Why some states redistribute more than others?

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Abstract

This study aims to analyze the variation in income inequality patterns in Brazilian states as a consequence of political and institutional framework - specifically, the party system and levels of political and electoral competition. Income inequality in this case would be used as a proxy for social policies provisions.

The data to be worked on include all States of the federation and the Federal District, from 1992 to 2006, after the country’s re-democratization. The empirical analysis, performed by estimation of Prais-Winsten regression models with panel corrected standard error model (PCSE-AR1), rejects the economistic approach in order to show its limitations in explaining the variability of income inequality in the states. The results show that even in face of fiscal, economic, institutional and legal constraints imposed on the States during this period, either by the federal government, or by the Constitution, political parties at state level have discretion in the choice of public policies.

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Introduction

Why some countries redistribute more than others? And internally, why some states redistribute more than others? In recent work, Iversen and Soskice (2006) analyze why some democratic governments are more likely to redistribute income than others. The authors show that electoral systems play an important role since they configure the nature of political parties and the composition of government coalitions. The characteristics of this political-party system impact the wealth redistribution. To justify their study, the authors begin by showing the variation in poverty and inequality rates among some democratic countries in the analyzed period. To elaborate this work, as well as the authors mentioned, I withdraw my initial concerns for the income inequality variation in Brazilian history time perspective, the magnitude of its variation among Brazilian States and its variance among states regarding their determinants. I believe that the different Brazilian states’ political histories design the parties’ nature and the level of political competition in the states; moreover, this political system influences public policies implementation and their respective arenas.

In general, the literature suggests that income inequality is determined by the heterogeneity of the workforce and agrees that the heterogeneity of the workforce is determined by factors such as age, gender, region of residence, and mainly by educational level (Langoni, 1973; Ramos and Vieira, 2001; Ferreira, 2007). At the beginning of this debate, Fishlow (1972), and his followers, defended the importance of tax and economic policies as well as social policies, including the educational ones, as strong determinants for the inequality growth. For the author, the inequality increase was a consequence of political choices and processes. Our argument is build on this line. Well, if social policies, among them the educational ones, are determined by political and institutional factors such as ideology, political competition, legacy, constraints and institutional characteristics (Castles, F 1982; Chhibber, P. and Nooruddin, I. 2004; Hicks, A. M. and Swank, D.H. 1992), thus, it is reasonable to hypothesize that income inequality is indeed determined by political factors besides the economic ones. These, as much as those, are governmental choices (Bradley et al, 2003; Kenwothy and Pontusson, 2005; Iversen and Soskice, 2006).

This study aims to examine the impact of the Brazilian States’ political-institutional framework on the policies’ execution, using the income inequality as an indicator for the allocation choice of different expenditures. That is, the party system characteristics, the political and electoral competition levels, the previous policies (legacy), which define the competition rules and the political processes, also at state level, will be analyzed in order to verify how they impact the income distribution of that federative state.

The first methodological question when wishing to study income inequality using the subnational governments as the unit of analysis arises from the fact that most of the redistributive or economic policies, that directly affect the labor market, are the responsibility of the central government and, therefore, the states would not intervene in the income redistribution. The answer to that question is another question, if the income redistribution depends on the central level of the government and its policies, what explains the great heterogeneity in the inequality evolution among the states? I believe there are political and institutional characteristics that determine the somewhat fertile soil for
redistributive policies, that is, policies efforts reflect state governments’ characteristics. The ruling parties undertake various political efforts translated into somewhat redistributive policies which, through different mechanisms, impact the states’ income redistribution.

To achieve the objectives here proposed, the work will be divided into five sections besides this introduction. On the first section, we will show how the literature has been inserting in its agenda the political-institutional factors’ impact analysis on income inequality. In this case, the goal is to see what are the indicators used, the tested hypotheses, and the methodologies in use. On the second section, the variation of the phenomenon under review both in time and among the states, as well as its composition, will be explored. Then, the causal mechanisms and hypotheses to be tested will be presented. On the forth section, the methodology will be explicated and the models will be presented. Finally, the results will be shown and final considerations will be given, demonstrating that the parties have different investments in redistributive policies even in the face of institutional constraints imposed by central government. That is, not only the policies coming from the central government, but also the states’ political characteristics influence the levels of income inequality.

**Political Institutions and Income Inequality**

Studies which aim at explaining the variance in income distribution among countries and its determinants use economic, institutional and socio-cultural indicators, in their analysis. However, there is relatively little production that, in dealing with the inequality issue, stress the political aspects as observed by Bradley et al (2003) and, more recently, Kenworthy and Pontusson (2005).

Here brief reviews of works of comparative analysis among countries and inequality in Brazil will be presented in order to give an overview of the production type of the area. The intention is modest, it aims to show some work that, overall, reflect the state of the art minimally highlighting the various measures used as dependent variables, hypotheses tested, as well as the analytical techniques used. After that, hypotheses which constitute the intention of this work will be exposed, and, subsequently, the proposed model.

Bradley et al (2003) use an unbalanced panel to examine the processes of distribution and redistribution of income in 18 post-industrial democracies in the late 70's until the late 90's. The authors analyze three dependent variables: the Gini coefficient before and after taxes and transfers (which are called Pre and Post Tax and Transfer Inequality) and the inequality reduction measured by this reduction’s proportion. They investigated to which extent the income distribution and inequality reduction are determined by different combinations of labor market institutions - measures such as labor union density and centralization of wage and labor market conditions negotiations - using the unemployment rate, macro-economic structures such as post-industrialism, and finally, the settings of the policy framework with the presence of left-wing or Christian democratic government. Their results strongly confirm their hypotheses: both political variables and those related to the labor market led to income inequality in the countries studied.

Scheve and Stasavage (2007) reach different conclusions when analyzing data for 13 OECD countries between 1916 and 2000, also through the use of panel analysis. In this case, a careful analysis focused on political variables is given for the period from 1976 to 2000, that is, the authors distinguish some periods and type of analysis undertaken. The
main worked hypotheses were: i) left-wing governments are to be more associated with lower income inequality since they are more prone to redistributive policies, ii) institutional arrangements that ensure centralization of wage negotiations reduces inequality, iii) the degree of unionization reduces inequality, iv) proportional representation systems contribute both to increase the centralization of wage negotiations and for a greater presence of left parties, so these features of the electoral game should be associated with lower levels of inequality. The authors use three dependent variables: income concentrated in the wealthiest 1% of the population (top 1), income concentrated in the wealthiest 10% of the population (top 10) and the 10% minus 1% (top 10-1), that is, those included between the 90th percentile and 99th percentile of the income distribution. However, Scheve and Stasavage suggest that the wage negotiation, the leftist government and proportional representation centrality are not determinants of income inequality among studied countries during the period of 1976-2000. The results of these authors lead to the conclusion that economic crises and post-war experiences are more important for understanding the evolution of inequality in these countries than their partisan or institutional characteristics. In his own words: we have found little evidence that these factors can account for variation in inequality over the long-run, particularly when we control for unobserved country effects and common time effects (Scheve and Stasavage, 2007:36).

Other authors interested in this subject adopt a more historical approach in their analysis, as is the case of Iversen and Soskice (2006) who developed a model of income redistribution to explain why some democracies are more redistributive than others. The authors analyze 14 countries from 1950 to 1996 and concluded that characteristics of the electoral system have an important role in redistributing income to the extent that it determines the nature of political parties as well as formed coalitions. Their results show that center-left governments dominate proportional representation systems while the center-right is in those majoritarian systems. The results also show that representative systems redistribute more than the majoritarians. For them, the presence of left parties in government promotes income redistribution, even if it is indirectly (Iversen and Soskice, 2006).

Pontusson, Rueda and Way (2002) also conduct a panel analysis for 16 OECD countries from 1973 to 1995. The authors use three income ratios as dependent variables: the income ratio of the wealthiest 10% and the remaining 90%, the income ratio of the wealthiest 50% and the poorest 90%, the income ratio of the wealthiest 10% and the poorest 50% - 90-10, 90-50 and 50-10. Their results strongly suggest that market indicators were the greatest responsible for income inequality generation in advanced capitalist societies in recent decades. For them, the unemployment rate has figured as the most important factor of inequality generation, which completely makes sense given that these are wage societies. However, the authors also conclude that degree of unionization, centralization of wage negotiation and public sector jobs affect income distribution since they boost the relative position of less skilled workers. Finally, they conclude that the egalitarian effects of left-wing governments operate by retracting the wage growth of higher paid workers. But it is interesting to note that, in further analysis, the authors conclude that, under conditions of wage negotiations decentralization, left wing governments also boosted the relative position of less skilled workers despite the fact that its predominant effect is to reduce the growth of those with higher wages (Pontusson, Rueda and Way, 2002).
In Brazil, there are also a lot of production that examines the evolution of inequality in recent years and many works attempt to explain its recent fall, featuring a historic moment in our society. This area had a fruitful outcome from, the debate generated, on one hand, by Fishlow (1972), who defended public policies as determinants for the high level of income inequality in the 1960’s, strongly suggesting the crucial role of the political and governmental choices to these standards and, on the other side, Langoni (1973), who defended the educational level variation of the population as determinant of the workforce productivity. Today, there is an abundant production on the recent decrease in income inequality in Brazil in the last decade, however, with different emphases. Some authors emphasize the relationship between economic growth or even the macroeconomic instability and income inequality (Salm, 2007; Dedecca, 2007; Ferreira et al, 2007), others, emphasize the roles of the minimum wage on income distribution (Salm, 2007; Dedecca, 2007, Ramos, 1995; Barros and Carvalho, 2005; Giambiagi and Franco, 2007), some others highlight the labor market and still others emphasize the role of government income transfers such as Bolsa Família Program and Benefício de Prestação Continuada (BPC / LOAS): Fabio Soares et al. 2007; Sergei Soares et al. 2007; Hoffmann, 2007; Barros et al., 2007 and, finally, those who emphasize the role of the educational aspects (Ferreira, 2007).

I chose two which examine the evolution of inequality in the country in a bigger gap of time, one focusing on the role of labor market and income transfers in conformation of inequality, comparatively, and one that also tries to show the main determinants of this process using concepts of human capital.

In a study on the evolution of income inequality in Brazil between 1976 and 2004, Soares (2006) shows that 2004 was the year with the lowest inequality in the last three decades for any of the four measurements used: the Gini Coefficient, Theil-T Index, ratio between the income of the wealthiest 10% and the poorest 40%, and the ratio between the incomes of the wealthiest 20% and the poorest 20%. Through income dynamic decomposition analysis, Soares reaches results that show that income transfer programs such as Bolsa Família Program and Benefício de Prestação Continuada, account for one quarter (¼) of inequality drop between 1995 and 2004. However, the author says, labor income accounts for three quarters (¾) of this fall. That is, for the author, there is no doubt that the labor market was largely responsible for the observed redistribution of income between the years 2001 and 2004, but he recognizes the important role of income transfers (Soares, 2006). The importance given to the role of income transfers is due to the relative low cost that they had in reaching such significant results in reducing income inequality. This conclusion is shared by other authors: Fabio Soares et al. 2007; Sergei Soares et al. 2007; Hoffmann, 2007, Barros et al., 2007. Based on these analyses, we can affirm that there are three incomes that promote equality in Brazil: on one hand, incomes from retirement pensions and pensions indexed to the minimum wage, that is, the General Social Security Regimen, and, on the other hand, government income transfers – Family Allowance and Continuous Installment Benefit. It is noteworthy that all three are government income transfers. Income from work, retirement, pensions and annuities arising from capital and other private transfers generate inequality at different levels.

Ramos and Vieira (2001) analyze the evolution of income inequality in Brazil focusing on the 80’s and 90’s, identifying the main determinants of what they call an asymmetric structure of income in the labor market. The authors also use income dynamic decomposition analysis by splitting the analysis into several groups, and using age, educational level, position in the occupation, geographic region, activity sector, besides
gender and race as inequality determinants. Ramos and Vieira strongly suggest that, during the analyzed period, the main responsible aspect for income inequality was the heterogeneity of workers, especially regarding education distribution. This vision was also present in the classic work of Langoni (1973) and by recent work of Ferreira (2007). In their conclusions, they also suggest that the form in which the workers enter the labor market is an important factor. That is, they do not deny the Soares’ findings, they qualify his results. What is important to highlight here is that all these authors emphasize both income transfers as previously mentioned and the education distribution here underlined are results of policy efforts (political efforts) either at the municipal, state or federal levels, we are talking about decisional agenda of governments. However, as we're talking about economists authors there is no emphasis on direct and indirect political aspects determinants of income inequality.

Through the analysis of this literature, it can be said that, on the international scope, experts have taken great care in explaining inequality, including the effects of political institutions in income redistribution. However, in Brazil there is still a complete absence of studies that emphasize the political aspects that determine the distribution of income, and there is even less focus on this issue with the cuts in sub-national units. What stands out in the Brazilian studies is that there is a substantive variation of the measurements used as dependent variables. Nevertheless, according to Barros et al (2007, pp: 89), the authors agree "about the fact that income distribution in 2005 presents a relation of Lorenz predominance over 2001", (...) which “means that, whatever the inequality measurement used, the income inequality is lower in 2005 than in 2001 and, therefore the observed decrease is independent of the chosen measurement method.” Moreover, for the purposes of this study, it is highlighted that those works which emphasize the political factors, the relative results for the political indicators are quite divergent. This further reinforces the need to deepen this theme, especially in Brazil, to learn the political importance in the income inequality decreasing process.

To this, add the fact that this material which emphasizes the political aspects includes two limitations to this theme knowledge development: the first one is a selection bias of developed countries on which we develop the theory in terms of a structural problem which is the availability of data. A second limitation comes from the first, since the analysis focused on developed countries, some developed and tested hypotheses are based on a more homogeneous and broad labor market, that is, what some experts call the 'wage societies' where even the pension system is strongly contributive and not always based on national solidarity. These countries generally associated economic growth and social development by setting a wage society with widespread social protection (Boschetti, 2006). The average Gini coefficient for the analyzed countries in this period is around 0.3, that is, very different realities from developing countries as is the case of Brazil.

Well, there is a problem here: we must know whether this analytical model can be generalized, that is, if it is possible to explain to societies which were unable to secure a labor market, or in other words where the job market is precarious, and heterogeneous with high levels of underemployment, with high rates of unemployment and with a very high degree of informality as ours. Does the theory explain the results of those countries which have achieved relative economic growth, but did not translated it into sharing the outcomes of economic expansion? That is, we must consider whether this is really a comprehensive theory which can be applied to countries where there was no guarantee of widespread social protection, no maintenance of large balances in economy management and where the wage
condition is weak or absent pay for a great part of the population and, therefore, are highly unequal societies such as Brazil (Boscetti, 2006).

This work aims to contribute to this debate with differences from the reference literature by emphasizing the comparison of the States’ in the same country regarding the fact that there are existing cases in a country where the labor market is quite different when compared to the ones in the available literature.

Having presented the literature with the main worked hypotheses, it is still needed to determine whether the object of our study has enough variation to deserve such attention. Thus, in the next section the variability in inequality over time and across states will be shown.

Variation in income inequality

For the last three decades, the evolution of inequality in Brazil through four indicators is shown in Graph 1: The Gini coefficient, Theil-T index, the income ratio between the wealthiest 10% and the poorest 40% and the ratio 20 / 20. It is observed that in the second half of the 70’s (Government Geisel) inequality has reached very high levels. Then there is a downward trend, but in 1986, a period of hyperinflation, starts to rise again reaching a peak in the late 80’s. Note that the year 2004 shows the lowest values of inequality, for any of the indicators in the time series considered here.

Graph 1 - Measurement of Income Inequality from 1976 to 2004

Secondly, we observe the variation in income inequality among states. Graph 2 shows the Gini Coefficient of all states plus the Federal District for the year 2008. The different regional patterns are observed, being that, as expected, the Southern states have indicators below the national average (0.553) and the Northeastern states show the higher

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1 “There are some limitations to the data interpretation presented in Graph 1. The first is that the comparison among the Pnads in the 70’s and the others are very low. The second is that part of the high inequality observed in the hyperinflationary period, in a sense, is false. This occurs because the high inflation when conjugated along with the imperfect wage indexation, generates increase in the inequality measured by a transversal cut in time, as well as in the Pnad, however, it disappears when the average of the income is taken during a greater period, as shown by Neri (1994). Finally, there was a questionnaire change between 1990 and 1992, even though income perception was not on of the most affected items” (Soares, 2006:8).
indexes of all. Noteworthy are the high rates of inequality in the Federal District, Pará and Alagoas. It is important to highlight the inequality differences presented by the Brazilian States ranging from Amapá (0.451) and Santa Catarina (0.465), compared to Mexico (0.461 in 2004), to the Federal District with 0.622, this one comparing to Sierra Leone (62.9).

Graph 2 - Gini coefficient according to the Units of the Federation - 2008

Source: Author’s own elaboration.
For purposes of this study, it is also important to have an idea of the different behavior patterns of income inequality over time across the states. To illustrate the object of analysis, Graph 3, contains two panels, one showing the variation in Alagoas and the other showing the variation in Minas Gerais. The graphs show the evolution in income inequality within the two states. Looking at the graphs one can get an idea of what can be found in time in very different patterns among the states, this variability is what interests here.

**Graph 3 - Gini Coefficient from 1981 to 2008, in Alagoas and Minas Gerais**

Panel 1 - Alagoas

Panel 2 – Minas Gerais

Source: Author’s own elaboration.

This work’s inquiry is shared by Bradley et al. when they state that, given the importance of understanding the degree of influence that the political and institutional factors have on inequality, it is surprising that only very recently the academic community begins to effectively show interest on this subject. According to the authors, the reason surely is more structural than regarding interests since until recently the available data did not allow many inferences (Bradley et al, 2003).

Given that the variety of the interest phenomenon was shown here, it justifies the impact analysis of political-institutional framework of the Brazilian states on the implementation of policies. In previous work, Sátyro (2008) showed that, in light of
institutional constraints, political parties have lost their explanatory power of different efforts in social policy in the Brazilian states, that is, the institutional constraints imposed by the restrictive policies of Fernando Henrique Cardoso homogenized social spending in the states. The author leaves the question of how, then, parties make a difference in state politics. In order to contribute to the research, this work will use the income distribution as a proxy for social and labor market policies outcomes. If expenditures were restricted, would there be differences in their quality? Variables will be used to serve as a proxy for human capital characteristics and labor market conditions, and, obviously, the focus of this work, the characteristics of the political system of each state. For this political-institutional framework refers to the characteristics of the party system, the levels of political and electoral competition and the legacy, which define how the Lowi’s arenas are instituted in the states and how policies are decided (Sátyro, 2008; Ribeiro, 2005; Lowi, 1964 and 1972).

**States cluster in relation to the used indicators**

To identify the states which have similar characteristics regarding income inequality, degree of informality, illiteracy rate and level of political competition, a cluster analysis is suggested. Being of an exploratory nature, and not probabilistic, the cluster analysis allows us to visualize the states according to their similarities and differences. According to Moori and others, “a cluster analysis is a statistical technique that allows researchers to separate or classify objects observed in a group or specific number of subgroups or clusters mutually exclusive, so that the subgroups have characteristics of high internal similarity and great outside differences.” (Moori et al., 2002)

Once the conglomerates are divided, we organized each of the indicators used in error bar charts to compare the sample averages of each of these indicators within their conglomerates and the confidence interval at 95%. The differences of the two groups and their persistence in the 13 years studied can be seen in the panels of the chart below.

We note that the two state clusters form distinct blocks in regards to the indicator of income inequality (Gini coefficient), and the indicators of the precariousness of the job posts in the market and human capital, as well as the level of the existing political competition. We can clearly speak of two Brazils: one with high levels of inequality, with a much higher level of informality in the labor market than the country’s average, which has the lowest levels of electoral competition, and which has unacceptable rates of illiteracy in any world economy, this later aspect, surely, represents a limit to those states’ economic growth. Another Brazil is formed by states where there is much less illiteracy if compared with the states from cluster 1, in spite of unacceptable rates, and where the job market is much more formalized than the other group and that, consequently, presents inequality indexes, although still in very high levels for international standards, in a much better position than those who constitute the cluster 2. And, at last, as it can be seen, cluster 1 shows increased electoral competition since they have less vote concentration for a single candidate in the first round, which we believe produces an effect on other indicators here examined.

The graphs also show, within each cluster, an improvement in indicators over time, and it is interesting to note that improvements are most prominent in group 2; but, this shift is already expected, according to the law of diminishing marginal utility.
Graph 4 – Brazilian States clusters according administrations

Panel 1 – Gini Coefficient

Panel 2 – Degree of Informality

Panel 3 – Illiteracy Rate

Panel 4 – Political Competition
However, the hanging question is which state is in which group, in which year? The table below shows each state’s belonging to one or another group, in each analyzed year. Thus, we can say that the Northeast stands out as the great establisher of conglomerate 2 since seven out of its nine states - Maranhão, Piauí, Ceará, Pará, Pernambuco, Alagoas and Bahia - make up this conglomerate. Sergipe and Rio Grande do Norte states are notable for a shift to conglomerate 1, as can be seen in the table below.

On the opposite side, in conglomerate 1, we have Southeastern and Southern states with a whole position within the period analyzed. In addition to these states, there are still Mato Grosso do Sul and the Federal District along five out of seven states in the North region: Rondônia, Amazônia, Roraima, Pará and Amapá. This statement goes against the common sense which always places the North and Northeast regions as a homogenous group. What can be seen here is that there are substantive differences among the states of these regions in relation to the four indicators used here. In this situation, Acre and Tocantins stand out by going on opposite directions: Acre remained in conglomerate 1 up to its inflection in the late 90’s when it joined group 2 becoming similar to the Northeastern states. On the other hand, there is Tocantins which was part of conglomerate 2 for the greater part of the analyzed period, but it shows an inflection during the last two analyzed years.

The Midwest inflections should also be noted in Goiás and Mato Grosso states, early in the series, by shifting from group 2 to group 1, apparently for good.
<table>
<thead>
<tr>
<th>Region</th>
<th>State</th>
<th>Belonging cluster</th>
<th>Year(s) belonging to the cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Rondônia, Amazônia, Roraima, Pará e Amapá</td>
<td>1</td>
<td>All years</td>
</tr>
<tr>
<td></td>
<td>Tocantins</td>
<td>1</td>
<td>2005 2006</td>
</tr>
<tr>
<td>Northeast</td>
<td>Maranhão, Piauí, Ceará, Paraíba, Pernambuco, Alagoas e Bahia</td>
<td>2</td>
<td>Todos os anos</td>
</tr>
<tr>
<td></td>
<td>Rio Grande do Norte</td>
<td>1</td>
<td>2003 2004 2006</td>
</tr>
<tr>
<td></td>
<td>Sergipe</td>
<td>1</td>
<td>2001 2002 2004 2005 2006</td>
</tr>
<tr>
<td>Southeast</td>
<td>Minas Gerais, Espírito Santo, Rio de Janeiro e São Paulo</td>
<td>1</td>
<td>All years</td>
</tr>
<tr>
<td>South</td>
<td>Paraná, Santa Catarina e Rio Grande do Sul</td>
<td>1</td>
<td>All years</td>
</tr>
<tr>
<td>Midwest</td>
<td>Mato Grosso do Sul</td>
<td>1</td>
<td>All years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>1992 1993</td>
</tr>
<tr>
<td>Federal District</td>
<td></td>
<td>1</td>
<td>All years</td>
</tr>
</tbody>
</table>
The causal mechanisms

It is known that the nature of redistributive policies that have greater scope are compiled at the federal level of government. Policies that have a strong impact on national accounts, economic stability, in shaping the labor market are the macro-economic policies that are centralized decisions in our federation. In addition, we also know that income inequality in Brazil is determined by the education variations found in our work force as shown by Langoni (1973). That is, high income disparities found in Brazil are generated "by the labor market from the heterogeneity of the workforce with respect to educational level, age, gender, activity sector and region of residence." However, as we already written above, one defends that this educational heterogeneity, which affects the revenues, is a consequence of political choices (Fishlow, 1972; Ferreira, 2007). Also, there is no disagreement about the central role of the federal government, for instance, we know that even with the whole process of decentralization of educational policies, fired from the constitutional determinations, this occurs under the Union coordination, that is, it is also part of the central government to determine the educational guidelines.

Given these considerations, the questioning of this work becomes even more prominent, if guidelines for redistributive policies are given by the central level of government, whether at the national level that we formulate macro-policies that make the labor market, then, what explains the enormous variety of inequality evolution patterns in both time in each state and among states? Why some states redistribute more than others?

Since the states are our unit of analysis, the relationship we seek between politics and income inequality is both direct and indirect. There are two mechanisms through which political factors at the state level will affect the redistribution of income: 1) they will influence through educational policies that will shape the human capital policies which, despite receiving guidance from the federal government, are the responsibility of states and municipalities, and 2) they will influence through policies that directly affect the labor market, in this case, there is considerable variation among the states for adhesion and for the efforts undertaken in professional qualification policies for the labor market. We start from the premise that the differences in wages are from the workers’ heterogeneity in regards to their productive features, including formal and professional education that act as mitigating or amplifying the wage dispersion (Ramos and Vieira, 2001; Ferreira, 2007). Ramos and Vieira conclude, in their work, that "among the causes of investigated wage dispersion, the workers’ heterogeneity, mainly in terms of education, is the one which stands out as the main factor responsible for income inequality in all years studied."

To reinforce their argument, Ramos and Vieira show various countries related research results, with the same approach to expose the education contribution to income inequality in each of these countries: Argentina, Brazil, Colombia, Costa Rica, Mexico, Peru, Uruguay, Venezuela and Latin America in general. The authors demonstrate that, except Uruguay and Argentina, education presents itself as the major factor in income distribution (Ramos and Vieira, 2001 p: 9).

Beyond formal education, we work with the hypothesis that the increased investment in professional qualification policies is directly related to the growth or drop in the informal economy. According to Ramos and Vieira, the informal labor market is one that contains a "type of insertion, notably in the form of remuneration, without a formal contract," and it is also “where young workers with low education level prevail, and, thus, to some extent their lower incomes are explained by these factors (besides the fact that the
informal economy tends to be more important in the poorest geographical regions)” (Ramos and Vieira, 2001). Additionally, Cêa suggests that the professional qualification is part of employment generation policies through a "mass qualification of the workforce strategy, aimed at developing skills and abilities to expand the workers’ employability” (Cêa, 2006). As stated by the author, “from 1995 to 2003, the Brazilian government, through the Ministry of Labor and Employment (MTE), implemented a policy to qualify workers in mass by putting into place the National Worker Qualification Plan (Planfor)” which, with the arrival of President Lula in 2003, was replaced by the National Training Plan (PNQ) (Cêa, 2006). To understand the extent of these actions reach, according to Cêa, from 1995 to 2002, about 20.7 million workers were affected by these policies (Cêa, 2006: 410).

For purposes of this paper, it is important to note that despite the general guidelines Planfor has indicated, it did not establish a single format for the qualification and professional requalification programs under the sub-national scope. According to Peixoto, under the states and municipalities’ scope, the Plan happened through adhesion and the states through the actions of their state labor secretariats2 (governed by CODEFAT3 Resolution 126) and state commissions and jobs4, had an important role in shaping these policies in the state and municipal scope. Still, according to Peixoto, “during this process, we can point out that the State Secretariats, as they implemented PLANFOR, also promoted changes in the activities developed since they were based on their strategic development plans, a fact which meant an autonomous process of implementation regarding key decisions to be made, respecting regional differences and needs.” Among the works that are important to understand the passage of Planfor to PNQ as well as their differences at the state level, there are two that stand out: a comparative analysis on these plans carried out by Peixoto (2008) in his thesis and Almeida’s dissertation which analyzes professional education government policies in Brazil (2003).

Thus, we see here that there are two mechanisms by which the state government policy determines the levels of income inequality. The diagram below illustrates the causal mechanisms through which political factors influence educational policy and the degree of informality in the labor market thus impacting on levels of income inequality in the states.

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2 “The State Departments of Labor played a strategic role in the articulation and implementation of PLANFOR states by pooling resources from the FAT with the local agencies of vocational education, especially those that were financed with public funds” (Peixoto, 2008)

3 "It is important to recall that Resolution 126 of CODEFAT defines the functions of the State Departments of Labor and Employment Municipal Commissions, where the former were responsible for the preparation and coordination of state plans that should be submitted to the Committee to endorse them” (Peixoto, 2008)

4 “The State Commissions job - and joint tripartite bodies, with representation from government, business and workers in each state - were responsible for the survey of local demands for qualification, as well as a work performed for monitoring the implementation of the courses offered.” (Peixoto , 2008)
In short, in the diagram, it is observed that two paths come up, by which the states political-institutional framework will affect income inequality: both by promoting human capital, that is, investment in education, as by investing in professional qualification policies. This way, it is assumed that the party system, as well as the political competition level in the states will be affecting both human capital formation (here indicated by the illiteracy rate) and the characteristics of the labor market such as the precariousness of the job posts, employment level and informality degree (here indicated by the informality degree). It is also assumed that the human capital will directly impact the population productivity which will determine the quality of entering the labor market.

The purpose of this study is to examine the hypothesis that the development (reduction or increase) in inequality, that is, the income redistribution pattern differences, will also be determined at the sub-national level through the combination of different factors. That is, our central hypothesis is that the political and institutional framework determines the income redistribution and the inequality reduction directly and indirectly depending on the well-being level of well-being set up through redistributive policies (Bradley et al, 2003; Kenwothy and Pontusson, 2005.)

The hypotheses, derived from it, are classic: parties geared towards the left of the ideological spectrum tend to show more effort on redistributive policies than parties to the right; competitive political arenas promote more efforts both in terms of social policy realization and redistributive policies, that is, environments with electoral competition show greater levels of uncertainty for the party elites. Finally, we understand that the legacy is very important for the income distribution understand and here it would be operating in two places: the greater the investment in education in previous administrations, the greater the actual level of human capital today, on the other hand, we can argue that Politics (or “previous politics”) can define the public power by means of the public agenda, conflict patterns among interest clusters, influence or change of formal rules, previous definition of resource allocation with greater or lower incremental capacity.
Methodology and models

The research aims to analyze data from state government administration between 1992 and 2006, the period after the re-democratization. The studied period allows a consideration of the decentralization process of tax functions, competences and resources for policy execution among federal entities provided by the 1988 Constitution. The Constitution was an institutional turning point as it introduces the concept of Social Security; turns social work policies into public policy, links social programs and benefits to the minimum wage, determines the supply of non-contributory benefits to needy groups, previously not attended, among other advances.

The analysis will cover the equivalent of four terms of these federal units. The observations for the Governor position, with 14 different parties present, are divided as follows: PMDB (23.7% - 20 seats), PSDB (22.2% - 19 seats), PFL (17.5% - 15 seats), PT (7.4% - 6 seats), PSB (8.9% - 8 seats), PDT (6.2% - 5 seats), Small right-wing (14.2% - 12 seats) (PTB, PPR, PDS, PPB6, PTR, PSC, PSL, PPS).

The table below shows the correlation coefficients between the explanatory variables and the Gini coefficient, all have significance at 1%.

<table>
<thead>
<tr>
<th>Table 1 - Explanatory variables and their correlation with the Gini Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political competition</td>
</tr>
<tr>
<td>Percentage of votes in the first round</td>
</tr>
<tr>
<td>Labor market precariousness indicator</td>
</tr>
<tr>
<td>Informality degree</td>
</tr>
<tr>
<td>Educational indicators</td>
</tr>
<tr>
<td>Illiteracy - 15 years or older</td>
</tr>
<tr>
<td>School attendance - 7 to 14 years old</td>
</tr>
<tr>
<td>Control variables</td>
</tr>
<tr>
<td>Sanitation</td>
</tr>
<tr>
<td>GDP per capita</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations.

The empirical analysis of income inequality will be done through time-series–cross-section regression (TSCS), since its objective is a comparative analysis, in an inter-temporal perspective, of the political impact on income distribution, on a state level. To

5 The time frame was determined by the labor market data availability - market informality degree and unemployment rate.
6 The PDS became the PPR and the PPR became PPB.
7 Tests were done also with Effective number of parties, but despite of the exactly the same correlation (-0.376), the performance on the models was worse than the Percentage of votes.
accomplish this analysis two statistical methods will be used: first, since we have a panel data, a method which corrects the standard errors in panel analysis and time series cross section is needed. Thus, the empirical analysis presented here is based on the discussion of Beck and Katz (1995) which suggests the use of the Prais-Winsten regression model with panel corrected standard error model (PCSE-AR1) that generates better estimated coefficients. This model is the most appropriate since it also corrects heteroscedasticity problems. To cover the causal mechanism advocated here and presented in diagram 1, three models will be analyzed: PSCE-AR1 that will also contain the fixed effect of states and the years studied: one using the illiteracy rate as the dependent variable indicator of the state educational conditions and, therefore, human capital; a second one using the informality degree of the labor market as the dependent variable and, finally, the third model that which will have the Gini Coefficient as the dependent variable. Following is the formalization of models:

Model 1
\[ Y_t = \beta_0 + \beta_1 \text{School attendance} - 7 to 14 years old - (\%)_t + \]

PT as the reference party
\[ \beta_2 \text{PMDB}_t + \beta_3 \text{PSDB}_t + \beta_4 \text{PFL}_t + \beta_5 \text{PDT}_t + \beta_6 \text{PSB}_t + \beta_7 \text{Small Right-wing Parties}_t + \]
\[ \beta_8 \text{First round votes} (\%)_t + \]

Control Variables
\[ \beta_9 \text{Sanitation} (\%)_t + \]
\[ \beta_{10} \text{GDP per capita}_t + \]

Temporal fixed effect: 1992 as the reference year
\[ \beta_{11} \text{a} 22 (1993 ... 2006) + \]
\[ \eta_i + \mu_t \]

Model 2
\[ Y_t = \beta_0 + \beta_1 \text{Illiteracy rate} - 15 years or older}_t + \]
\[ \beta_2 \text{School attendance} - 7 to 14 years old - (\%)_t + \]

PT as the reference party
\[ \beta_3 \text{PMDB}_t + \beta_4 \text{PSDB}_t + \beta_5 \text{PFL}_t + \beta_6 \text{PDT}_t + \beta_7 \text{PSB}_t + \beta_8 \text{Small Right-wing Parties}_t + \]
\[ \beta_9 \text{First round votes} (\%)_t + \]

Control Variables
\[ \beta_{10} \text{Sanitation} (\%)_t + \]
\[ \beta_{11} \text{GDP per capita}_t + \]

Temporal fixed effect: 1992 as the reference year

As noted by Sátyro (2008), "The AR1 specification assumes the existence of an autocorrelation of order 1, and that autocorrelation is defined as the correlation of the values of a variable at time t with the values, of this same variable, lagged. This is a specific method to treat auto-regression errors, that is, when there is dependency among the studied the groups. The application of this technique is necessary when, to analyze a certain phenomenon in period "t", the knowledge of the error level that occurred in period "t – 1" is assumed, as well as its error in period "t". This way, there is an auto-regressive process that briefly assumes the existence and corrects the panels and TSCSs autocorrelation (Beck and Katz, 1995)."
\[ \beta_{12a\,23} (1993 \ldots 2006) + \eta_i + \mu_i \]

**Model 3**

\[ V_i (\text{Gini Coefficient}_i) = \beta_{0i} + \beta_1 (\text{Degree of informality}) + \]

PT as the reference party

\[ \beta_2 (\text{PMDB}_i) + \beta_3 (\text{PSDB}_i) + \beta_4 (\text{PFL}_i) + \beta_5 (\text{PDT}_i) + \beta_6 (\text{PSB}_i) + \beta_7 (\text{Small Right-wing Parties}_i) + \beta_8 (\text{First round votes} \%)_i + \]

Control Variables

\[ \beta_9 (\text{Sanitation} \%) + \beta_{10} (\text{GDP per capita}_i) + \]

Temporal fixed effect: 1992 as the reference year

\[ \beta_{11} a_{22} (1993 \ldots 2006) + \eta_i + \mu_i \]

where \( i \) represents the states, \( i = 1,\ldots, N \), t years

\( \gamma_i \) is the dependent variable (Gini coefficient as a proxy for income inequality) on the \( i \)th Brazilian state in the \( t \)th year,

\( \beta_{nit} \) is the \( n \)th parameter of the \( i \)th Brazilian state in the \( t \)th year, or at the intercept;

where \( \eta_i \) is the non observed effect of each state;

where \( \mu_i \) is the error term that follows an order 1 auto-correlation process, AR(1), that is, where it is assumed that \( \mu_i \) is hetereocedastic e correlated among panels.

On the table below, the three models are presented. Important to note that the Federal District was excluded because it was an outlier.

### Table 2 - PCSE-AR1 Models

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \gamma_i = \text{Illiteracy Rate} )</td>
<td>( \gamma_i = \text{Informality Degree} )</td>
<td>( \gamma_i = \text{Gini Coefficient} )</td>
</tr>
<tr>
<td>( \beta )</td>
<td>( \beta )</td>
<td>( \beta )</td>
</tr>
<tr>
<td>( \beta_0 ) (Constant)</td>
<td>78.025***</td>
<td>150.03***</td>
</tr>
<tr>
<td>( \beta_1 )</td>
<td>10.96</td>
<td>10.0</td>
</tr>
<tr>
<td>( \beta_2 ) (Informality degree)</td>
<td>0.412***</td>
<td>4.89</td>
</tr>
<tr>
<td>( \beta_3 ) (School Attendance)</td>
<td>0.577***</td>
<td>5.49</td>
</tr>
<tr>
<td>( \beta_4 ) (First Round Votes)</td>
<td>-0.164***</td>
<td>-2.41</td>
</tr>
<tr>
<td>( \beta_5 ) (PMDB)</td>
<td>0.423</td>
<td>0.99</td>
</tr>
<tr>
<td>( \beta_6 ) (PSDB)</td>
<td>0.334</td>
<td>0.77</td>
</tr>
<tr>
<td>( \beta_7 ) (PFL)</td>
<td>1.03**</td>
<td>2.14</td>
</tr>
<tr>
<td>( \beta_8 ) (PPS)</td>
<td>0.285</td>
<td>0.54</td>
</tr>
<tr>
<td>( \beta_9 ) (PDT)</td>
<td>0.983*</td>
<td>1.71</td>
</tr>
<tr>
<td>( \beta_{10} ) (PSB)</td>
<td>1.84***</td>
<td>3.01</td>
</tr>
<tr>
<td>( \beta_{11} ) (Small Right-Wing Parties)</td>
<td>-0.329</td>
<td>-0.65</td>
</tr>
<tr>
<td>( \beta_{12} ) (First Round Votes)</td>
<td>0.014*</td>
<td>-0.06</td>
</tr>
<tr>
<td>( \beta_{13} ) (GDP per capita)</td>
<td>-0.658***</td>
<td>-6.63</td>
</tr>
<tr>
<td>( \beta_{14} ) (Sanitation)</td>
<td>-9.677***</td>
<td>-5.22</td>
</tr>
</tbody>
</table>

Omitted

Omitted

Omitted

Omitted
Findings

The analysis of the three presented models allows us to observe that the causal mechanisms here defended occur in practice, but the direction of effects does not always happen as in theory. As suggested in this study, the evidence shows that there is an effect of politics made at the state level with both the illiteracy rate, and the informality degree in the labor market and which in its turn, affects the states’ income inequality levels. That is, it confirms the central hypothesis defended here that the state politics impacts on income distribution. As suggested, we can observe that both the attendance and the rate of households served by basic sanitation (sewage) affect the illiteracy rate used here as an indicator of available quality human capital for the labor market. Then, we observe how these indicators of human capital (illiteracy rate and school attendance) affects the level of informality in the labor market, an expected effect according to the pertinent literature (Ramos and Vieira, 2001; Ferreira, 2007).

We also observe that the presented degree of informality in the labor market was statistically significant and a positive sign as expected. The result shows that the informality degree of the labor market indicates the precariousness of jobs has an impact on the income distribution level. For each percentage point more in the informality degree in a given state, there will be an increase of 0.002 percentage point in the Gini Coefficient. The more informal the labor market is, the greater the income inequality in that place, these results corroborate the classical view that the informal sector of the labor market provides precarious quality jobs leaving workers with no social protection guarantees and with unequal income levels. The evidence shows that the informal labor market affects inequality in the states, and, it is interesting to note that the education and sanitation variables lose their effect on the last model showing the relevance of indirect causal mechanisms here defended. However, not all results support our arguments. Let's see.

**Political parties**

Regarding political parties, it was observed that they do produce rather significant effect on income distribution in the states. But, as suggested, they first affect illiteracy rates and the informality degree. The first model shows that between 1992 and 2006, PPS, PSB and then PFL (now DEM) present, in their state governments, higher illiteracy rates than the PT governments. Even stronger were the differences showed between the parties in regards to the labor market informality degree: in this case, PSDB and PPS showed significantly lower levels of informality than the PT ratios, which are considerably high. On average, PSDB and PPS showed, respectively, a -1.50 and -2.90 percentage points than PT in the informality degree.
By analyzing the third model, evidences are observed that PMDB, PSDB, PFL and PSB show statistically significant lower average compared to PT governments, during the period from 1992 to 2006, meaning that their governments had lower inequality levels than those of PT. That is, these evidences suggest an inverse direction for the hypothesis advocated here: PMDB, PSDB, PFL and PSB governments present Gini averages significantly lower than those of PT, keeping other factors constant and controlling the fixed effects states and time. This result can be read in several ways: first, it causes surprise for its unexpected direction, since these parties have more redistributive state policies than the PT governments, and second inference, more importantly for the purposes of this study, is to confirm that the Politics at the state level does matter for the purposes of income redistribution, that is, it is possible to infer that educational and qualification for the job market policies held at the state level will leverage the effects of the redistributive policies implemented by the federal government, and, beyond that, it confirms that the political factors had determined these two process.

In order to picture these presented coefficients dimension, it is legitimate to think that every move made by academics, researchers, politicians and others interested in the reduction of income inequality in Brazil takes place towards understanding the determinants of the 0.0289 Gini Coefficient decline from 2003 to 2007 (see Hoffman, 2009: table 6). Based on this reference, there is a notion of the magnitude of the differences between the parties and the PT: PSB stands out with -0.017 (at 5%), followed by PFL with -0.013 (at 5%), and finally, PMDB and PSDB with -0.008 with a 10% confidence interval, all other factors held constant. Since there is a fixed effect control of the governed states, it is expected that the state features of each party are controlled. It permits to infer that the state Politics, then are the policies, is substantially different from the Politics at the federal level. If at the national level, we see that PT was the forerunner of redistributive income policies based on national solidarity advocated in the 1988 Constitution, this does not happen in the same way in the states, which suggests that there is parties’ state political dynamic that differs from the national level.

This result proves especially interesting if one considers the period analyzed. In a previous study, Sátyro (2008) does not find any significant effect of parties when analyzing social policies provision in the states from 1986 to 2006, using social spending as a proportion of total budget expenses. Sátyro’s results corroborate the international findings which suggests the loss of explanatory power of the parties facing the increase in institutional constraints and veto points from the second half of the 90’s (Kittel and Obinger, 2001; Armigeon et al., 2001; Castles, 2001). According Sátyro, the Cardoso’s tax policies had constrained and homogenized the governmental expenditures at the state level and, this way, the parties lost its explanatory power for the social policies provision. This means that the parties have similar efforts regarding the amount of social spending.

Well, this analysis has a time frame that shows the exact moment that these constrains are being imposed by central government. Thus, it can be affirmed both that the state politics do matter to income redistribution and that the differences observed in relation to PT are very significant since they appear despite the restrictions regarding expenditures. They appear at a time when everyone is being forced to spend about the same

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9 It is important to note that similar results are found even without the introduction of time series controls and fixed effects of the states which gives a sense of stability and robustness of the model and, therefore, the relationships shown here.
amount. This allows us to infer that, regardless of the coefficients magnitude presented by the parties, they are very significant as they clearly point out to a differentiated effort in the spending type among the parties at the state level. Reinforcing the main idea of the argument, politics at the state level does make a difference in building a more egalitarian society.

**Political competition**

Political competition also had its significance highlighted in this analysis with results showing that it has effects on redistributive policies. The single candidate’s concentration of votes in the first round has effect on educational policies indicator of human capital investment as well as directly on redistributing income. That is, it shows a positive sign as expected and it is 10% and 5% significant, respectively. However, the impact magnitude on income inequality is low with a coefficient of 0.0004 at a confidence level of 5%, improving its performance when it comes to building human capital, in this case, we saw that, on average, to each percentage point of concentrated votes in the first round for a single candidate there is an increase of 0.014 percentage point in the illiteracy rate. The positive sign indicates the right move in the causal direction, that is, the more concentrated the votes for a single candidate in the states governments’ first round, that indicates low political competition, the illiteracy is higher, and therefore a great income inequality is observed. Finally, it can be observed that political competition was not significant in the model that analyzes the informality degree.

**Conclusions**

A research paper may have relevance based on two criteria: first, theoretical-academic, considered as a contribution to the explanation of social and political systems aspects, and the second, the importance for the practical life in the light of social, political and economic consequences of the object of the research (King, Keohane and Verba, 1994). This work aims to fill in at least two gaps in the Brazilian Political Science: one, in regards to a deepening of the differences among the states on the social protection evolution and its consequences on the income inequality conformation, and another one that refers to the political-institutional framework responsibility in this process.

Most recent studies on inequality in Brazil focus on the national level and are restricted to economic or labor market related determinants over income distribution and redistribution processes or income transfer programs. Unfortunately, we can say without fear that there is very little production that specifically relies on to the relationship between policy indicators and income inequality. We know that even in international political science, there is relatively little production focusing on the state level of government. Existing studies, mostly performed comparative analysis among countries, or perform specific case studies, but rarely emphasize the comparison among sub-national units, which leads to an analytical gap on this level of analysis. Finally, the theoretical and empirical limitations presented by studies which list political and inequality factors in general justify a more detailed analysis on the topic.

The results suggest three conclusions in respect to the hypotheses worked: first, it confirms our central hypothesis – the politics from the state level do matter to income inequality, direct and indirectly; secondly, political competition affects both the educational
level and, consequently, the human capital Standards and the income inequality; third, that contrary to our expectations, centre and right parties tended to invest more in redistributive policies in this analyzed period. That is, despite of the undeniable importance of policies coming from the federal government redistributive policies arena, the parties at the state government level produce different levels of redistributive policies. We saw that the parties do differ in policies implementation and, not necessarily, PT has a tendency to implement redistributive policies. What we saw is that, keeping other factors constant, at the state level, other parties have promoted more equality than the PT governments. That shows us that the parties will increasingly have to choose governance strategies that distinguish them at the state level if they want to build a competitive and programmatic party system.

It should be emphasized that the effect of political parties and political competition on redistributive policies in the states appear (and they are strongly shown in the tests) even in the face of restrictive fiscal policies imposed by the federal government during the period here analyzed, where we can cite the example of the Fiscal Responsibility Law (LRF) and the Budget Guidelines Law - (LDO), the money associations and competences determination of states and municipalities during this period. Even when parties in states do not differ much more in social spending, as shown by Sátyro (2008), there is still the option to differentiate itself by type of expenditure made.

That is, the political characteristics of the state party system impact on income inequality, this way, they are important to build a more egalitarian society. This reinforces the importance of the state as federative government entity that can make a difference in the production of social welfare and protection of the Brazilian population. The findings force us to deepen our research agendas in this area even further. It first shows strong evidence that the academic common sense is wrong, and that despite its undoubted strength of the federal government public policy development and its redistributive role in this regard, it is also possible to create them at sub-national levels.

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