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## Economic Inequality and Political Power: A Comparative Analysis of Argentina and Brazil

James K. Galbraith\*

Laura T. Spagnolo<sup>†</sup>

Sergio Pinto<sup>‡</sup>

\*University of Texas at Austin, Galbraith@mail.utexas.edu

<sup>†</sup>University of Texas at Austin, LauraSpagnolo@mail.utexas.edu

<sup>‡</sup>Getulio Vargas Foundation, slmpinto@gvmail.br

# Economic Inequality and Political Power: A Comparative Analysis of Argentina and Brazil\*

James K. Galbraith, Laura T. Spagnolo, and Sergio Pinto

## Abstract

In this paper we analyze the distribution of pay and changing trends of inequality in Argentina and Brazil, illuminating the specific winners and losers, by region and by economic activity (sector). In both countries we find that inequality rose in the neoliberal period, but that it declined following the severe crises of neoliberal policy, in 1993 in Brazil and in late 2001 in Argentina. This period of post-neoliberalism is characterized in both countries by a decline in the economic weight of the financial sector and a recovery of the position of the civil service. In both countries, the rise in inequality leading to the crisis produced an increase in the relative position of the major metropolitan centers; this positional advantage also declined modestly in the post-crisis recovery period.

**KEYWORDS:** Argentina, Brazil, economic inequality

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## I. Introduction

This paper compares the evolution of pay inequality in Argentina and Brazil from the early 1990s through 2005, covering the period of high neoliberalism in both countries, the respective crises and their aftermath, which in both countries involved a retreat from neoliberal globalization. It shows specifically how different economic sectors, and by extension the workers within those sectors, were affected by the structural adjustments that occurred in Brazil and Argentina.

The analysis is accomplished by decomposing Theil's T statistic in several ways. First, we show whether an underlying cause of an increase or decrease in pay inequality is predominantly across or within provinces and/or economic sectors. Secondly, we show how the different sectors, and also the different regions contributed to changes in pay inequality from year to year. Finally, we decompose Theil's T into parts attributable to changes in relative incomes, on one hand, and changes in population or employment structures, on the other. These income and population effects show the character of the changing contributions of each sector and region to inequality, by which the "winners" and "losers" can be identified. Behind these outcomes are the policies that favor one sector (and/or region) over another, protecting wage earners in certain sectors (and/or regions), while putting them in jeopardy in other regions.

We base the analysis on entirely novel data sets for both countries, permitting us to measure changes in inequality year to year and even month to month to capture in fine detail the contribution to inequality of the changing position of every major economic sector and every geographic region (provinces and states). This approach permits investigation into the relationship between public policies, the distribution of power, and the distribution of income in these countries to proceed with a foundation in fact not previously available. The data clearly reflect the changing position of the most influential economic sectors, including the state, the banks, the trade unions and the energy producers.

Thus we show how increasing inequality in Argentina and specifically the concentration of income in the financial sector and in Buenos Aires city preceded the economic crisis of December 2001 and how inequality began to decrease as these factors were reversed post crisis. Brazil, which entered the period with one of the most unequal economies in the world, had already stabilized its distribution of pay with the Plan Real in the first part of the 1990s. This achievement was followed by decreases in pay inequality towards the end of the decade. A marked feature of this trend was a decline in incomes earned in the financial sector, and a gradual increase in the employment and wages of the civil service. By these measures, inequality in Brazil now appears to have declined to levels not seen since before the deep crisis of the early 1980s.

The common characteristic in both countries is that the financial sector is the biggest contributor to economic inequality; the period leading up to the crisis is characterized by an increase in the weight of this sector, and a corresponding decline in that weight as the crisis passes and a more normal situation returns. What is different is the timing. In Brazil it began to happen in the mid-1990s, while in Argentina it occurred only after the crisis in December, 2001.

An analysis of just two countries cannot bear heavily on the large debate over world inequality, for instance the claim by Sala-i-Martin (2006) that “convergence, period” has been the worldwide consequence of neoliberal globalization. Galbraith and Kum (2005) criticize Sala-i-Martin’s (earlier and continuing) reliance on survey data assembled by the World Bank (Deininger and Squire, 1996); they present a dense, internally consistent global inequality data-set that uses measured pay inequality as an instrument to identify inconsistencies and to fill in many blank spots in the income inequality record. The present work shows that further measurement gains are possible through the use of finely-detailed national data sources. We suggest that claims made on the basis of Deininger and Squire (or the more recent UNU-WIDER data set, based on similar sources) cannot be regarded as definitive, and that researchers in this area should go “back-to-basics” and get the data right before coming to final conclusions.

The next section briefly discusses the recent political and economic context of both countries under the period of study. The third section discusses the methodology and the fourth presents the data used. The fifth and sixth sections present an analysis of the evolution of pay inequality by economic sectors and regions using the between-group component of Theil’s T in each country. The final section presents some conclusions and some questions for further research.

## **II. Political and Economic Context**

Argentina and Brazil are the two largest and most populous countries in South America, covering between them 63.3 percent of the continent, 60.2 percent of its population and almost 70 percent of its GDP. Both alternated between military and democratic regimes for much of the twentieth century; following coups and dirty wars in the 1970s, democracy was reinstated in 1983 in Argentina and in 1984 in Brazil. Both are federations, and both have presidential as opposed to parliamentary systems, characterized by conflict between the executive, the legislature and the courts. Economically, both countries moved in parallel from heavy reliance on agro-exports, through a phase of import substitution, and toward an opening along neoliberal lines. Both have seen massive privatization of public utilities, trade and financial deregulation, equal treatment of local and foreign capital, deregulation of domestic markets, tax reforms, labor reforms and the creation of Mercosur, the Southern Common Market.

In the 1990s, new economic strategies included aggressive measures to control inflation, necessary because both countries had ended the 1980s with hyperinflation. Under Carlos Menem, Argentina adopted the “Convertibility Plan.” The Argentine peso was fixed to the dollar and a new legal framework governing money creation was put in place (De la Torre, Yeyaty and Schmukler, 2002). Brazil implemented the “Plan Real” starting in 1994, under the government of Itamar Franco, with future President Fernando Henrique Cardoso as Minister of Finance. The Plan Real also pegged the Real to the dollar, but with some room to float; it was accompanied by the introduction of further market reforms.

Notwithstanding these similarities, the experience of economic inequality in the two countries is quite different. Brazil has long been one of the most unequal countries in the world. Argentina used to be one of the most egalitarian countries in Latin America, but this status deteriorated significantly over the last decade, with economic inequality increasing at a higher rate in Argentina than anywhere else in the region (Gasparini, 1999, p. 60).

In the late 1990s, the rigidity of the Argentine Convertibility Plan made Argentina more vulnerable to shocks, which duly arrived with the Asian crisis of 1997 and the Russian crisis of 1998. Brazil responded flexibly to the reduced availability of foreign capital provoked by the Russian crisis, devalued the Real, and survived the shock. Argentina chose not to devalue, maintaining convertibility in the face of capital flight. This strategy failed in 2001, leading the Argentine economy and currency to collapse. There followed a period of political tumult, leading ultimately to the presidency of Nestor Kirchner, who stabilized the Argentine economy by defaulting on the debt, and built a recovery based partly on a repudiation of neoliberal doctrine. Brazil, on the other hand, experienced a smooth transition from Cardoso to the presidency of Luiz Inácio Lula da Silva (Lula) of the Workers’ Party, and despite his left-wing roots Lula’s government has departed little from the mild reformism and outward orthodoxy of Cardoso. Thus by mid-decade the legacy of chaos placed Argentina close to the emerging anti-neoliberal governments of Venezuela, Uruguay, Ecuador, and Nicaragua, while Brazil remained somewhat closer to the centrist camp, which includes Chile and Costa Rica.

And yet, despite divergent political outcomes, the recent evolution of inequality in the two countries shows remarkable patterns of similarity, departing from the sorry experience of the 1980s and 1990s. In both Argentina and Brazil, economic inequality declined following the crisis. And in both, the basic distributive patterns underlying this decline are similar: a sharp decline in the share of income passing through the hands of the financial sector, a modest recovery in the share passing through the state sector, and a moderate decline in the relative wealth of the major urban centers as compared to the hinterlands. In

other words, declining inequality appears directly linked to a weakening in the political forces that supported neoliberal globalization in the first place.

### **III. Method for Measuring Inequality**

Several studies have examined trends in income inequality in Argentina and Brazil. Most rely on data derived from household surveys, with inequality measured using the familiar Gini coefficient. Here we present a different measure of inequality; namely, the between-groups component of Theil's T statistic, a generalized-entropy-based measure, especially useful for calculating inequality measures when the underlying data are presented in grouped form. In particular, with data that are readily available for both Argentina and Brazil, this approach permits us to measure the contribution of each sector and of each geographic region to increases or decreases in overall pay inequality in the economy.

Theil's T for the population (T) is made up of two components, a between-groups component ( $T'_g$ ) and a within-groups component ( $T^w_g$ ):

$$T = T'_g + T^w_g \quad (1)$$

The between group component of Theil's T can be written:

$$T'_g = \sum_{i=1}^m \left\{ \left( \frac{P_i}{P} \right) * \left( \frac{y_i}{\mu} \right) * \ln \left( \frac{y_i}{\mu} \right) \right\} \quad (2)$$

where  $i$  indexes the groups,  $P_i$  is the population of group I, P is the total population,  $y_i$  is the average income in group I, and  $\mu$  is the average income across the entire population.

What counts as "between" and what counts as "within" groups depends on the structure of the data. In our case, since individual wages and salaries are not recorded, we cannot calculate a within-groups component down to the micro level. Our data are organized by sectors, presented within regions, so that the elementary unit of observation is the "region-sector cell." We can therefore compute a "within-regions" component of inequality using the contribution of each sector to regional inequality, and a "between-regions" component measured across the average incomes of each region. It has been shown that under general conditions these measures taken together, closely track the evolution of the larger, but unobserved, T-statistic, since large parts of the variation in overall inequality are invariably due to changes occurring between regions and sectors. (Conceição, Galbraith and Bradford 2001.)

The use of semi-aggregated data to calculate the movements of Theil's  $T$  in this way provides significant advantages over other inequality measures in the coverage, resolution, breadth and reliability of the data. Other inequality statistics are typically based on the information derived from household surveys. These data present many problems, including a dearth of rural data; non-response and invalid answers; misreporting; and periodic methodological changes in the surveys' design (Gasparini, 2004, p.3-9). The semi-aggregated data on which our calculations are based come from census rather than sample information, and they represent the work product of consistent and routine reporting by employers to government agencies. The data are not flawless, but they are likely to be consistent through time, and therefore changes in the measure of inequality from one period to the next are highly likely to be reflective of *bona fide* underlying events.

The method therefore permits us to make low-cost, accurate measures of trends in inequality. Not only that, but it is also possible to capture the contribution of each economic sector and region to pay inequality, by disaggregating the inequality measure into its constituent elements. The contribution of each element--which may be a sector, region, or a sector within a region--to overall inequality can be viewed by graphing the individual Theil elements in stacked bar format. This information can be read easily to determine which sectors and regions gained and lost relative position from year to year.

Finally, it is possible to decompose the change of inequality between two time periods into two effects: the income effect, which is due to changes in relative income, and the population effect, which is due to changes in the relative number of people employed. This decomposition allows one to determine whether gains or losses from one year to the next, or within any given sector or region, are due to changes in average salaries or in the number of people employed.

To calculate the population and income effects it is necessary to work with two formulae. The first shows that the differences in inequality from period 1 to period 2 are divisible into an income effect, which is computed by subtracting from the inequality measure for the second year a measure of what inequality would have been that year had there been no changes in the structure of employment. The remainder of any changes must therefore be due to changes in employment structure. The "fixed-weight Theil" is given by the formula below:

$$T^f = \sum_{i=1}^m \frac{\bar{R}_i}{R_1} * \frac{\bar{Y}_i^2}{\bar{Y}^2} * \ln \left( \frac{\bar{Y}_i^2}{\bar{Y}^2} \right)$$

The difference between the current value and the fixed Theil measures variation of the wage structure alone, on the assumption that no changes in the population weights had occurred.

#### **IV. Data**

Data for Argentina come from the monthly tax filings of private entities at the Federal Administration of Public Revenues (Administración Federal de Ingresos Públicos, or AFIP). In these filings, each employer declares his or her employees in order to commit the payment of contributions to social security within the Integrated Retirement and Pension System (Sistema Integrado de Jubilaciones y Pensiones, or SIJP). The SIJP processes data on approximately 5 million salaried jobs from the entire country and covers almost every economic sector. These salary and employment data allow for calculation of the monthly Theil's T by 22 economic sectors and by twenty three provinces plus the City of Buenos Aires.

Data are available beginning in 1994, because that was the year in which the reform of the Argentine pension system went into effect. Affiliation with the SIJP is mandatory for all workers over age 18 who have the following employment status: a) self-employed, b) employed in the private sector, or c) employed in the public sector, including by the national government or the provinces that participate in the SIJP. Military personnel, security forces, police staff and workers under 18 are excluded from the system (Law 24.241: Creation of the Integrated System of Retirement and Pension Benefits, 1993).

Data for Brazil are published by the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística, or IBGE). The data are obtained from the Cadastro Central de Empresas (Central Register of Enterprises) which is based on the economic surveys of IBGE. This database contains information about persons employed and wages earned by economic sectors, disaggregated according to the Brazilian Industry Classification (Classificação Nacional de Atividades Econômicas, or CNAE) by region, state and municipality.

#### **V. Pay Inequality in Argentina 1994-2005**

The turn of the millennium found Argentina with a radically transformed social and economic structure that, in contrast to the privileged position it enjoyed until the mid 1970s, became a paradigmatic case of economic failure. Failure was due, largely, to the ineffective, or misguided, implementation of market reforms in the 1990s. In order to analyze the social situation in Argentina between 1994 and 2005 accurately, it is essential to note that inequality problems are not the direct result of economic crisis, but rather intrinsic problems stemming from the economic strategy adopted in Argentina in the early 1990s. They are symptomatic of the causes of crisis rather than of the crisis itself.

The following calculations will evaluate these different components of pay inequality during the period of study: (a) the general trend in pay inequality; (b) a

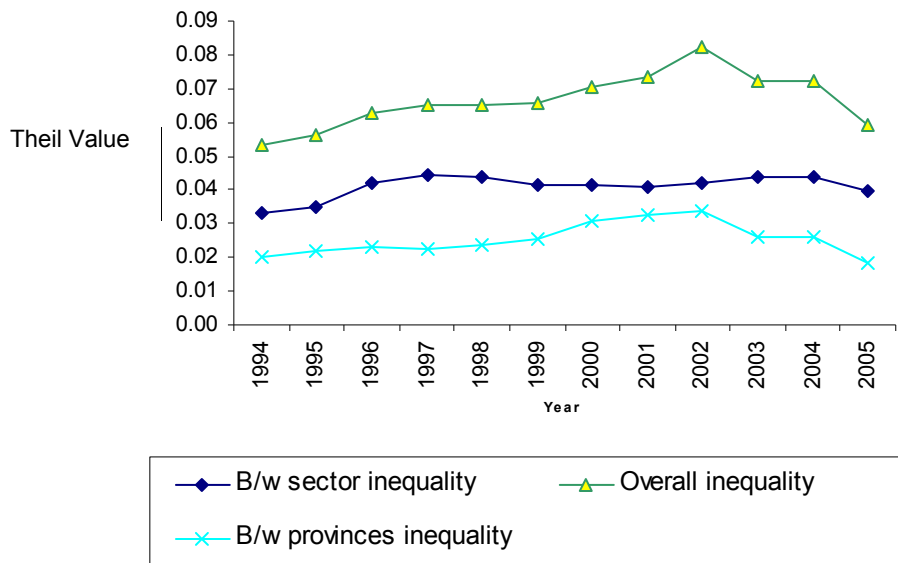


cross-comparison component to evaluate movements in pay inequality across (and within) provinces and sectors (c) a component to evaluate changes in the contribution of each geographic region to overall pay inequality; and (d) a component to evaluate changes in the contribution of each economic sector to overall pay inequality.

In the period of study, the analysis shows that the services sector increased its relative position in terms of employment and wages. An analysis by region shows that those provinces with abundant natural resources (petroleum) or with a significant service sector (financial above all) gained in relative terms.

Figure 1 shows the values obtained for overall inequality by sector and region. Moreover, to further investigate the nature of the underlying causes of pay inequality in Argentina, we make use of Theil index decomposition properties to show pay inequality across the economic sectors and across the provinces.

**Figure 1: Pay Inequality between Provinces and Economic Sectors in Argentina**

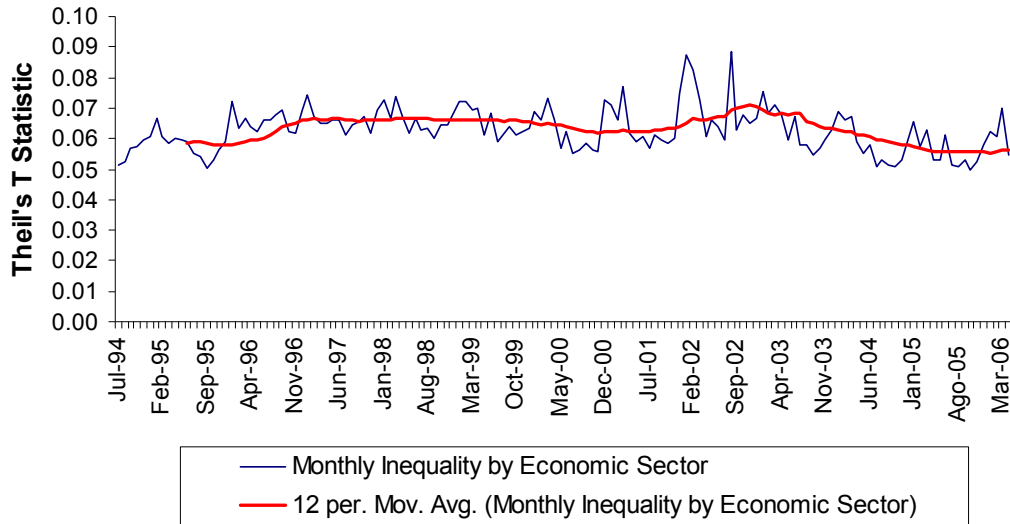


Source: Authors' calculations based on SIJP data.

This period corresponds to the highest degree of inequality in the country's recorded history. We can divide the reference period into four stages. During the first stage, from 1994 to mid-1997, the inequality indicators increased. In the second stage, from mid-1997 to mid-1998, inequality remained almost stable: The

third stage, from mid 1998 to 2002, was dominated by a deep economic crisis and substantial increases in inequality. During the last stage, inequality has been decreasing since 2002, although pay inequality remains high.

**Figure 2: Pay Inequality by Economic Sector in Argentina**



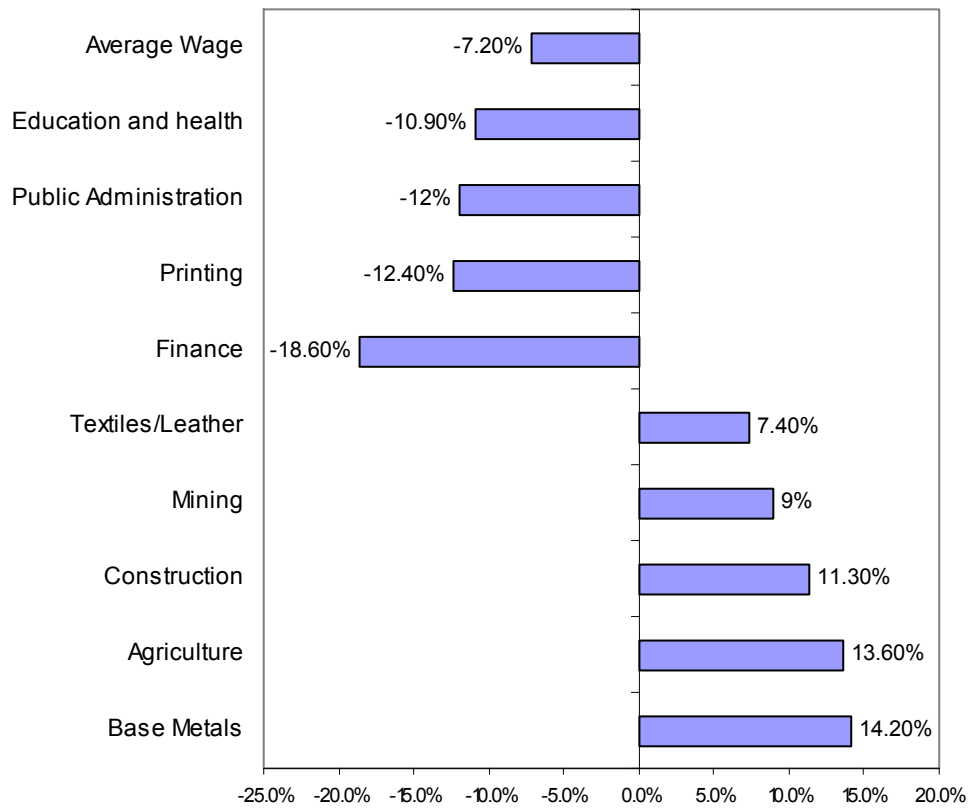
Source: Authors' calculations based on SIJP data.

Figure 2 shows pay inequality by economic sector. During the period of the Convertibility Plan (1991-2002), there was little change in salary levels; adjustments in the labor market mainly affected the level of employment. There is a sharp rise toward and through the point of crisis, due mainly to declining middle-income employment. After the devaluation in 2002, Theil values follow an irregular but declining pattern. This trend is explained by three factors: (a) the improvement in the economic activity of the primary sector as a result of the change in relative prices after the devaluation and the increases in the prices of Argentina's main exported commodities, (b) the decrease in the activity level of the financial sector after the economic crisis (December 2001), and (c) government policies that implemented increases in the salary levels of different sectors. These increases in salaries did not reflect improvement in the real well-being of different sectors because of an inflation rate that was much higher than for what the salary increases could compensate; nevertheless, they had an effect on relative incomes.

After the devaluation, as shown in Figure 3, the growth of wages of certain sectors--basic metals, agriculture, construction, mining, and

textiles/leather—exceeded the inflation rate. In contrast, the growth of wages in finance, printing, public administration, health and education sectors was below the inflation rate. Since some sectors with exceptionally low wages, including agriculture, construction, and textiles, gained relatively to the others as well as in real terms, inequality in the overall wage structure declined after the crisis.<sup>1</sup>

**Figure 3: Real Wage Variation since Devaluation (Nov. 2001/April 2005)**



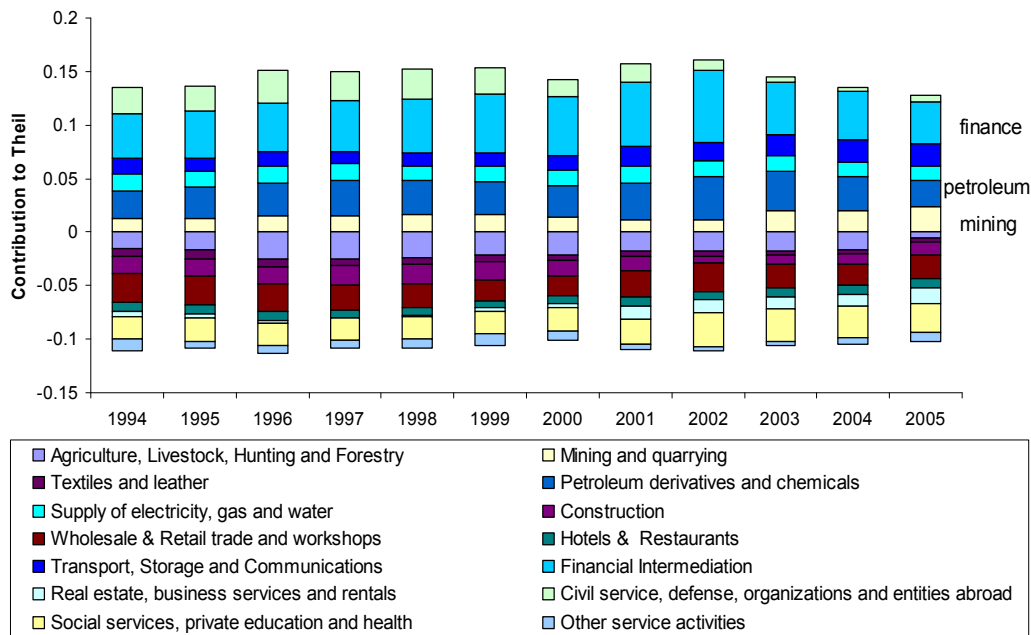
Source: Ministry of Economy published by Clarin, June 19, 2005.

<sup>1</sup> Clarin, 19 June 2005, p. 14.

### Contribution by Sector

Twenty-two Argentine economic sectors were considered in the analysis of sectoral contributions to inequality. Those sectors that contributed the most to increasing inequality and those that were the hardest hit are included in the following stack-bar graph.

**Figure 4: Contribution to Overall Inequality by Economic Sector in Argentina**



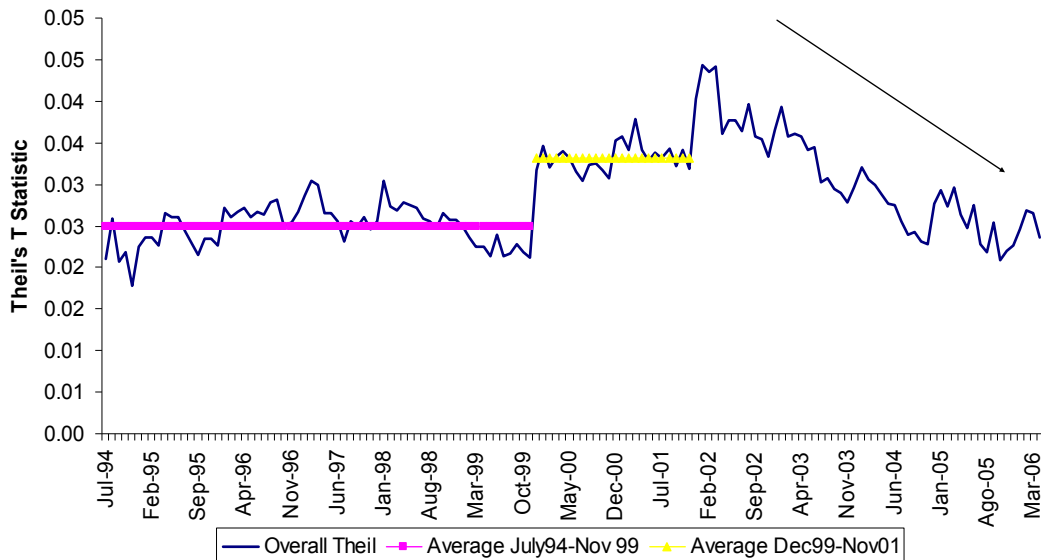
Source: Authors' calculations based on SIJP data.

During the period under study (1994-2005), six economic sectors with incomes above the average contribute the largest amounts to pay inequality in Argentina: finance; petroleum; mining; transport, storage and communications; utilities; and the civil service. Of these, the financial and petroleum sectors contributed the most to the increase in inequality during these years. On the other hand, among sectors with income below the average (and a position in the diagram below the zero line) those with the largest weight in determining inequality were agriculture, livestock, hunting and forestry; wholesale and retail trade; and social services, private education and health.

The December 2001 financial crisis and the January 2002 devaluation brought about changes in the relative position of some sectors. Three sectors with above average incomes – finance, petroleum and the civil service – lost relative position. On the contrary, two sectors with above average incomes improved their relative position, either by increasing their relative income position or by recovery of employment. These are mining and utilities.

### Increasing Inequality among Regions

**Figure 5: Inequality by Region in Argentina**



Source: Authors' calculations based on SIJP data.

Figure 5 shows the movement of pay inequality by province between 1994 and 2005. Three different trends in pay inequality emerge. The first occurred between July 1994 and November 1999, and was characterized by relatively constant inequality levels. This pattern changed from November 1999 through November 2002, when inequality increased mainly due to the relative enrichment of Buenos Aires City. Argentina's economy was by now already in recession, and the relatively stronger performance of the services sector, particularly finance, in relation to the goods-producing sector explains why incomes in Buenos Aires

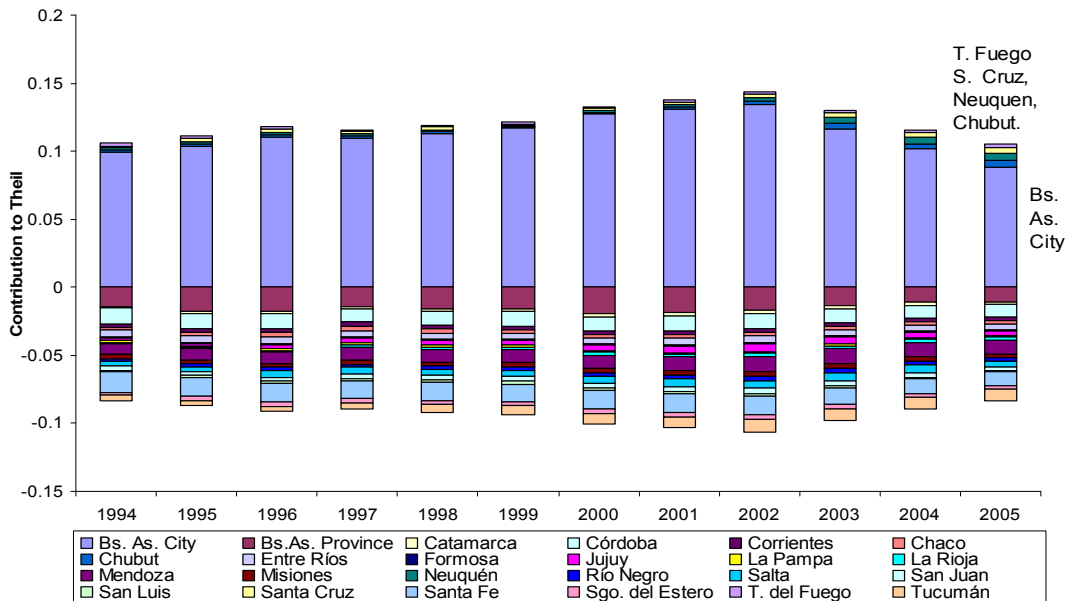
City held up better than those in other provinces (GDP Report from Buenos Aires City, 2003). The third trend, begins in the middle of 2002 and has a downward trajectory. This has two primary explanations. On the one hand, the contribution of Buenos Aires City to overall inequality decreased, because the total income in the City decreased. This happened specifically because financial services are concentrated there; approximately 78 percent of the aggregate value of the finance sector, the sector most affected by the economic crisis in December 2001, is generated in Buenos Aires City. During 2002, the activity level in the finance sector decreased by 18.2 percent in Buenos Aires City (GDP Report from Buenos Aires City, 2003).

The other factor behind the decrease in inequality by region after November 2002 is that the economic situation of the provinces of Chubut, Tierra del Fuego, Santa Cruz and Neuquen improved. These provinces rely heavily on the export of petroleum. After the devaluation, the value of their production increased in peso terms, due mainly to the rise in domestic prices for petroleum products.

### Contribution by Region

Twenty-four regions (23 provinces and the City of Buenos Aires) were considered in the analysis.

**Figure 6: Contribution to Inequality by Region in Argentina**



Source: Authors' calculations based on SIJP data.

During the period of study (1994-2005), the following provinces have enjoyed average incomes above the national average: Buenos Aires City (BAC), Neuquen, Chubut, Santa Cruz and Tierra del Fuego. With the exception of BAC, these provinces are in the South of Argentina and are part of the Patagonian region. Of the five provinces included, Buenos Aires City contributed the most to the increase in inequality during these years. The provinces most negatively affected by falling relative income shares have been Mendoza, Cordoba, Buenos Aires province and Santa Fe.

### **Pay Inequality by Region: What Explains These Trends?**

Buenos Aires City, the region that contributed the most to inequality from 1994 to 2005, has the highest GDP per capita among Argentine provinces. It enjoys relatively low levels of poverty and unemployment. In addition, Buenos Aires City is the main urban area in the country and is unique in terms of the share of the service sector in its GDP. By the year 2001, the service sector accounted for 74 percent of its total GDP, within which the share of the financial sector was 48 percent. The provinces of the Patagonian region (Neuquen, Chubut, Santa Cruz and Tierra del Fuego) also enjoyed above-average incomes during this period; their high GDP per capita is related in part to significant petroleum sectors and a high participation of their exports in the GDP. Furthermore, salaries in this region are as much as 20 percent higher because it is considered an “Unfavorable Zone” (due to very cold temperatures, the provinces of Chubut, Santa Cruz and Tierra del Fuego are considered an unfavorable zone) and thus firms have to provide employees additional incentives to relocate to these regions. Paradoxically, the provinces that lost most in relative terms in the time of rising inequality (Buenos Aires province, Santa Fe, Cordoba and Mendoza) can be distinguished by the size and diversity of their economies. These provinces are the main exporting provinces in the country, and their economic structures are characterized by important manufacturing sectors.

The January 2002 devaluation also accounts for a number of changes regarding the relative position of some provinces. On one hand, Buenos Aires City has lost relative position. The other provinces with above average incomes (Neuquen, Chubut, Santa Cruz and Tierra del Fuego) have improved their relative position since the devaluation, because their economic expansion translated into increases in salaries. Changes in relative prices allowed these provinces to increase their exports and spurred increased activity in the tourism sector. Specifically, these petroleum-producing provinces are in good economic conditions due to the rise in the price of petroleum in the international market in the last years.

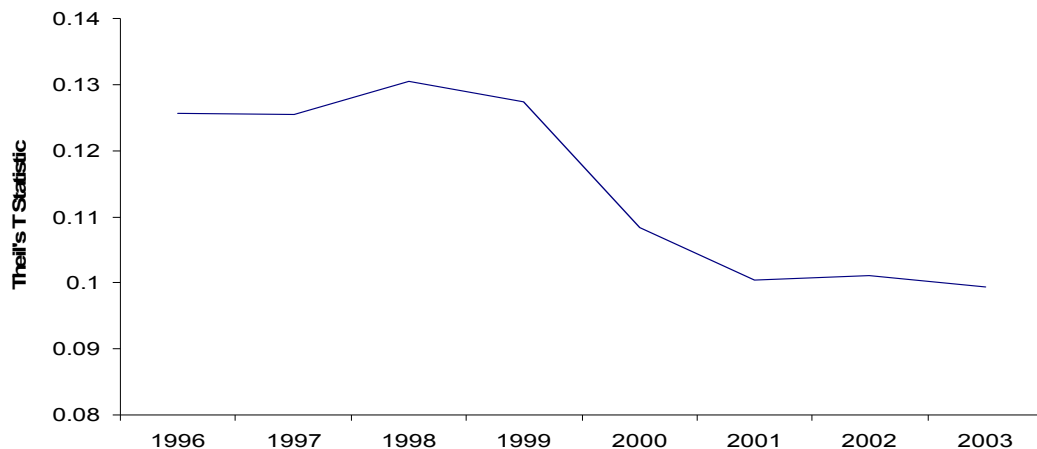
For example, in 2003, the province of Chubut generated \$472 million in petroleum sales in comparison with \$368 million in revenue from sales of petroleum in the previous year. Income from petroleum-related activities represented approximately 44 percent of the province's GDP. Santa Cruz received \$507 million in 2003 versus \$299 million in 2002; this income represented 40 percent of Santa Cruz's GDP. Finally, the province of Neuquen generated generated \$1.7 billion from petroleum exports in 2003, representing 58 percent of its GDP.<sup>2</sup>

## **VI. Pay Inequality in Brazil: 1996-2003**

The following section examines the main trends in inequality in Brazil from 1996 to 2003. The following calculations were made: a) the general trend in inequality considering sectoral and regional components, b) the contribution of each economic sector to overall pay inequality and c) the contribution of each region to overall pay inequality.

Two main conclusions can be drawn from the sectoral analysis. The financial sector and the civil service sector are the biggest contributors to inequality in Brazil during the period of study. Conversely, the wholesale and retail sector is the hardest hit. At the regional level, we observe that the state of Sao Paulo, and to a lesser extent Brasilia (federal district), are the biggest contributors to overall inequality in Brazil during this period.

**Figure 7: Inequality by Sector and Region (1996-2003) in Brazil**



Source: Authors' calculations based on IBGE data

<sup>2</sup>La Nacion, 16 August, 2004.



The calculations made to measure the general trend in pay inequality considering both the sectoral and regional components show four clearly differentiated stages. During the first stage (1996-97), pay inequality was stable in Brazil. Pay inequality increased in the second stage, which lasted just one year from 1997 to 1998. In the third stage, occurring from 1998 to 2001, a downward trajectory is observed. Finally, from 2001 to 2003 a stable trend can be observed. The economic program underlying the general decrease in inequality in Brazil across this time period is the Plan Real. The plan was successful at reducing inflation, which created stability, which in turn created a basis for economic growth.

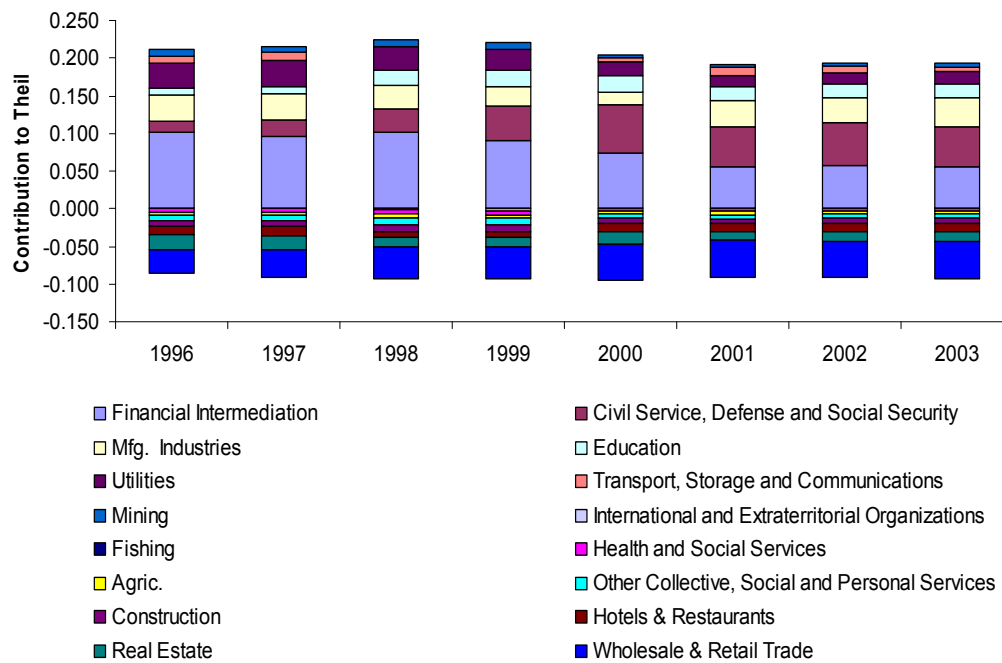
What it is most remarkable in Figure 7 is the downward trend in inequality following the devaluation of the Brazilian currency, which occurred in January 1999. After the devaluation, Theil values follow a downward sloping pattern, as was also the case in Argentina. This downward trend is explained by three primary factors:

- a) improvement in the economic activity of the primary sector as a result of changes in relative prices after the devaluation and increases in the prices for some Brazilian export commodities;
- b) reduction in the participation of the financial sector, by far the biggest contributor to inequality until 1999;
- c) improvement in the participation of the civil sector, which had already contributed positively to increase inequality, increased its relative position to the extent that it became the largest contributor, surpassing the financial sector.

### Contributions to Inequality by Sector

The trend in pay inequality by sector, as shown in Figure 8, closely follows the trend in overall inequality in Brazil displayed in Figure 7.

**Figure 8: Pay Inequality by Economic Sector in Brazil**



Source: Authors' calculations based on IBGE data.

As described above, the primary contributions to changes in the calculated Theil values are associated with changes in the relative positions of various sectors in the Brazilian economy. The contributions of each sector to the annual Theil values are displayed in Figure 9.

**Figure 9: Contribution to Overall Inequality by Economic Sector in Brazil**

As can be observed in Figure 9, the following sectors enjoyed above-average incomes during the period of study: finance; civil service; manufacturing; education; supply of electricity; gas and water (utilities); transport, storage and communication; and mining. Of these, the financial and the civil sector made the

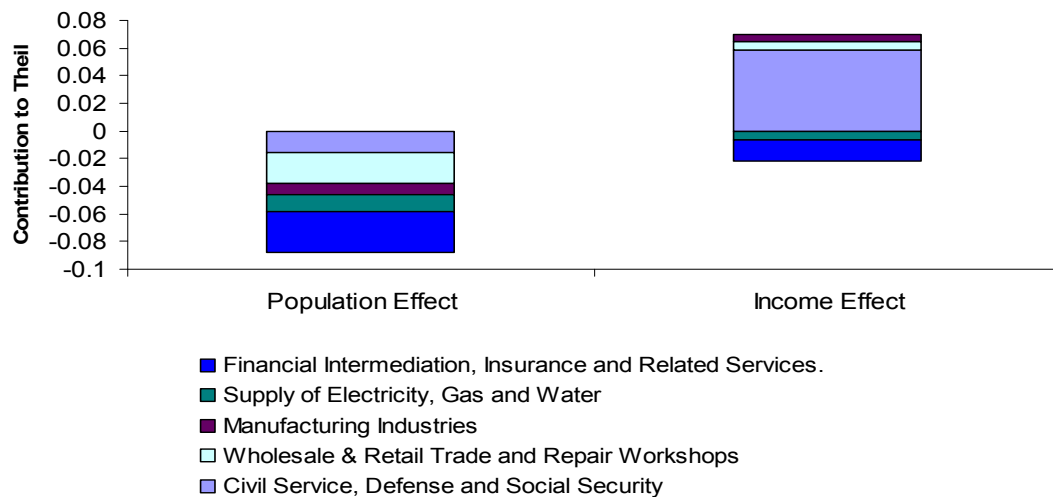
largest positive contributions to inequality. Conversely, the sectors most below average in incomes inequality have been wholesale and retail trade; real estate, hotel and restaurants; construction; other collective, social and personal services; and agriculture.

Changes in the relative position of some sectors signal important structural changes in the Brazilian economy during the period of study. For example, among those sectors already contributing positively to inequality, the relative positions of two sectors - the finance and civil sectors – moved in different directions. While the relative position of the civil sector improved during all the period, that of the financial sector worsened, especially after the devaluation in January, 1999. The shrinking of the financial sector explains the downward pattern of pay inequality after 1999.

The relative position of some of the poorest sectors also changed. For example, the negative contribution of the wholesale and retail trade sector increases between 1996 and 2003. In the case of real estate, the size of its negative contribution to inequality decreases with time.

Decomposing changes in inequality into the effects of changes in relative incomes and the effects of changes in the relative size (employment) of certain sectors allows for deeper understanding of the causes of the changes in the relative positions of the most important sectors. Figure 10 shows the contributions to the population and income effects of selected sectors.

**Figure 10. Population and Income Effect, 1996 – 2003, Brazil**



Source: Authors' calculations based on IBGE data.

The decrease in the contribution of the financial sector is seen in both the population and the income effects; in both cases, its effect is negative. The sector's large negative population effect outweighs the income effect, and can be explained in large part by automation of many banks. During this period the workforce decreased from 638,652 (3.35 percent of the total workforce) to 601,614 employees (2.11 percent). The financial sector's mean wage dropped in relation to the country's average wage. In 1996, the financial sector's mean wage is 2.87 times higher than the country's average wage; in 2003, it is just 2.65 times higher.

The reduction of the financial sector's contribution to inequality is accompanied by an increase in the contribution of the civil service sector. Figure 10 shows that the civil service sector's negative population effect is outweighed by its large positive income effect. As such, the sector's positive contribution to changes in inequality over the time period is related to a relative boost in sector salaries. While the absolute number of jobs in the civil service sector increases from 5.3 million to 6.7 million between 1996 and 2003, employment in the sector decreases from 28 percent of the workforce to below 24 percent. In 1996, the sector's mean wage is exactly the same as the country's average wage. However, by 2003 the mean wage is 15.5 percent higher than the country's average wage. Gains in relative wages in the civil service sector are in part due to the strength of its labor union.

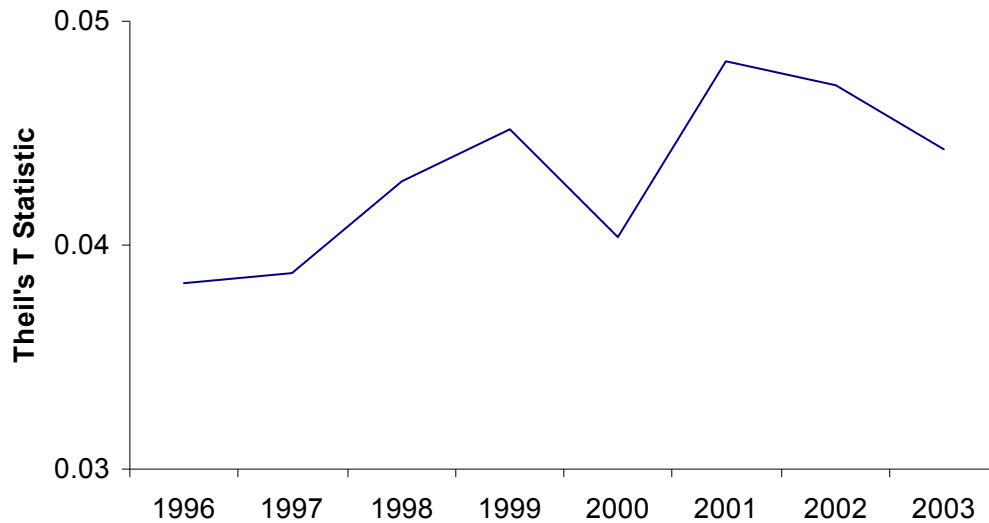
The wholesale and retail trade sector makes the largest negative contribution to inequality in Brazil because it employs a large percentage of the population and pays poorly. An increasingly larger percentage of the workforce is employed in this sector (from 9.2 percent in 1996 to 17.4 percent in 2003). The average job in this sector paid 44 percent of the country's average wage in 1996 and 61 percent in 2003. While relative incomes grew, they remain well below average.

Reduction of both total employment and salaries earned in the utilities sector demonstrates the impact of the privatization of this sector that accompanied implementation of the Washington Consensus. The total number of jobs in this sector dropped by 20 percent, and wages earned also dropped, by more than 9 percent.

Finally, wage and job participation are stable in the manufacturing sector during this period. The sector employed just under 20 percent of the Brazilian workforce and paid 1.1 times the country's average wage in both 1996 and 2003.

## Inequality among Regions

**Figure 11: Inequality by Region in Brazil**

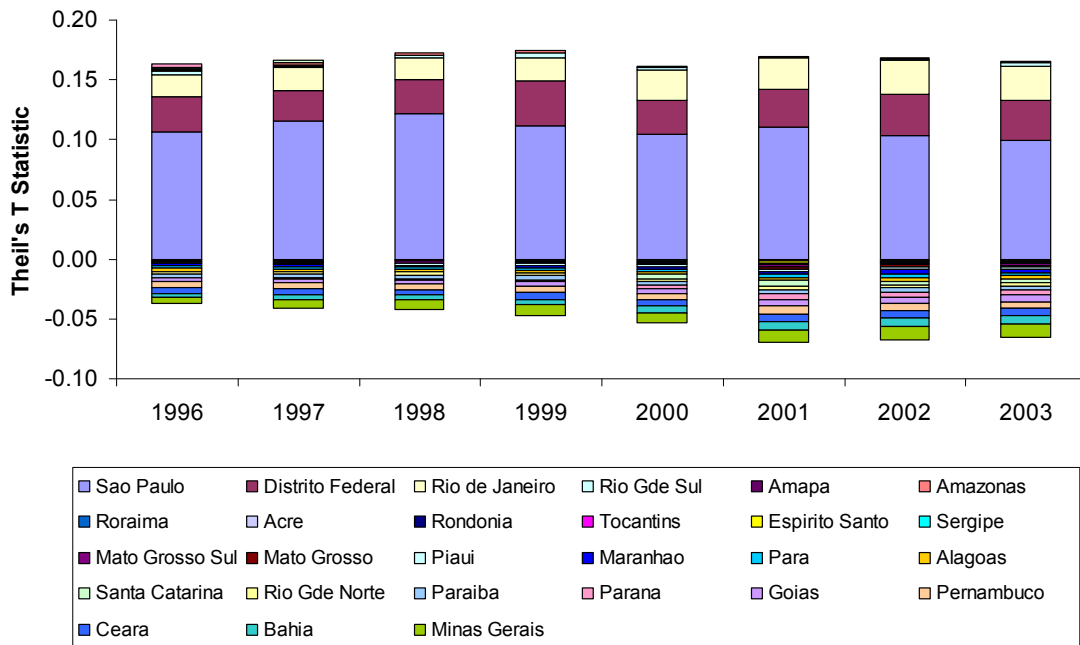


Source: Authors' calculations based on IBGE data.

Inequality by region was generally increasing from 1996 until 2001, after which regional inequality returned to 1999 levels, as shown in Figure 11. Changes in regional inequality in Brazil are closely tied to changes in the relative position of Sao Paulo; when its relative contribution increases, overall inequality increases, and vice versa.

## Contribution by Region

Figure 12: Contribution to Inequality by Region



Source: Authors' calculations based on IBGE data.

During the period under study (1996-2003) the following states enjoyed above-average incomes and made large positive contributions to increasing inequality: Sao Paulo, Brazilia (federal district) and Rio de Janeiro. Of these three the largest contributor is Sao Paulo, the richest and most populous state in Brazil. In 2003, about 30 percent of workers employed in Brazil held jobs in São Paulo. Sao Paulo accounts for 40 percent of the jobs in the financial sector, 37 percent of jobs in the real estate sector, 36 percent of manufacturing jobs, and 33 percent of jobs in health and social services. Brasilia makes a large positive contribution to regional inequality because it is the country's political center, and as such employs a large percentage of the civil service. Finally, Rio de Janeiro also contributes positively due to its oil production and civil service. The vast majority of states however, contribute negatively to regional inequality in Brazil. Because their shares of both population employed and of salaries earned are relatively small, no state stands out as a significant negative contributor.

## **VII. Conclusions and Future research questions**

Argentina and Brazil made similar transitions, under similar conditions, from import substitution economic models to open market economies, and both experienced the instability and stress associated with the neoliberal economic climate. In both cases, following large increases, inequality has been made to decline in recent years, as the countries retreated – to a degree – from neoliberal globalization. In particular, inequality fell in both countries as the share of income passing through the financial sector and the richest urban centers declined; in both cases these phenomena between them explain most, if not all, of the decline in economic inequality.

However, the two countries experienced these changes differently. In Argentina, inequality rose sharply as the neoliberal model took hold in the late 1990s, improving especially the relative position of the banks and of Buenos Aires City compared to the rest of the country. Only after the crisis in 2001 did Argentina begin to reverse these trends, amid a radical reshaping of the government and change in the ideological climate. In Brazil, the largest increases in inequality had already occurred, beginning in 1982 with the debt crisis; there had been a long experience of efforts to stabilize the economy by heterodox means, each of which worked for only a short time. Brazil was able substantially to stabilize its macroeconomic environment beginning in 1993, with the result that inequality fell in the following years; a major element of this was an increasing role for the public sector. This pattern was established under the government of Fernando Henrique Cardoso and appears to have continued under Lula, despite the change in party control and the allegedly left ideology of the latter.

To the extent that a bilateral comparison can lead to valid generalization, we suggest the following: major political changes are triggered not so much by the direction of economic change, but by its speed and abruptness. Changes that Brazil began early and pursued steadily—an adjustable currency and an increasing orientation toward social needs-- were resisted in Argentina until crisis and rebellion imposed them. The result was an ideological overshoot in Argentina, compared to Brazil.

Through future research, we can perhaps learn the extent to which government policies in Brazil allowed for a smooth transition while creating conditions for improvement in the distribution of income in that country. We can also study the extent to which specific decisions in Argentina that worsened that country's inequality contributed to the eventual collapse of its economy. Understanding the consequences of these divergent strategies may provide insights into the effectiveness of given policies that can be used to illuminate future policy objectives and their implementation.

Our principal point however, is a simple and definitive one. By disaggregating changes in inequality into regional and sectoral effects, one can gain deep and reliable insight into changing patterns of economic activity, and these can be of great value in forging hypotheses about the underlying mechanisms of economic change and power dynamics. It would be a very good thing for the field if a competent international institution, such as the UN or the World Bank, undertook the systematic work of compiling measures of inequality and its components from similar national data sources around the world. Were that done, major progress in the broader inquiry into the relationship of globalization to inequality would become possible again.

### **References**

- Argentine Congress. 1993. Creation of the Integrated System of Retirement and Pension Benefits. Act: 24.241. Published in Boletín Oficial, N° 27.745.
- Argentine Congress. Convertibility Law, 1991. Act: 23.928. Published in Boletín Oficial, N° 27.104.
- Buenos Aires City Website. Producto Bruto Geográfico de la Ciudad de Buenos Aires, Informe 101. Dirección General de Estadísticas y Censos. December 2003.
- De la Torre, Augusto; Levy Yeyati, and Schmukler, Sergio. 2002. "Argentina's Financial Crisis: Floating Money, Sinking Banking," World Bank.
- Galbraith, James K. and Maureen Berner, eds. 2001. *Inequality and Industrial Change: A Global View*. Cambridge: Cambridge University Press.
- Galbraith James K , Pedro Conceição, and Peter Bradford. 2001. "The Theil Index in Sequences of Nested and Hierarchical Grouping Structures: Implications for the Measurement of Inequality Through Time, With Data Aggregated at Different Levels of Industrial Classification." *Eastern Economic Journal*, 27(4): 491-514.
- Galbraith, James K and Hyunsub, Kum. 2005. "Estimating the Inequality of Household Incomes: Toward a Dense and Consistent Global Data Set," *Review of Income and Wealth*, 51 (1): 115-143.



- Gasparini, Leonardo. 1999. "Un análisis de la distribución del ingreso en la Argentina sobre la base de descomposiciones." *La Distribución del Ingreso en la Argentina*. Buenos Aires: Fundación de Investigaciones Económicas Latinoamericanas (FIEL).
- Gasparini, Leonardo. 2004. "Poverty and Inequality in Argentina: Methodological Issues and a Literature Review." Centro de Estudios Distributivos, Laborales y Sociales (CEDLAS)-World Bank.
- Sala-i-Martin, Xavier S. 2006. "The World Distribution of Income: Falling Poverty and Convergence, Period." *Quarterly Journal of Economics*, CXXI, 2, 351-397.