R. P. DE *et al.* Determinantes Imediatos da Queda da Desigualdade de Renda Brasileira. *In*: BARROS, R. P. DE; FOGUEL, M. N.; ULYSSEA, G. (Eds.). **Desigualdade de renda no Brasil: uma análise da queda recente**. Brasília: Ipea, 2007. v. 2.

BARROS, R. P. DE; CARVALHO, M.; FRANCO, S. O papel das transferências públicas na queda recente da desigualdade de renda brasileira. *In*: BARROS, R. P. DE; FOGUEL, M. N.; ULYSSEA, G. (Eds.). **Desigualdade de renda no Brasil: uma análise da queda recente**. Brasília: Ipea, 2007. v. 2.

BARROS, R. P. DE; FRANCO, S.; MENDONÇA, R. A Recente Queda na Desigualdade de Renda e o Acelerado Progresso Educacional Brasileiro da Última Década. *In*: BARROS, R. P. DE; FOGUEL, M. N.; ULYSSEA, G. (Eds.). **Desigualdade de renda no Brasil: uma análise da queda recente**. Brasília: Ipea, 2006. v. 2.

BLAU, F. D.; KAHN, L. M. **International Differences in Male Wage Inequality: Institutions versus Market Forces**: NBER Working Paper. Cambridge, MA: National Bureau of Economic Research, set. 1996. Disponível em: <http://www.nber.org/papers/w4678>. Acesso em: 3 jul. 2012.

BONELLI, R.; SEDLACEK, G. **Distribuição de renda: evolução no último quarto de século**. Rio de Janeiro: Ipea, 1988. (Texto para discussao, n. 145).

BRAGA, B.; FIRPO, S.; GONZAGA, G. Escolaridade e diferencial de rendimentos entre o setor privado e setor público no Brasil. **Pesquisa e Planejamento Econômico**, v. 39, n. 3, p. 431–464, 2009.

BROWN, R. L.; PRUS, S. G. Income Inequality over the Later-Life Course: a Comparative Analysis of Seven OECD Countries. **Annals of Actuarial Science**, v. 1, n. 02, p. 307–317, 2006.

CAMINADA, K.; GOUDSWAARD, K. International Trends in Income Inequality and Social Policy. **International Tax and Public Finance**, v. 8, n. 4, p. 395–415, 1 ago. 2001.

CARVALHO JR, P. H. B. Aspectos distributivos do IPTU e do patrimônio imobiliário das famílias brasileiras. *In*: CASTRO, J. A.; SANTOS, C. H.; RIBEIRO, J. A. C. (Eds.). **Tributação e equidade no Brasil: um registro da reflexão do Ipea no biênio 2008-2009**. Brasília: Ipea, 2010. .

CHEN, C.-N.; TSAUR, T.-W.; RHAI, T.-S. The Gini Coefficient and Negative Income. **Oxford Economic Papers**, New Series. v. 34, n. 3, p. 473–478, 1 nov. 1982.

DARÉ, E. F. **Desigualdade da distribuição da rend ano Brasil: a contribuição dos rendimentos do funcionalismo público**. Campinas: Universidade de Campinas, 2011.

ESQUIVEL, G. The Dynamics of Income Inequality in Mexico since NAFTA. **Economía**, v. 12, n. 1, p. 155–179, 2011.

FERREIRA, C. R. Aposentadorias e distribuição da renda no Brasil: uma nota sobre o período 1981 a 2001. **Revista Brasileira de Economia**, v. 60, n. 3, p. 247–260, set. 2006.

FERREIRA, F. H. G. *et al.* Ascensão e queda da desigualdade de renda no Brasil. **Econômica**, v. 8, n. 1, p. 147–169, 2006.

GASPARINI, L.; CRUCES, G.; TORNAROLLI, L. Recent trends in income inequality in latin america. **Economía**, v. 11, n. 2, p. 147–190, 2011.

GASPARINI, L.; LUSTIG, N. C. The rise and fall of income inequality in Latin America. *In*: OCAMPO, J. A.; ROS, J. (Eds.). **The Oxford Handbook of Latin American Economics**. [S.l.] Oxford University Press, 2011. p. 691 – 714.

GOÑI, E.; LÓPEZ, J. H.; SERVÉN, L. Fiscal Redistribution and Income Inequality in Latin America. 2008.

GOTTSCHALK, P.; SMEEDING, T. M. Cross-National Comparisons of Earnings and Income Inequality. **Journal of Economic Literature**, v. 35, n. 2, p. 633–687, 1 jun. 1997.

GUSTAFSSON, B.; JOHANSSON, M. In Search of Smoking Guns: What Makes Income Inequality Vary over Time in Different Countries? **American Sociological Review**, v. 64, n. 4, p. 585–605, 1999.

HOFFMANN, R. Considerações sobre a evolução recente da distribuição da renda no Brasil. **Revista de Administração de Empresas**, v. 13, n. 4, p. 7–17, 1973.

HOFFMANN, R. Efeito potencial do Imposto de Renda na desigualdade. **Pesquisa e Planejamento Econômico**, v. 32, n. 1, p. 107–113, 2002.

HOFFMANN, R. Inequality in Brazil: the contribution of pensions. **Revista Brasileira de Economia**, v. 57, n. 4, p. 755–773, 2003.

HOFFMANN, R. Transferências de renda e a redução da desigualdade no Brasil e cinco regiões entre 1997 e 2004. **Econômica**, v. 8, n. 1, p. 55–81, 2006.

HOFFMANN, R. How to measure the progressivity of an income component. **Applied Economics Letters**, v. 20, n. 4, p. 328–331, 2013.

JUHN, C.; MURPHY, K. M.; PIERCE, B. Wage inequality and the rise in returns to skill. **Journal of political Economy**, v. 101, n. 3, p. 410–442, 1993.

KORPI, W.; PALME, J. The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries. **American Sociological Review**, v. 63, n. 5, p. 661–687, 1 out. 1998.

LAVADO, P. **Desigualdad en los programas sociales en el Perú**: Diagnóstico y Propuesta. Lima: CIES, jul. 2007. . Acesso em: 23 jan. 2013.

LERMAN, R. I.; YITZHAKI, S. Income Inequality Effects by Income Source: A New Approach and Applications to the United States. **The Review of Economics and Statistics**, v. 67, n. 1, p. 151–156, 1 fev. 1985.

LÓPEZ-CALVA, L. F.; LUSTIG, N. (EDS.). **Inequality in Latin America: a decade of progress?** Nova York; Washington, D.C.: Brookings Institution Press, United Nations Development Programme, 2010.

LÓPEZ-CALVA, L. F.; LUSTIG, N. Explaining the decline in inequality in Latin America: technological change, educational upgrading, and democracy. *In*: LÓPEZ-CALVA, L. F.; LUSTIG, N. (Eds.). **Declining inequality in Latin America: a decade of progress?** Baltimore, EUA: Brookings Institution Press, United Nations Development Programme, 2010. p. 253.

MAHLER, V. A.; JESUIT, D. K. Fiscal redistribution in the developed countries: new insights from the Luxembourg Income Study. **Socio-Economic Review**, v. 4, n. 3, p. 483–511, 1 set. 2006.

MARCONI, N. A evolução do perfil da força de trabalho e das remunerações nos setores público e privado ao longo da década de 1990. **Revista do Serviço Público**, v. 54, n. 1, p. 9–45, 2003.

MENEZES-FILHO, N. A.; FERNANDES, R.; PICCHETTI, P. Educação e Queda Recente da Desigualdade no Brasil. *In*: BARROS, R. P. DE; FOGUEL, M. N.; ULYSSEA, G. (Eds.). **Desigualdade de renda no Brasil: uma análise da queda recente**. Brasília: Ipea, 2006. v. 2.

MESA-LAGO, C. **Social Security in Latin America: pressure groups, stratification, and inequality**. [S.l.] University of Pittsburgh Press, 1978.

MILANOVIĆ, B. **Determinants of Cross-country Income Inequality: An "augmented" Kuznets' Hypothesis**: World Bank Policy Research Working Paper. Washington, D.C.: World Bank Publications, 1994.

MOENE, K. O.; WALLERSTEIN, M. Inequality, Social Insurance, and Redistribution. **The American Political Science Review**, v. 95, n. 4, p. 859–874, 1 dez. 2001.

MOSTAFA, J.; SOUZA, P. H. G. F.; VAZ, F. M. Efeitos econômicos do gasto social no Brasil. *In*: CASTRO, J. A. *et al.* (Eds.). **Perspectivas da Política Social no Brasil**. Brasília: Ipea, 2010. p. 109–160.

MOSTAFA, J.; SOUZA, P. H. G. F.; VAZ, F. M. Efeitos econômicos do gasto social no Brasil. *In*: CASTRO, J. A. *et al.* (Eds.). **Perspectivas da Política Social no Brasil**. Brasília: Ipea, 2010. .

ODEDOKUN, M. O.; ROUND, J. I. Determinants of Income Inequality and its Effects on Economic Growth: Evidence from African Countries. **African Development Review**, v. 16, n. 2, p. 287–327, 2004.

PALME, J. Welfare states and inequality: Institutional designs and distributive outcome. **Research in Social Stratification and Mobility**, v. 24, n. 4, p. 387–403, 2006.

PEDRAZA, P. DE; LLORENTE, R. M. DE B.; RIVAS, L. A. Ageing Population and Spanish Pension System Reforms: Effects on Average Pensions and Inequality Among Pensioners. **Economical Analysis Working Papers**, v. 8, n. 7, p. 1–24, 2009.

PINTOS-PAYERAS, J. A. Análise da progressividade da carga tributária sobre a população brasileira. **Pesquisa e Planejamento Econômico**, v. 40, n. 2, p. 153–186, 2010.

PYATT, G.; CHEN, C.; FEI, J. The Distribution of Income by Factor Components. **The Quarterly Journal of Economics**, v. 95, n. 3, p. 451–473, 1 nov. 1980.

RAO, V. M. Two Decompositions of Concentration Ratio. **Journal of the Royal Statistical Society. Series A (General)**, v. 132, n. 3, p. 418–425, 1 jan. 1969.

RIBEIRO, M. B. 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, J. A.; SANTOS, C. H.; RIBEIRO, J. A. C. (Eds.). **Tributação e equidade no Brasil: um registro da reflexão do Ipea no biênio 2008-2009**. Brasília: Ipea, 2010. .

ROINE, J.; VLACHOS, J.; WALDENSTRÖM, D. The long-run determinants of inequality: What can we learn from top income data? **Journal of Public Economics**, v. 93, n. 7–8, p. 974–988, ago. 2009.

SANTOS, C. H. Um panorama das finanças públicas brasileiras de 1995 a 2009. *In*: CASTRO, J. A.; SANTOS, C. H.; RIBEIRO, J. A. C. (Eds.). **Tributação e equidade no Brasil: um registro da reflexão do Ipea no biênio 2008-2009**. Brasília: Ipea, 2010. .

SILVEIRA, F. G. **Tributação, previdência e assistência sociais: impactos distributivos**. Campinas: Universidade de Campinas, 2008.

SILVEIRA, F. G. Tributação, previdência e assistência sociais: impactos distributivos. *In*: CASTRO, J. A.; SANTOS, C. H.; RIBEIRO, J. A. C. (Eds.). **Tributação e equidade no Brasil: um registro da reflexão do Ipea no biênio 2008-2009**. Brasília: Ipea, 2010. p. 67–124.

SMEEDING, T. M. Public Policy, Economic Inequality, and Poverty: The United States in Comparative Perspective. **Social Science Quarterly**, v. 86, p. 955–983, 2005.

SOARES, S. **Distribuição de renda no Brasil de 1976 a 2004 com ênfase no período entre 2001 e 2004**. Brasília: Ipea, 2006. (Texto para discussao, n. 1166).

SOARES, S. Análise de bem-estar e decomposição por fatores da queda na desigualdade entre 1995 e 2004. **Econômica**, v. 8, n. 1, p. 83–115, 2006.

SOARES, S. *et al.* Conditional Cash Transfers in Brazil, Chile and Mexico: Impacts upon Inequality. **Estudios Económicos**, v. n. ex, p. 207–224, 2009.

SOARES, S. *et al.* O potencial redistributivo do Imposto de Renda - Pessoa Física (IRPF). *In*: CASTRO, J. A.; SANTOS, C. H. M.; RIBEIRO, J. A. C. (Eds.). **Tributação e equidade no Brasil: um registro da reflexão do Ipea no biênio 2008-2009**. Brasília: Ipea, 2010. p. 514.

SOUZA, P. H. G. F.; MEDEIROS, M. Diferencial salarial público-privado e desigualdade de renda per capita no Brasil. **Estudos Econômicos**, v. 43, n. 1, p. 5–28, 2013.

STACK, S. The Effect of Direct Government Involvement in the Economy on the Degree of Income Inequality: A Cross-National Study. **American Sociological Review**, v. 43, n. 6, p. 880–888, 1 dez. 1978.

SZÉKELY, M.; HILGERT, M. **What Drives Differences in Inequality Across Countries?** Rochester, NY: Social Science Research Network, 21 abr. 2011. Disponível em: <http://papers.ssrn.com/abstract=1817238>. Acesso em: 16 jan. 2013.

VAZ, D. V.; HOFFMANN, R. Remuneração nos serviços no Brasil: o contraste entre funcionários públicos e privados. **Economia e Sociedade**, v. 16, n. 2, p. 199–232, 2007.

VAZ, D. V.; HOFFMANN, R. Remuneração nos serviços no Brasil: o contraste entre funcionários públicos e privados. **Economia e Sociedade**, v. 16, p. 199–232, 2007.

VERGARA, D. H. Diferenciais de salários entre os setores publico e privado da economia brasileira. **Ensaios FEE**, v. 12, n. 1, p. 73–85, 1991.

WALLERSTEIN, M. Wage-Setting Institutions and Pay Inequality in Advanced Industrial Societies. **American Journal of Political Science**, v. 43, n. 3, p. 649–680, 1 jul. 1999.

WANG, C.; CAMINADA, K.; GOUDSWAARD, K. The redistributive effect of social transfer programmes and taxes: A decomposition across countries. **International Social Security Review**, v. 65, n. 3, p. 27–48, 2012.