

Patterns of Income Inequality in Brazil: Recent Evolution

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Abstract

This essay seeks to point the trends and recent dynamics of income distribution in Brazil from various perspectives. While the previous paper (Paper C Brazil) aimed to establish the relation between regimes of accumulation and labour market dynamics with the evolution of income distribution building on a historical perspective, this paper aims to identify, over and beyond the evolution of indicators, the new inequality patterns in order to show how spatial and social cleavages were reorganized as well as the orientation of the country's class structure. Micro-data provided by the National Household Sample Survey (PNAD, from the Portuguese *Pesquisa Nacional por Amostra de Domicílios*) of Brazil's national statistics office *Instituto Brasileiro de Geografia e Estatística* (IBGE) has been used for selected years between 1979 and 2011.

Keywords: per capita household and labour income, labour market segmentations, gender, race/colour education, region.

IHD-Cebrap project on Labour Market Inequality in Brazil and India

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by

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Patterns of income inequality in Brazil: recent evolution

This essay seeks to point the trends and recent dynamics of income distribution in Brazil from various perspectives. If the previous paper (Paper C) aimed to establish the relation between regimes of accumulation and labour market dynamics with the evolution of income distribution building on a historical perspective, now the aim is to identify, over and beyond the evolution of indicators, the new inequality patterns in order to show how spatial and social cleavages were reorganized as well as the orientation of the country's class structure.

After a brief historical account, in the first topic we present inequality indicators—the Gini and Theil indices, the 90:10 decile ratios and the income appropriation by the richest 10%, the intermediate 40%, and the poorest 50% – for per capita household and labour income. We used the microdata provided by the National Household Sample Survey (PNAD, from the Portuguese *Pesquisa Nacional por Amostra de Domicílios*) of Brazil's national statistics office *Instituto Brasileiro de Geografia e Estatística* (IBGE) for selected years between 1979 and 2011.

In the second topic, we measure how much different segmentations of the labour market can explain the overall pattern and trend of inequality shown in the previous topic. Thus, we use the decomposition of Theil index according to various characteristics—regions, urban/rural, sex, race/colour, schooling and work status. The decomposition is a standard technique to establish, in percentage terms, what is the proportion of overall wage inequality due to wage inequality within the groups being analysed, and what is the proportion due to wage inequality between them.

Similarly, the third topic summarizes inequality estimates for wages, i.e. restricting the estimates for private employees only, with the aim of measuring if the patterns of inequality between wage earners are different from the inequality for the total workforce.

The fourth topic presents a multivariate analysis that seeks to measure the contribution of a set of variables on inequality of household income, expenditure, labour income and wages. We used PNAD data for 1995, 1999, 2005, 2009 and 2011, and **Household Budget Survey** 2008/09 (POF, from the Portuguese *Pesquisa de Orçamentos Familiares*, also from Instituto Brasileiro de Geografia e Estatística).

In a different approach, in the fifth topic our analysis focuses on the decomposition of the Gini coefficient for per capita household income by sources of income for the 2003-2011 period, which is characterized by a decrease in inequality in the country, also building on PNAD data, yet with an emphasis on regions and census areas (urban/rural).

In the sixth topic, we calculate the most significant of the aforementioned inequality indicators from the 2002-2003 and 2008-2009 Household Budget Survey (POF, from the Portuguese *Pesquisa de Orçamentos Familiares*). The purpose is comparing inequality outcomes derived from two kinds of data: income and expenditure.

Accordingly, in the seventh topic we conduct an analysis, whose results must be confirmed in the future, about the changes in the functional composition of income between 1990 and 2009, drawing on data by IBGE's National System of Accounts (SCN, from the Portuguese *Sistema de Contas Nacionais*).

Finally, in the eighth topic we seek to show the relationships between the changes in income distribution profile and the changes in occupational and class structure, drawing on the 1995, 2001, 2005, and 2011 PNAD household surveys.

Historical context

Historically Brazil has always had very high levels of income distribution inequality, ranking among the countries with the highest concentration. The mutually feeding factors causing that are multiple over time. For 300 years, the slave regime commoditized those who were the most active in the workforce, until the late 19th century, excluding them from property, the educational system, and any kind of right, rendering the very concept of citizenship impracticable. From the nineteenth century on, the accumulation cycles were concentrated in the Southeast, creating persisting regional inequalities that became stronger with the industrialization process, especially after the 1950s. The State-driven import-substitution process, particularly its key sectors, was capital- and skilled labour-intensive in contrast with a predominantly poorly-skilled labour force, further compounding the distributive issue. During the military regime in the 1970s, basic wages were outgrown by productivity due to a number of interrelated factors, including minimum wage containment, rising inflation, the dismantling of the labour movement, and the tax structure's regressivity. A scarcity in skilled labour, in a context of dramatic production transformations, coupled with the bargaining power of the ruling groups, widened wage differentials over the period, thus significantly increasing income concentration (Table 1). Conversely, total labour income lost space in the functional distribution of income, further compounding concentration in a capitalist economy drawn by increasingly higher rates of profit.

Until the late 1980s, social policies did not play a distributive role, both because of the asymmetric school system and the limited coverage of the Social Protection System, social security restricted to formal workers, and the meagre and clientelistic social assistance provided to the poorest population, migrants, and informal workers. Moreover, from 1980 to the mid-1990s inflation eroded the purchasing power of the middle and poor strata, as they had no alternative in terms of indexing their remuneration, prompting a persisting high-inequality pattern.¹ Only after 1994, when the inflationary process was tamed and a new economic phase with price stability ensued, a new social policy could be put in practice according to the precepts of the 1988 Federal Constitution. The economic growth of the 2000s enabled maintaining and

¹In the 1970s and 1980s the Brazilian Economic Policy had adopted a complex system of indexation in order to protect the money real value.

broadening a social policy that targeted mostly the most vulnerable groups and prompted a decrease in per capita household income inequality of -6.6 percentage points between 1999 and 2011. Still, the level of inequality remains high by any international standard, while access to quality goods and services varies widely across social strata in Brazilian society.

**Table 1 –Income distribution of workforce by percentiles and Gini index.
Brazil 1960-2012**

Percentiles	1960	1970	1980	1985	1990	1995	1999	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011	2012
Poorest 10%	1.9	1.2	1.2	0.9	0.8	1.1	1.2	1.0	0.9	0.7	0.8	0.9	0.8	1.0	1.0	1.0	1.1	1.0
Poorest 30%	5.9	6.2	6.2	5.3	4.6	5.6	6.2	6.5	6.5	6.6	6.8	7.2	7.3	7.8	7.9	8.1	8.7	8.7
Poorest 50%	17.4	15.1	14.1	13.1	11.2	13.0	13.9	14.4	14.4	14.8	15.2	15.7	16.1	16.9	17.0	17.5	18.3	18.4
Richest 30%	66.1	71.7	73.2	74.6	76.4	74.5	73.1	72.6	72.7	72.0	71.3	70.9	70.3	69.3	68.9	68.4	67.2	67.1
Richest 10%	39.6	46.5	47.9	47.7	49.7	48.2	46.8	46.9	47.1	46.1	45.4	45.4	44.9	43.9	43.4	43.0	41.9	42.0
Richest 1%	12.1	14.5	13.5	13.3	13.9	13.4	13.0	13.6	13.5	13.2	13.0	13.3	13.1	12.6	12.4	12.5	12.0	12.9
Gini index	0497	0.565	0.592	0.611	0.620	0.592	0.576	0.572	0.573	0.566	0.559	0.552	0.548	0.534	0.531	0.524	0.508	0.509

Source: Prepared by authors based on PNAD/F.IBGE data and F.IBGE Demographic censuses.

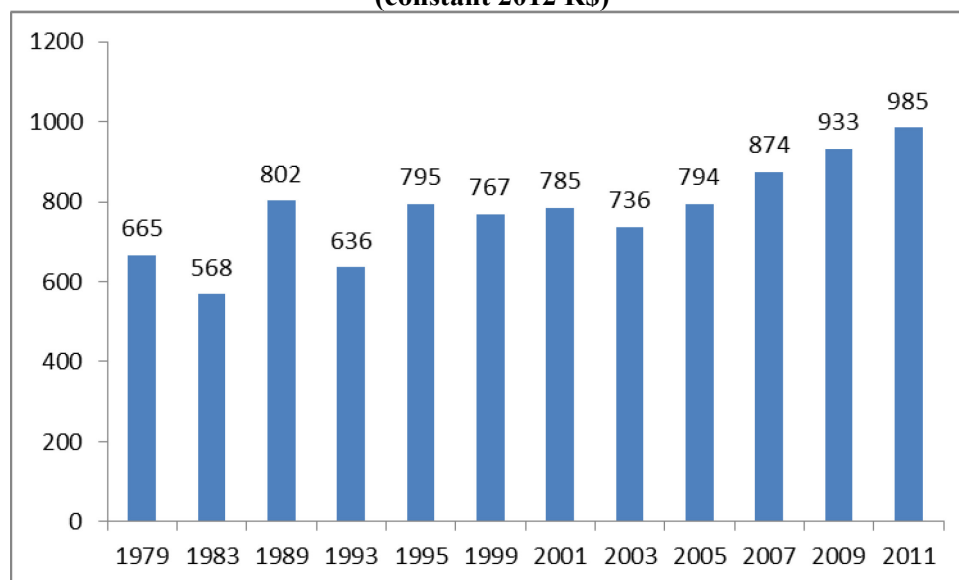
1. Trends in inequality

1.1. Per capita household income

Graph 1 shows the evolution, on a continuous basis, of the level of per capita household income in Brazil between 1979 and 2011.² The 1980s till the beginning of the 1990s are marked by the foreign debt crisis, and by economic instability, mostly caused by high inflation rates triggered by a drop in average productivity. In line with this picture, per capita household income in Brazil also has an erratic evolution, being negatively affected especially during the recessions of 1981-1983 and 1990-1992 (Dedecca, Baltar, 1998).

Conversely, the recovery witnessed during the Real Plan, with a 25% increase in per capita household income between 1993 and 1995, would be more than offset by the deterioration of the labour market from 1996 to 1998 and by losses stemming from the 1999 devaluation (Ramos, Britto, 2004). Only after 2001 would the per capita household income resume steady growth, expanding by 33.8% and outperforming the late 1980s peak for the first time. This data comprises labour and retirement income and computes the number of household members, which fell over the period. Below we show the average per capita labour income (Graph 1).

**Graph 1 – Annual average of real per capita household income. Brazil. 1979-2011.
(constant 2012 R\$)**

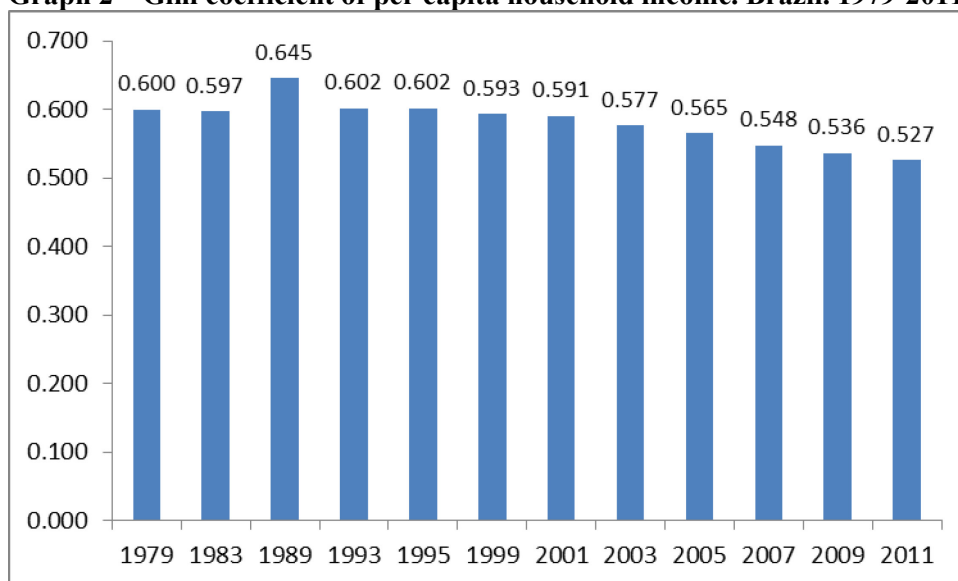


Source: Prepared by authors based on PNAD/IBGE microdata.

²We stress that temporal comparability of the income variable in Brazil should be seen with great caution given the methodological changes carried out in 1992, as well as much higher accuracy in data measurement.

With reference to income inequality, we can distinguish a clearly different evolution from that of the average income. The Gini coefficient for the period peaks in 1989, falls slightly in the period when the Real Plan begins, and remains at this level until the end of the decade. Starting in 2003, we notice a significant reduction in per capita household income inequality, with Gini going from 0.577 in 2003 to 0.527 in 2011, a -8.7% decrease (Graph 2). As we shall see ahead, this decrease was driven by the recovery of the labour market, especially of formal jobs, by the minimum wage appreciation policy, and by the expansion of the cash transfer programs targeting the poorest population as from 2003 on.

Graph 2 – Gini coefficient of per capita household income. Brazil. 1979-2011.

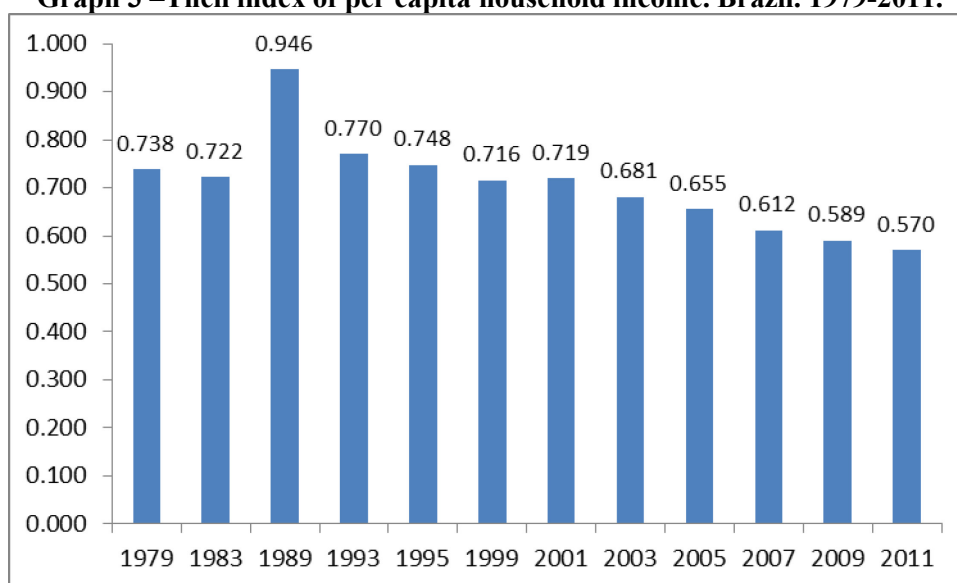


Source: Prepared by authors based on PNAD/IBGE microdata.

The evolution of income inequality in Brazil can also be viewed by another measure, the Theil index. The main difference between both indices is that Gini is more sensitive to income variations of people in higher frequency distributions, whereas Theil is more accurate in detecting variations at the extremities of the distribution (Hoffmann, 1992).

Graph 3 shows us that the evolution of income inequality in Brazil is consistent regardless of the measure used. That is, increased inequality in the 1980s, slight drop and stagnation in the 1990s, and significant decrease in the 2000s. On the other hand, our attention is drawn to the high 1989 Theil index, corroborating the fact that high inflation rates hit hardest the poorest portion of the population. Moreover, the percentage reduction in the Theil index in the 2000s was higher than that measured by Gini, -16.3% against -8.7% from 2003 to 2011. This corroborates the fact that the drop in income inequality was driven both by the relative increase of the income received by the poorest portion of the population and by a relative decrease in the percentage appropriated by the richest (Graph 3).

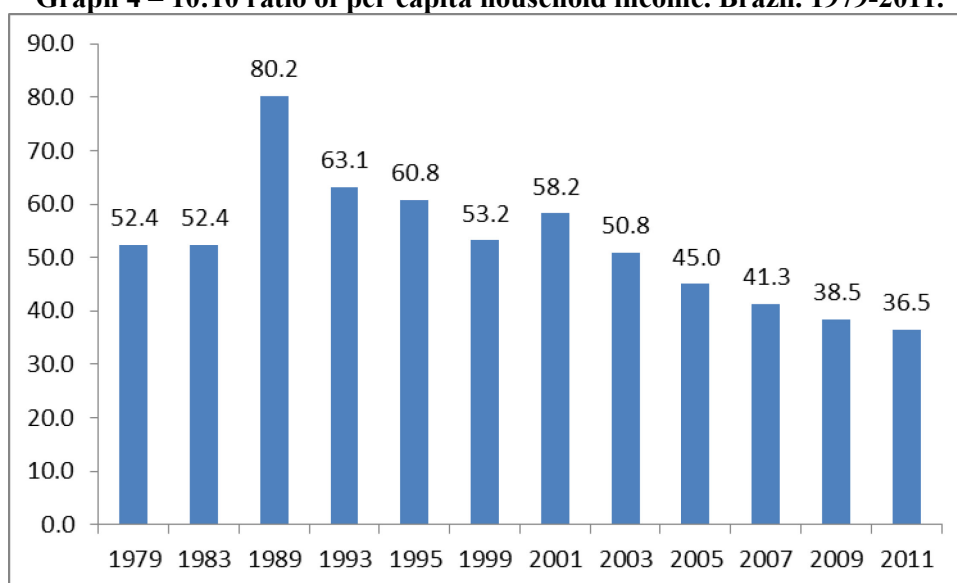
Graph 3 –Theil index of per capita household income. Brazil. 1979-2011.



Source: Prepared by authors based on PNAD/IBGE microdata.

Another way of viewing income inequality is through the coefficient R/P 10%, which indicates how many times the income of the 10% richest (R 10%) is bigger than that of the 10% poorest (P 10%). In 1979 the upper decile earned a per capita household income 52.4 times higher than that of the households in the lowest decile (Graph 4). As with the other measures, we notice that 1989 appears as the worst year in terms of income distribution in the recent Brazilian history. That year, the income of the richest was 80.2 times higher than that of the poorest. In 2011, this difference had plunged to 36.5 times, a decrease that was particularly significant over the 2000s. However, this ratio is still much higher in comparison with the developed countries. For example, in 2009 this ratio was of 2.8 times in Denmark and of 5.9 times in the United States (OECD, 2011).

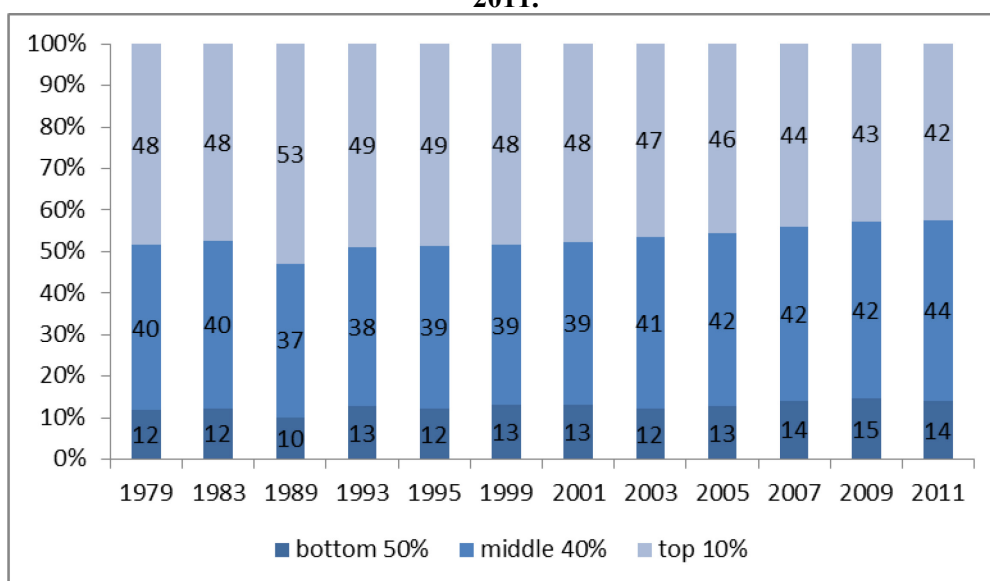
Graph 4 – 10:10 ratio of per capita household income. Brazil. 1979-2011.



Source: Prepared by authors based on PNAD/IBGE microdata.

In order to view what this decrease in inequality means in terms of income appropriation for the various strata, we present below a distribution table of per capita household, as adopted by Piketty (2014), from Kuznets (1953), representing the proportion of total income owned by the highest 10%, the intermediate 40% and the lowest 50% population strata. According to the author, this method is more accurate in capturing how total income is being distributed than the figure provided by Gini or Theil.

Graph 5 – Distribution of per capita household income by population share. Brazil. 1979-2011.



Source: Prepared by authors based on PNAD/IBGE microdata.

We can see, for instance, that the share of the poorest 50% goes from 10% in 1989 to 12% after the Real Plan, when levels are equivalent to those found in 1983, rising to 14% in the following decade. In 2009, this participation gets close to 15%, pointing to the maintenance of the income levels of the poorest strata in the first years of the financial crisis of the late 2000s due to the implementation of countercyclical policies in support of aggregate demand. The intermediate 40% remain, throughout the 1990s, with an income appropriation of about 38.5%, slightly above that of 1989. This stratum's share in total income would rise in the 2000s to reach 43% in 2011. At the top of the pyramid, the wealthiest 10%, whose share had risen to 52.7% in 1989, see their share level out in the 1990s, yet at a higher level than that of 1983. In 2003, this stratum's share steadily decreases until it reaches 42.6% in 2011, showing a higher growth of the distribution's lowest strata (Graph 5).

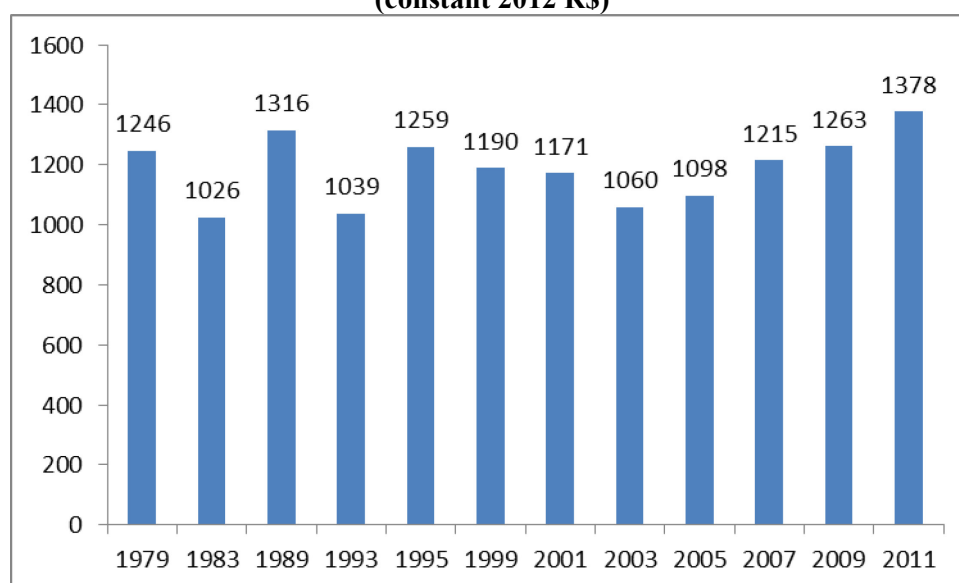
1.2. Individual labour income

Estimates in several studies (Soares, 2006; Barros, Carvalho, Franco, 2007; Cacciamali, Camillo, 2011; Hoffmann, 2013; Cacciamali et al., 2013) point to the primacy of the labour market to account for the dramatic drop in income inequality in Brazil in the 2000s. This makes it necessary to verify the evolution of labour income in the country throughout the period under analysis. Accordingly, this section presents the same indicators as in the previous section, yet this time only considering labour income. We will attempt to emphasize those aspects that distinguish the evolution of average labour income from per capita household income.

This section analyses the distribution of overall labour income in Brazil since the PNAD includes the income earned by self-employed workers. However, this does not alter the analysis of inequality in the Brazilian labour market since the estimates for labour income and wages have similar pattern; as we shall see in the topic 3.

Firstly we observe the real evolution of this variable (Graph 6), which rose by 10.6% from 1979 to 2011, that is, at a much lower level than that of per capita household income over the same period – 48.1%. This is due to the smaller size of households; the existence of other sources of income, retirement pensions, mostly rural, and public transfers, for example, increasingly more important in the 1990s; and also to a higher occupation rate, particularly in the 2000s (Neri, Souza, 2013). In other words, the expansion of formal employment enabled the inclusion of people who had no income or were inactive, thus increasing per capita household income faster than labour income, especially in the case of the poorest, in the post-2003 period.

**Graph 6 – Annual average of real labour income. Brazil. 1979-2011.
(constant 2012 R\$)**

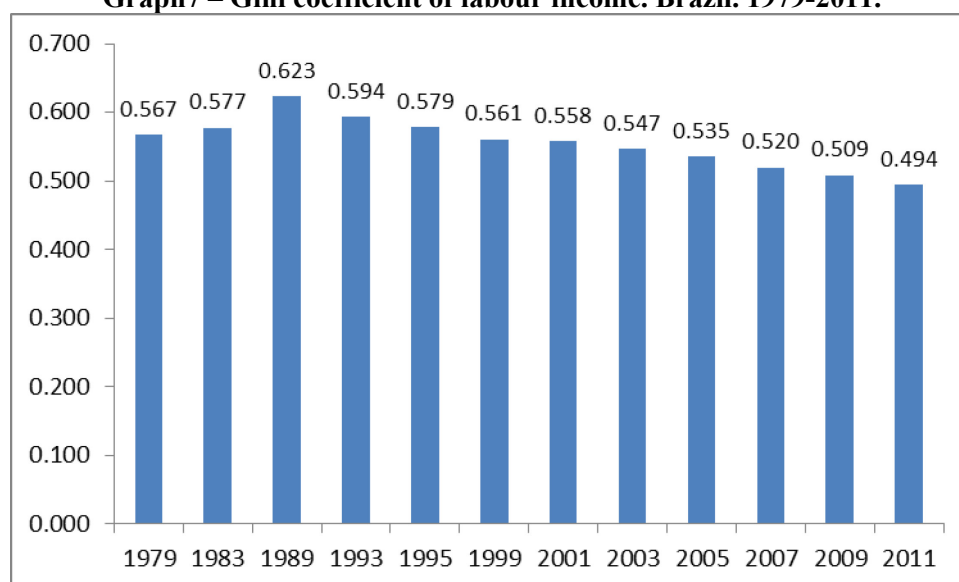


Source: Prepared by authors based on PNAD/IBGE microdata.

For the sake of illustration, the average occupied worker's income was of R\$ 1,378.00 in 2011 (in 2012 values) against R\$ 985.00 for the per capita household income. This 40% differential represents half of that measured in 1979. On the other hand, just as in the previous section, 2003 is a year of economic cycle contraction, just as 2011 represents the peak of an expansionary cycle that gains momentum from 2005 onwards.

Graph 7 shows that the drop in Gini for the period of greatest fall in labour income inequality (2003 to 2011) was of -9.7%, higher than the percentage obtained for per capita household income, -8.7%. This behaviour reflects the narrowing of income differentials across workers, with an impact on the decrease in differences across individuals by sex, skin colour, and between skilled and unskilled, and formal and informal individuals (Cacciamali, Tatei, Rosalino, 2009; Cacciamali, Tatei, 2013), as we shall see ahead.

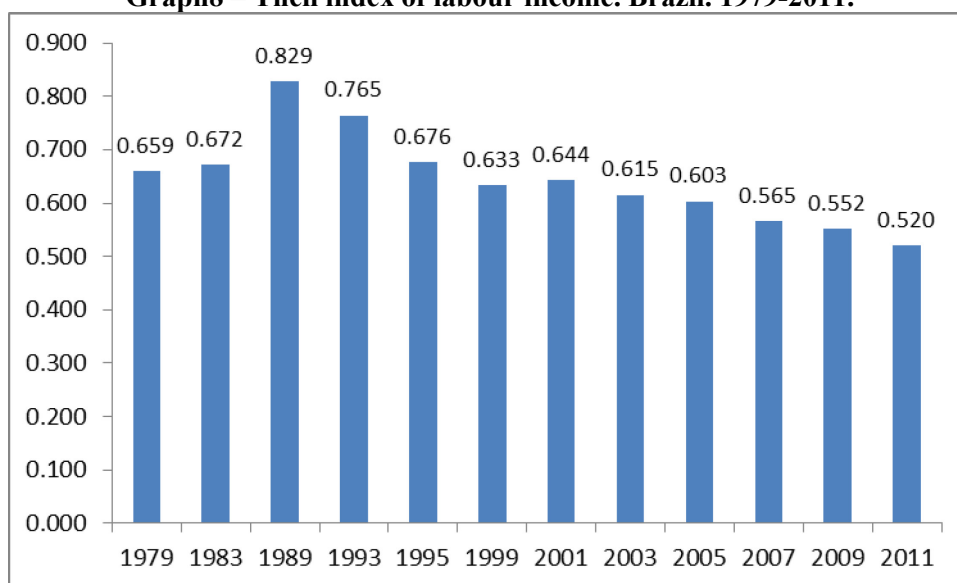
Graph7 – Gini coefficient of labour income. Brazil. 1979-2011.



Source: Prepared by authors based on PNAD/IBGE microdata.

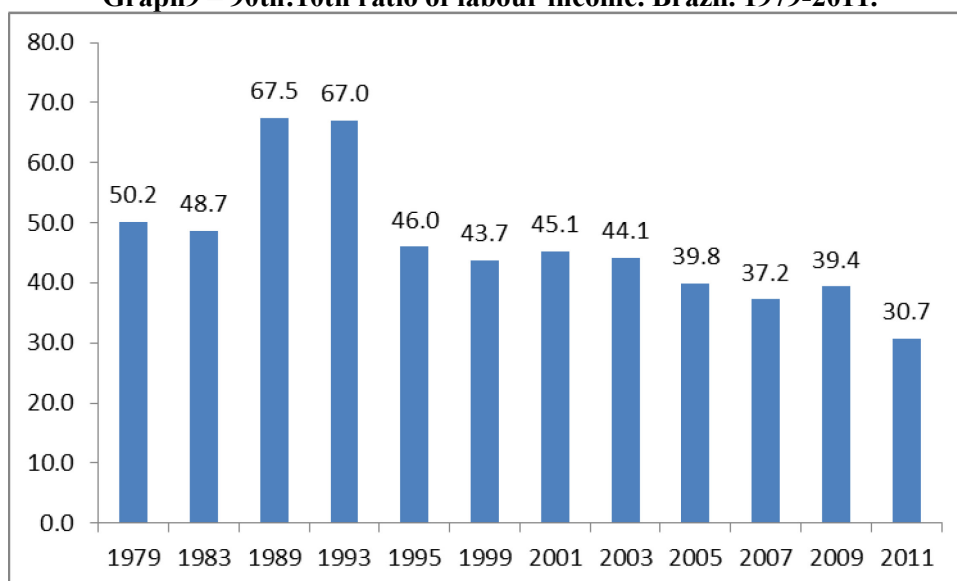
The same result is achieved through the Theil index (Graph 8) and the coefficient R/P 10% (Graph 9). As in the previous section, we note that the Gini coefficient shows a somewhat subtler variation over time vis-à-vis the other inequality measures. And that the decrease was sharper in the case of Theil, -15.4%, and of R/P 10%, which fell from 44.1 to 30.7 times from 2003 to 2011, in both cases using labour income as the reference.

Graph8 – Theil index of labour income. Brazil. 1979-2011.



Source: Prepared by authors based on PNAD/IBGE microdata.

Graph9 – 90th:10th ratio of labour income. Brazil. 1979-2011.



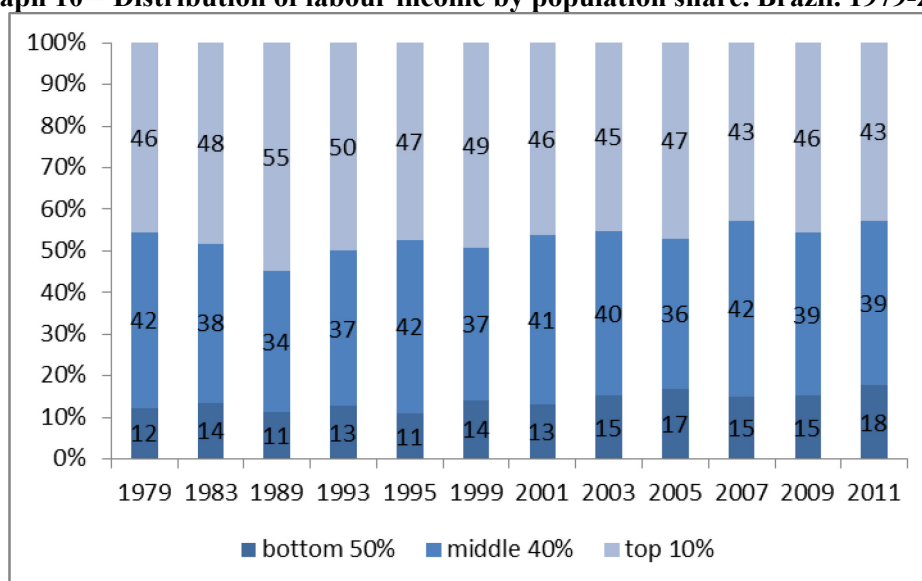
Source: Prepared by authors based on PNAD/IBGE microdata.

The distribution table for the case of labour income presents some differences worth mentioning as regards per capita household income (Graph 10). First, the share of the 50% poorest is up from 14.4% to 16.7% from 2003 to 2011, an impressive percentage growth of 16%. The amount of total income appropriated by the poorest 10%, as per labour income, is also higher than that appropriated by the poorest 10% by the per capita household income criterion.

For the intermediate 40%, we find a drop in this stratum's participation in labour income by -7.7% from 2003 and 2011; whereas the richest 10% increase the amount of

total income appropriated from 44.9% to 45.8% over the same period. This probably explains the smaller labour income decreases measured by the Theil index– more sensitive to capture income at the extremities –of -15.4%, as compared with per capita household income, 16.3% from 2003 to 2011. Thus, if we look only from the prism of the labour market, redistribution occurred among the poorest 50% and the intermediate 40% and not from the richest 10% to the first groupings. This redistribution has several interconnected causes, the most important of which are an increase in formal employment associated with the increase of the minimum wage and a higher supply, as a proportion of demand, of workers with middle education (Corseuil, Foguel, 2012; Barbosa-Filho, Moura, 2012).

Graph 10 – Distribution of labour income by population share. Brazil. 1979-2011.



Source: Prepared by authors based on PNAD/IBGE microdata.

2. Inequality across groups

2.1. Decomposition of household income inequality

The previous section made it evident that, overall, there are no significant differences in trends between the selected income inequality measures – Gini, Theil, and income ratio – with reference to the slope of the curve over time, with a change occurring only in the variation span. For the present study, the Theil index proves more attractive due to its statistical characteristics, as they enable disaggregating the index by population group in two terms: between and within groups. For example, it is possible to estimate Theil by sex and separate it into two values, one measuring income inequality stemming from differences in income between males and females, *ceteris paribus*, and the other one measuring inequality within each group, which in this case refers to factors other than the individual's sex. Adding up these two values provides total Theil index.

That said, we present next the Theil index on the basis of the following classifications: census area, sex, colour of skin, schooling level, and employment status. For the per capita household income we consider the characteristics of the head of the household.

We point out that the application of this methodology results in greater relative importance being assigned to the intra-group component vis-à-vis the inter-group component. The explanation for that rests on occupational heterogeneity and personal characteristics, which bring about greater income dispersion for members of a same category, for example, sex or geographic region. On the other hand, the decomposition of the Theil index is influenced by each group's proportional composition. Therefore, Kanbur (2006) suggests that comparison of the two indicators should prioritize their concurrent evolution over time rather than only focusing on which intra or inter group component is higher in a given period.

Table 2 shows the progress of the real income per capita categorized by region and area, except the rural North, that was included in the 2004 National Household Survey and was excluded from the present sample to maintain the homogeneity of the estimates over time. The Northeast is the region with the lowest incomes in the whole period, followed closely by the families of the North. Families of the Southeast, South and Midwest are at the other extreme; families of the Southeast had the highest income in 1979, but were overtaken by families in the South and Midwest in mid 2000s. This pattern is the same in both rural and in urban areas, although the level of family income in urban areas is double (on average) than those in rural areas

**Table 2 – Average per capita household income by geographic region and area.
Brazil, 1979-2011 (constant 2012 R\$)**

	North*		Northeast		Southeast		South		Mid-West	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	
1979	558	150	418	348	995	325	823	221	665	
1983	552	153	406	273	798	305	676	326	646	
1989	811	194	509	354	1,123	396	926	487	964	
1993	533	177	457	344	819	454	781	420	744	
1995	652	223	545	389	1,071	412	972	397	855	
1999	587	231	534	412	1,015	425	942	495	844	
2001	598	218	526	424	1,011	464	971	432	893	
2003	530	212	490	423	936	555	912	412	845	
2005	608	242	548	473	1,007	510	991	525	944	
2007	670	290	620	528	1,079	641	1,099	560	1,112	
2009	729	326	696	582	1,137	703	1,168	654	1,158	
2011	796	347	716	645	1,193	767	1,204	685	1,234	

* Rural North excluded.

Source: Prepared by authors based on PNAD/IBGE microdata.

Table 3 presents the Theil index by geographic region and area. We can see that the Northeast concentrates the highest degree of income distribution inequality, and the lowest drop in inequality, together with the North, including for the 2003-2011 period. The South stands out as the country's least unequal region, having experienced the highest decrease in inequality in the recent period, followed by the Southeast. It is worth underscoring that inequality fell in all regions over the 1979-2011 period, though more concentrated from 2003 to 2011.

Over the period spanning from 2003 to 2011, where inequality fall is concentrated, the decomposition of the index according to the intra and inter group criterion shows that intra-region inequality rose while inter-region inequality fell. In other words, average income across regions tended to converge. This can be accounted for by the fact that the Northeast, North and Mid-West regions exhibited greater economic dynamism and greater per capita income growth. In all likelihood, this greater dynamism enabled the broadening of income.

Another key cross section for understanding income inequality differences is that based on rural and urban areas.³ The table shows a diverging trend between rural and urban areas, as the decrease in income inequality was higher in the former than in the latter, a trend further accentuated in the post-2003 period. Therefore, income inequality, which was already higher in urban areas, became even higher when compared with rural areas.

³ For the Brazilian case, three categories are worth analysing jointly: metropolitan regions, non-metropolitan urban areas, and rural areas. However, in order to enable better comparability with India's estimates, we have only considered the urban/rural distribution.

This picture might mislead us into believing that the situation of households in the rural area is better than that of households in urban areas. Yet, the urban area concentrates more complex and dynamic economic activities and labour markets, in addition to better housing conditions, access to public services and more job opportunities.⁴ Moreover, the average income in rural areas is significantly lower, while part of the income earned there comes from families living in urban areas (Table 2). The precarious situation of the rural Northeast and/or North regions is even more serious when we consider low accessibility to basic sanitation, health and education services. Thus, relevant as it is, the issue of income insufficiency and poor income distribution is just a facet of the countless problems faced by the poorest population in these regions (Lemos, 2012).

Inequality as measured by census area tends to be more and more intra areas, both because of the modernization of agribusiness and the greater concentration of poverty in urban areas. Concurrently, the inter-area inequality component has lost importance in accounting for total evolution of inequality.

Table 3 – Decomposition of Theil index by geographic region and area. Per capita household income. Brazil. 1979-2011.

	North*		Northeast		Southeast		South		Mid-West		Within groups (%)	Between groups (%)
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural		
1979	0.602	0.370	0.709	0.569	0.602	0.541	0.605	0.347	0.704		82.0	18.0
1983	0.656	0.456	0.768	0.547	0.611	0.578	0.565	0.695	0.671		85.7	14.3
1989	0.847	0.678	0.932	0.598	0.881	0.647	0.673	1.124	0.815		88.4	11.6
1993	0.757	0.609	0.864	0.701	0.674	0.573	0.657	0.763	0.768		90.9	9.1
1995	0.689	0.597	0.813	0.564	0.648	0.533	0.625	0.660	0.697		88.7	11.3
1999	0.646	0.636	0.769	0.571	0.619	0.511	0.608	0.735	0.724		89.6	10.4
2001	0.684	0.484	0.781	0.654	0.629	0.448	0.613	0.619	0.746		90.5	9.5
2003	0.599	0.435	0.711	0.567	0.615	0.637	0.556	0.484	0.691		90.6	9.4
2005	0.586	0.433	0.700	0.503	0.594	0.338	0.517	0.573	0.710		90.5	9.5
2007	0.559	0.420	0.665	0.399	0.540	0.400	0.505	0.443	0.694		90.9	9.1
2009	0.558	0.409	0.671	0.371	0.524	0.314	0.480	0.517	0.664		91.6	8.4
2011	0.589	0.426	0.612	0.383	0.522	0.362	0.436	0.365	0.603		91.7	8.3

* Rural North excluded.

Source: Prepared by authors based on PNAD/IBGE microdata.

2.2. Labour income inequality by worker characteristics

a) Region

⁴ Part of this result can be accounted for by the fact that this study, due to its use of the PNAD survey, does not consider zero-income households, i.e., those producing for self-consumption, mostly located in the rural area. A lower income level and the set of factors mentioned above account for the rural area's low income inequality level.

The evolution of labour income by geographical area and census area is presented in Table 4 that displays a pattern similar to that seen in the previous section. This result is expected because labour income tends to represent two-thirds of the total household income in Brazil, therefore the patterns and trends of these two types of income are similar. Consequently, workers in the Northeast tend to obtain a wage or a labour income less than workers in other regions of the country, especially compared to workers of the richest regions. This regional difference is even more remarkable among workers in rural areas, demonstrating the plight of workers located in the poorest areas of the country.

**Table 4 – Average labour income by geographic region and area.
Brazil, 1979-2011 (constant 2012 R\$)**

	North*		Northeast		Southeast		South		Mid-West	
	Urban	Rural	Urban	Rural	Urban	Urban	Rural	Urban	Rural	
1979	1,172	363	856	775	1,697	839	1,404	575	1,325	
1983	1,156	332	804	610	1,329	779	1,200	710	1,203	
1989	1,476	437	946	740	1,687	896	1,490	965	1,625	
1993	946	316	745	625	1,284	943	1,235	859	1,246	
1995	1,148	397	864	715	1,626	782	1,491	741	1,370	
1999	1,019	397	838	733	1,523	790	1,391	914	1,318	
2001	1,008	346	803	672	1,482	803	1,306	765	1,336	
2003	861	319	713	690	1,311	908	1,219	719	1,257	
2005	939	338	772	701	1,334	845	1,307	864	1,350	
2007	1,069	410	867	806	1,447	1,027	1,410	868	1,533	
2009	1,117	436	934	828	1,482	1,092	1,487	971	1,562	
2011	1,217	467	1,039	930	1,605	1,141	1,546	1,048	1,722	

* Rural North excluded.

Source: Prepared by authors based on PNAD/IBGE microdata.

Table 5 shows the Theil index for labour income by geographic regions, and confirms that in 2011, the Northeast had the highest income inequality and the South, the lowest inequality. On the other hand, the Mid-West is the second worst region in terms of labour income distribution, further strengthening the hypothesis that the region's high inequality level is due to the agribusiness's recent expansion model, which contributed to widen the wage spectrum. However, unlike per capita household income, we notice that the decline is not so sharp in rural areas in comparison with urban areas, such that the Theil index tends to converge between these two areas.

Within each region or census area, internal labour income inequality prevails in explaining the level of inequality across census areas and/or geographic regions. We recall that the regions with the lowest relative development grow, in the Brazilian case, at higher rates than the others, which over time leads to the narrowing of their differences in terms of per capita income, yet not necessarily in terms of the income inequality levels within each region, as we saw above.

Table 5 – Decomposition of Theil index by geographic region and area. Labour income. Brazil. 1979-2011.

	North*		Northeast		Southeast		South		Mid-West		Within groups		Between groups	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	(%)	(%)	(%)	(%)
1979	0.586	0.373	0.669	0.467	0.576	0.481	0.628	0.333	0.681	0.575	(87.2)	0.085	(12.8)	
1983	0.547	0.488	0.716	0.548	0.602	0.542	0.570	0.543	0.654	0.603	(89.8)	0.069	(10.2)	
1989	0.789	0.657	0.977	0.592	0.741	0.607	0.711	0.890	0.875	0.764	(92.2)	0.064	(7.8)	
1993	0.713	0.748	0.852	0.646	0.676	0.658	0.694	0.806	0.769	0.709	(92.8)	0.055	(7.2)	
1995	0.620	0.615	0.743	0.497	0.593	0.462	0.601	0.534	0.642	0.612	(90.6)	0.064	(9.4)	
1999	0.573	0.587	0.704	0.539	0.543	0.515	0.548	0.659	0.675	0.575	(90.9)	0.057	(9.1)	
2001	0.585	0.482	0.677	0.556	0.581	0.517	0.535	0.532	0.673	0.590	(91.6)	0.054	(8.4)	
2003	0.540	0.397	0.646	0.601	0.559	0.579	0.526	0.418	0.607	0.565	(91.8)	0.050	(8.2)	
2005	0.500	0.412	0.655	0.469	0.551	0.401	0.517	0.539	0.646	0.556	(92.2)	0.047	(7.8)	
2007	0.502	0.491	0.628	0.423	0.503	0.540	0.476	0.438	0.634	0.525	(92.8)	0.040	(7.2)	
2009	0.482	0.444	0.590	0.339	0.515	0.379	0.473	0.452	0.604	0.515	(93.3)	0.037	(6.7)	
2011	0.491	0.415	0.565	0.361	0.478	0.476	0.413	0.367	0.573	0.487	(93.6)	0.034	(6.4)	

* Rural North excluded.

Source: Prepared by authors based on PNAD/IBGE microdata.

b) Gender

Difference in income by gender remains significant in Brazil, though, it has been decreasing over time in both rural and urban areas (Table 6). Whereas in 1979 women were paid about 50 % of men's income, in 2011 they received 73% of male income. It is noteworthy that several studies show that this differential of labour income is resulting mainly from discriminatory practices and segregation in the labour market, and not due to differences in productive attributes between sexes. This aspect is relevant, because since the mid-1980s women have exceeded men in terms of average years of schooling, however, many of them remain employed in jobs with lower pay and / or lower social prestige.

Table 6 – Average labour income by sex and area. Brazil. 1979-2011 (constant 2012 R\$)

	rural		urban		total	
	male	female	male	female	male	female
1979	702	311	1,805	831	1,463	736
1983	587	252	1,453	709	1,209	631
1989	749	334	1,820	956	1,550	870
1993	629	301	1,373	774	1,216	717
1995	643	375	1,674	979	1,459	912
1999	647	435	1,531	992	1,347	927
2001	599	385	1,474	968	1,329	919
2003	611	375	1,323	871	1,207	832
2005	630	424	1,374	926	1,241	881
2007	736	506	1,508	1,020	1,378	977
2009	765	567	1,567	1,058	1,435	1,016
2011	825	585	1,671	1,182	1,547	1,135

Source: Prepared by authors based on PNAD/IBGE microdata.

Table 7 shows that the classification by sex is critical for understanding labour income inequality. The estimates show a reduction in this form of inequality for both groups, especially for the case of male workers, although women's rates remained at a lower level as a result of a lower wage dispersion associated with lower wages relative to the male workforce. It is worth stressing that most women earn lower-than-minimum wages. Besides, the weight of the male/female gap to account for labour income inequality has fallen over time, thus increasing the importance of intragroup inequality. Moreover, the drop in labour income inequality between groups was more remarkable in the early 1980s, corresponding to the massive entrance of women in the labour market.

These findings show the difficulties women face in the Brazilian labour market, which prompt lower inequality between them. In the case of men, we can see that the higher wages – well above those of women – stagnated while the lowest wages recovered due to the effect of the minimum wage – around which men's, rather than women's, floor wages tend to gravitate.

It is worth pointing out that the average wage gap between men and women, in favour of the former and which was 45%, fell to 36% from 2003 to 2011, which suggests an increase in women occupational groups whose wages are adjusted by the minimum wage, even though the minimum wage is not the at base of women's incomes.

Table7 – Decomposition of Theil index by sex and area. Labour income. Brazil. 1979-2011.

		Theil index		Within-group	Between-group		
		male	female	%		%	
Rural	1979	0.460	0.407	0.455	92.5	0.037	7.5
	1983	0.565	0.427	0.550	92.8	0.043	7.2
	1989	0.665	0.593	0.656	93.9	0.043	6.1
	1993	0.747	0.806	0.754	95.4	0.037	4.6
	1995	0.555	0.649	0.569	96.4	0.021	3.6
	1999	0.598	0.629	0.603	97.9	0.013	2.1
	2001	0.588	0.482	0.570	97.4	0.015	2.6
	2003	0.630	0.412	0.595	97.1	0.018	2.9
	2005	0.502	0.467	0.496	97.5	0.013	2.5
	2007	0.551	0.426	0.527	97.9	0.012	2.1
	2009	0.451	0.420	0.444	98.3	0.008	1.7
	2011	0.498	0.448	0.487	97.9	0.010	2.1
Urban	1979	0.587	0.498	0.570	91.5	0.053	8.5
	1983	0.594	0.531	0.581	92.4	0.048	7.6
	1989	0.767	0.723	0.756	94.8	0.041	5.2
	1993	0.720	0.629	0.697	95.3	0.034	4.7
	1995	0.625	0.582	0.613	95.2	0.031	4.8
	1999	0.585	0.566	0.579	96.5	0.021	3.5
	2001	0.612	0.571	0.599	96.8	0.020	3.2
	2003	0.593	0.534	0.574	96.7	0.020	3.3
	2005	0.582	0.543	0.569	97.0	0.018	3.0
	2007	0.549	0.495	0.531	96.8	0.018	3.2
	2009	0.548	0.479	0.524	96.7	0.018	3.3
	2011	0.503	0.468	0.491	97.2	0.014	2.8
Total	1979	0.638	0.537	0.620	94.0	0.039	6.0
	1983	0.650	0.570	0.635	94.4	0.037	5.6
	1989	0.801	0.756	0.790	96.1	0.032	3.9
	1993	0.759	0.666	0.737	96.3	0.028	3.7
	1995	0.668	0.612	0.653	96.6	0.023	3.4
	1999	0.628	0.592	0.618	97.6	0.015	2.4
	2001	0.647	0.587	0.629	97.7	0.015	2.3
	2003	0.624	0.546	0.600	97.5	0.015	2.5
	2005	0.606	0.556	0.590	97.8	0.013	2.2
	2007	0.575	0.505	0.552	97.6	0.013	2.4
	2009	0.564	0.487	0.539	97.5	0.014	2.5
	2011	0.525	0.479	0.509	97.9	0.011	2.1

Source: Prepared by authors based on PNAD/IBGE microdata.

c) Race

The reduction of the gap on the employee's race is shown in Table 8, however, although at a slower pace compare with women. In 1979 the non- white workers were paid 46 % of the white's income and in 2011 the gap increased to 60 %. However, opposing to the situation for women, non-whites tend to have lower levels of schooling than whites, which is reflected in the lower level of remuneration for these workers

**Table 8 – Average labour income by race and area.
Brazil, 1979-2011 (constant 2012 R\$)**

	rural		urban		total	
	non-white	white	non-white	white	non-white	white
1989	468	851	901	1,893	785	1,705
1993	362	787	724	1,441	641	1,348
1995	420	771	881	1,763	781	1,625
1999	417	801	836	1,651	745	1,530
2001	394	735	816	1,600	746	1,506
2003	377	786	743	1,442	683	1,374
2005	465	751	811	1,499	749	1,417
2007	529	896	917	1,634	852	1,556
2009	560	946	996	1,672	926	1,597
2011	615	976	1,098	1,806	1,030	1,728

Source: Prepared by authors based on PNAD/IBGE microdata.

The cross section color of skin is equally important in the Brazilian labour market. Table 9 shows the Theil indices according to this classification, and in it we can see that white workers, in addition to presenting lower labour income inequality levels, also experienced a higher reduction of this indicator between 1989 and 2011. However, from 2003 to 2011, inequality among blacks fell more than among whites.

In terms of comparison between both groups' average labour income, the difference in favour of the whites, which was two times higher than the blacks' average, was down to 67% over the same period, which indicates a stronger growth of black people's average income, including for those lower income strata, despite the still high inequality indicator within this group.

We have noticed, thus, that the colour of the skin is more important than sex for both household and labour income inequality. Among others, Cacciamali & Tatei (2012) show that women and black or brown individuals historically suffer from inequality of opportunities in Brazil. In the case of women, they managed to overcome the access barriers to the educational system and today boast an average schooling level that is higher than that of men; however, this educational gain does is not reflected in the labour market. Yet, in the case of black individuals, the problem is pre-labour market

discrimination. On average, this population group has lower schooling levels than whites, with negative implications for wages earned. Thus, black women in Brazil are the most harmed, since they are doubly discriminated against.

Table9 – Decomposition of Theil index by race and area. Labour income. Brazil. 1989-2011.

		Theil index		Within-group	%	Between-group	
		non-white	white				%
Rural	1989	0.619	0.678	0.655	93.8	0.044	6.2
	1993	0.640	0.762	0.718	90.7	0.073	9.3
	1995	0.523	0.558	0.544	92.3	0.046	7.7
	1999	0.431	0.645	0.564	91.6	0.052	8.4
	2001	0.432	0.607	0.538	91.9	0.048	8.1
	2003	0.369	0.656	0.546	89.2	0.066	10.8
	2005	0.424	0.532	0.480	94.4	0.028	5.6
	2007	0.398	0.597	0.504	93.6	0.035	6.4
	2009	0.368	0.464	0.418	92.4	0.034	7.6
	2011	0.464	0.478	0.471	94.7	0.027	5.3
	Urban	1989	0.700	0.754	0.742	93.0	0.056
1993		0.574	0.718	0.681	93.1	0.050	6.9
1995		0.524	0.617	0.593	92.1	0.051	7.9
1999		0.469	0.580	0.551	91.8	0.049	8.2
2001		0.474	0.606	0.570	92.1	0.049	7.9
2003		0.447	0.585	0.545	91.8	0.049	8.2
2005		0.441	0.591	0.544	92.6	0.043	7.4
2007		0.421	0.553	0.509	92.9	0.039	7.1
2009		0.474	0.530	0.510	94.1	0.032	5.9
2011		0.393	0.523	0.475	94.1	0.030	5.9
Total		1989	0.721	0.780	0.765	92.3	0.063
	1993	0.614	0.738	0.705	92.2	0.060	7.8
	1995	0.558	0.640	0.618	91.4	0.058	8.6
	1999	0.495	0.607	0.577	91.1	0.056	8.9
	2001	0.496	0.625	0.589	91.6	0.054	8.4
	2003	0.463	0.601	0.561	91.1	0.055	8.9
	2005	0.457	0.603	0.556	92.1	0.047	7.9
	2007	0.435	0.568	0.523	92.4	0.043	7.6
	2009	0.481	0.537	0.517	93.5	0.036	6.5
	2011	0.414	0.532	0.488	93.8	0.032	6.2

Source: Prepared by authors based on PNAD/IBGE microdata.

d) Education

Table 10 shows the progress of labour income according to the workers' educational level and here it is one of the main factors that influence inequality in Brazil: the high-income gap between workers with higher education and workers with all other levels. In 2011, workers with higher education earnings were, on average, 2.6 times the income of workers with high school, and even with the average income downward trend of skilled workers since 1979 the differential has changed little over time, except in rural areas.

**Table 10 – Average labour income by education and area.
Brazil, 1979-2011 (constant 2012 R\$)**

		Without instruction	Incomplete Primary	Complete Primary	Secondary	Higher
Rural	1979	435	715	1,087	1,704	5,548
	1983	350	583	875	1,169	2,675
	1989	404	707	983	1,189	3,090
	1993	336	577	853	1,182	2,999
	1995	359	587	793	1,264	3,767
	1999	338	559	744	1,236	4,147
	2001	336	549	689	1,067	2,669
	2003	331	547	709	905	2,631
	2005	362	551	654	937	2,516
	2007	432	639	752	976	2,083
	2009	446	648	791	987	1,817
	2011	509	710	844	989	1,720
Urban	1979	615	1,070	1,547	2,446	5,741
	1983	474	826	1,263	1,578	3,534
	1989	525	941	1,404	1,890	4,381
	1993	445	714	1,030	1,657	3,964
	1995	548	872	1,230	1,942	4,769
	1999	510	791	1,039	1,651	4,195
	2001	498	737	972	1,513	4,151
	2003	447	663	825	1,274	3,539
	2005	481	696	833	1,273	3,526
	2007	569	773	911	1,319	3,628
	2009	600	783	922	1,329	3,523
	2011	780	882	1,002	1,382	3,643
Total	1979	514	979	1,521	2,417	5,737
	1983	409	767	1,239	1,558	3,520
	1989	466	886	1,365	1,846	4,354
	1993	398	687	1,018	1,635	3,942
	1995	467	816	1,200	1,908	4,749
	1999	435	740	1,015	1,629	4,194
	2001	439	703	954	1,497	4,132
	2003	403	641	816	1,259	3,525
	2005	434	664	816	1,256	3,509
	2007	517	744	895	1,300	3,595
	2009	542	754	909	1,308	3,470
	2011	699	845	986	1,362	3,593

Source: Prepared by authors based on PNAD/IBGE microdata.

On Table 11, we notice a labour income inequality converging movement between the various schooling levels, signalling that labour income distribution for individuals with incomplete elementary schooling up to complete middle education tends to be similar, besides having dropped most dramatically between 2003 and 2011. Over the period labour demand tended to be concentrated in these two groupings, whose income was around the minimum wage.

Table11 – Decomposition of Theil index by education. Labour income. Brazil. 1979-2011.

		Theil index					Within-group	Between-group		
		Without instruction	Incomplete Primary	Complete Primary	Secondary	Higher	%	%		
Rural	1979	0.331	0.451	0.500	0.451	0.476	0.416	84.7	0.075	15.3
	1983	0.412	0.554	0.458	0.793	0.598	0.524	88.5	0.068	11.5
	1989	0.532	0.669	0.523	0.552	0.563	0.619	88.6	0.080	11.4
	1993	0.672	0.707	0.796	0.738	0.397	0.696	88.0	0.095	12.0
	1995	0.388	0.517	0.446	0.529	0.443	0.483	81.9	0.107	18.1
	1999	0.348	0.485	0.472	0.531	0.504	0.468	76.0	0.148	24.0
	2001	0.379	0.556	0.449	0.527	0.511	0.509	86.9	0.077	13.1
	2003	0.377	0.536	0.621	0.551	0.768	0.534	87.2	0.078	12.8
	2005	0.370	0.450	0.442	0.437	0.554	0.440	86.5	0.069	13.5
	2007	0.388	0.495	0.566	0.507	0.402	0.489	90.8	0.050	9.2
	2009	0.423	0.404	0.433	0.377	0.364	0.402	88.8	0.051	11.2
	2011	0.641	0.425	0.491	0.403	0.426	0.461	92.6	0.037	7.4
Urban	1979	0.383	0.455	0.432	0.408	0.382	0.423	67.9	0.200	32.1
	1983	0.378	0.480	0.467	0.450	0.398	0.445	70.7	0.185	29.3
	1989	0.521	0.636	0.556	0.621	0.534	0.588	73.7	0.210	26.3
	1993	0.459	0.496	0.501	0.522	0.551	0.516	70.6	0.215	29.4
	1995	0.410	0.452	0.426	0.453	0.395	0.432	67.1	0.212	32.9
	1999	0.334	0.397	0.401	0.440	0.361	0.398	66.3	0.202	33.7
	2001	0.344	0.380	0.408	0.438	0.408	0.409	66.1	0.210	33.9
	2003	0.343	0.371	0.396	0.423	0.387	0.396	66.6	0.198	33.4
	2005	0.335	0.370	0.375	0.418	0.424	0.403	68.6	0.185	31.4
	2007	0.343	0.357	0.348	0.358	0.431	0.379	69.1	0.169	30.9
	2009	0.317	0.319	0.330	0.354	0.464	0.381	70.3	0.161	29.7
	2011	0.346	0.296	0.303	0.333	0.441	0.360	71.4	0.145	28.6
Total	1979	0.373	0.468	0.437	0.411	0.383	0.430	65.3	0.229	34.7
	1983	0.405	0.504	0.470	0.464	0.401	0.460	68.5	0.212	31.6
	1989	0.514	0.627	0.539	0.621	0.536	0.584	71.0	0.238	29.0
	1993	0.546	0.535	0.518	0.531	0.549	0.535	70.0	0.229	30.0
	1995	0.423	0.472	0.432	0.459	0.396	0.442	65.4	0.234	34.6
	1999	0.359	0.421	0.409	0.445	0.365	0.408	64.5	0.225	35.5
	2001	0.370	0.411	0.412	0.442	0.410	0.418	65.0	0.225	35.0
	2003	0.364	0.400	0.412	0.429	0.392	0.407	66.1	0.208	33.9
	2005	0.356	0.388	0.382	0.420	0.426	0.408	67.6	0.196	32.4
	2007	0.366	0.385	0.367	0.366	0.433	0.390	68.9	0.176	31.1
	2009	0.360	0.337	0.340	0.358	0.467	0.386	69.8	0.167	30.2
	2011	0.426	0.323	0.320	0.338	0.445	0.371	71.2	0.150	28.8

Source: Prepared by authors based on PNAD/IBGE microdata.

The exceptions are the extremities, those without education and those with complete higher education, who have the highest Theil indices for the education categories and also follow a pattern of increased inequality growth between 2003 and 2011.

In the first case, the worsening of the inequality index is related to the fact that the group of occupied workers without education has been falling dramatically, creating a huge gap between those earning the minimum wage and those earning meagre incomes.

And, in the case of the occupied with higher education, pay heterogeneity is accounted for not only by their educational background, but also by their market valuing. As much as demand for this form of labour has increased, this has occurred in a much segmented way. Although the average income gap between those occupied workers with higher education and those without any education was fivefold in 2011, it was 8.7 times higher in 2003; and while the first group saw their real average income stagnate, the second saw it rise by 70%.

e) Status of work

Finally, Table 12 shows the evolution of labour income by status of work, in which we observed the reduction in income differential of informal workers - unregistered and self-employed - and domestic workers comparatively to formal employees. Because these workers are the majority in the labour market, this drop contributed to the overall reduction in inequality of labour income, even though there has been increased gap in relative to employers and public servants.

**Table 12 – Average labour income by work status and area.
Brazil. 1993-2011 (constant 2012 R\$)**

		Registered wage-earners	Non-registered wage-earners	Self-employed	Employer	Public employees	Domestic workers
Rural	1993	687	270	623	2,106	839	215
	1995	736	362	552	2,155	973	277
	1999	784	366	518	2,480	1,095	303
	2001	679	366	510	1,955	834	298
	2003	664	355	510	2,427	797	311
	2005	769	393	507	2,013	924	324
	2007	872	444	655	2,194	1,000	359
	2009	914	470	649	2,337	1,081	407
	2011	944	551	694	2,592	1,076	410
Urban	1993	1,284	574	1,025	3,766	1,580	274
	1995	1,451	730	1,331	4,742	1,950	391
	1999	1,376	757	1,191	4,097	1,996	409
	2001	1,312	773	1,134	4,016	2,031	402
	2003	1,189	673	978	3,547	1,835	372
	2005	1,222	739	990	3,664	1,967	396
	2007	1,299	804	1,154	3,960	2,252	448
	2009	1,345	865	1,101	3,846	2,377	485
	2011	1,405	949	1,366	4,421	2,517	552
Urban	1993	1,232	487	911	3,535	1,537	268
	1995	1,388	635	1,113	4,400	1,890	378
	1999	1,318	662	1,012	3,897	1,926	395
	2001	1,271	695	995	3,782	1,971	393
	2003	1,155	616	873	3,438	1,783	366
	2005	1,189	669	876	3,473	1,905	388
	2007	1,268	733	1,041	3,788	2,175	439
	2009	1,314	786	1,002	3,704	2,282	477

2011	1,379	878	1,219	4,253	2,422	539
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Source: Prepared by authors based on PNAD/IBGE microdata.

Table 13 presents a decomposition of the Theil index by occupied worker status. In it we see a decrease in labour income inequality for all occupational categories, especially among wage earners. Between 1993 and 2011, there was a -39.6% drop in the Theil coefficient for those registered wage earners against a -29.4% decrease for non-registered wage earners. It is worth mentioning a minor reduction (-12.3% over the period) in the Theil index among employers, which was offset by a rebound in the 2003-2011 period. In 2011, this category had the highest “labour income” inequality gap. This is not a surprising finding if one considers that employers tend to have the highest educational levels and the highest average incomes. Still, they are also characterized by the high heterogeneity of their market structures, ranging from capitalist businesspeople to microentrepreneurs with extremely low “profitability” rates, often close to the average income of those self-employed. It is also worth noting the high inequality level among this last group of workers, also prompted by the group’s extreme heterogeneity. Also worthy of mention is the fact that this group had the second highest average income rise between 2003 and 2011, only trailing behind non-registered wage earners, at 40%, against the 19% reached by registered wage earners.

Table13 – Decomposition of Theil index by work status. Labour income. Brazil. 1993-2011.

		Theil index						Within-group	Between-group		
		Registered wage-earners	Non-registered wage-earners	Self-employed	Employer	Public employees	Domestic workers	%	%		
Rural	1993	0.391	0.398	0.822	0.800	0.569	0.290	0.640	81.0	0.151	19.0
	1995	0.326	0.272	0.616	0.566	0.539	0.200	0.470	79.7	0.119	20.3
	1999	0.333	0.293	0.585	0.667	0.525	0.198	0.469	76.1	0.147	23.9
	2001	0.167	0.295	0.653	0.758	0.391	0.226	0.473	80.9	0.112	19.1
	2003	0.154	0.259	0.597	0.914	0.288	0.215	0.470	76.8	0.142	23.2
	2005	0.183	0.241	0.552	0.651	0.391	0.221	0.397	78.0	0.112	22.0
	2007	0.194	0.246	0.738	0.579	0.254	0.238	0.453	84.1	0.085	15.9
	2009	0.141	0.235	0.578	0.534	0.255	0.235	0.359	79.4	0.093	20.6
	2011	0.125	0.273	0.653	0.707	0.268	0.231	0.420	84.4	0.078	15.6
	Urban	1993	0.547	0.697	0.675	0.616	0.524	0.240	0.586	80.2	0.144
1995		0.468	0.544	0.602	0.455	0.475	0.221	0.496	77.1	0.147	22.9
1999		0.422	0.523	0.581	0.480	0.419	0.200	0.469	78.1	0.131	21.9
2001		0.434	0.559	0.618	0.507	0.421	0.193	0.488	78.8	0.131	21.2
2003		0.406	0.481	0.618	0.498	0.406	0.190	0.462	77.9	0.132	22.1
2005		0.376	0.485	0.618	0.557	0.417	0.173	0.459	78.2	0.128	21.8
2007		0.352	0.452	0.575	0.499	0.435	0.178	0.431	78.5	0.118	21.5
2009		0.335	0.606	0.533	0.499	0.418	0.182	0.427	78.8	0.115	21.2
2011		0.338	0.424	0.501	0.550	0.427	0.167	0.407	80.6	0.098	19.4
Urban		1993	0.551	0.695	0.725	0.647	0.533	0.247	0.608	79.5	0.157
	1995	0.474	0.540	0.660	0.486	0.486	0.224	0.521	77.0	0.156	23.0
	1999	0.427	0.529	0.631	0.505	0.433	0.204	0.491	77.5	0.142	22.5
	2001	0.434	0.563	0.661	0.539	0.432	0.198	0.506	78.7	0.137	21.3
	2003	0.404	0.480	0.643	0.532	0.413	0.193	0.476	77.4	0.139	22.6
	2005	0.373	0.480	0.640	0.577	0.426	0.179	0.469	77.7	0.134	22.3
	2007	0.348	0.449	0.621	0.515	0.441	0.185	0.444	78.5	0.121	21.5
	2009	0.329	0.584	0.559	0.509	0.426	0.189	0.433	78.3	0.120	21.7
	2011	0.333	0.424	0.549	0.567	0.436	0.174	0.420	80.7	0.100	19.3

Source: Prepared by authors based on PNAD/IBGE microdata.

* Codification for work status in 1979 to 1989 was different than today. In the total wage earners' subset for that period were included, among others, occupations like civil servants and domestic labourers, occupations which would later have their own categories.

3. Wage inequality in Brazil

The rising minimum wage, in the context of job creation and increasing formalization of wage work, brought about a convergence of wage levels between and within the economic sectors, regions and social groups. The changes were rather dramatic over a short period of time, from 2001 to 2011, even though the trend can be traced back to 1995, when the purchasing power of the minimum wage started to increase. The minimum wage was equivalent to 45.8 percent of the average wage in 2013, compared with 29.7 percent in 1999 (Graph 11).

Given that the ratio of minimum wage to average wage is difficult to compare between employment groups, it is best to analyze how this ratio changes within each group over time. So, when we break down wages by type of employment – registered and unregistered– the minimum wage is much closer to the average wage for informal (i.e. unregistered) employees, especially in rural areas, since average wages for these workers are much lower than in formal employment.

Graph 11 – Ratio of minimum to average wages. Brazil, 1999-2013.



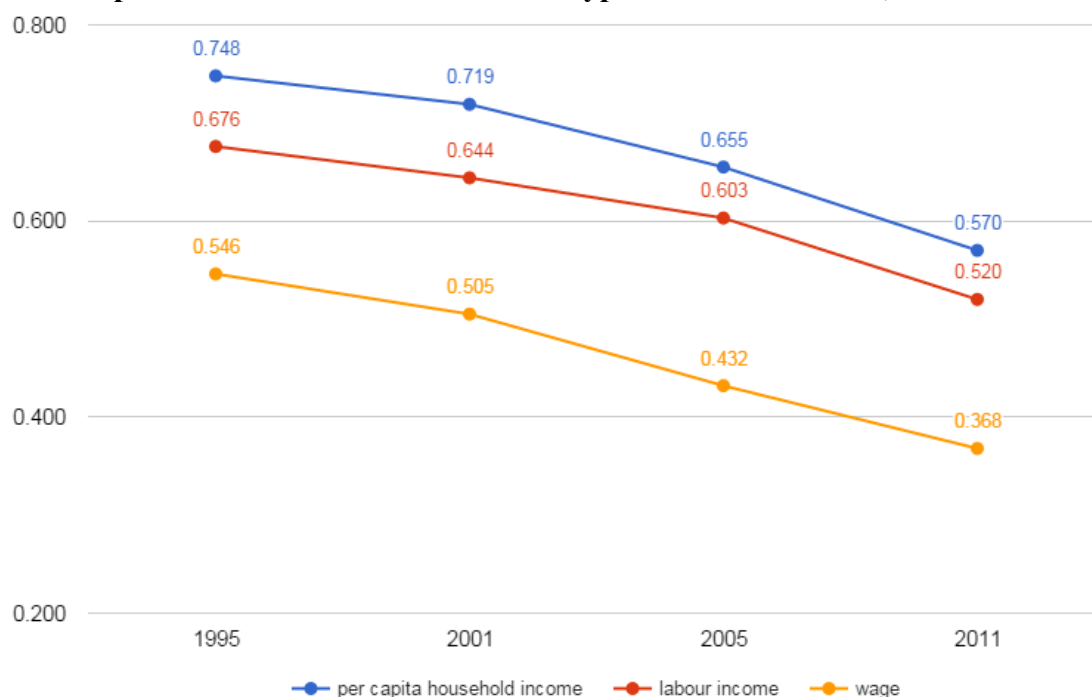
Source: Prepared by the authors based on PNAD microdata.

Graph 12, which shows inequality trends for wages, labour incomes and per capita household income, demonstrates that declining wage inequality was the main factor driving overall reductions in income inequality, as the fall in inequality was greater for wages than for labour income (which includes self-employed incomes) and per capita household income (which includes pensions, social assistance benefits and cash transfer). This means that Brazil’s minimum wage policy played a more central role in

reducing inequality and as we will analyze below, the role of labour market was more important than the country's income transfer programs during the first decade of the century.

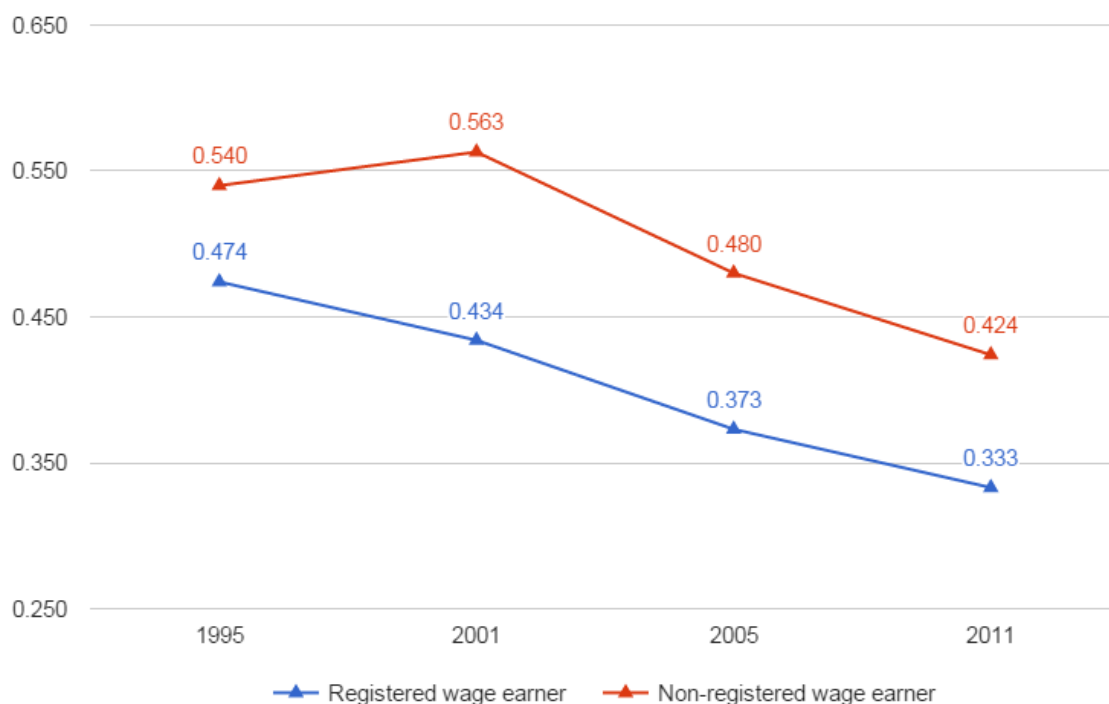
There is a main characteristic of the Brazilian labour market that we must mention. In Brazil, the minimum wage is fully enforced among registered workers and it is used as a standard for unregistered wage earners too because of the Labour Court. The unregistered have access only indirectly in case they appeal to the Labour Courts, as the Constitution states these rights should be applied to all wage earners, so if the Labour Court sues the employer, he shall pay all bypassed social rights plus a fine. To avoid higher costs if caught, most of those employers will closely follow labour laws and minimum payment. This is demonstrated by the even faster decline of wage inequality among unregistered wage earners in the period 2005-2011 (Graph 13). Also, there is another reason. In a booming labour market, compounded by high turnover rates, paying minimum wage has become almost a requirement in order to recruit less skilled but specialized workers.

Graph 12: Theil indexes for different types of income. Brazil, 1995 to 2011



Source: Prepared by the authors based on PNAD microdata.

Graph 13: Theil indexes for registered and nonregistered wage earners. Brazil, 1995 to 2001



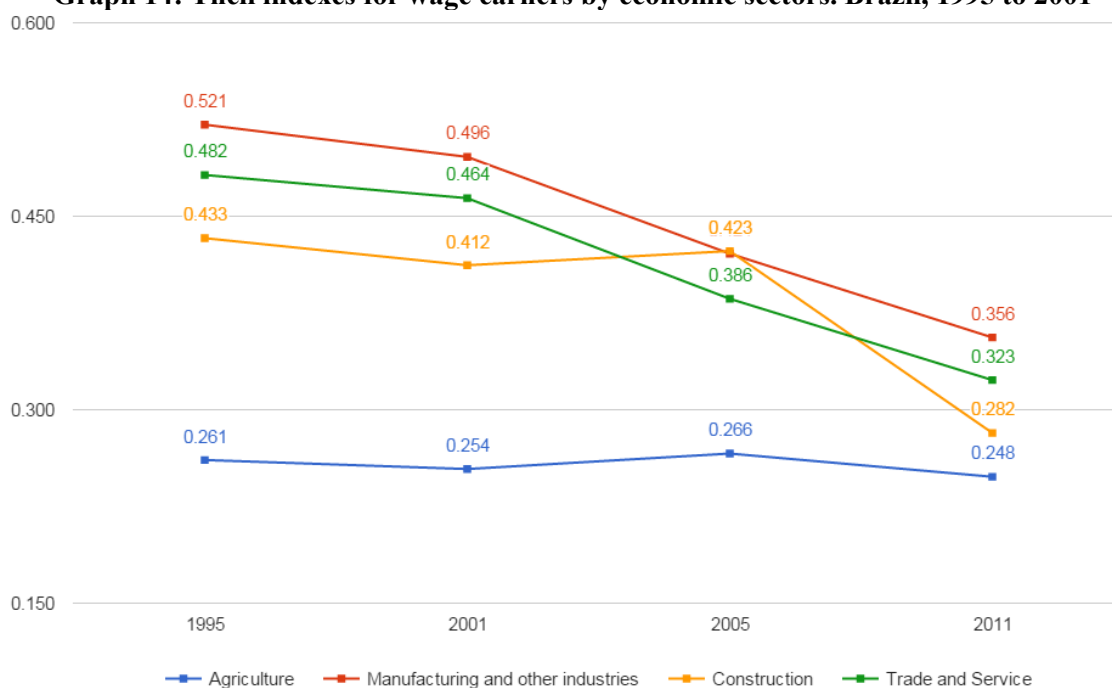
Source: Prepared by the authors based on PNAD microdata.

It should be said, from the outset, that falling wage inequality occurs in a context of very diverse levels of productivity across and within economic sectors. Nevertheless, wage inequality has fallen in all sectors and most rapidly for construction and services, sectors. In these sectors, average wages are not much above minimum wages, so a rise in the minimum significantly compresses the wage scale.

In manufacturing, by contrast, most workers are paid far above the minimum wage and the wage scale is much wider, so the fall in wage inequality was less compared to workers in construction, which are more likely to receive wages at the minimum wage level. In agriculture, an altogether different trend can be observed. Because the minimum wage is close to the highest wages in this sector, clearly the rising minimum wage had little impact here at least in terms of inequality reduction (graph 14).

Another point, not shown in the graph, is that the gap between the wages of informal and formal employees (unregistered and registered) narrowed in all sectors. The same is true of the gap between average wages in lower-paying and lower-productivity sectors (agriculture, construction, trade and services) and average wages in manufacturing.

Graph 14: Theil indexes for wage earners by economic sectors. Brazil, 1995 to 2011



Source: Prepared by the authors based on PNAD microdata.

It is also worth mentioning that wage inequality fell most significantly among almost all disadvantaged groups – especially non-whites and the less educated – and also among women (Table 14). The minimum wage is behind this change as these groups have more wage earners receiving a labour income around the minimum wage as well as less workers earning an income of at least 3 times this value. In the case of women, the growth of jobs was more concentrated at both ends of the wage scale than for men. However, the female to male wage ratio, at over 80 percent, was much better than that between non-whites and whites, even though the latter increased from 55 to 66 percent in 2011.

Considering education, wage premiums have fallen for all schooling levels, which is related both to the minimum wage's influence and to an abundance of workers with secondary and tertiary education in a context in which productivity has remained stagnant. The wages of illiterate wage earners were 10 times lower than those for workers with college education in 2001, but this figure fell to just 4.2 times in 2011. The change is staggering even considering the fact that the size of the first group dropped sharply while the size of the second grew dramatically.

In terms of the regional differences, there was a remarkable shift. The Northeast region saw the largest decline in inequality during the period 1995-2011. On the other hand, in the Southeast the reduction in inequality was less dramatic. While the Northeast was the most unequal region in 1995, the Southeast had taken over that spot by the beginning of the century.

Table 14 – Theil indexes, values and variation, and ratio of average wages. Brazil (2001/2011)

	2001	2011	% 2001-2011	ratio average wages 2001	ratio average wages 2011	ratios
male	0.529	0.378	-28.6	85.5	83.4	female/male
female	0.451	0.388	-22.9			
whites	0.514	0.41	-20.3	55.2	65.9	non-whites/whites
non-whites	0.351	0.251	-28.5			
Without instruction	0.218	0.194	-10.8	-	-	-
Incomplete Primary	0.233	0.156	-32.9	-	-	-
Complete Primary	0.258	0.166	-35.5	79.8	91.2	incomplete/complete primary
Secondary	0.337	0.229	-32	65.9	75.1	primary/secondary
Tertiary	0.403	0.404	0.1	32.9	38.7	secondary/tertiary
North	0,467	0,320	-31,5	71,3	82,1	Northeast / North
Northeast	0,525	0,336	-35,9	-	-	-
Southeast	0,490	0,383	-21,9	50,3	58,6	Northeast / Southeast
South	0,393	0,258	-34,4	60,8	66,3	Northeast / South
Mid-West	0,459	0,357	-22,3	62,8	64,0	Northeast / Mid-West

Source: Prepared by the authors based on PNAD microdata.

4. Regression-based inequality decomposition

This section presents an econometric exercise based on the methodology proposed by Morduch and Sicular (2002) and Fields (2002), which seeks to measure income inequality determinants. Succinctly, the method is based on the Mincer earnings function and, building on OLS-estimated coefficients,⁵ we calculate the effects of each explanatory variable on the distribution of the dependent variable. In the case of Brazil, results were estimated for three variables of interest: labour income, wages and per capita expenditure, all measured in log units.

The first variable includes all occupied workers in Brazil, provided they earn some form of income, i.e., unpaid workers and those working for self-consumption are not included. The second variable only considers wage earners, with or without a work contract, so as to verify whether the pattern changes when separating private sector employees from all other occupational groups. Both variables relied on 5-year PNAD household surveys: 1995, 1999, 2005, 2009 and 2011. Lastly, we use the 2008/009 Household Budget Survey (POF, from the Portuguese acronym) in estimating household monthly per capita expenditure, excluding variations in asset ownership.

In labour income and wage regressions, the results for the vectors education, work type, economic sector, occupational group and geographical region are calculated on the basis of the sum of the individual effects of each binary variable modelled, while the reference categories are, respectively, education – higher education; work type – wage earner with a work contract; economic sector – manufacturing industry; occupational group – sciences and arts professionals; and region – Southeast. In the case of per capita expenditure, the vectors of interest are the characteristics of the reference person in each household on the basis of race, education, work type and economic sector; in addition to household characteristics, such as locality and whether place of residence is one's own or rented.

Graph 15 presents the results of the decomposition of labour income, with categories organized from the lowest contribution percentage to the highest as for 2011. For every year, the residual percentage is significantly higher than that for all other components, rising steadily over time from 46.4% in 1995 to 51.4% in 2011. We may thus say that factors not captured by the model explain about half of labour income inequality in 2011 and, therefore, we can state that inequality comprises a set of complex, and difficult to measure, structural relations. Albeit high, this result is consistent with the literature, as residual percentages are 46% in the U.S. (Fields, 2002), 40% in Chile (Contreras, 2003) and 57% in Brazil (Araújo & Vasconcellos, 2014).

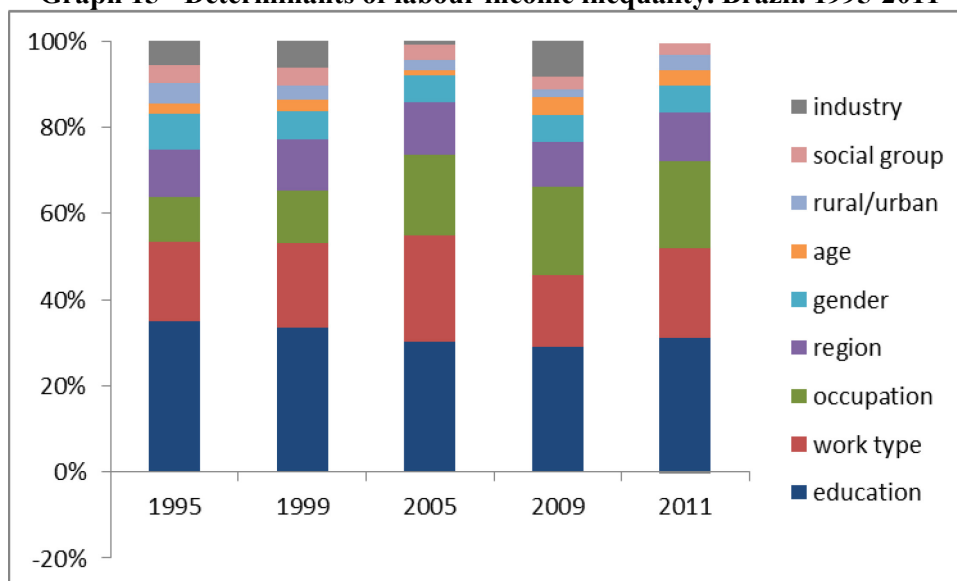
⁵ Assuming the endogeneity problem of the explanatory variable education in relation to the dependent variable, the usual way out of this problem is by means of the instrumental variables method. However, except for a few supplements, the PNAD does not provide sufficient data to ensure the reliability of the method. Thus, though widely acknowledged, many studies in Brazil prefer to disregard this problem due to its operational limitation.

Upon considering the variables modelled totalling 100%, we observe that education is the main component for explaining labour income inequality in Brazil, accounting for 31.4% of inequality in 2011. Moreover, observation of the 1995/2009 period shows a slight decrease in this percentage, from 35.0% to 29.0%, resulting from the rapid expansion of basic education with the adoption of the 1988 Federal Constitution and the subsequent increase of the Brazilian workers' average schooling. With a more educated population, there was a flattening of the income of the better educated workers during the economic growth period, while the income of those with poorer formal educational backgrounds rises substantially.

After education, the second most important component for explaining labour income inequality is work type, with a percentage of 20.9% in 2011. In contrast with education, the explanatory portion of occupation showed a fluctuating trend over the period, rising from 1995 to 2005 and dropping thereafter. Likewise, occupational groups accounted for 20.5% of labour income inequality in 2011. Jointly, these two variables reflect the changes in the Brazilian labour market, especially the rise in formalization in the 2000s and the significant rise in the generation of, albeit low-productivity, jobs.

The sum total of all other components only accounts for 27.2% of labour income inequality in 2011 and, except for age, all of them follow a declining trend as regards their influence on the level of inequality. It is interesting to observe how certain personal characteristics, such as sex and colour, have little influence on income inequality, regardless of their relevance in determining wages. These findings indicate that intragroup inequality is increasingly more significant than inequality between groups, even for those socially vulnerable.

Graph 15 - Determinants of labour income inequality. Brazil. 1995-2011

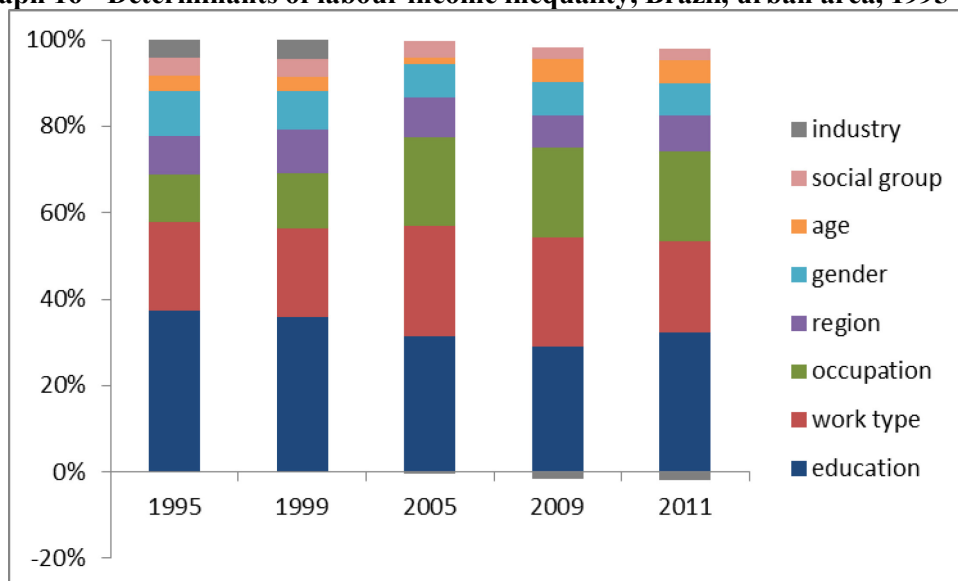


Source: Prepared by authors based on PNAD/IBGE microdata.

Disaggregating the results for urban and rural areas (Graphs 16 and 17), we notice that the urban pattern is similar to that verified for total country results, which should be expected given the country's high urbanization rate. Rural areas, in contrast, exhibit quite different results.

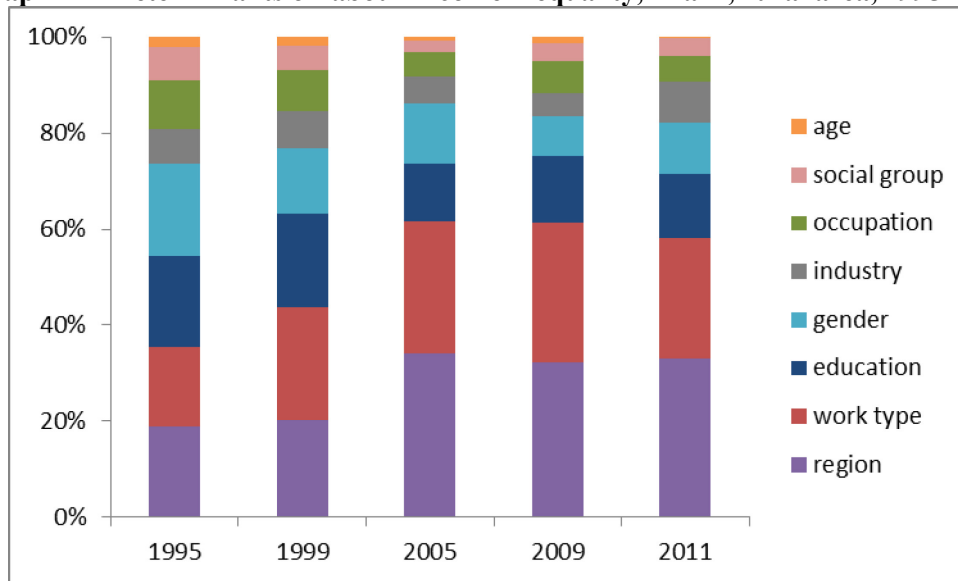
Firstly, the regional factor is critical for labour income inequality in rural areas, accounting for 33% in 2011. This high contribution is even more puzzling because, in 1995, regional gaps accounted for only 18.9% of labour income inequality; which is likely to be a reflection of the high economic growth rate in localities where agribusiness prospered over the past years. Next, the work type contributes with 25.1% of rural inequality, while the various occupational groups account for only 5.4%. This occurs because the labour market in the countryside is largely informal and less diversified, with a greater concentration in just a few occupations. Education appears as the third factor most contributing to inequality, 13.4% in 2011, indicating that schooling differences are relatively less important in explaining income inequality in the countryside than in the cities. Also noteworthy is the high contribution percentage of sex-related differences, of 10.6% in 2011, in contrast with 19.1% in 1995, which represents a considerable gain in favour of women from rural areas.

Graph 16 - Determinants of labour income inequality, Brazil, urban area, 1995-2011



Source: Prepared by authors based on PNAD/IBGE microdata.

Graph 17 - Determinants of labour income inequality, Brazil, rural area, 1995-2011



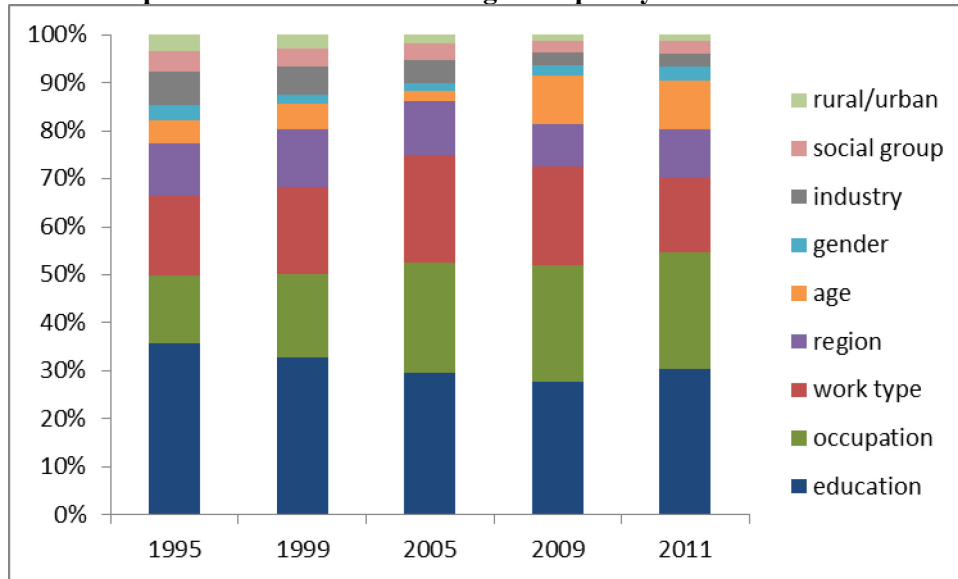
Source: Prepared by authors based on PNAD/IBGE microdata.

Next, Graph 18 shows estimates based on the application of the same method to private-sector employees, with findings similar to those of total occupied workers. Residual percentage is prevalent and rising over time, going from 45.8% in 1995 to 49.9% in 2011. These values are lower than those of labour income, showing that factors not included in the model have a relatively lower weight in explaining inequality in wage distribution. Once again only considering features included in the model, education proves to be a relatively more significant component by accounting for 30.3% of wage inequality in 2011, followed by differences in occupational group (24.3%). Differences between contract/noncontract wage earners account for approximately 15.6% of inequality.

The remaining components accounted for 29.8% of wage inequality in 2011, a similar level to that estimated for labour income, yet with a different variable ordering. Age has a higher percentage in income inequality (10%), reflecting the greater importance of professional background in determining employee wages than of the other work types, especially in the late 2000s, while sex is a less relevant characteristic to explain wage inequality than labour income, each contributing, respectively, with 3.1% and 6.3%. In relative terms, the workers' race has a similar influence on labour income and wage inequality – 2.9% and 2.5% in 2011.

These results signal that the behaviour of the main explanatory variables is analogous both for wage distribution and labour income, highlighting the significant effect of education and of the occupational group on the level of inequality as, by neglecting the residual effect, these two variables would account for little over half of total income and wage inequality. In turn, differences related to the work type are more relevant to labour income than to wages, an expected result since nearly half of total occupied workers in Brazil are not private-sector wage earners.

Graph 18 - Determinants of wages inequality. Brazil. 1995-2011

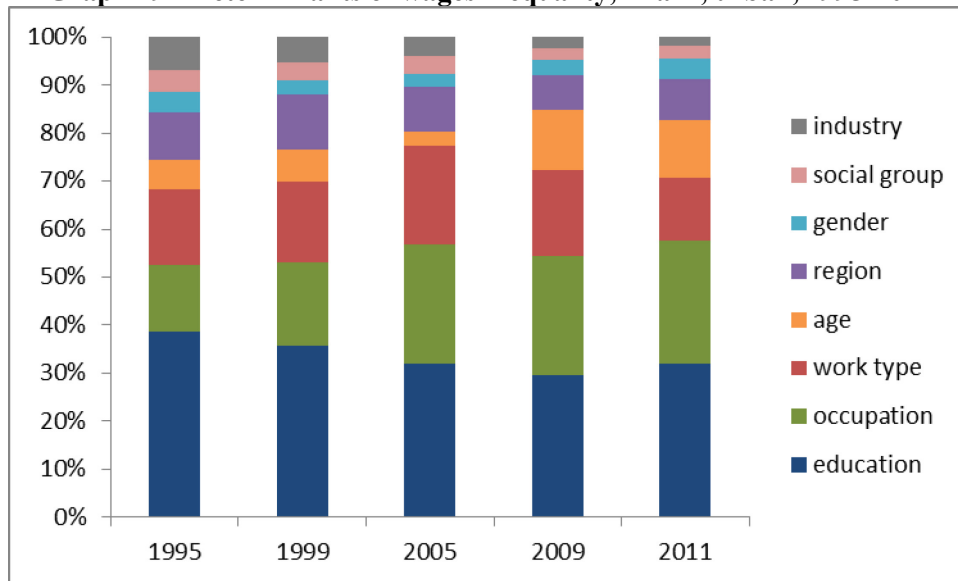


Source: Prepared by authors based on PNAD/IBGE microdata.

Disaggregating the estimates resulting from the decomposition of wage inequality into urban and rural areas shows similar patterns to those found for labour income, especially in urban areas (graph 19). In contrast, in rural areas (graph 20) we notice that the contribution of work type, which in this case refers to contract/noncontract work, is prevalent, accounting for 39.2% of wage inequality in 2011. Next, regional differences account for 23.9%, occupational groups for 10.5% and economic sectors for 9.7%. Education only appears after those four sets of variables, contributing with 9.6% of wage inequality.

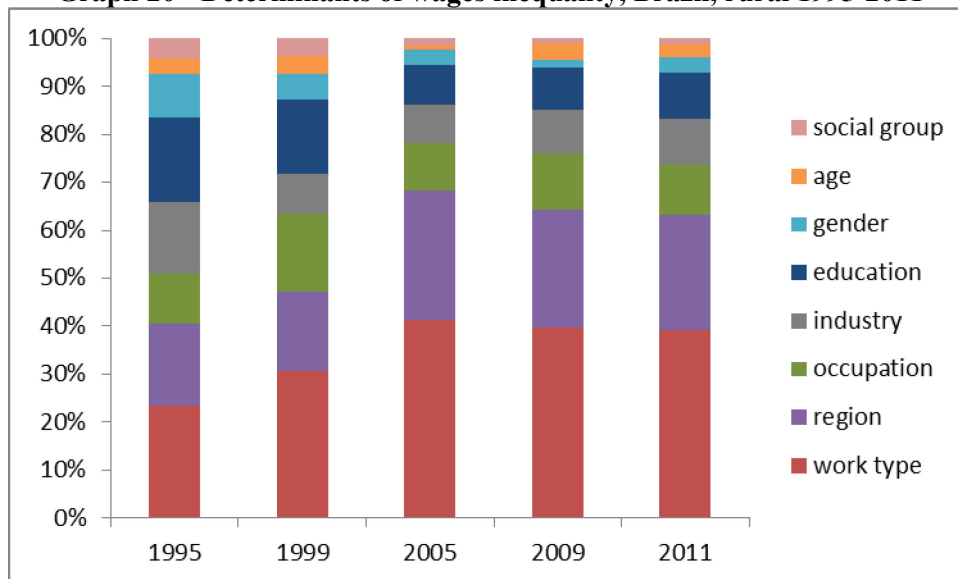
These results indicate that the pattern of wage inequality is quite different in areas with a limited and less dynamic labour market. In rural areas of Brazil, employment characteristics are more relevant than individual characteristics. These results also underscore regional differences brought about by agribusiness concentration in certain locations.

Graph 19 - Determinants of wages inequality, Brazil, urban, 1995-2011



Source: Prepared by authors based on PNAD/IBGE microdata.

Graph 20 - Determinants of wages inequality, Brazil, rural 1995-2011



Source: Prepared by authors based on PNAD/IBGE microdata.

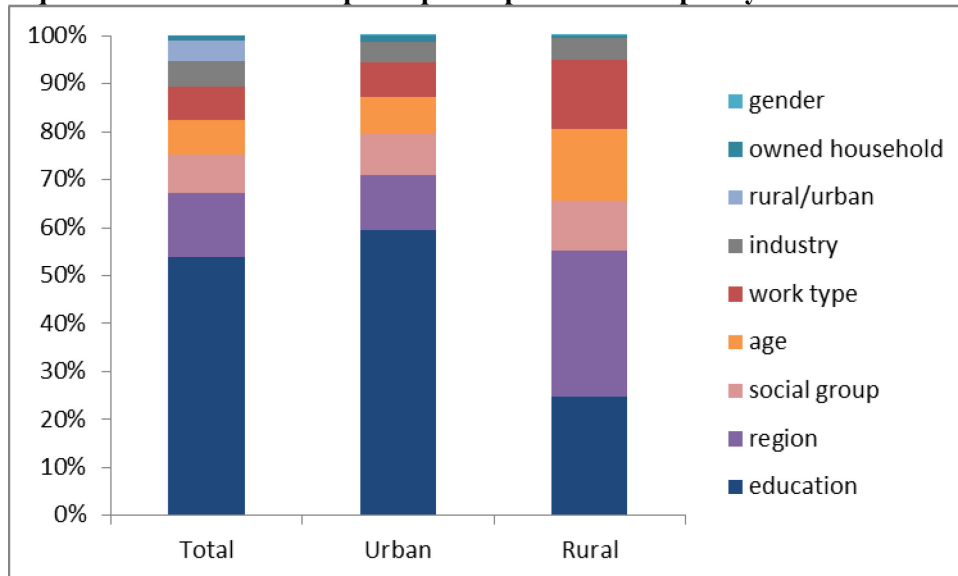
Lastly, in Graph 21 we see the results of the estimation of per capita expenditure in Brazil in 2008/2009. If compared with previous estimates, the residual percentage is significantly higher, especially in rural households, where it is 70.6%. This indicates that inequality in household expenditure distribution presents more complex features than those shown by labour income regression, and which were not captured by the model.

However, even in this case education proves to be a critical factor in explaining household expenditure, accounting for 59.5% of inequality in urban areas, whereas characteristics of the head of the household are relatively less significant than region of

domicile. Conversely, in rural areas education accounts for only 24.7% of inequality, while regional differences represent 30.6% of inequality. This indicates that, in areas where labour relations are less dynamic, the role of education on household expenditure distribution tends to be less significant.

Also outstanding is the high contribution of the race of the head of the household, which is even higher than that of work type for urban areas. That is, differences across social groups are more significant to explaining household expenditure inequality distribution than labour market remuneration. This indicates that non-white households are in an unprecedented situation of social and economic vulnerability in terms of the labour market. We may, thus, assume that segmentation against non-whites is related to labour market entry and, to a lesser degree, occurs within this market.

Graph 21 - Determinants of per capita expenditure inequality. Brazil. 2008/2009



Source: Prepared by authors based on POF/IBGE microdata.

5. Factorial decomposition of Gini index in Brazil from 2003 to 2011

The first sections of the present paper focused on the theme of income inequality building on a number of indicators and measures. In this topic, we analyse the contribution of the various sources for the decline in income inequality in Brazil between 2003 and 2011.

Labour income, as one would expect, accounted for 73% of household income in Brazil in 2011, while public transfers – public retirement and pensions,⁶the Bolsa Família Program (PBF), and the Continuous Cash Benefit Program(BPC, from the Portuguese *Benefício de Prestação Continuada*) – accounted for 23.1%. The other sources – donations, rents, interest and dividends, private retirement and pension plans– were only 3.9% of total household income (Table 15). In relation to 2003,there was a slight decrease in the slice of other sources of income, thus evidencing the effect of the expansion of the cash transfer programs starting in 2003 and the upholding of the policy targeting the strengthening of the minimum wage, started in the mid-1990s.

Table 15 – Income share and concentration coefficient of components of per capita household income. Brazil. 2003 and 2011.

Source of Income	Income share (%)		Concentration coefficient	
	2003	2011	2003	2011
Labour	72.2	73.0	0.579	0.545
Official pensions	22.3	22.4	0.581	0.517
Continuous Cash Benefit Program (BPC)	0.1	0.3	-0.279	-0.207
Bolsa Família Program (PBF)	0.1	0.4	-0.772	-0.796
Others	5.3	3.9	0.644	0.561

Source: Prepared by authors based on PNAD/IBGE microdata.

Another piece of information in Table 16 refers to the concentration coefficient of each source of income in relation to total income.⁷ This coefficient can vary between -1 and 1, with figures closer to 1 indicating greater concentration of income in the wealthier portion of the population, whereas negative values represent the pro-poor (progressive)

⁶ In this category are included, on the one hand, private sector retirement plans managed by Social Security (INSS), whose rules are set by the federal government and which are funded by contributions made by employees and employers, as well as non-contributory rural retirement plans; and on the other, the civil service's statutory retirement plans. INSS retirement plans are progressive in nature, whereas those of the civil servants are notorious for their regressivity.

⁷ The concentration coefficient is computed as $C_k = \frac{2}{n} \text{cov}(i, \frac{y_{ki}}{\bar{y}_k})$, where i is the position of each

household in the per capita household income distribution, y_{ki} is the income of household i from source k and \bar{y}_k is the average per capita income of source k .

nature of the source of income, that is, such income is appropriated mostly by the poorest portion of the population. In this sense, the progressivity of income derived from the federal government’s BPC and PBF cash transfer programs stands out, as does its good targeting, showing that these sources of income are mostly appropriated by the poorest portion of the population. Conversely, the concentration coefficient of the “other sources of income” is the highest of all household income components, an expected result since it comprises incomes from rents, interest, and dividends, which are usually associated with the wealthiest portion of the population. Nonetheless, we found a widespread drop in the concentration coefficient for nearly every source of income between 2003 and 2011, indicating that over this period the share of poorer households in most sources of income – at least not those derived from capital – increased in the country.

Gini coefficient change was decomposed into 1) the concentration effect, indicating a change in Gini stemming from changes in the levels of income concentration; and 2) the composition effect, which captures the effect of changes in a given source of income’s share in relation to total household income (Table 16). The third column adds these two effects to provide total effect of each source of income on Gini variation.

Table 16 – Decomposition of change in the Gini coefficient of per capita household income. Brazil. 2003 and 2011.

Source of Income	Concentration effect (%)	Composition effect (%)	Total effect (%)
Labour	50.2	-0.1	50.1
Official pensions	29.0	0.0	29.0
Continuous Cash Benefit Program (BPC)	-0.3	4.4	4.1
Bolsa Família Program (PBF)	0.1	7.7	7.8
Others	7.8	1.2	9.0
Total	86.8	13.2	100.0

Source: Prepared by authors based on PNAD/IBGE microdata.

The findings corroborate the progressive nature of the income inequality reduction from 2003 to 2011, which was mostly prompted by changes in the concentration effect rather than by changes in the composition of household income – respectively 86.8% and 13.2% of total effect. Moreover, we can clearly see an expansion in the cash transfer programs’ coverage, for both sources of income contributed for the drop in the Gini coefficient particularly due to these programs’ increased relative share in household income. PBF income contributed with 7.8% of the fall in Gini from 2003 through 2011, while the BPC accounted for 4.1% of this drop. The role of cash transfer programs in reducing income inequality is impressive if we consider their minor relative share in total household income: in 2011, income from these two social programs accounted for only 0.7% of total household income.

Labour income, in turn, was the most important factor accounting for the drop in Gini from 2003 to 2011, amounting to 50.1% of this fall, followed by public retirement and pensionplan income, which accounted for 29% of the reduced Gini coefficient. Still, the contribution of labour income for the reduction of Gini between 2003 and 2011 is relatively smaller than its share in household income. Such fact indicates that the labour market played an important role for the reduction of income inequality in Brazil, but that the role played by other sources of income cannot be neglected either.

Another point worthy of mention is the evidence of a positive impact of the minimum-wage recovery policy, affecting three sources of income: labour, public retirement and pensions and the BPC. In particular, these two last sources are affected foremost, since their values are indexed to the minimum wage in effect. Thus, real increase in minimum wage contributes to raise household income on three fronts, yet its effect impacted mostly the poorer households, which are more dependent on public transfers.

5.1. Decomposition of Gini coefficient by region

The findings for Brazil do not make it possible to show the remarkable differences between households located in the country's various regions. The findings related to the participation of sources of income and concentration coefficients for households in Brazil's five geographic regions render it possible to simplify the analysis into three groups, since findings for the North and Mid-West regions are similar, the same applying to households in the South and Southeast regions, while the Northeast is analysed separately.

Firstly, we notice that labour income has an impressive 80.1% and 79.2% share in the income of households in, respectively, the North and Mid-West, in 2011 – the highest relative share of all five geographic regions (Table 17). This high labour income percentage to total household income reflects a relatively smaller income from public retirement and pensions, respectively, 14.3% e 16.6%, in the North and Mid-West; whereas this percentage for the remaining regions is always higher than 22%. These findings may also reflect a more accelerated growth of the labour market in these regions over the last years, especially in the Mid-West, plus being representative of demographically younger households in these regions, prompting a wide gap between the occupied and the retired.

At the other end, we see that labour income has the lowest share in the income of families living in the Northeast region, 67.6% in 2011, just as the region's households are heavily reliant on public retirement and pensions– 26.1%. The data show that labour income is proportionally more important in the composition of household income in areas with a better structured labour market. When the labour market is somewhat more restricted, households prove to be more dependent on public transfers, especially those in a situation of poverty.

It is also worth underscoring the growth of public transfer programs (PBF and BPC) for household income, especially in the Northeast, 2.2% in 2011, while in the other regions this percentage varies between 0.3% (Southeast and South) and 1.2% (North). This composition by source of income must be considered in analysing how the Brazilian regions were differently impacted by the fall of inequality in the 2000s.

Table 17 – Income share and concentration coefficient of components of per capita household income, by geographic region. Brazil. 2003 and 2011.

Region	Source of Income	Income share		Concentration coefficient	
		2003	2011	2003	2011
North	Labour	80.6	80.1	0.550	0.556
	Official pensions	14.4	14.3	0.570	0.521
	Continuous Cash Benefit Program	0.2	0.5	-0.029	-0.013
	Bolsa Família Program	0.2	0.7	-0.656	-0.682
	Others	4.7	4.4	0.567	0.478
Northeast	Labour	68.2	67.6	0.588	0.569
	Official pensions	26.5	26.1	0.609	0.553
	Continuous Cash Benefit Program	0.1	0.7	0.068	0.178
	Bolsa Família Program	0.5	1.5	-0.561	-0.610
	Others	4.7	4.1	0.586	0.544
Southeast	Labour	71.6	73.0	0.554	0.517
	Official pensions	23.1	22.8	0.567	0.508
	Continuous Cash Benefit Program	0.0	0.2	-0.448	-0.372
	Bolsa Família Program	0.0	0.1	-0.860	-0.868
	Others	5.3	3.8	0.643	0.573
South	Labour	72.2	72.8	0.529	0.483
	Official pensions	21.9	22.7	0.528	0.438
	Continuous Cash Benefit Program	0.1	0.2	-0.412	-0.422
	Bolsa Família Program	0.1	0.1	-0.858	-0.891
	Others	5.8	4.1	0.630	0.555
Mid-West	Labour	80.5	79.2	0.581	0.542
	Official pensions	14.4	16.6	0.580	0.561
	Continuous Cash Benefit Program	0.0	0.4	-0.528	-0.295
	Bolsa Família Program	0.1	0.2	-0.769	-0.842
	Others	4.9	3.7	0.600	0.514

Source: Prepared by authors based on PNAD/IBGE microdata.

The results presented in Table 18 show the relative contribution of each source of income for reducing income inequality between 2003 and 2011. We can see that labour income accounted for the biggest drop in household income inequality in the Southeast, South and Mid-West regions, not surprisingly the richest regions in the country in terms of per capita income. This corroborates the importance of a structured and dynamic labour market in boosting better income distribution for the population.

Table 18 – Decomposition of the change in the Gini coefficient of per capita household income, by geographic region. Brazil. 2003 and 2011.

Area	Source of income	Concentration effect (%)	Composition effect (%)	Total effect (%)
North	Labour	-30.8	0.4	-30.5
	Official pensions	46.5	0.0	46.5
	Continuous Cash Benefit Program	-0.4	14.4	14.1
	Bolsa Família Program	0.8	43.0	43.8
	Others	26.5	-0.4	26.1
	Total	42.6	57.4	100.0
Northeast	Labour	30.0	0.2	30.2
	Official pensions	33.3	0.1	33.4
	Continuous Cash Benefit Program	-1.0	5.8	4.8
	Bolsa Família Program	1.1	26.2	27.3
	Others	4.3	0.0	4.3
	Total	67.7	32.3	100.0
Southeast	Labour	55.9	0.0	56.0
	Official pensions	28.5	0.0	28.5
	Continuous Cash Benefit Program	-0.2	3.6	3.4
	Bolsa Família Program	0.0	3.3	3.3
	Others	6.7	2.2	8.8
	Total	90.9	9.1	100.0
South	Labour	54.2	0.0	54.2
	Official pensions	32.5	0.3	32.8
	Continuous Cash Benefit Program	0.0	2.4	2.4
	Bolsa Família Program	0.1	2.0	2.0
	Others	6.1	2.5	8.6
	Total	92.9	7.1	100.0
Mid-West	Labour	74.0	0.1	74.0
	Official pensions	6.8	-0.6	6.2
	Continuous Cash Benefit Program	-1.0	8.0	7.0
	Bolsa Família Program	0.3	3.6	3.8
	Others	8.9	-0.1	8.9
	Total	89.0	11.0	100.0

Source: Prepared by authors based on PNAD/IBGE microdata.

At the other extreme, we see the regressive result of labour income for household income distribution in the Northern region, indicating that labour market growth in that region was highly unfavourable for the poorest. Two aspects must be considered at this point. The first one refers to the impressive increase of the public sector in the region, whose average wages tend to be higher than those of the other forms of occupation. Concurrently, in this region an impressive percentage tends to earn incomes below the minimum wage because the labour market structure prompts a high level of informality.

Cash transfer programs have contributed toward the fall of income inequality, mostly in the poorest regions of Brazil, the North and Northeast, despite their relative smaller share in total household income.

5.2. Extending the spatial analysis: decomposition of Gini coefficient by region and area

More striking than the regional differences are the differences within each region's various spaces. The Northeast, for instance, groups metropolitan regions boasting industrial activities and modern services; rapidly expanding non-metropolitan urban areas with regional production centres; and highly differentiated rural areas, some transformed by the recent commodities boom while others are still lagging in subsistence economy.

Thus, we have opted to broaden the scope of the analysis by breaking the regions down by urban and rural areas. Yet, for the sake of simplification, we have limited the analysis to two regions only: the Northeast and the Southeast. The reason for such choice is hinged on the fact that both regions are representative of different economic and social dynamics, besides exhibiting distinct levels of poverty and income inequality.

Initially, we see that the household income structure presents similar compositions regardless of place, with labour income and public retirement and pension income together accounting for over 90% of household income in Brazil (Table 19).

Yet, some differences can also be seen. Labour income share is higher in urban areas, this percentage having increased between 2003 and 2011, while the opposite took place in rural area households. This change in composition reflects the increased importance of public transfer income to rural households, especially in the Northeast, which rose from 40.2% of household income in 2003 to 48.1% in 2011, higher than that of labour income.

As the families in these places also tend to be poorer, once again we see increased dependence on the government's cash transfer programs by the most vulnerable households. These findings further strengthen the notion that labour income tends to be proportionally less important in composing household income in places with a less structured labour market.

The concentration coefficients by area fail to show any significant differences and tend to exhibit the same pattern as found in the geographic region subset. However, it is worth stressing the high concentration coefficient of public retirement and pensions for Northeast's rural households, while labour income is lower if compared with rural households in the Southeast. This is due to the fact that the labour market's lesser dynamism and scope in rural Northeast – where precarious working conditions, mostly for self-employed workers, still abound – causes part of these retirements to be channelled to population segments that are not considered poor by the region's own

standards. On the contrary, the poor households of the rural Southeast who receive these retirements tend to have a level of income that is higher than that of some non-poor rural Northeast segments.

Table 19 – Income share and concentration coefficient of per capita household income components by area. Brazil. 2003 and 2011.

Region	Area	Source of Income	Income share		Concentration coefficient	
			2003	2011	2003	2011
Northeast	Urban	Labour	69.9	70.7	0.589	0.559
		Official pensions	24.6	23.5	0.608	0.555
		Continuous Cash Benefit Program	0.1	0.6	-0.047	0.079
		Bolsa Família Program	0.3	1.0	-0.616	-0.654
		Others	5.1	4.2	0.569	0.528
	Rural	Labour	57.5	48.0	0.396	0.411
		Official pensions	38.3	42.4	0.633	0.609
		Continuous Cash Benefit Program	0.2	1.3	0.377	0.477
		Bolsa Família Program	1.7	4.4	-0.388	-0.453
		Others	2.3	4.0	0.328	0.515
Southeast	Urban	Labour	71.5	73.3	0.549	0.515
		Official pensions	23.0	22.6	0.564	0.508
		Continuous Cash Benefit Program	0.0	0.2	-0.463	-0.399
		Bolsa Família Program	0.0	0.1	-0.871	-0.874
		Others	5.4	3.8	0.633	0.566
	Rural	Labour	71.9	65.9	0.495	0.433
		Official pensions	24.0	27.9	0.548	0.482
		Continuous Cash Benefit Program	0.1	0.8	-0.359	-0.001
		Bolsa Família Program	0.3	0.8	-0.699	-0.741
		Others	3.7	4.6	0.662	0.664

Source: Prepared by authors based on PNAD/IBGE microdata.

Moreover, we have noticed that the lesser progressivity of PBF income in the Northeastern region as compared with all other regions is a consequence of a relatively higher household concentration coefficient in these areas. Taken as a whole, these findings show that households in rural Northeast are faced with restrained labour market conditions and are highly dependent on public transfer income, regardless of their being among the region's poorest areas or not. As emphasized in the paragraph, the higher concentration coefficient of these sources of income in the poorer areas does not mean these public policies are flawed, but rather a specific shaping of their labour markets and land-ownership structure.

Lastly, Table 20 decomposes Gini changes by sources of income in rural and urban Northeast and Southeast areas. Once again, we notice the impressive contribution of

labour income for the income gap reduction in Brazil between 2003 and 2011 – except in rural Northeast.

Table 20 – Decomposition of change in the Gini coefficient of per capita household income, by area. Brazil. 2003 and 2011.

Region	Area	Source of income	Concentration effect (%)	Composition effect (%)	Total effect (%)
Northeast	Urban	Labour	44.3	-0.2	44.2
		Official pensions	27.4	0.4	27.8
		Continuous Cash Benefit Program	-0.9	6.0	5.0
		Bolsa Família Program	0.5	18.7	19.3
		Others	4.1	-0.3	3.7
		Total	75.4	24.6	100.0
	Rural	Labour	-83.7	-62.2	-145.9
		Official pensions	97.2	-64.7	32.5
		Continuous Cash Benefit Program	-7.8	4.4	-3.4
		Bolsa Família Program	20.6	249.7	270.3
		Others	-61.3	7.8	-53.4
		Total	-34.9	134.9	100.0
Southeast	Urban	Labour	55.8	0.1	55.9
		Official pensions	28.5	0.0	28.5
		Continuous Cash Benefit Program	-0.2	3.5	3.3
		Bolsa Família Program	0.0	3.1	3.1
		Others	6.9	2.3	9.2
		Total	91.0	9.0	100.0
	Rural	Labour	65.8	-1.2	64.5
		Official pensions	26.3	-2.2	24.1
		Continuous Cash Benefit Program	-2.4	6.9	4.5
		Bolsa Família Program	0.3	9.4	9.7
		Others	-0.1	-2.7	-2.8
		Total	89.9	10.1	100.0

Source: Prepared by authors based on PNAD/IBGE microdata.

It is worth pointing out that household labour income in rural areas of the Southeast region has a greater relative contribution for the drop in the Gini coefficient than in that region's urban areas, respectively, 64.5% and 55.9%. That is, even as cash transfer programs rise in importance, contributing for 14.2% of the drop, the labour market had a fundamental role for reducing inequality in the rural Southeast. The same cannot be said of rural Northeast.

Dependence on social programs in rural areas of the Northeast is of such magnitude that the contribution of PBF income for the drop in Gini is higher than 100%. This finding can be accounted for by the fact that labour income and other sources of income moved

in the opposite direction, that is, these findings show that there was a significant worsening in the appropriation of these sources of income among the poorest households. This statement can be read in a different way: in places where the labour market, especially in metropolitan regions and concentrated in basic sectors, expanded in the Northeast, it managed to reduce poverty.

Therefore, these results contradict the arguments that, by the “fault” of programs like the PBF, the program’s beneficiaries left the labour market to live only of public transfers. This is so because the negative contribution of labour income for the reduction in the Gini coefficient is limited in scope in some areas and regions. The importance of cash transfer programs in the reduction of inequality is concentrated precisely in areas where the labour market is constrained, as is the flow of income. In the Northeast’s urban areas, for example, inequality fell primarily on account of labour income (44.2%), retirements (27.8%) and, only then, cash transfer programs (24.3%).

The results presented in this section underscore the importance of the labour market as the main tool for reducing the income gap in Brazil during the 2000s, even if with striking spatial differences –just as cash transfer programs are undeniably critical for this reduction, especially among the most vulnerable households of the poorest regions.

Nonetheless, we cannot overlook the fact that this period was marked by high economic growth, which drove a sharp expansion of the labour market, formal jobs mostly, and of wages. As for the potential of cash transfer programs to reduce the income gap, this tends to disappear over time as the number of beneficiary households increases. It is worth stressing that fighting against inequality is not the purpose of these programs, but just a positive externality.

In short, the end of the economy’s expansion cycle, from 2012 onwards, may compromise those factors that enabled reducing inequality. First, by affecting job supply and the evolution of real wage. And second, by limiting, through fiscal constraints, the possibility of increasing transfers to the beneficiary population that is already close to that population situated below the poverty level by the criteria adopted by the government.

6. Relationship between income and consumption-expenditure inequality

Generally, studies of inequality in Brazil analyse the phenomenon from the perspective of household income, mostly because of the monetisation of the economy and the wide array of surveys capturing such information. Yet, it is possible to analyse this point from the perspective of a household's current expenditure through the Household Budget Survey (POF, from the Portuguese *Pesquisa de Orçamentos Familiares*) Pesquisa de Orçamentos Familiares (POF), a survey conducted by Brazil's national statistics office IBGE every five years and is focused on the consumption habits of the Brazilian population. As the POF also captures information regarding household income, this makes it possible to compare the relative distribution of these variables by parametric estimation of regions or places for which there is no data on monetary income or monetary income is very low.

Two aspects point to the relevance of estimating inequality indicators building on household expenditure. The first one refers to a vision of inequality that best fits societies with a high percentage of self-employed individuals in rural activities and where the separation between income and earnings is often impracticable. Therefore, expenditure data would provide a much more adequate indicator of the household's capacity to pay (Castellanos, 2007).

The second aspect is related to greater comparability, since there is no general rule as to which perspective should be adopted to estimate inequality across the countries of the globe, especially the poorest. Therefore, the existence of data in Brazil that makes it possible to estimate indicators from these two perspectives broadens potential comparability with other countries.

These two reasons have coalesced in this project as it seeks to conduct a comparative analysis with India, whose inequality indicators are calculated on the basis of expenditure, since income is only measured for wage earners, whose share in Indian society, albeit rising, is still limited.

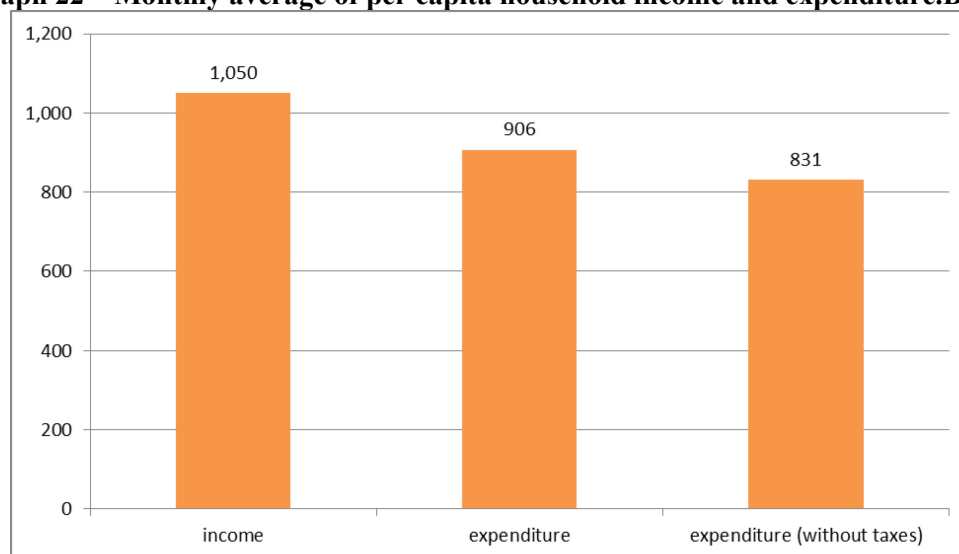
It must be stressed, however, that the purpose of this section is not to conduct a thorough analysis of inequality by household expenditure, but just to observe the key differences between the estimates of some inequality indicators building on the two approaches. Moreover, relying on the detailed wealth of data afforded by the POF, we use two concepts of expenditure, one that refers to the average monthly per capita household total expenditure in Brazil; and the other, which considers monthly expenditure minus expenses related to direct taxes and labour charges in order to observe household expenditure in non-compulsory services.

For that, we have considered only the latest survey, the 2008/2009 POF, since the previous ones were not nationwide in scope, with the month of January 2009 as the reference. The period was marked by macroeconomic uncertainties, respectively, the uncertainty in the early days of the Lula administration and that triggered by the global

financial crisis, even though the first period is characterized by a fall in average income in a context of high interest rates and currency depreciation, unlike the second.

Graph 22 presents the monthly average evolution for both per capita household income and expenditure.⁸ In the first place, we notice that household income is higher than expenditure. At the same time, the gap between the two periods widens, in that the average household income was 15.8% higher than average expenditure, and the gap is 26.4% higher if we consider the expenditure without taxes. This result was expected if we consider the flatter slope of the Engel curve for higher income levels,⁹ thus indicating that expenditure does not grow at the same pace as income.

Graph 22 – Monthly average of per capita household income and expenditure. Brazil



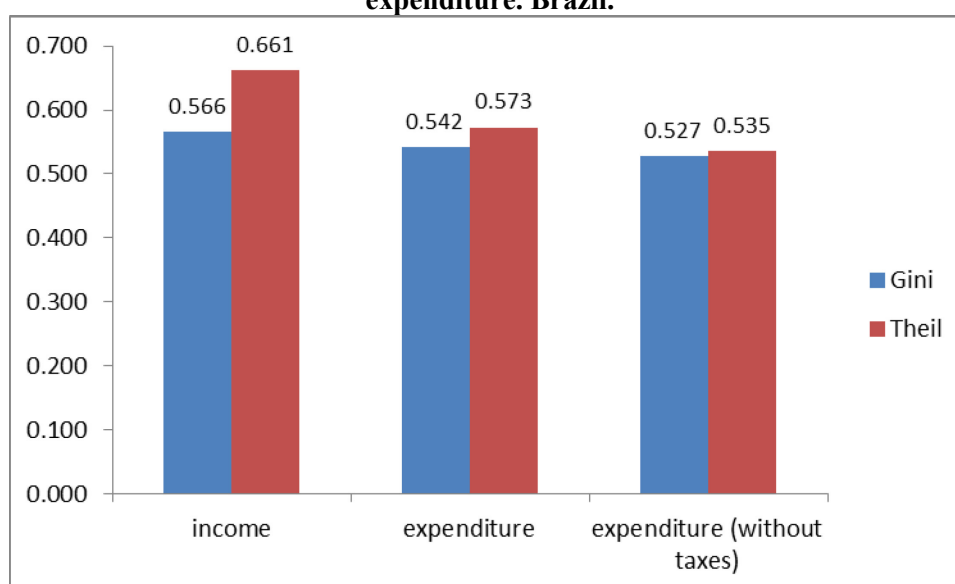
Source: Prepared by authors based on POF/IBGE microdata.

Next, we seek to assess the potential differences across the two inequality criteria. Graph 23 show that expenditure inequality, especially without taxes, is always lower than the income indicator. This finding is consistent with international studies (Krueger, Perri, 2006; Jappelli, Pistaferri, 2009), even though the difference between these two indicators in Brazil is smaller than that of other countries. In Central Europe, for example, the income Gini index is 31% higher than that for expenditure; in Scandinavian countries the difference is 37.5%, while it is 14.6% higher in Southern European countries (Bonsang, Perelman, Bosch, 2005). This pattern is expected since poorer households tend to allocate a higher portion of household income to expenditure, whereas wealthier households can save part of their income; therefore, the dispersion of household expenditure tends to be lower than that of income.

⁸ It is imperative to note that income as measured by POF is more detailed and comprehensive than the income obtained through other IBGE household surveys, like the PNAD, particularly nonmonetary income and that yielded by asset variation, comprising rents from property selling, inheritances, financial investments, among others.

⁹ The Engel curve is a graphic representation of the relation between household income and expenditure for a given good or service.

Graph 23 – Gini coefficient and Theil index of per capita household income and expenditure. Brazil.



Source: Prepared by authors based on POF/IBGE microdata.

Concurrently, the lower expenditure without taxes inequality rate shows the progressive nature of direct taxes and labour charges. It is worth recalling that both Gini and Theil are limited when it comes to capturing this information.¹⁰ Alternatively, we opted to present in Graph 24 the relative proportion of total household income and expenditure as earned by population percentiles, in our case, the richest 10%, the intermediate 40% and the poorest 50%. The results show that the share appropriate for the richest is higher for income than for expenditures.

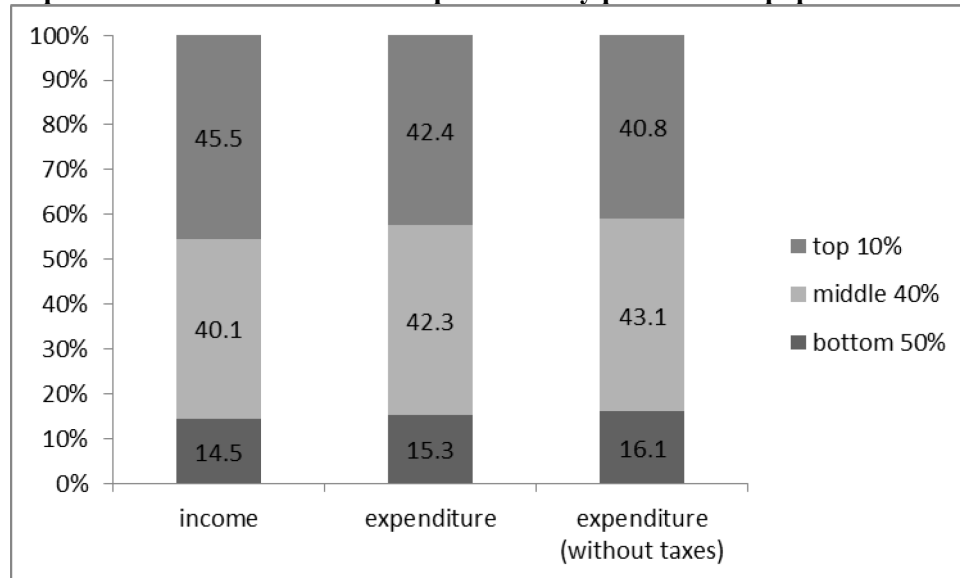
These findings show that a sharper drop in income inequality indicators relative to expenditure indicators is related to the poor households' smaller share in total income as compared with their share in total expenditure. Thus, the relative increase of the poorer households' appropriation of income is more significant than that of expenditure, while the wealthiest households' drop in their relative share of appropriation is significant only for total income. This is so because expenditure is less subject to compression by the wealthiest or to increase by the poorest due to the composition of expenditure itself. The wealthy tend to commit a higher percentage of their spending to increase their assets, while the poor do so to reduce liabilities (payment of debts incurred in the past). Lastly, Brazil's direct taxation progressivity can be assessed in the relative distribution of expenditure without taxes.

The estimates presented in this section are evidence of the existence of key differences in analysing inequality from the income or expenditure perspectives. These differences

¹⁰ We stress that the present analysis only considers direct taxes, while total tax burden in Brazil is regressive. Among others, Payeras (2010) noted that tax regressivity in Brazil stems from two main factors: although progressive, direct taxation has a low share in income, while indirect taxes are regressive and their share in income is nearly two times higher than direct taxation. The second factor refers to the far-from-ideal selection of goods for the purpose of taxing household consumption, which harms poor households more than wealthy ones.

are basically reflected in the magnitude of the indicators, yet aggregate evolution over time tends to follow the same pattern.

Graph 24 – Share of income and expenditure by percentile of population. Brazil



Source: Prepared by authors based on POF/IBGE microdata.

7. Functional distribution of income

In the previous sections, we focused only on the distribution of personal income by building primarily on labour income. Even though the Brazilian data on inequality is still situated at very high levels, they are underestimated, as capital income inequality is always higher than labour income inequality (Piketty, 2014). However, the fiscal structure, the government's revenues and the firm's earnings are absolutely different in Brazil from developed countries, which is why it is not possible to directly apply the methodology proposed by Piketty (2014). In Brazil, government revenues are primarily provided by indirect taxation, expenditure is strongly biased by public debt payments and the firms' operating earnings are often exceeded by their financial earnings. However and for the sake of illustration, we present a rough evolution of the functional distribution of income in Brazil, drawing from national statistics office IBGE data in its System of Annual National Accounts, which since 1990 has been providing disaggregated data on gross domestic income including "compensation of employees",¹¹ "gross operating surplus", "mixed self-employment income", and "taxes levied on production and imports".¹²

According to this data, compensation of employees had the greatest share in GDP between 1990 and 2009, followed by gross operating surplus, both ending the period with almost the same figures with which they started in the 1990s, 45% and 33% of GDP, respectively (Table 21). However, over this period these shares fluctuated sharply in the 1990s, compensation of employees dropped from 45% to 41% of GDP, while gross operating surplus rose slightly, from 33% to 34% of GDP over the same period. It is worth noting that the evolution of compensation of employees as a ratio of GDP tends to be counter-cyclical¹³ and constant in the long term, in accordance with the theoretical argument advanced by Kalecky (1971), as can be seen in Table 21.

Moreover, self-employment income rose and net taxes stabilized. In the first half of the 2000s, these trends continued, with compensation of employees nearing 39% of GDP in 2004, while gross operating surplus closed that same year at 36%, while net taxes and self-employed workers' income remain more or less stable.

From 2004 onwards, these trends are reversed, with compensation of employees rebounding to 44% in 2009, and gross operating surplus falling back to 33% of

¹¹ The IBGE "compensation of employees" series is made up of "wages", "actual social contributions", and "imputed social contributions". The "actual social contributions" are payments made by the employer on behalf of the employees to official social security institutes and private retirement plans, which are necessary to ensure access to benefits. The "imputed social contributions" are payments made by the employer to employees, former employees or their dependents to ensure benefits other than social security.

¹² Before 1990, this division only existed for census years (1970, 1975, 1980, and 1985).

¹³ During a recession, companies lay off fewer skilled workers, which increases the average wage paid, and hire workers on the basis of floor wages, which reduces the average wage.

GDP.¹⁴ Simultaneously there was a drop in the self-employment share of GDP (Table 21). The compensation of employees share follows a counter-cyclical trend and only in 2009, the year of the economic crisis that was triggered by the international financial debacle, reaches 1993 levels. In the long term, compensation of employees is at 40-41% of total GDP.

Table 21 – Functional distribution of income, % GDP (1990-2009)

Year	Compensation of Employees (CE)	Gross operating surplus (GOS)	Self-employment income (SEI)	Net taxes
1990	45	33	7	16
1991	42	38	7	14
1992	44	38	6	14
1993	45	35	6	14
1994	40	38	6	16
1995	43	31	13	14
1996	43	32	12	13
1997	41	34	12	13
1998	42	34	12	13
1999	41	34	11	14
2000	40	34	11	15
2001	41	34	11	15
2002	40	34	11	15
2003	40	35	11	15
2004	39	36	10	16
2005	40	35	9	16
2006	41	35	9	15
2007	41	34	9	15
2008	42	33	9	16
2009	44	33	8	15

Source: System of National Accounts/IBGE

It is worth stressing that the series “compensation of employees” and “gross operating surplus” as calculated by the National Accounts have some problems as measures per se, respectively, of the share of labour and capital in national income (Bastos, 2012). One of the problems refers to “self-employment earnings”. In general, self-employment income is typically treated as income from capital. However, its composition also presupposes a portion derived from labour income. In practice the self-employed group comprises liberals, capitalists and sole traders who created their own employment, although most of the income is appropriated by typically capitalist entrepreneurs. This is reflected in the fluctuations of this portion of income, which follows the same pattern as the gross surplus.

This exercise is of a preliminary nature and calls for improvement based on other theme-related studies conducted in the country. Its main limitations refer to the wide diversity of types of income in the sphere of “income from capital” and to the fact the role of source-deducted taxes for each one of the sources of income is not computed.

¹⁴ There is a change in the methodology used by the IBGE: the 1990 to 1994 data are based on the 1985 National Accounts System; whereas the 1995 to 2009 data is based on the 2000 National Accounts System.

Moreover, a more accurate understanding of the evolution trends of the functional distribution of income would require analysis by segments of activities and regions, which is not in the scope of the present paper. The trends shown above, in turn, deserve a more in-depth comparison with the macroeconomic benchmarks of the period.

8. Main Shifts in the Occupational and Class Structures

This section is organized in the following way. In a first moment, we briefly highlight the main changes and permanences in the productive structure based on economic activity sectors with the aim of providing a background to the behaviour of labour demand. Next, we highlight aspects related to changes observed in the composition of the occupational groups, plus underscoring inequalities related to incomes within and between occupations. In the last subsection, we present the recent evolution of the Brazilian class structure based on PNAD data.

While the 1990s were marked by unemployment and informality, in a setting of increasingly more flexible labour relations and downsizing of middle management, in the 2000s the labour market followed some of the trends started in the 1990s, like diversification of the retail and services industries and increased subcontracting, plus temporary jobs. Still, unlike the previous decade, the country experienced a growth cycle, with sharp drops in unemployment, informality and poverty rates, especially after the mid-2000s. Additionally, a huge contingent of workers was incorporated by the labour market's formal sector.

Against this backdrop, debate has centred on whether a “new middle class” had emerged (Neri, 2011) or, alternatively, whether the base of the social pyramid had widened with the inclusion of a new working class profile (Pochmann, 2012; Souza, 2012). Nonetheless, this inclusion has taken place in a context of wide working contract flexibility and occupational instability, such that what began to be addressed in the 1980s by the advanced capitalist countries as a loss of rights triggered by the so-called “crisis of the Welfare State”, here has been seen as the gateway to the formal and consumption market that was opened to some millions of workers.

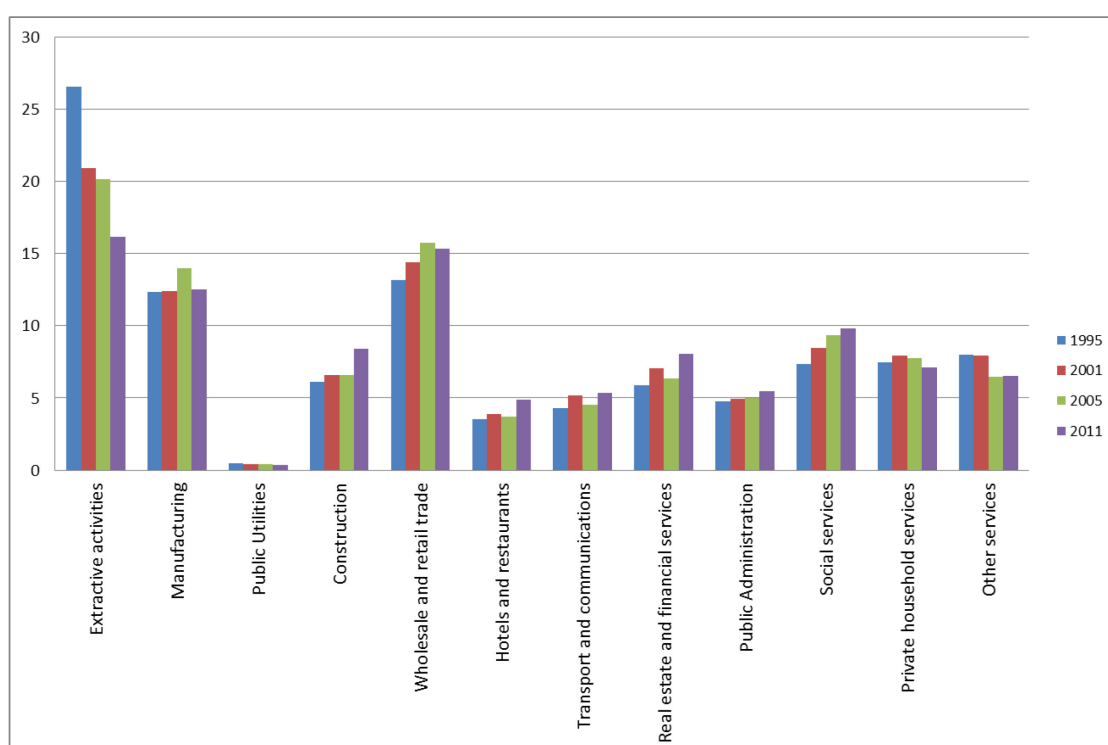
We have opted to prioritize an analysis of occupations, which means adopting them as the analytical unit that structures social positions. This way, we can account for features related, first, to the hierarchization of positions and, second, to social differentiation across occupations and individuals.

8.1. Shifts in the sectoral structure

We have sought to observe shifts in the productive structure in terms of the sectoral composition of the stock of jobs by economic activity. We used the fourth revised edition of the International Standard Industrial Classification of All Economic Activities

(ISIC), as published by the ILO in 2008.¹⁵ The findings show, first, a dizzying fall of the share of the “extractive activities” sector, mirroring to a large extent the agricultural sector’s mechanization and modernisation process. From another perspective, we can also observe that such drop was offset by a growth in almost all the other sectors, in particular those linked to the services economy and to construction. The manufacturing industry, despite a slight growth between 2001 and 2005, virtually stagnated in terms of its share in the stock of employed personnel over the period. In other words, at least from the point of view of employment, we cannot speak of deindustrialization (Graph 25).

Graph 25 – Relative share of economic activity sectors to total employment. Brazil. 1995-2011



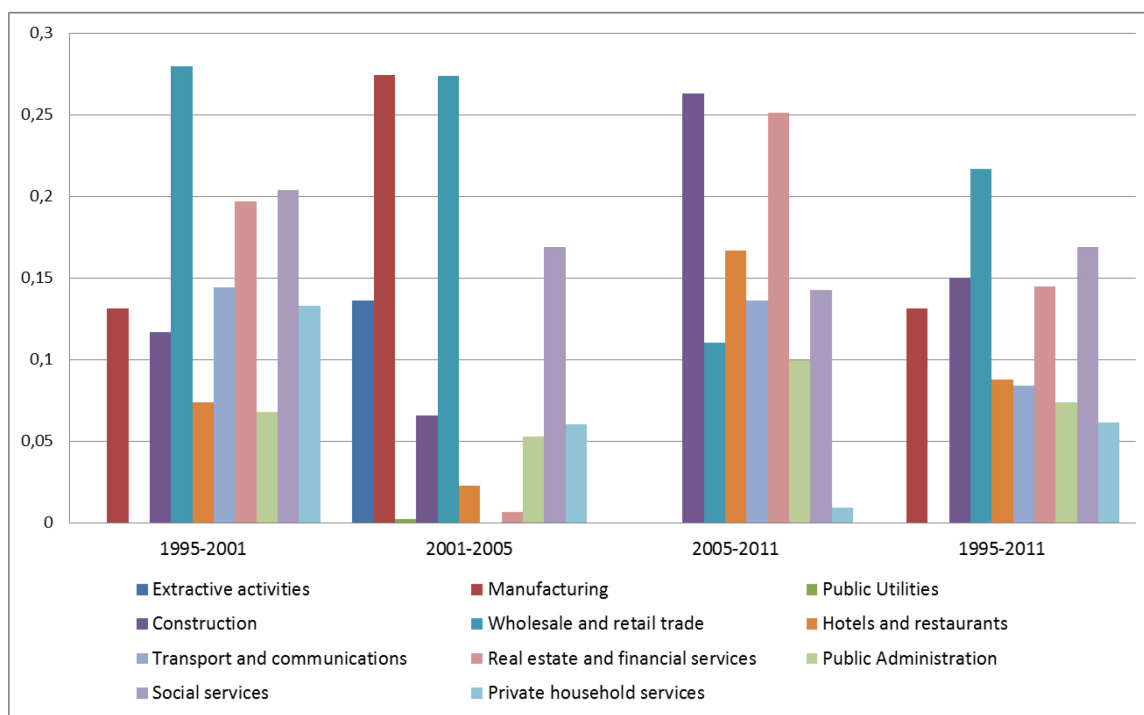
Source: 1995, 2001, 2005 and 2011 PNADs.

¹⁵ For the purpose of this paper, we will use the twelve ISIC categories, in accordance with one of ILO’s suggested aggregation standards, as follows: (1) extractive activities; (2) manufacturing; (3) public utilities; (4) construction; (5) wholesale and retail trade; (6) hotels and restaurants; (7) transports and communication; (8) real estate and financial services; (9) public administration; (10) social services; (11) private household services and (12) other services. We applied this typology to IBGE’s National Classification of Economic Activities (CNAE, from the Portuguese *Classificação Nacional de Atividade Econômica*) for the undertaking in which PNAD respondents working in the week of reference were occupied.

In spite of a relatively low variation in the percentage stock of total individuals employed, the sectors that generated the most jobs had varying behaviours over the period. We can see the percentage contribution of each of them for total job creation. It is remarkable that, between 1995 and 2011, the “Wholesale and retail trade” sector was the country’s job generation main driver: slightly over 1/5 (21.7%) of the new jobs were generated by this economic sector(Graph26).

Ranking second, we can see that the “Social Services” sector also played a key role, growing in relative homogeneous fashion in each of the periods and accounting for the creation of nearly 18.0% of total jobs from 1995 to 2011. In third and fourth, it is interesting to note that two completely different sectors in terms of their internal dynamics (“Construction” and “Real Estate and Financial Services”) played a similar role in these years, contributing with about 15.0% of the new jobs. The “manufacturing” sector, in turn and despite not having had any participation in the job generation process between 2005 and 2011, closed the period with a percentage of 13.1%, largely due to its importance in the 2001/2005 five-year period.

Graph26 – Relative share of economic sectors in total employment generated in periods. Brazil. 1995- 2011



Source: 1995, 2001, 2005 and 2011 PNADs.

The next table allows deepening this analysis and presents a summary of wage inequality between and within economic activity sectors. For each of them we have the average income, the relative income and the Coefficient of Variation.¹⁶

Overall, we may say that there was a converging trend, with a reduction in cross-sector income inequality. The upward outliers in the first year (“Public Utilities”, “Real Estate and Financial Services” and “Transport and Communication”) were the ones that declined most in relation to global relative income between 1995 and 2011, decreasing by, respectively, 45.5%, 24.1% and 26.6%, respectively (Table 22).

Conversely and in what can be identified as an outcome of the minimum wage appreciation policy carried out by the government that started in the mid-2000s, the two sectors with the lowest earnings had a considerable growth in their average income. Average wages in “extractive activities” rose from R\$651 to R\$887, or a 36.0% real increase; similarly, the “private household services” sector also rose (a 40.7% increase), with the worker’s average income rising from R\$382 to R\$538, still between 1995 and 2011.

Table 22 – Mean Wages, relative % to mean occupied population wages and coefficient of wage variation – ISIC classes – Brazil – 1995, 2001, 2005, 2011.

(ISIC)	1995			2001			2005			2011		
	\$ Average	\$ Relative	CV	\$ Average	\$ Relative	CV	\$ Average	\$ Relative	CV	\$ Average	\$ Relative	CV
Extractive activities	651,24	0,52	2,42	615,08	0,53	2,40	659,91	0,60	2,83	887,12	0,64	2,33
Manufacturing	1496,51	1,19	1,54	1276,77	1,09	1,71	1122,20	1,02	2,13	1351,18	0,98	1,38
Public Utilities	2706,31	2,15	1,01	2078,82	1,78	1,08	2142,64	1,95	1,14	2332,87	1,69	1,00
Construction	1137,18	0,90	1,41	904,76	0,77	1,41	902,94	0,82	1,63	1181,60	0,86	1,30
Wholesale and retail trade	1381,37	1,10	1,71	1197,46	1,02	1,94	1090,91	0,99	1,53	1277,22	0,93	1,46
Hotels and restaurants	1146,13	0,91	1,60	958,78	0,82	1,72	870,74	0,79	1,74	1042,07	0,76	1,38
Transportation and communications	1722,05	1,37	1,32	1492,07	1,27	1,28	1341,10	1,22	1,17	1551,18	1,13	1,21
Real estate and financial services	2394,22	1,90	1,42	2066,29	1,76	1,51	1945,54	1,77	1,55	2252,33	1,64	1,95
Public Administration	1900,44	1,51	1,42	2016,11	1,72	1,31	1853,24	1,69	1,29	2349,72	1,71	1,26
Social services	1528,79	1,21	1,71	1553,37	1,33	1,43	1402,33	1,28	1,42	1721,76	1,25	1,26
Private household services	382,82	0,30	0,83	399,63	0,34	0,78	388,04	0,35	0,62	538,79	0,39	0,61
Mean	1259,00	1,00	1,74	1171,00	1,00	1,75	1097,00	1,00	1,79	1377,00	1,00	1,64

Source: PNAD. Monetary values deflated to the year 2012, excluding workers with incomes equal to zero.

The inequality reduction trend throughout the whole period can also be seen by analysing each sector internally. But it is worth stressing that there were moments in which these inequalities expanded and shrank. Over the two first periods (1995-2001 and 2001-2005), both presented some degree of increased wage dispersion. In contrast, in the years from 2005 to 2011, only the “Real Estate” and “Transport and Communication” sectors continued to experience increased inequality, whereas in all other sectors the coefficient fell. This data becomes especially clear if we observe that the coefficient of variation overall average, which had risen from 1.74 to 1.79 from 1995 to 2005, falls sharply in 2011, reaching 1.64, or 6% below the first year in the series (Table 22).

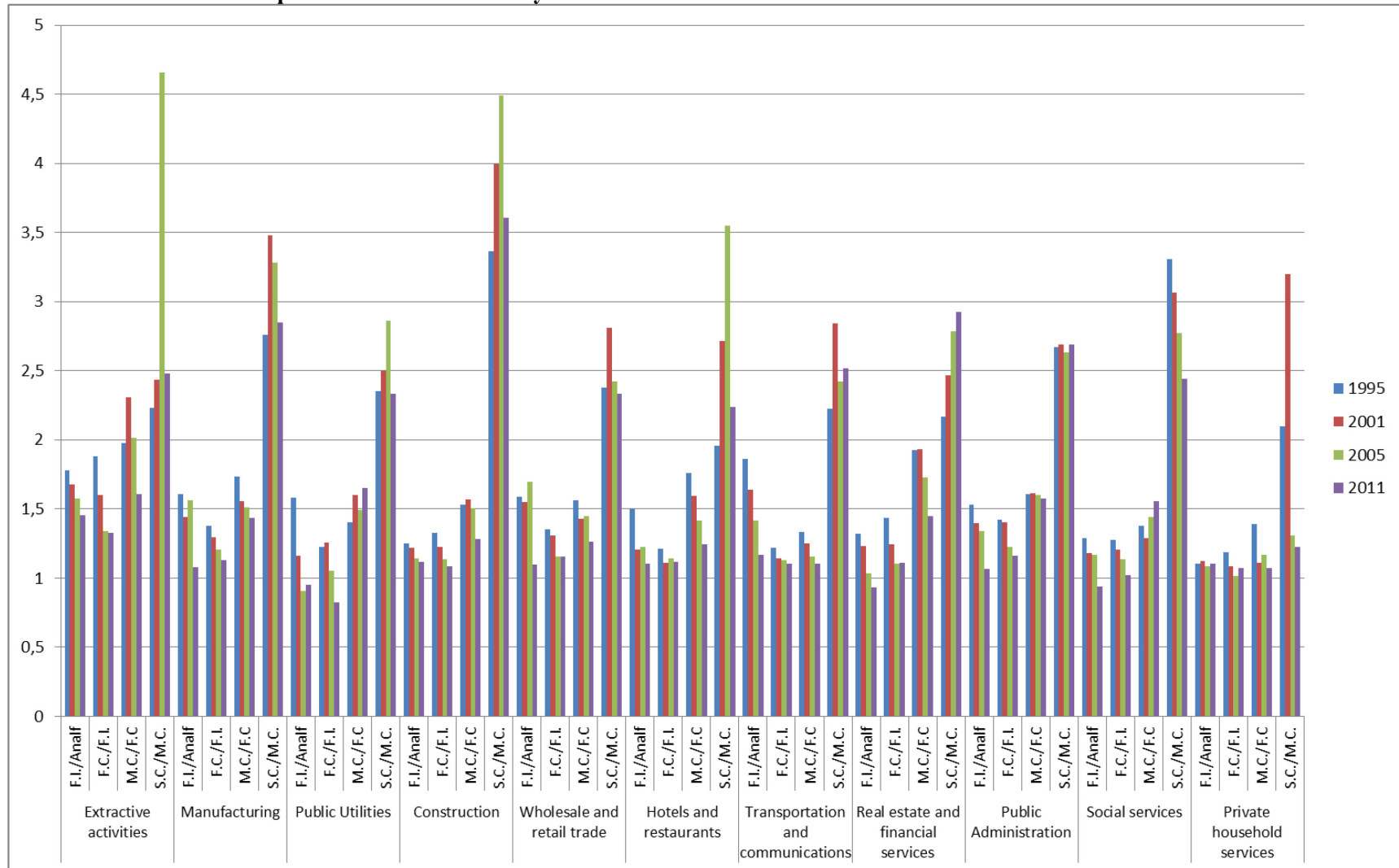
¹⁶ The Coefficient of variation is a measure of dispersion that enables comparability across different distributions, and is calculated by dividing the standard deviation by the mean (σ/μ).

The behaviour of inequality in each of these sectors is due to variations related to the returns to education (Graph27). Two prevailing trends can be identified. First, one that refers to the returns to middle education in practically every sector over the entire period. And a second one, specific to returns to higher education, which grows till 2005 just to decline over the following years. This has been a main feature of the Brazilian labour market since the mid-2000s, and is largely due to a widening of the supply's overall schooling levels boosted by the expansion of the educational systems over the last decades, in synch with the demographic transition process that has replaced older cohorts with younger ones with higher educational levels. However, a drop in the wage bonus for higher educational levels seems to suggest that demand for labour has not achieved a higher complexity, that is, it did not move towards better quality occupations at the same pace so as to pay a better schooled labour force, with middle and higher education, accordingly.

The fall in returns to higher education does not occur in those sectors where the coefficient of variation did not fall ("Real Estate" and "Transport and Communication"). These are, precisely, capital- and technology-intensive sectors characterized by a sort of internal polarisation: on one side, a reduced spectrum of extremely well-paid occupations with highly valued graduation diplomas, and on the other a broad contingent of workers in basic occupations.

Hence, a description of the sectoral evolution is not sufficient for understanding inequality in the distribution of occupational positions carrying greater or lesser prestige and qualification. In order to better understand the distribution of the various occupations according to social valuing and recognition, it is necessary to resort to a typology that, cutting across economic activity sectors, will make it possible for us to identify jobs and occupations from the point of view of their quality and prestige. Hence, in the next section we continue with a detailed exploration of the occupational structure.

Graph27 – Relative income by levels of education within economic sectors. Brazil. 1995-2011



Source: 1995, 2001, 2005 and 2011 PNADs.

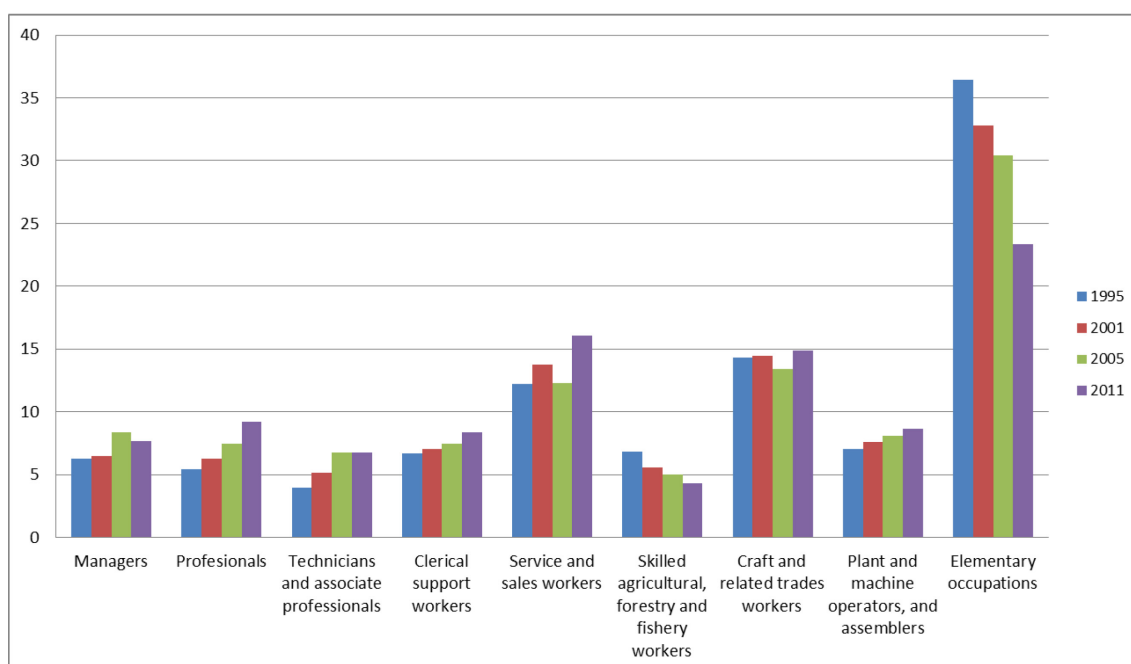
8.2. *Shifts in the occupational structure*

For the analysis in this section, we also resort to an international occupational classification standard, the International Standard Classification of Occupations (ISCO), in the version published by the ILO in 1988.¹⁷ By analysing the productive structure from this angle, we can demonstrate that shifts in the sectoral composition of the productive structure are associated with changes in types of occupation, with the various ways in which authority is exercised, and with dynamics that are internal to the firms and organizations, configuring various forms of inequality.

The findings indicate a sharp reduction in “Elementary Occupations”, followed by a growth that is fairly distributed across the other occupational groups, with the exception of agricultural workers (Graphs 28 and 29). Briefly, the data suggest clear improvement of the occupational structure as a whole, with individuals occupying better quality and better paid jobs. In this respect, it is worth noting that occupational groups “Professionals”, “Technicians”, and “Services and Sales Workers” grew most, mirroring transformations both micro-organizational and in the productive structure, evidencing an occupational configuration that is heavily structured on an increasingly more diversified services sector.

¹⁷ This is a classification system for comparing international occupational structures. We use an aggregation of this system in nine categories: (1) legislators, senior officials and managers; (2) professionals; (3) technicians and associate professionals; (4) office clerks; (5) service workers and shop and market sales workers; (6) skilled agricultural and fishery workers; (7) craft and related trades workers; (8) plant and machine operators and assemblers; and; (9) elementary occupations. In order to make it easier to understand these broad occupational groups, in the Annex we provide a list of the main occupations comprised by each of them for the years of 1995 and 2011.

Graph28 – Occupational structure; Brazil, 1995-2011



Source: 1995, 2001, 2005 and 2011 PNADs.

From the point of view of the dynamic of the group's change and percentage growth, however, important variations can be observed over these periods, and again the years from 2005 to 2011 distinguish themselves from the others. Between 1995 and 2005, changes were stronger as a result of the growth of "Professionals", "Technicians" and to a lesser extent, "Managers". As for the more recent period (2005 to 2011) and as mentioned earlier, "Service Workers" had the highest growth (40.0%).

The period's overall trend, however, was of sharp growth of "Professionals" and "Technicians", who more than doubled in size (120.0% growth), while all the other groups grew by about 60.0%.

Still, this high percentage growth was concentrated in groups with small relative participation. For example, typical middle-class salaried segments – "Managers", "Professionals" and "Technicians" – increased their share from 16% to 24% over the period. But in terms of relative share, the increase in workers with some qualification – "Clerical Support Workers", "Services and Sales workers", "Craft Workers", "Skilled Agricultural Workers" and "Plant and Machine Operators" expanded from 47% to 52.3%. These segments probably absorbed good part of the labour market's new entrants and those already working in elementary occupations who, notwithstanding a decrease, continued to represent about ¼ of total occupied workers in the country in 2001.

Graph29 – Percentage growth of occupational groups. Brazil, 1995-2011.



Source: 1995, 2001, 2005 and 2011 PNADs.

These changes affected inequality between and within occupational groups in distinct ways. Broadly, the trend toward convergence remained and gaps between strata narrowed: the three groups with the lowest average income, “Elementary Occupations” “Agricultural workers”, and “Craft workers”, were the only ones to see their relative income grow over the period, whereas, for all the others, relative income declined.

Concerning internal inequalities, it is not possible to spot a dominant pattern. At the top of the hierarchy, wage dispersion grew considerably only among “Managers” and “Technicians”, precisely where returns to higher education increased over the period; yet, the same did not happen in their intermediate group, “Professionals”. On the other hand, we can see a sharp reduction in the dispersion of the group that grew the most between 2005 and 2011 (“Service and Sales workers”), but also the one that lost most space over these 16 years (“Elementary Occupations”). In this last case, we may argue that the minimum wage may have contributed for the smaller gap across poorly-qualified workers, working as the social stratification’s, as well as the labour market’s, basic benchmark income, and prompting convergence (Table 23).

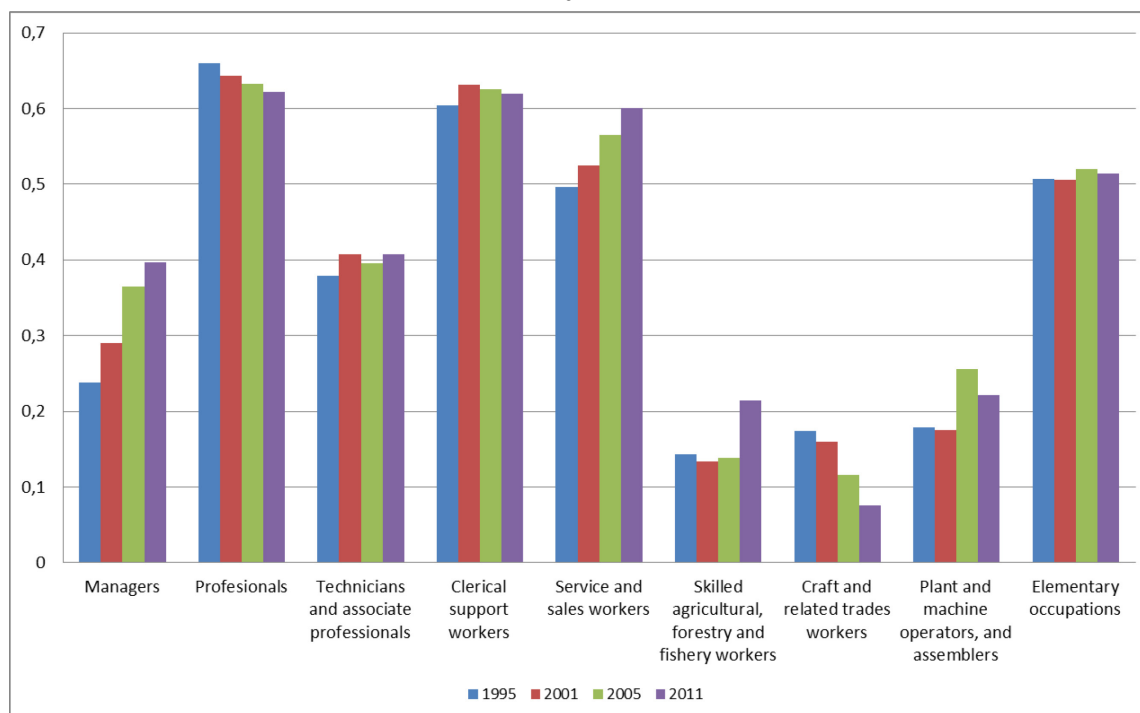
Table23 – Mean Wages, relative % to mean occupied population wages and coefficient of wage variation – ISCO 1 digit classes – Brazil – 1995, 2001, 2005, 2011.

Occupational structure; Brazil, 1995-2011	1995			2005			2001			2011		
	\$ Average	\$ Relative	CV	\$ Average	\$ Relative	CV	\$ Average	\$ Relative	CV	\$ Average	\$ Relative	CV
Managers	3911,87	3,11	1,24	3445,08	2,94	1,40	2599,93	2,36	1,76	2962,94	2,14	1,60
Professionals	2749,12	2,18	1,38	2725,79	2,33	1,30	2391,78	2,17	1,31	2875,74	2,07	1,36
Technicians and associate professionals	2220,65	1,76	1,21	1930,27	1,65	1,18	1729,61	1,57	1,11	2022,70	1,46	1,40
Clerical support workers	1324,34	1,05	1,02	1145,39	,98	0,94	976,05	,88	0,93	1176,58	,85	0,96
Service and sales workers	1033,01	,82	1,35	931,50	,79	1,41	716,25	,65	0,99	925,27	,67	0,93
Skilled agricultural, forestry and fishery workers	574,49	,46	2,46	512,59	,44	1,85	510,42	,46	1,71	710,22	,51	2,29
Craft and related trades workers	974,67	,77	0,99	829,29	,71	0,93	811,08	,74	0,88	1106,82	,80	0,92
Plant and machine operators, and assemblers	1212,42	,96	0,95	1075,18	,92	0,88	989,18	,90	0,94	1240,99	,89	0,87
Elementary occupations	530,29	,42	1,43	507,82	,43	1,10	477,16	,43	0,77	661,00	,48	0,79
Média	1259,00	1,00	1,74	1172,00	1,00	1,75	1103,00	1,00	1,79	1387,00	1,00	1,64

Source: PNAD. Monetary values deflated to the year 2012, excluding workers with incomes equal to zero.

The composition of the occupational groups is also noticeably different if we analyse the distribution of workers by sex. There is a steady growth of women in the “managers” group, as the former nearly double over the period, with 40% of this group’s total workers. A similar trend is followed by “service and salesworkers”, a group in which women’s share rose to 60% of total workers at the end of the period. Only in the “professionals” and “craft and related trade workers” groups is there a decrease in women’s share. Yet, it is worth stressing the high, and likely to grow, share of women in elementary occupations. In 2011, 51.4% of these occupations were filled by women as contrasted with their 42.3% total occupied workers’ share.

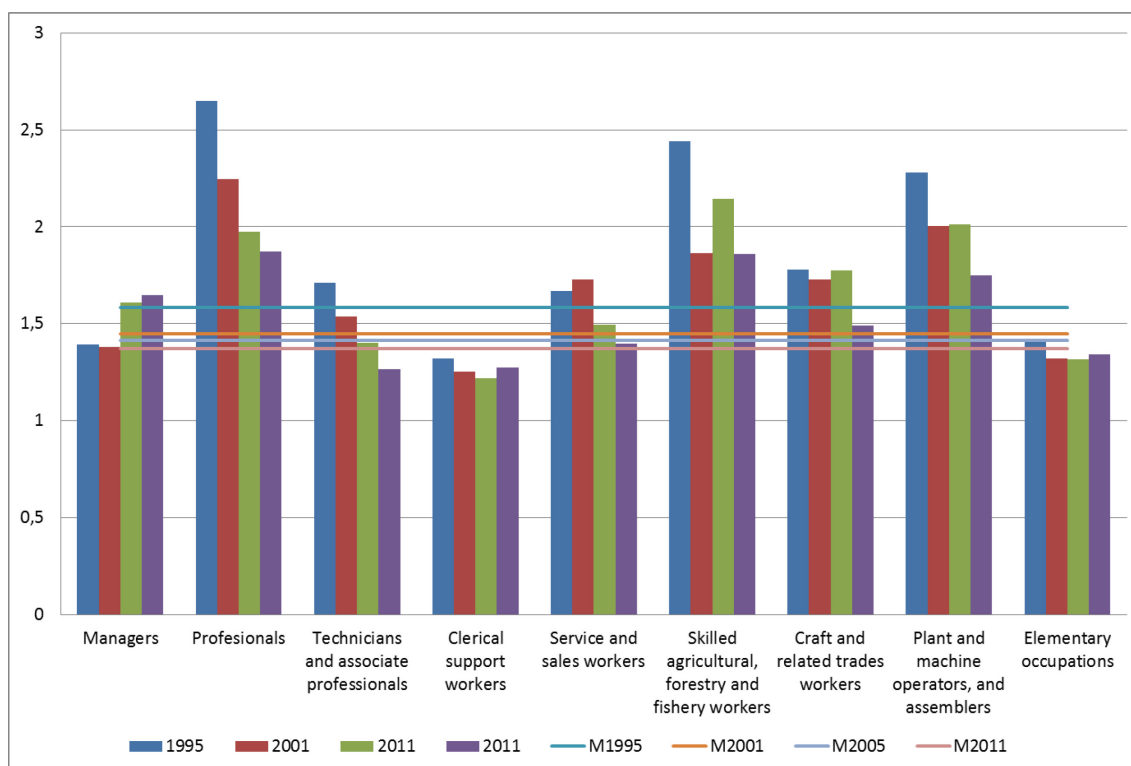
Graph30 – Proportion of women within occupational groups. Brazil. 1995-2011



Source: 1995, 2001, 2005 and 2011 PNADs.

The falling men/women inequality trends can be calculated as the ratio between the average incomes of each sex group within the broad occupational groups. The results presented in the graph below show a declining trend relative to the gap between the average income of men and women between 1995 and 2011 for the whole of the workforce, a decline that is spread across almost every occupational group, yet is stronger among “professionals”, “technicians” and “plant and machine operators and assemblers”. For those occupational groups, the average gap between men’s and women’s wages hits the lowest value for the whole period in 2011. It is worth emphasizing that the women’s share in these groups was either high or increased over the period (Graph31).

Graph31 – Income ratio of men and women within occupational groups (columns) and overall average (lines). Brazil, 1995-2011

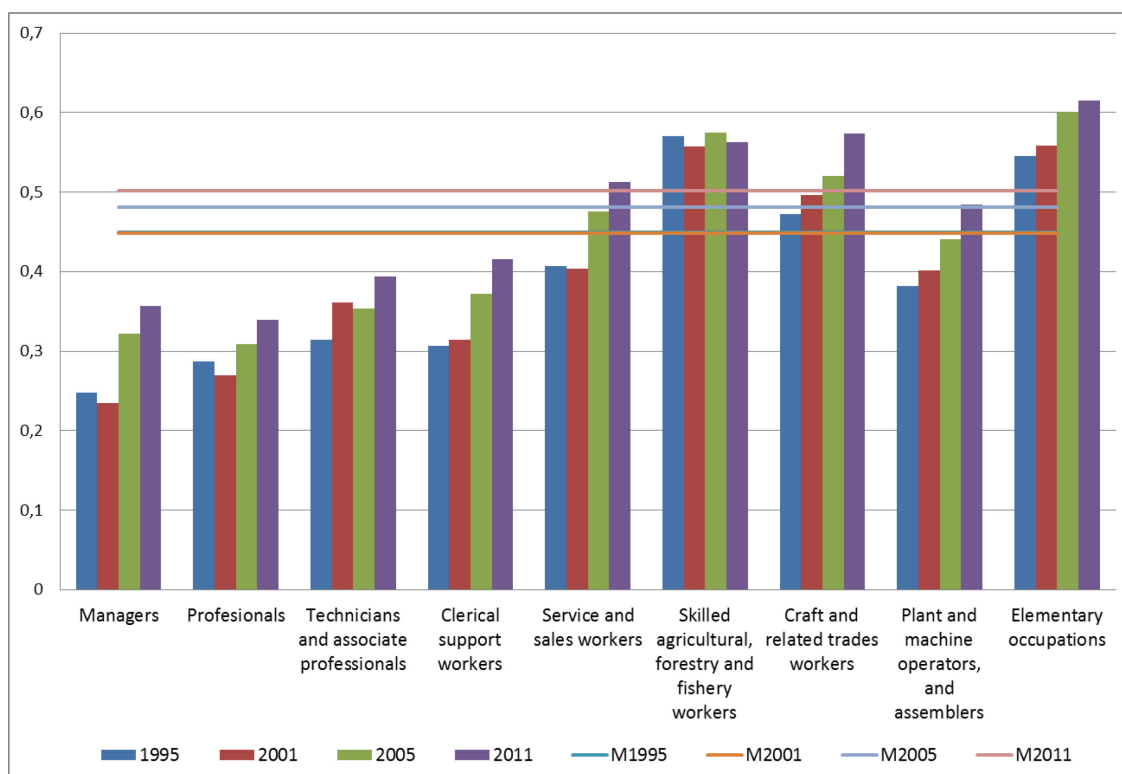


Source: 1995, 2001, 2005 and 2011 PNADs.

From the point of view of the racial composition of the occupational groups, there is a widespread trend of increased participation of self-declared non-whites in the labour market between 1995 and 2011, reflected in the increased proportion of non-whites in nearly every occupational group and in all greater or lesser prestige and skilled groups, though non-whites predominate in the skilled groups. Although it is not the majority group as a proportion of total population and total working age labour force, non-whites hold more than 50% of the occupational positions in the five lesser prestige occupational groups in 2011 –62% of the “elementary workers”, following an upward trend over the

period –and just about 1/3 of the jobs in the two greater prestige occupational groups, “managers” and “professionals” (Graph32).

Graph32 – Proportion of blacks within the occupational groups (columns) and proportion of employed blacks (lines); Brazil, 1995 – 2011

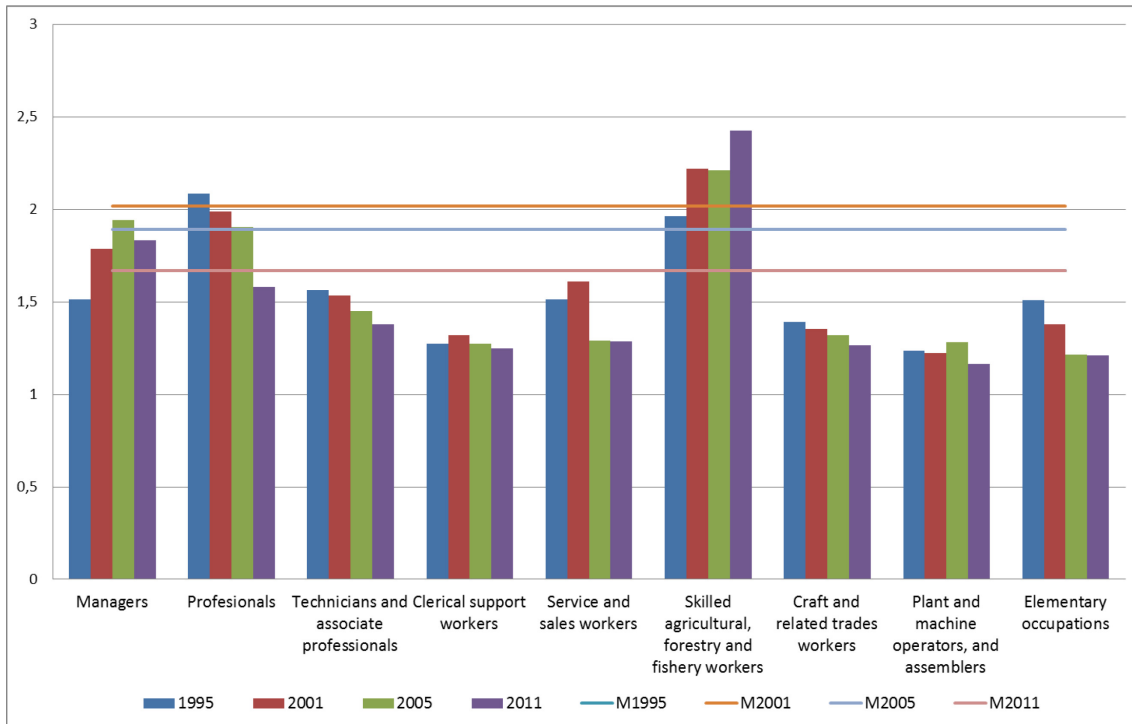


Source: 1995, 2001, 2005 and 2011 PNADs.

Compounding the inequality of opportunity between whites and non-whites concerning the occupational groups’ greater or lesser prestige, there is a component of inequality that is internal to the occupational groups themselves. Whatever the occupational group taken into consideration, a non-white’s pay is lower than a white’s, and this inequality in wage returns across racial groups is significant over the entire period analysed. Still, the results in the graph below show a downward trend as concerns the income gap between racial groups for the population as a whole and for most occupational groups. These data also corroborate the pre-labour market deficit conditions among blacks and mulattoes.

In general terms, intra-occupation income gap is wider in the higher income, more prestigious, and skilled occupations, and much narrower towards the other extremity, both in terms of colour and sex. The average gap is higher for whites and non-whites – 67% for the former – than between men and women, 37% higher for occupied male workers. In the elementary occupations, however, the income gap by sex is higher, 34%, as contrasted with the 21% income gap with reference to colour of skin (Graph33).

Graph33 – Ratio of income between blacks and whites within occupational groups (columns) and overall average (lines). Brazil. 1995-2011



Source: 1995, 2001, 2005 and 2011 PNADs.

The most prominent gains in terms of composition suggest a more significant increase in higher-skilled and intermediate occupations, in contrast with a substantial decrease in elementary, poor skill and agricultural occupations. Additionally, there are downward trends regarding sex and race inequality both in terms of the composition of the occupational groups and in terms of income levels, even though significant differences still persist, especially when we observe high differentials in the more skilled occupations and a more than proportional presence of women and non-whites in elementary occupations.

8.3. Class Structure

In this last section we present some evidence about the changes that have taken place in the country's class structure. To perform this task, we will make use of one of the most consolidated class analysis schemes on social stratification in the international literature: the Erikson-Goldthorpe-Portocarero scheme (EGP).

The EGP classification operates on the basis of two principles for differentiating forms of employment: specificity of knowledge required to undertake the task and monitoring

difficulty. To these we must also add ownership of the means of production. The result is a class schema that, first, separates owners from non-owners and, then, classifies non-owners in accordance with the type of employment relation they have with the employer, still based on the specificity and monitoring principles (Breen, 2005).

Employees are classified according to the type of employment relation: the restricted working contract, typically associated with the working classes, with a low level of occupational autonomy and marked by higher likelihood of worker replacement by the employer; and the so-called service relation, typically associated with white-collar occupations, characterized by a relation of trust between employer and employee arising from a less evident possibility of monitoring the work considering the specificities (and thus higher levels of specialization) in performing the occupation, from which stems greater worker autonomy to perform tasks (Ribeiro, Scalón, 2001).

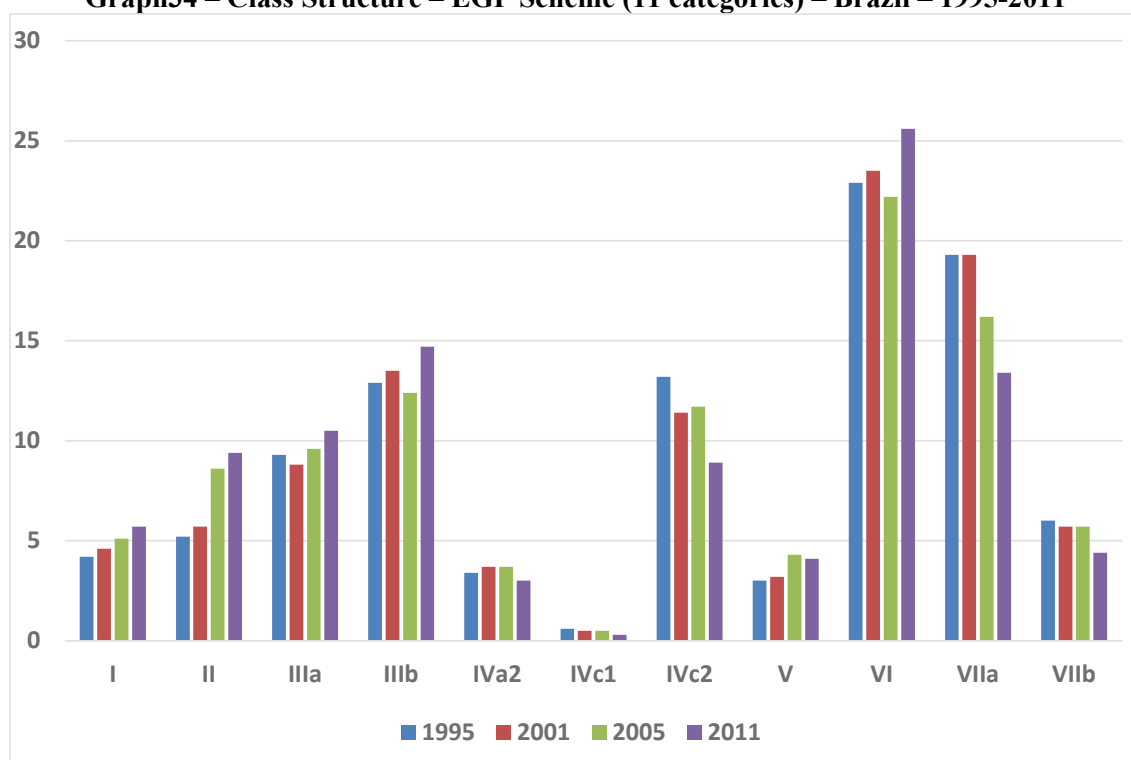
In this project we use an 11-class version of the EGP scheme (closer, therefore, to the original scheme proposed in Erikson, Goldthorpe and Portocarero, 1979). Yet, other papers used schemes with 7 and 16 classes for analysing the Brazilian social structure (Scalón; 1999; Ribeiro & Scalón, 2001; Ribeiro, 2007). Classes used in this analysis can be briefly described as follows.

- I. Higher grade professionals – Highly-qualified non-manual workers, professionals, managers, large proprietors. High specificity, high monitoring difficulty;
- II. Lower grade professionals – Less skilled, non-manual workers, administrators, managers in small establishments. Specificity lower than I, high monitoring difficulty;
- IIIa. Routine non-manuals, higher degree. Low specificity, high monitoring difficulty;
- IIIb. Routine non-manuals, lower degree. Low specificity, low monitoring difficulty;
- IVa2. Proprietors and Employers;
- IVc1. Rural Employers;
- IVc2. Self-employed farmers and subsistence agriculture workers;
- V. Technicians and Supervisors of manual workers;
- VI. Skilled workers;
- VIIa. Semi- and unskilled workers;
- VIIb. Agricultural workers;

Graph 34 below reports results that describe the composition of the Brazilian class structure according to the EGP typology, applied to all individuals occupied during the reference week.¹⁸ In it, we present the proportion (%) of each of the social strata for the total universe of occupied workers in each of the years selected.

¹⁸The construction of the EGP typology for analysing social class structure in the 1995, 2001, 2005 and 2011 PNAD household surveys depends on translating the occupational classification scheme as proposed by the IBGE's CBO household classification to ISCO-88, and from the latter to the EGP

Graph34 – Class Structure – EGP Scheme (11 categories) – Brazil – 1995-2011



Source: 1995, 2001, 2005 and 2011 PNADs.

Previous works (Pastore, 1979; Scalón, 1999; Pastore & Valle Silva, 2000; Ribeiro, 2007) have shown how the Brazilian class structure, as well as that of other late modernising countries, was deeply transformed during the urbanisation and economic modernisation process that started in the 1960s, levelled off in the 1990s, when the country's urbanization rate exceeds 80%, and stabilized. The occupational structure becomes increasingly less concentrated in agricultural occupations, and urban labour less concentrated in industrial occupations, with an expansion of the services sector, which led to a growth in the urban low-skilled, non-industrial manual strata (VIIa) and the low-skilled, non-manual strata (IIIa and IIIb). This process was also driven by an increase of informality in the economy, and the precarious labour and productive re-organisation relations that took place mostly in the 1990s.

In view of the country's continuing urbanisation, at a moment of serious economic slowdown, the set of low-skilled rural occupations, which accounted for the majority of the workers, gave rise to a mass of low-skilled urban workers, outlining the contours of a new class structure in a "modernised" Brazil, in which occupations linked to the economy's informal sector gained momentum. In this sense, the Brazilian class structure acquired new features (Hasenbalg, 2000).

typology. On this point, we wish to thank researcher Rogério Jeronimo Barbosa, of the Centre for Metropolitan Studies, for providing us with the procedurally necessary programming syntax for re-codifying occupations.

What can we say about this new class structure? In the mid-1990s this structure's profile suggested a concentration of workers in low-skilled manual occupations –about 4 out of every 10 workers were in urban jobs characterized by low (VI) or no (VIIa) specialization. In these strata there were mostly manual workers in the manufacturing industry (VI) and in the retail and services sector, where informal labour thrived (VIIa). Thus, 1.5 to 2 out of 10 workers were self-employed and/or poorly qualified agricultural workers (IVc2 and VIIb), which clearly reflects the dwindling importance of rural work in the Brazilian occupational structure resulting from the country's economic modernisation process from the 1960s through the 1980s. The low-skilled, non-manual urban classes (IIIa and IIIb) also comprised a significant portion– 2 out of 10 –of the Brazilian workers, these being the most frequent non-manual urban worker categories in the country's class structure.

Yet, the profile of the mid-1990s to the early 2010s is not static. There is significant growth in the proportion of individuals in classes comprising higher-skilled occupations. The proportion of individuals in classes I and II rises from 9.4% in 1995 to 15.1% in 2011. The low-skilled non-manual urban strata (IIIa and IIIb) also grow over the period, the same occurring with the skilled manual urban strata (VI), allocated mostly in the manufacturing industry. This trend suggests absorption of more skilled industrial labour in comparison with the mid-1990s, with a concurrent reduction in the proportion of workers in low-skilled manual urban strata (VIIa), while also suggesting an overall rise in the level of skill of the workforce occupied in the country, originating a class structure more and more concentrated in occupations based on higher qualification and levels of specialisation. This picture is different from that of the 1990s.

In contrast, the rural strata in general reduce their representativeness in the Brazilian class structure over the period analysed, not only employers (IVc1, the smallest class in the Brazilian social structure, with less than 1% of total occupied individuals), but also small rural proprietors (IVc2), and manual rural workers (VIIb). Among the characteristically urban strata, over the period there is a significant reduction in the relative size of the low-skilled, manual urban stratum (VIIa), which falls from 19.3% in 1995 to 13.4% of total workers in 2011. These findings are consistent with the period's economic activity recovery momentum (with unemployment falling and the informal labour market in retreat) and suggest the deepening of the Brazilian class structure process of concentration in strata typically associated with higher-grade urban occupations, as opposed to the typically agricultural and low-skilled, manual urban strata.

The table below shows results related to the average income levels of the various social strata.

Table24 – Mean Wages, relative % to mean occupied population wages and coefficient of wage variation – EGP 11-class scheme – Brazil – 1995, 2001, 2005, 2011.

Classes EGP	1995			2001			2005			2011		
	Average	CV	Relative \$	Average	CV	Relative\$	Average	CV	Relative\$	Average	CV	Relative \$
I. Higher professionals	4433,03	0,99	3,56	3996,22	1,05	3,41	3435,85	1,04	3,13	4026,17	0,99	2,92
II. Lower professionals	2229,35	1,16	1,79	1993,64	1,14	1,70	1549,37	1,28	1,41	1844,20	1,15	1,34
IIIa. Routine non-manuals, higher degree	1290,70	1,03	1,04	1214,21	0,91	1,04	1129,58	0,93	1,03	1379,07	1,39	1,00
IIIb. Routine non-manuals, lower degree	1035,64	1,34	0,83	963,32	1,36	0,82	721,02	0,86	0,66	904,81	0,80	0,66
IVa2. Proprietors and employers	4627,87	1,21	3,72	3879,34	1,36	3,31	3477,57	1,55	3,17	4197,52	1,60	3,05
IVc1 - Rural employers	3154,53	1,65	2,54	2798,54	1,88	2,39	3352,10	2,36	3,05	3730,65	1,76	2,71
IVc2. Self-employed farmers and subsistence agriculture workers	602,16	2,04	0,48	518,58	1,77	0,44	512,48	1,57	0,47	711,17	2,20	0,52
V. Technicians and Supervisors of manual workers	1612,66	0,95	1,30	1481,13	0,95	1,26	1269,50	0,95	1,16	1660,11	0,86	1,20
VI. Skilled workers	942,73	0,98	0,76	859,39	0,89	0,73	823,28	0,87	0,75	1066,49	0,80	0,77
VIIa Semi- and unskilled workers	548,32	1,40	0,44	534,97	1,14	0,46	465,77	0,76	0,42	634,80	0,77	0,46
VIIb Agricultural workers	411,63	0,81	0,33	404,45	0,70	0,35	449,44	0,67	0,41	654,31	0,75	0,47

Source:1995, 2001, 2005 and 2011 PNADs.

The results show an overall decline in average income levels between 1995 and 2005 and a recovery to levels higher than the previous from 2005 to 2011. This trend applies to practically all strata, yet not all of them reach at the end of the period the same levels observed in the preceding period. Considering the strata whose representativeness in relation to the whole of the population rose between 1995 and 2011 (Graph25), their growth is followed by an increase in the average income level of the working classes, especially among skilled manual workers (VI) and technicians and supervisors of manual work (V). To a lesser extent, this also occurred with routine, non-manual skilled workers (IIIa). The growth in representativeness for the whole of the class structure is not followed by an increase in average income levels for the top-skilled strata (I and II) and for unskilled non-manual, routine workers (IIIb). In these two cases, despite the recovery spanning from 2005 to 2011, the last item in the series suggests an average income that is lower than that of 1995. Considerable gains in average income levels occur especially among those strata whose representativeness has been falling, which is the case of self-employed rural workers (IVc2), rural employers (VIIb), and of the unskilled manual urban workers (VIIa).

Income inequality across strata, as measured by the stratum's average income percentage in relation to total average, suggests a picture of persisting inequalities, in which there are no relevant gains relative to the occupied population's average for most of the strata, yet there are no significant losses either. Among the 11 strata analysed, there are three important exceptions to this pattern: the relative income of the highly-skilled, non-manual strata (I and II) and of the low-skilled, routine, non-manual stratum (IIIb) clearly declined over the period, thus indicating a reduction in the income gap of strata I and II in relation to workers' total average income (both above average) and an increased gap in stratum IIIb (below average). This is an additional element in

accounting for the income convergence over the period and the narrowing of the income gap.

If one considers that the two last ones are strata that had been expanding within the Brazilian class structure over the period, the data suggest that such expansion was achieved at the expense of a reduction in the average income gap of these occupations in relation to the average and to strata of a lower socioeconomic level. The only case of significant income gap reduction in relation to the average income of total occupied workers over the period is that of agricultural workers – a clearly declining stratum. All others fit the pattern suggested above, in which gains and losses in overall average incomes did not necessarily translate into significant reduction in inequality levels in relation to the occupied workers' average.

Besides income inequality, the Brazilian class structure is also intersected by other forms of inequality. The table below presents the composition of EGP strata by sex, clearly showing differences in men and women ratios across strata.

Table 25 – Proportion of Men and Women by Class (EGP 11-class scheme) – Brazil – 1995, 2001, 2005, 2011.

EGP Class	Men				Women		
	1995	2001	2005	2011	1995	2001	2005
I. Higher professionals	61,60%	56,60%	56,50%	55,90%	38,40%	43,40%	43,50%
II. Lower professionals	56,40%	53,00%	49,00%	45,90%	43,60%	47,00%	51,00%
IIIa. Routine non-manuals, higher degree	36,20%	36,30%	38,00%	38,00%	63,80%	63,70%	62,00%
IIIb. Routine non-manuals, lower degree	54,70%	50,90%	51,50%	46,80%	45,30%	49,10%	48,50%
IVa2. Proprietors and employers	76,70%	73,20%	70,10%	68,80%	23,30%	26,80%	29,90%
IVc1 - Rural employers	95,10%	93,80%	92,40%	89,30%	4,90%	6,20%	7,60%
IVc2. Self-employed farmers and subsistence agriculture workers	53,20%	56,40%	55,00%	59,40%	46,80%	43,60%	45,00%
V. Technicians and Supervisors of manual workers	92,00%	87,60%	88,90%	84,70%	8,00%	12,40%	11,10%
VI. Skilled workers	75,60%	76,40%	74,40%	76,90%	24,40%	23,60%	25,60%
VIIa Semi- and unskilled workers	36,40%	37,20%	31,10%	28,60%	63,60%	62,80%	68,90%
VIIb Agricultural workers	90,30%	89,10%	89,40%	88,40%	9,70%	10,90%	10,60%
Total	58,70%	58,40%	57,10%	56,90%	41,30%	41,60%	42,90%

Source: 1995, 2001, 2005 and 2011 PNADs.

The trend of increased women engagement in the labour market gained traction especially between the years of 1990 and 2000, with a significant growth in the likelihood of women joining the workforce. This is a milestone in the labour commoditization process in Brazil (Guimarães, Barone, Alves de Brito, 2014) and has meant a significantly unequal participation in relation to men. Among the urban strata, women are a minority in the stratum with the best skilled professionals (I) and among proprietors (IVa), besides being significantly underrepresented in every rural stratum (IVc1, IVc2 and VIIb). Even among manual urban working classes, women's position is less favourable: they are less concentrated in the technical and supervision strata (V) and skilled strata (VI), are expanding and generally linked to the manufacturing industry and the economy's formal sector; and are the majority among unskilled manual workers

(VIIa), in decline over the period and generally associated with typical informal market occupations.

Overall, women's participation grows over the period analysed, from 41.3% to 43.1% of total occupied workers. This growth, however, is more or less significant depending on the stratum analysed. There is increased women participation in the two highest strata (I and II), in the unskilled, non-manual stratum (IIIb) and among unskilled, manual urban workers (VIIa, where they constitute a majority since 1995). This growth in women's participation is even observable among strata formerly dominated almost exclusively by men. This occurs especially in the technical and supervision occupations (V) and in the proprietor classes, both urban (IVa2) and rural (IVc1).

The results suggest, too, the persistence of barriers to women's participation in the skilled manual workers' stratum (VI), which grows sharply over the period yet retains unequal chances of participation by sex. On the other hand, women's predominance in the skilled, routine, non-manual workers' stratum (IIIa) remains stable.

But not just the composition by sex establishes differences across social strata for the Brazilian case. Racial inequality is also a feature of the Brazilian social structure. The table below shows the racial composition – in whites and non-whites – of the social strata as classified by the EGP scheme.

Table26 – Proportion of Whites and Non-Whites by Class (EGP 11-class scheme) – Brazil – 1995, 2001, 2005, 2011.

EGP Class	Whites				Non-Whites		
	1995	2001	2005	2011	1995	2001	2005
I. Higher professionals	78,50%	80,80%	77,20%	73,70%	21,50%	19,30%	22,90%
II. Lower professionals	66,10%	68,70%	61,90%	58,40%	33,90%	31,20%	38,10%
IIIa. Routine non-manuals, higher degree	63,60%	66,70%	61,60%	57,60%	36,30%	33,20%	38,50%
IIIb. Routine non-manuals, lower degree	57,00%	60,80%	53,20%	49,60%	42,90%	39,20%	46,80%
IVa2. Proprietors and employers	75,30%	78,10%	73,40%	71,20%	24,70%	21,90%	26,50%
IVc1 - Rural employers	72,20%	67,70%	64,40%	65,10%	27,80%	32,20%	35,60%
IVc2. Self-employed farmers and subsistence agriculture workers	46,50%	44,90%	40,10%	37,70%	53,50%	55,10%	59,80%
V. Technicians and Supervisors of manual workers	57,80%	57,50%	56,60%	55,20%	42,30%	42,60%	43,40%
VI. Skilled workers	51,00%	53,00%	50,00%	44,80%	48,90%	46,90%	50,00%

Source: 1995, 2001, 2005 and 2011 PNADs.

The results show how the Brazilian class structure tends to present a higher concentration of whites in the higher-degree strata (I, II and IIIa) and in the strata that characterize the proprietor and employer classes (IVa2 and IVc1). Non-white individuals tend, conversely, to be concentrated in strata characterized by manual, unskilled occupations, both in urban and rural areas, as can be seen in the racial composition of strata IVc2 (self-employed rural workers), VIIa (unskilled manual workers) and VIIb (agricultural workers).

Class inequality between whites and non-whites in the country shows a significant predominance of whites in the highest socioeconomic strata (a) in urban, non-manual jobs, (b) in urban, manual work and (c) in agricultural work. Among the non-manual urban strata, non-whites are the majority only in the low-skilled, routine, non-manual

strata (IIIb); in the urban manual strata, whites make the majority of the technicians and supervisors (V), while non-whites prevail in less autonomous, manual skilled occupations (VI) and in manual, unskilled occupations (VIIa); in the countryside, whites are the majority only among the employers (IVc1), while non-whites comprise the majority of the self-employed rural workers (IVc2) and employed agricultural workers (VIIb).

But just as with the composition by sex, this class structure profile is not static. There is a general upward trend in non-white participation in all strata. This change in the overall average levels of participation by race is the result of increased non-white participation in the highest strata, as well as of increased non-white participation in the manual and lesser skilled strata.

The reduced barriers to non-white participation in the non-manual urban strata are made more evident in the less qualified professionals and managers stratum (II) and among low-skilled, non-manual, routine workers (IIIb). In the countryside there are two other strata in which these barriers declined significantly: among agricultural employers (IVc1) and self-employed agricultural workers (IVc2). The non-whites' chances of belonging to the skilled, non-manual, routine work stratum (IIIa) and to the skilled, manual worker stratum (VI) also increase, yet not so sharply.

Therefore, in spite of some significant changes in race-class inequality, there still persists an important dimension for the reproduction of the original class inequality by racial groups that tends to allocate whites in the more prestigious positions in the recent Brazilian class structure.

In short, the evolution of the period encompassed by this analysis suggests a class structure that is responsive to the recovery trend of the economy and the levels of employment and formal labour, with rising representativeness of the higher-skilled, non-manual strata (I and II) and the lesser skilled manual strata (V and VI), typically linked to the formal sectors of the labour market, as opposed to the declining importance of unskilled manual work, both in urban and rural areas (VIIb and VIIa).

This change in the class structure was followed by a decrease in average wage differentials in the highly-skilled, non-manual urban (I and II) and proprietor strata (IVa2), as well as in the low-skilled, non-manual urban strata (IIIb), whose income gap declines in relation to the total occupied workers' average wage over the period. This trend is highly specific to these strata.

However, in the case of the manual urban and rural strata (both skilled and unskilled), there are no gains in terms of income when this is compared with the occupied workers' average wage. In this connection, it is worth pointing out the persistence of inequalities in wage returns by class for most of the strata, especially among manual workers. Still, within each stratum inequality fell.

This is also a class structure that tends to incorporate men and women unequally. From its inception, the analysis shows an unequal structuring prompting a concentration of women in non-manual, routine occupations (IIIa) and placing them among the poorly-

skilled manual workers (VIIa), often linked to the economy's formal sector. Certain strata are almost entirely made up of men, as with rural employers (IVc1), technicians and supervisors of manual occupations (V), and rural workers (VIIb), all with more than 90% of male participation in 1995. Over the period analysed, women's participation grows in part of the strata, especially in the less qualified professionals and managers stratum (II), in which they become the majority in 2011, among the low-skilled, non-manual routine workers (IIIb), urban employers and proprietors (IVc1), technicians and supervisors of manual work (V) and unskilled manual workers (VIIa).

It is worth stressing that these gender inequalities evolved more sharply to the detriment of women in the manual working classes, following a class participation pattern according to which women tended to be concentrated in low-skilled, manual urban occupations (VIIa), at a moment when the economic recovery promotes a growth in the technical and specialized urban and manual strata, which were overwhelmingly appropriated by men and in which barriers against women incorporation remain significantly high.

From the point of view of racial inequality, there is an overall upward trend in the proportion of non-whites among occupied workers, which is reflected in increased non-white participation in the various strata. From a point of departure in which there is evidence of unequal incorporation of whites and blacks, with white overrepresentation in the highest strata, both among non-manual and manual workers, the recent evolution evidenced a more significant increase of the non-white population among lesser skilled professionals and managers (II), low-skilled, non-manual, routine workers (IIIb), employers (IVc1) and self-employed agricultural workers (IVc2).

At the end of the period, this is a class structure that tends toward decreased race and gender inequalities in general, but still poses very clearly defined barriers in certain strata less porous to the incorporation of women and non-whites, reproducing inequalities historically rooted in the Brazilian labour market.

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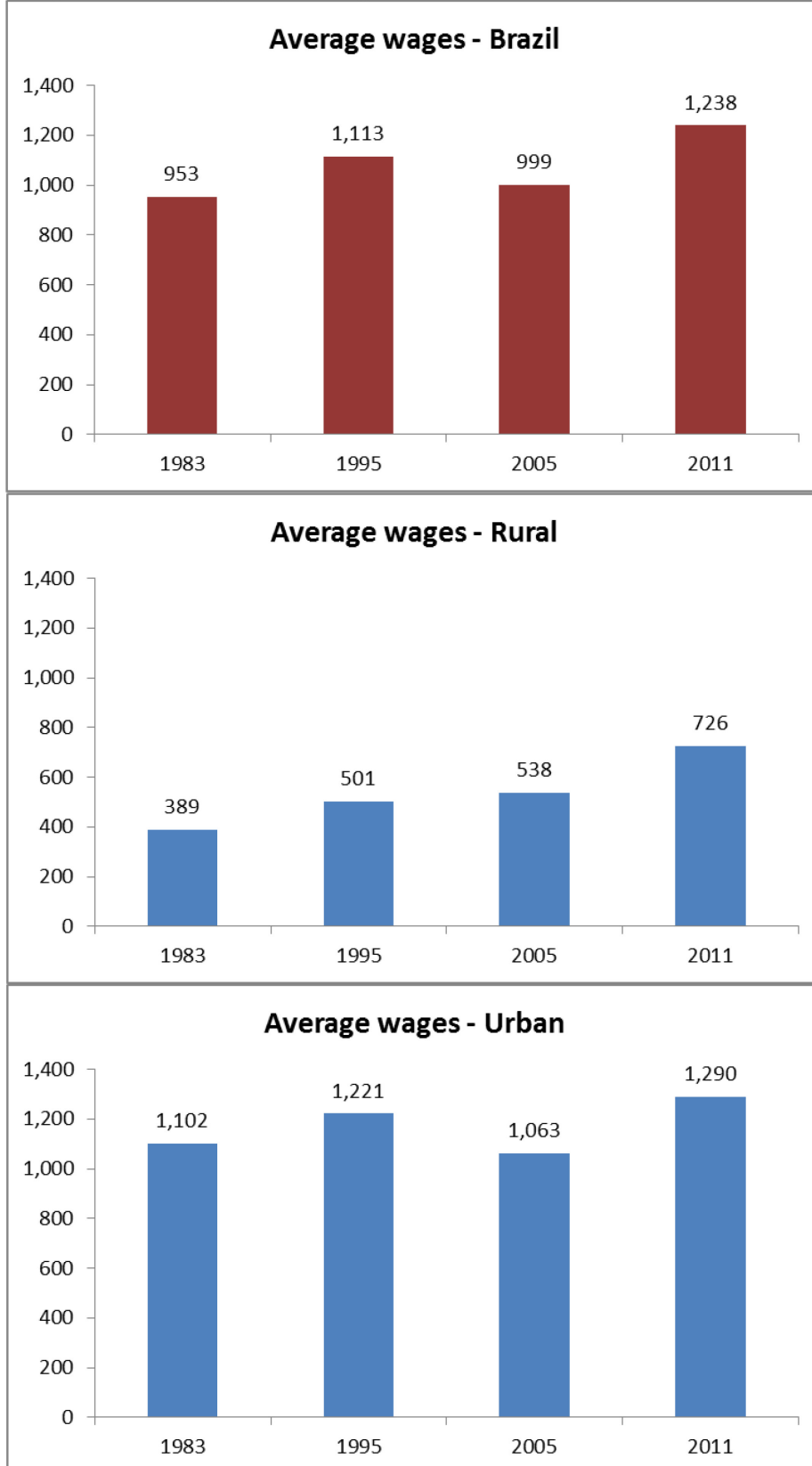
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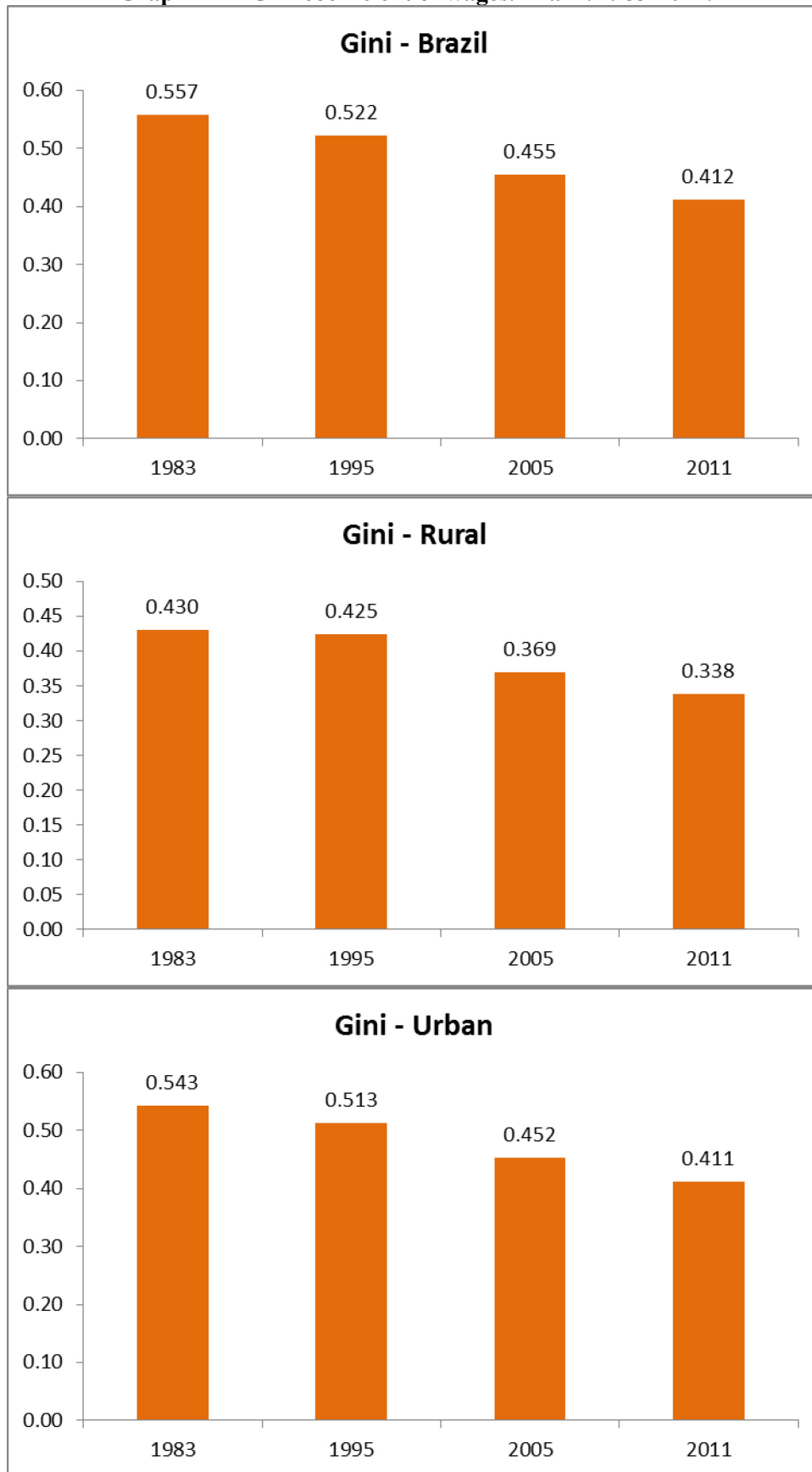
Appendix – Estimates for wage inequality in Brazil

Graph A1 – Average of real wages. Brazil. 1983-2011. (constant 2012 R\$)



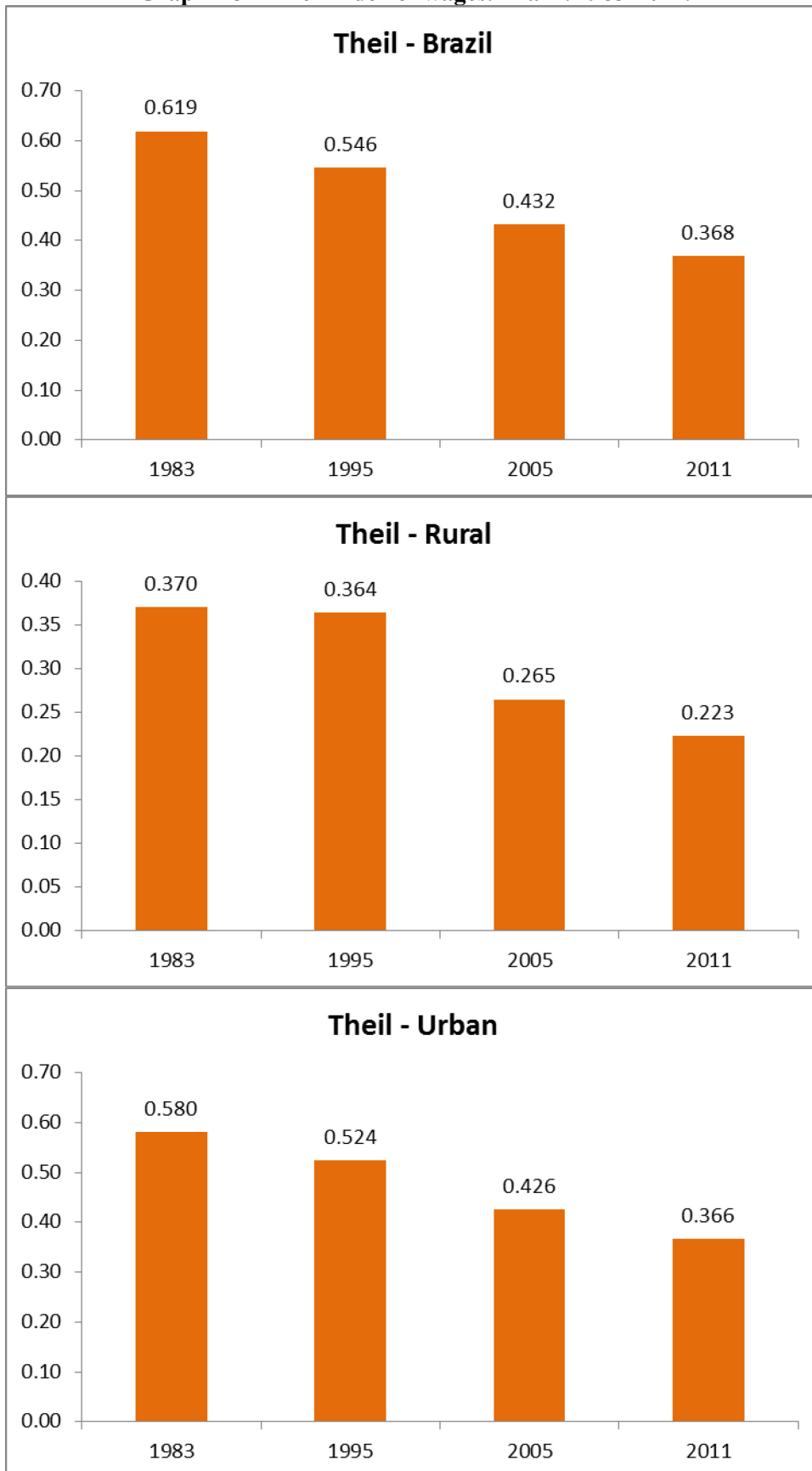
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A2 – Gini coefficient of wages. Brazil. 1983-2011.



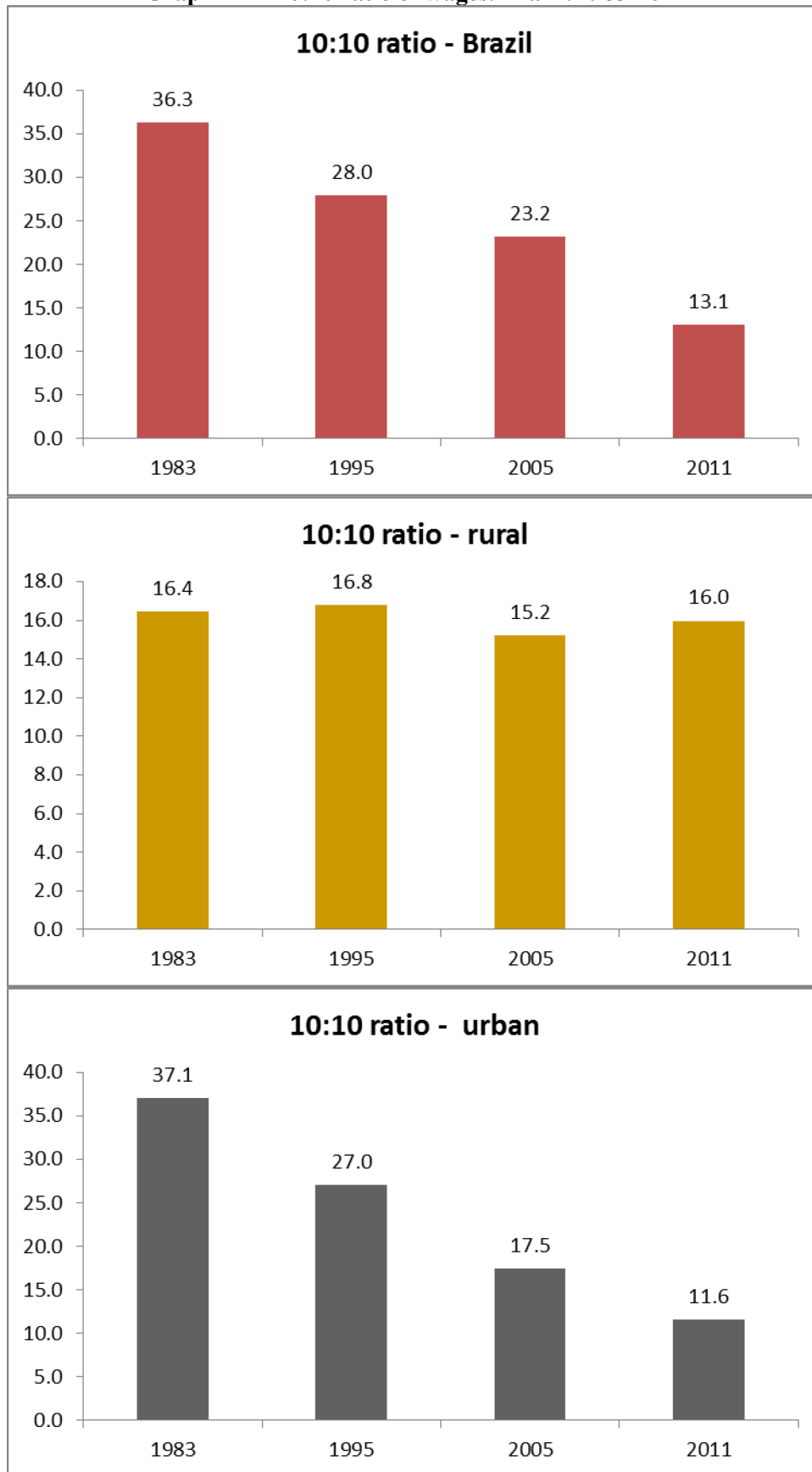
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A3 – Theil index of wages. Brazil. 1983-2011.



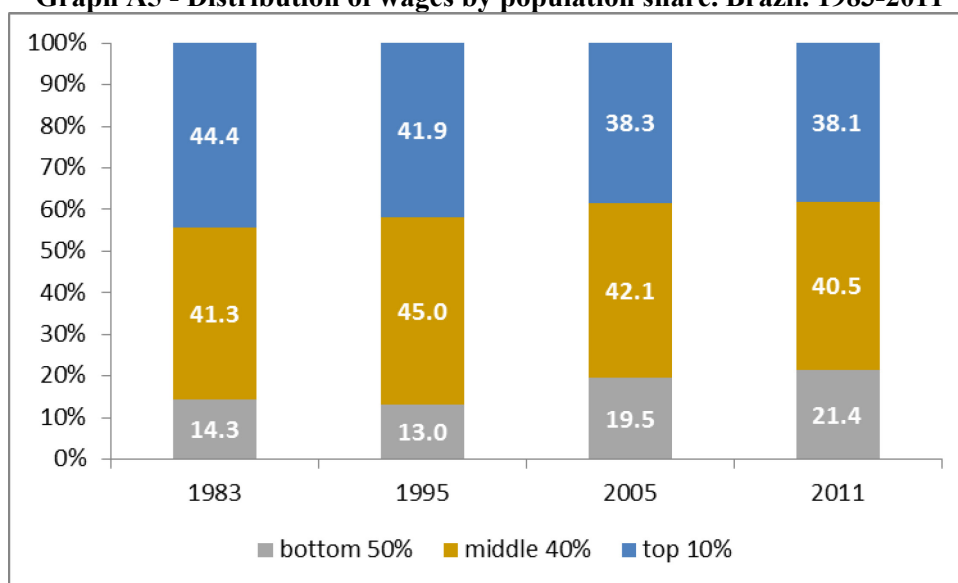
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A4 – 10:10 ratio of wages. Brazil. 1983-2011



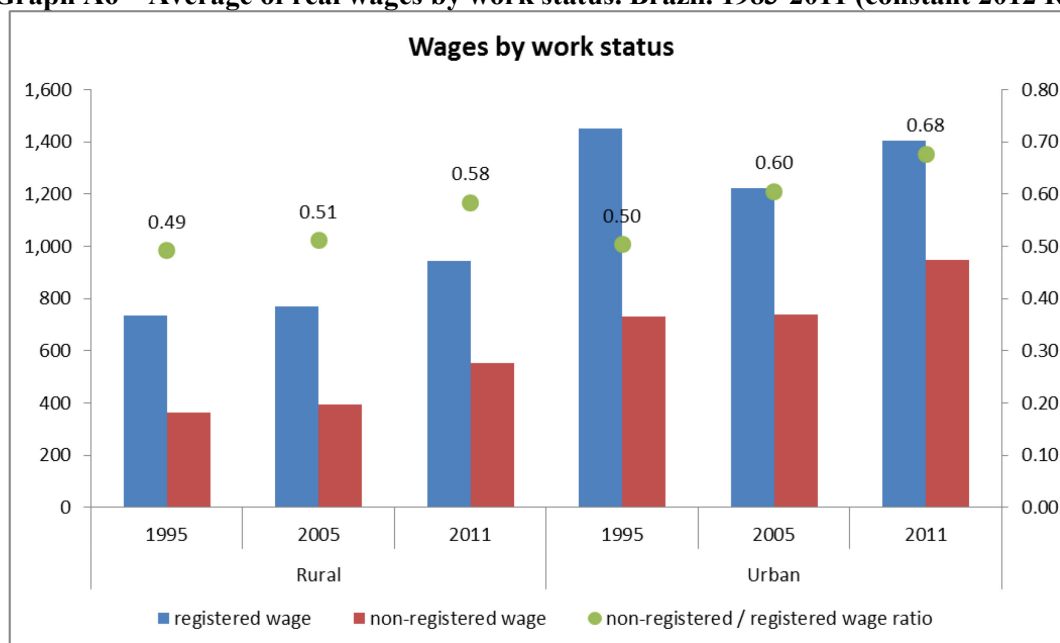
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A5 - Distribution of wages by population share. Brazil. 1983-2011



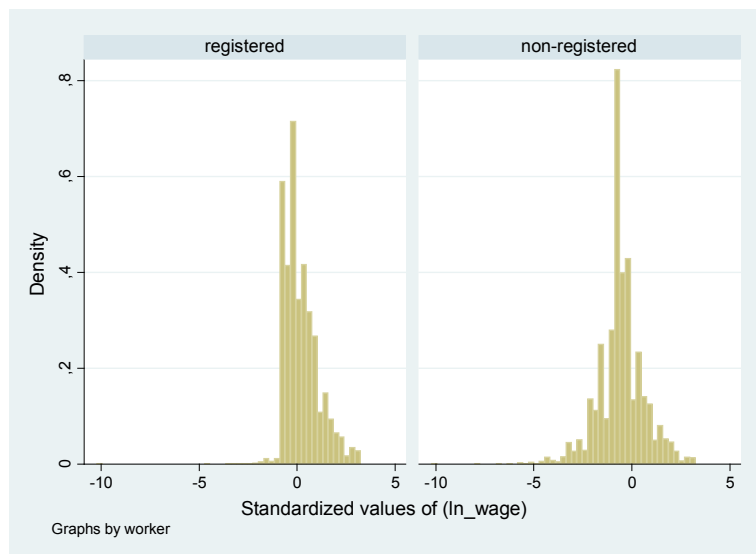
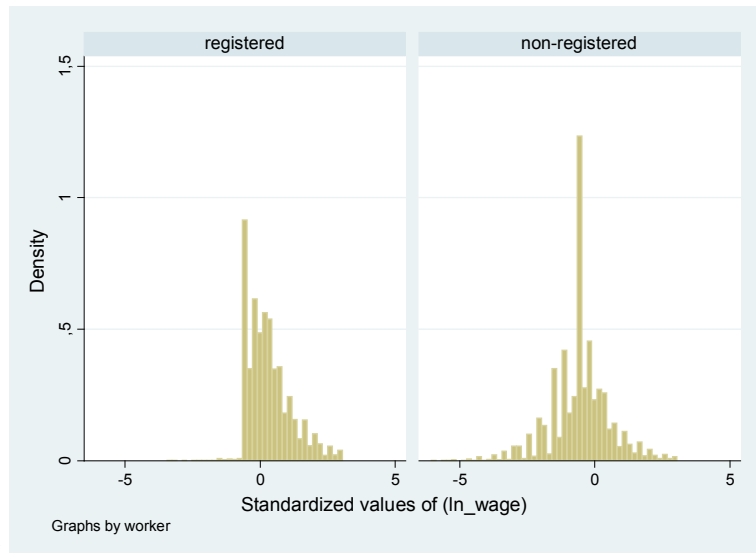
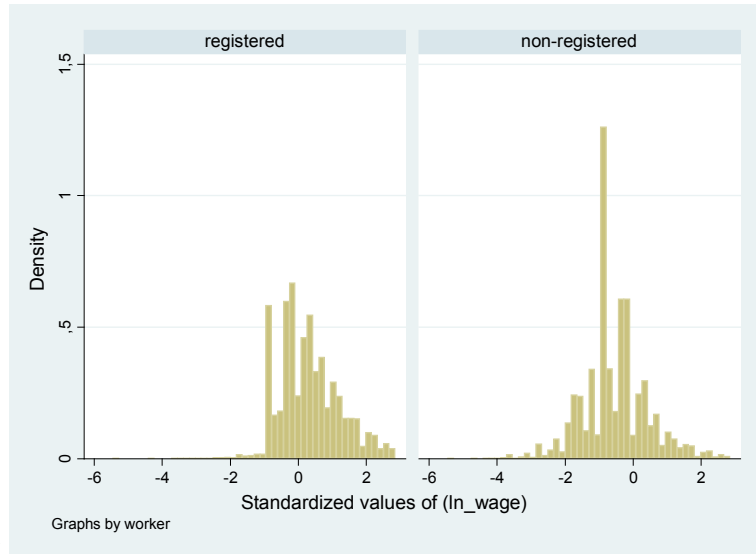
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A6 – Average of real wages by work status. Brazil. 1983-2011 (constant 2012 R\$)



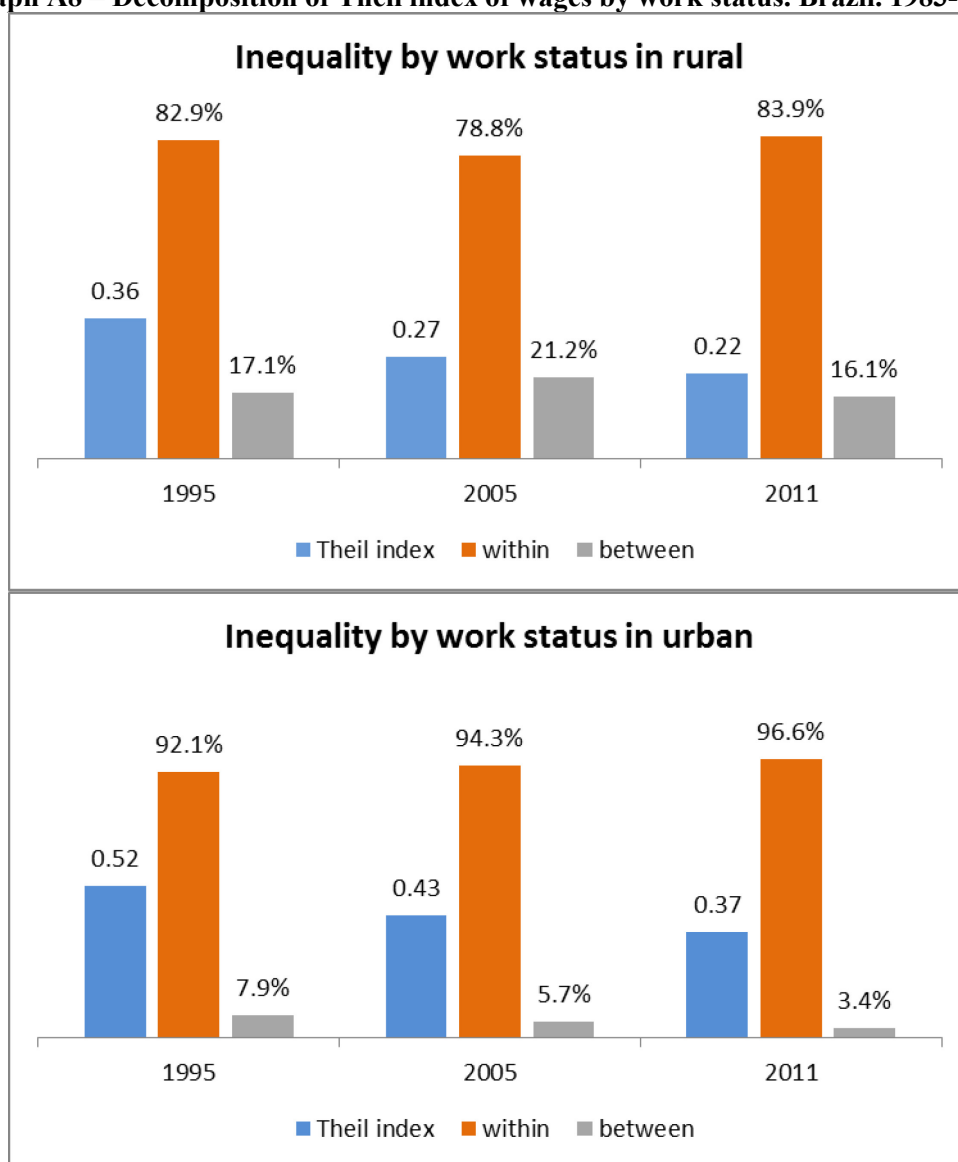
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A7 - Histograms of log nominal wages across work status (standardized, and excluding top 1% of the distribution and zeros). Brazil. 1995-2011



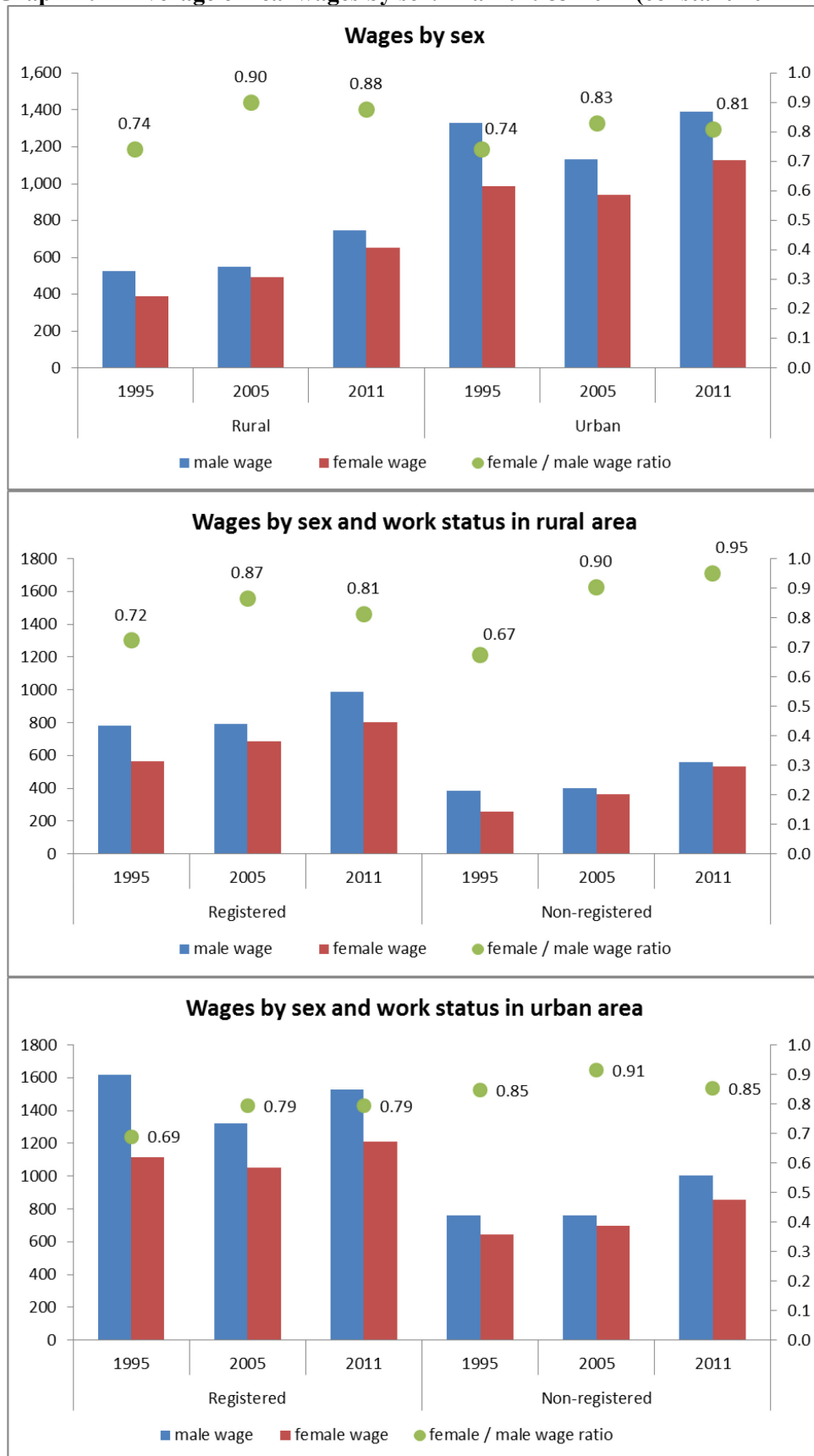
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A8 – Decomposition of Theil index of wages by work status. Brazil. 1983-2011.



Source: Prepared by authors based on PNAD/IBGE microdata.

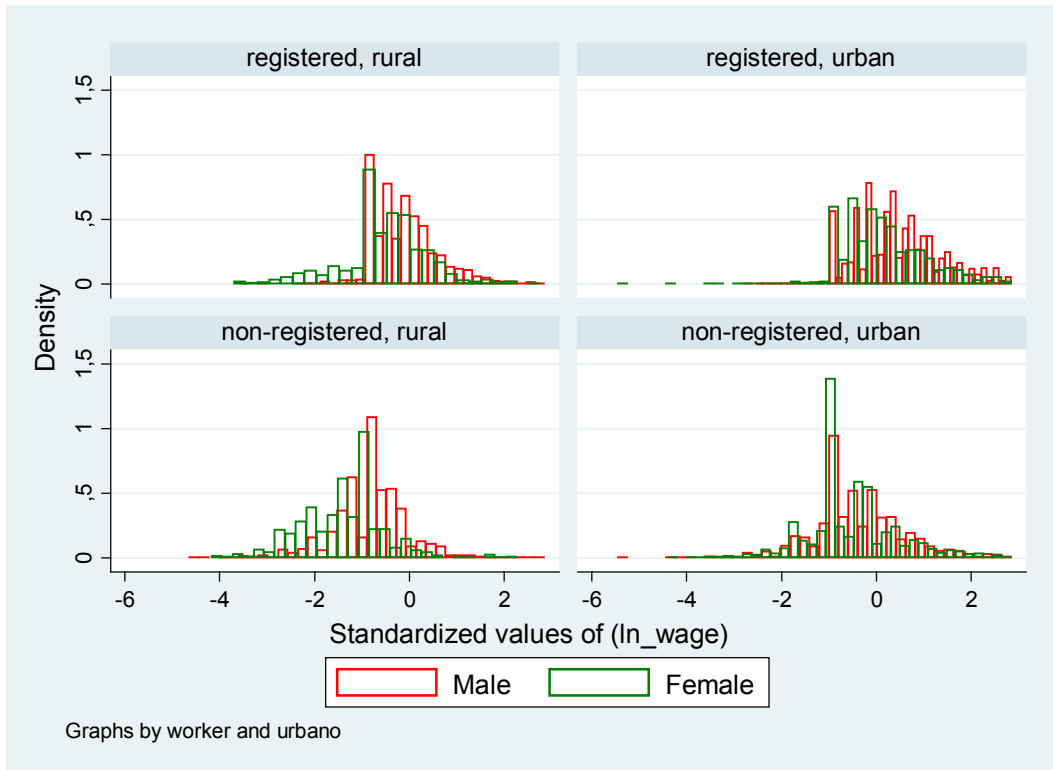
Graph A9 – Average of real wages by sex. Brazil. 1983-2011 (constant 2012 R\$)



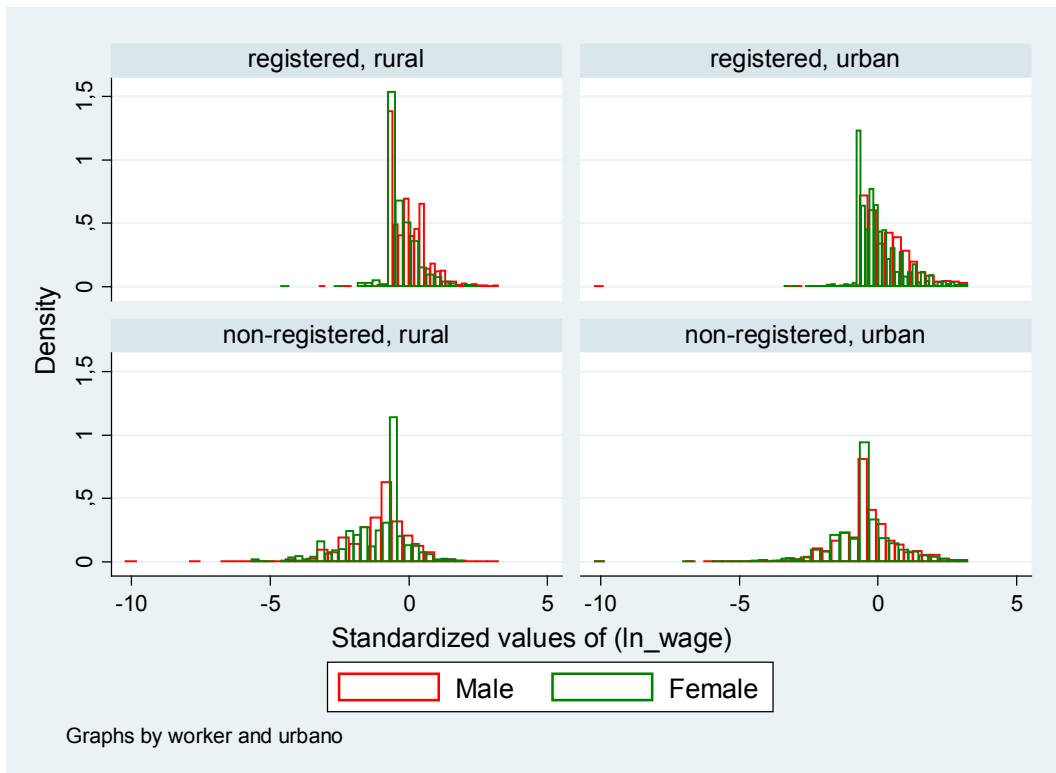
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A10 - Histograms of log nominal wages across sex, work status and area (standardized, and excluding top 1% of the distribution and zeros). Brazil. 1995-2011

1995

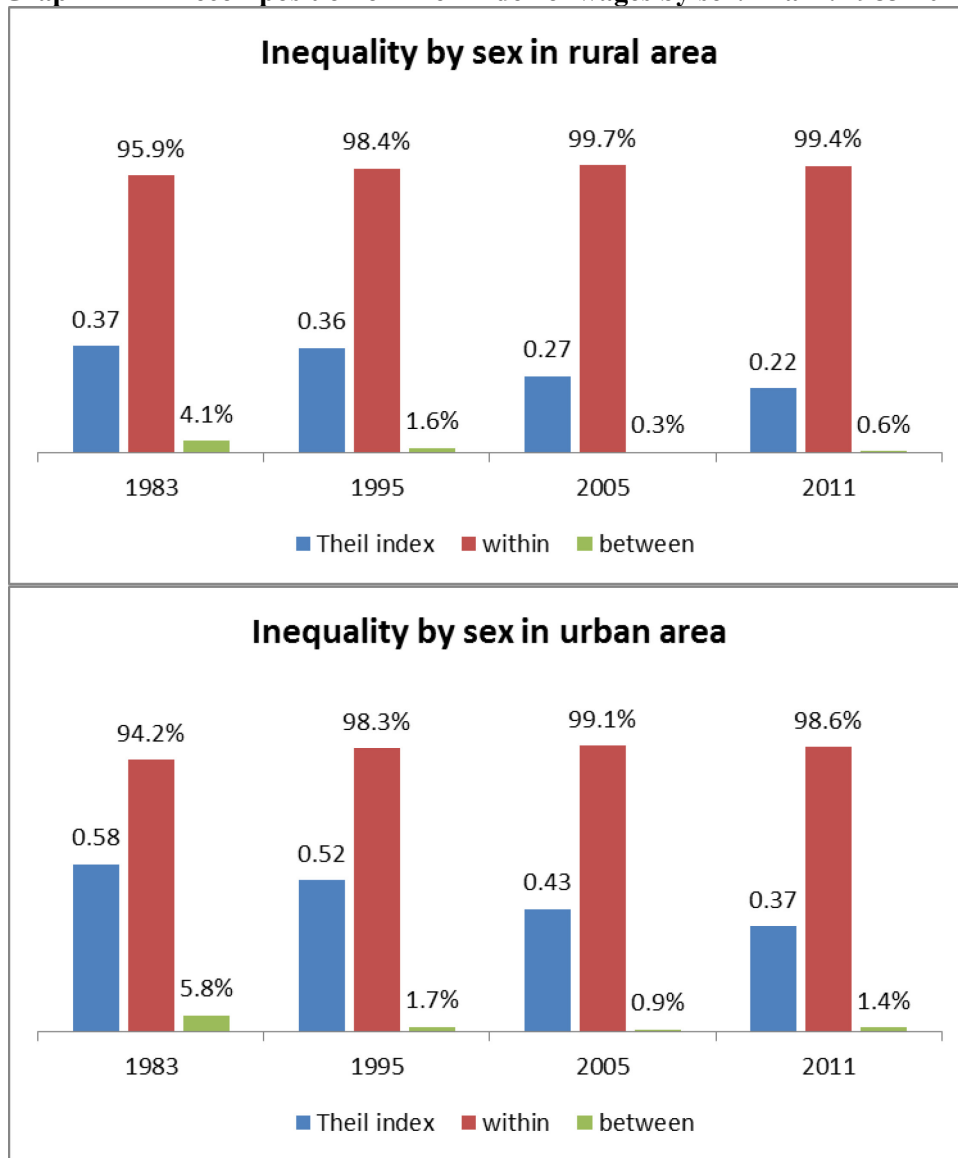


2011



Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A11 – Decomposition of Theil index of wages by sex. Brazil. 1983-2011.



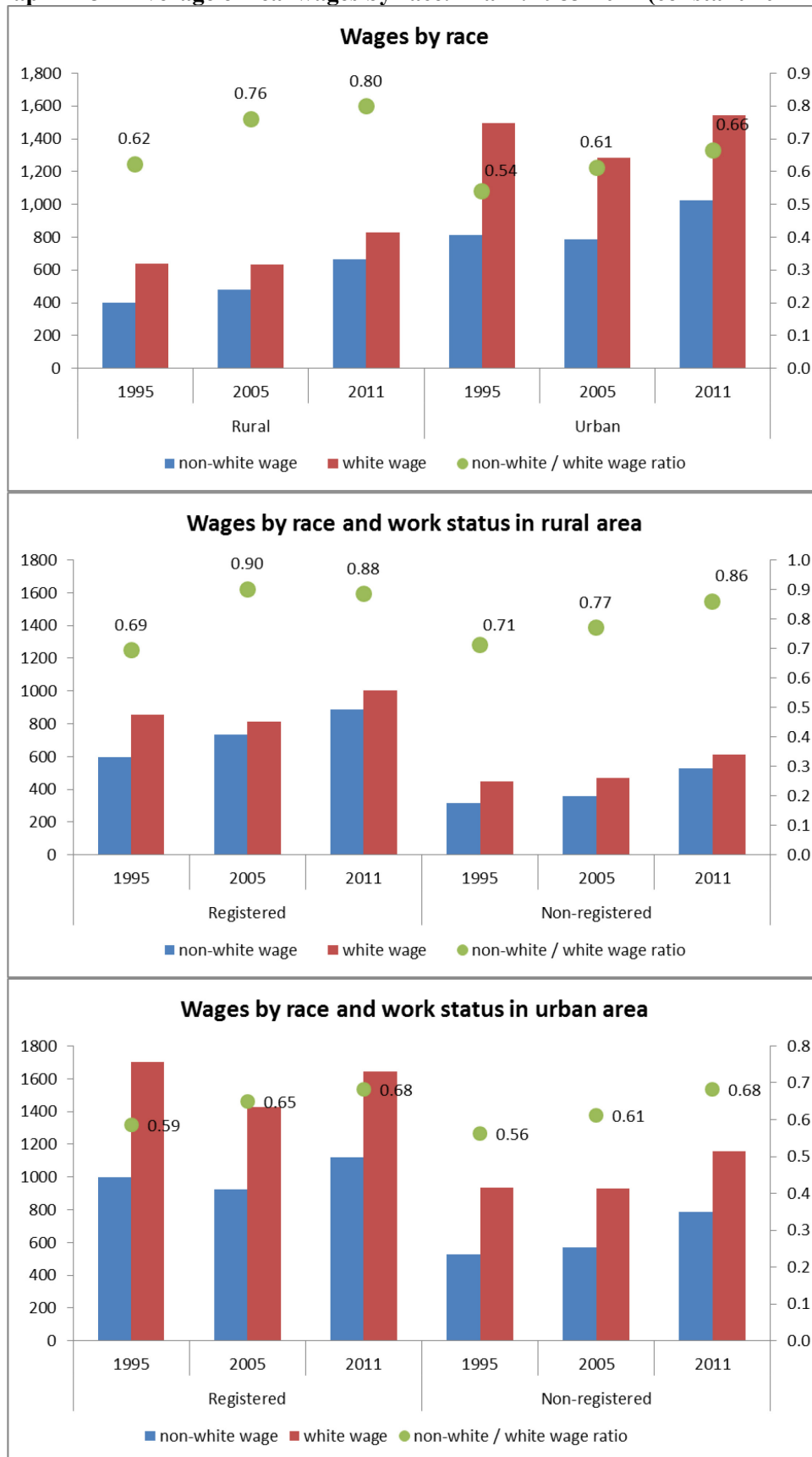
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A12 – Decomposition of Theil index of wages by sex across work status. Brazil. 1983-2011.



Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A13 – Average of real wages by race. Brazil. 1983-2011 (constant 2012 R\$)



Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A14 – Decomposition of Theil index of wages by race. Brazil. 1983-2011.



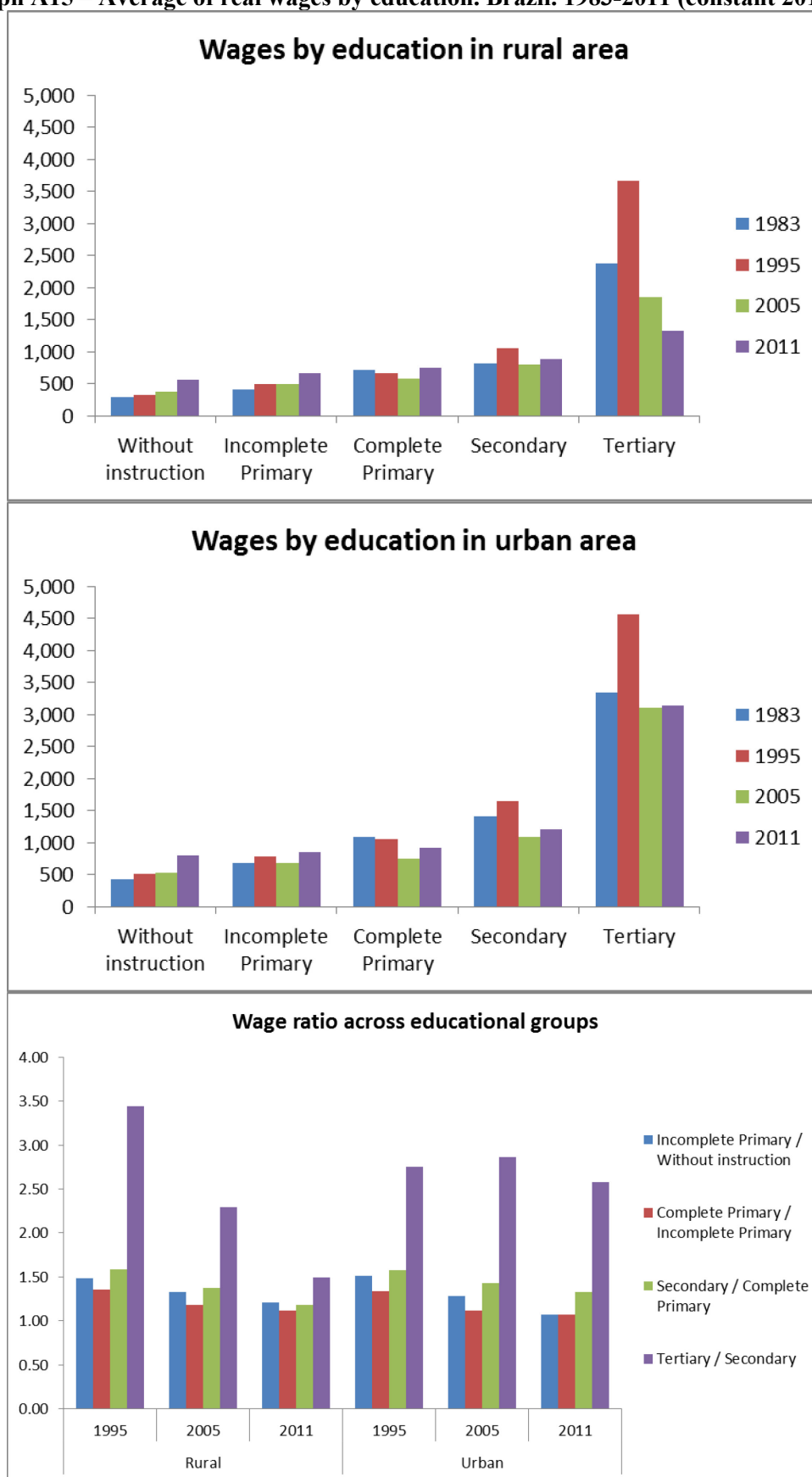
Source: Prepared by authors based on PNAD/IBGE microdata.

Table A1 – Decomposition of Theil index of wages by race, across sex, work status and area (Percentage of between-groups inequality). Brazil. 1983-2011 (in %).

Area	Work status	Sex	1995	2005	2011
Rural	Registered	Total	4.9	0.7	1.5
		Male	4.8	1.0	1.6
		Female	7.5	0.5	5.6
	Non-registered	Total	5.2	3.3	0.9
		Male	5.0	3.1	1.4
		Female	11.6	4.8	0.1
Urban	Registered	Total	6.1	5.6	5.2
		Male	7.2	6.4	6.4
		Female	5.4	5.6	4.8
	Non-registered	Total	7.3	6.1	4.3
		Male	8.0	6.8	4.9
		Female	6.9	5.4	4.3

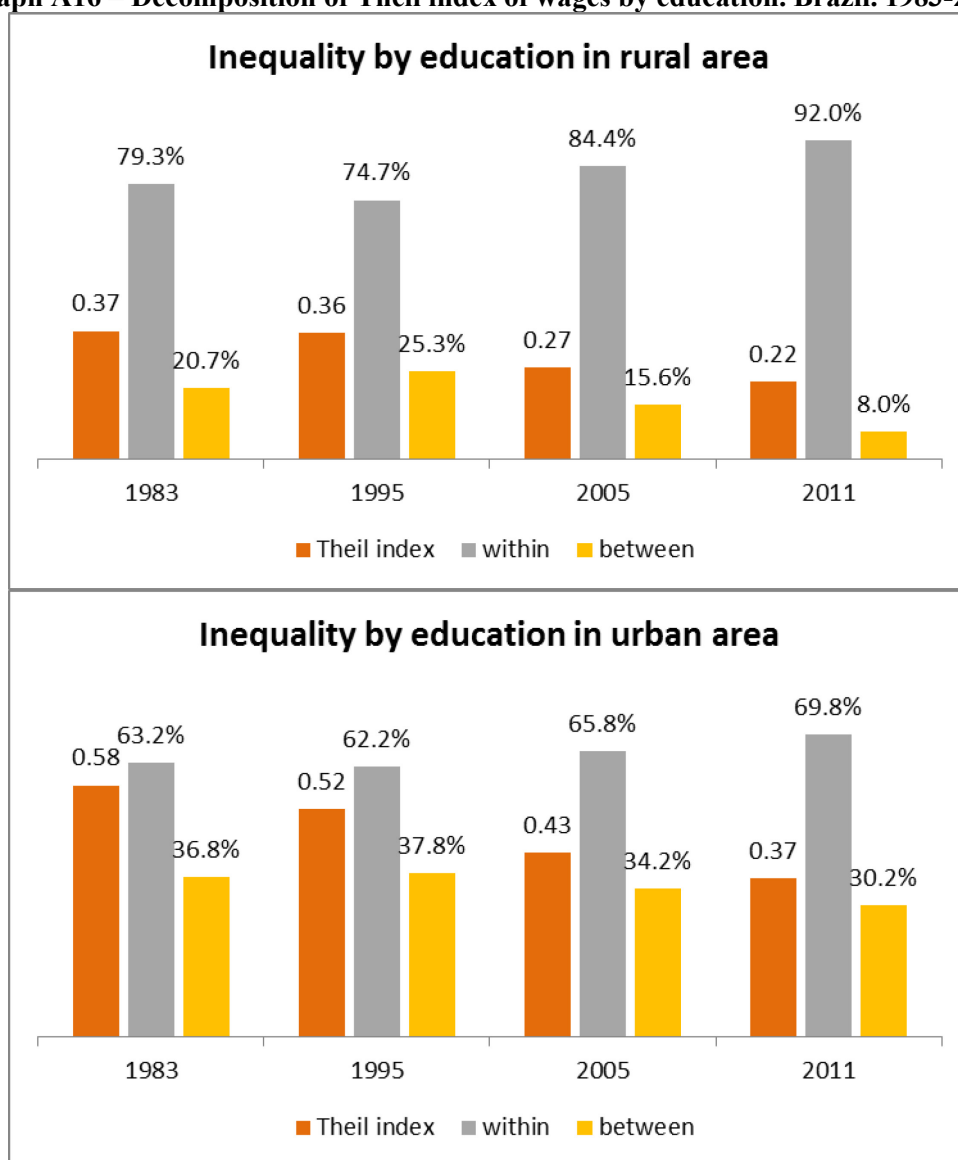
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A15 – Average of real wages by education. Brazil. 1983-2011 (constant 2012 R\$)



Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A16 – Decomposition of Theil index of wages by education. Brazil. 1983-2011.



Source: Prepared by authors based on PNAD/IBGE microdata.

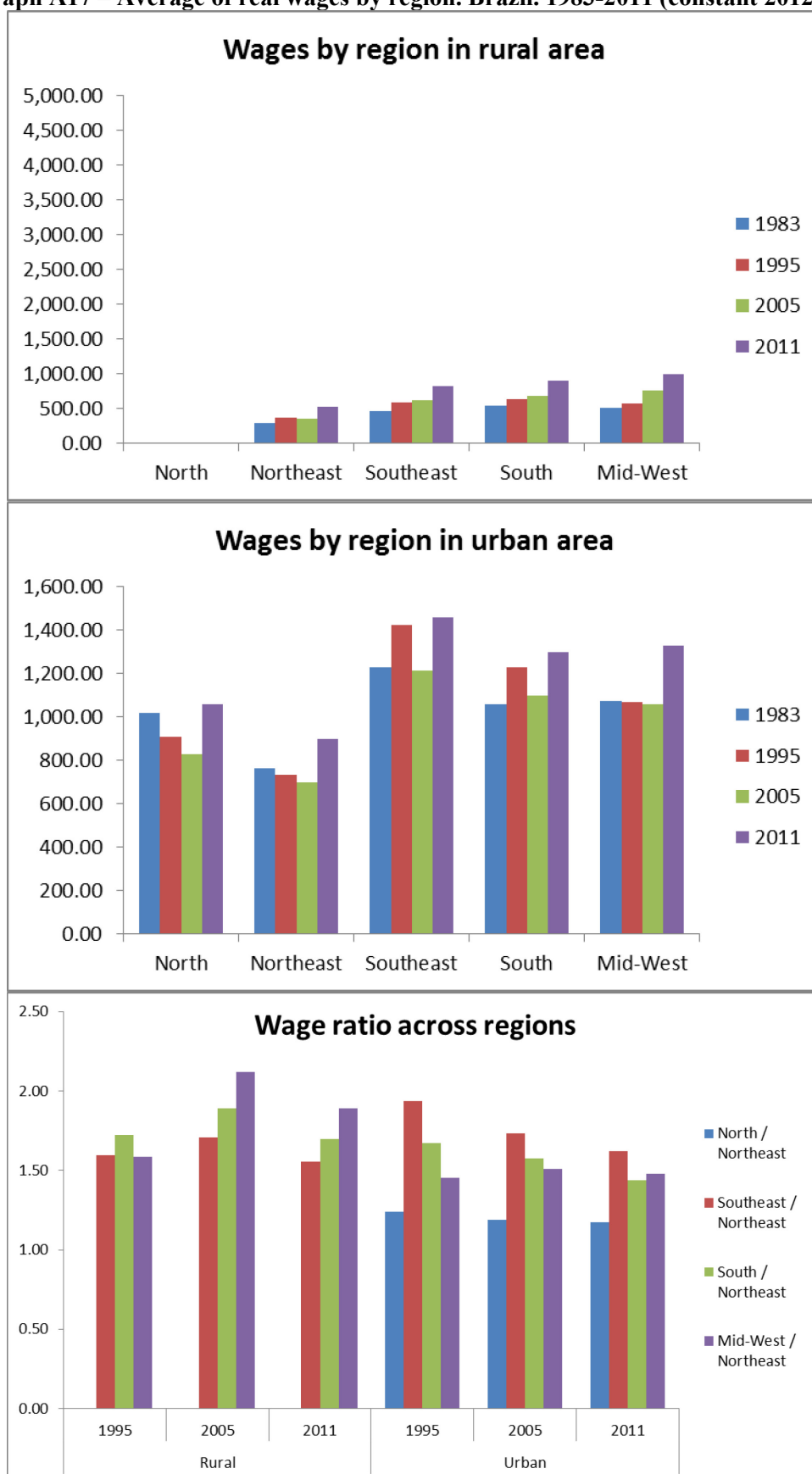
Table A2 – Decomposition of Theil index of wages by education, across sex, work status and area (Percentage of between-groups inequality). Brazil. 1983-2011 (in %).

Area	Work status	Sex	1995	2005	2011
Rural*	Registered	Total	28.1	15.0	5.9
		Male	36.2	15.8	8.8
		Female	26.8	29.4	16.8
	Non-registered	Total	10.2	10.3	6.0
		Male	10.7	9.3	7.8
		Female	30.5	26.5	9.7
Urban	Registered	Total	37.2	34.8	30.5
		Male	45.1	39.8	36.0
		Female	35.6	38.6	32.4
	Non-registered	Total	31.4	30.1	26.8
		Male	37.7	32.9	32.4
		Female	32.7	35.4	28.9

* Results are not statistically significant for rural area.

Source: Prepared by authors based on PNAD/IBGE microdata.

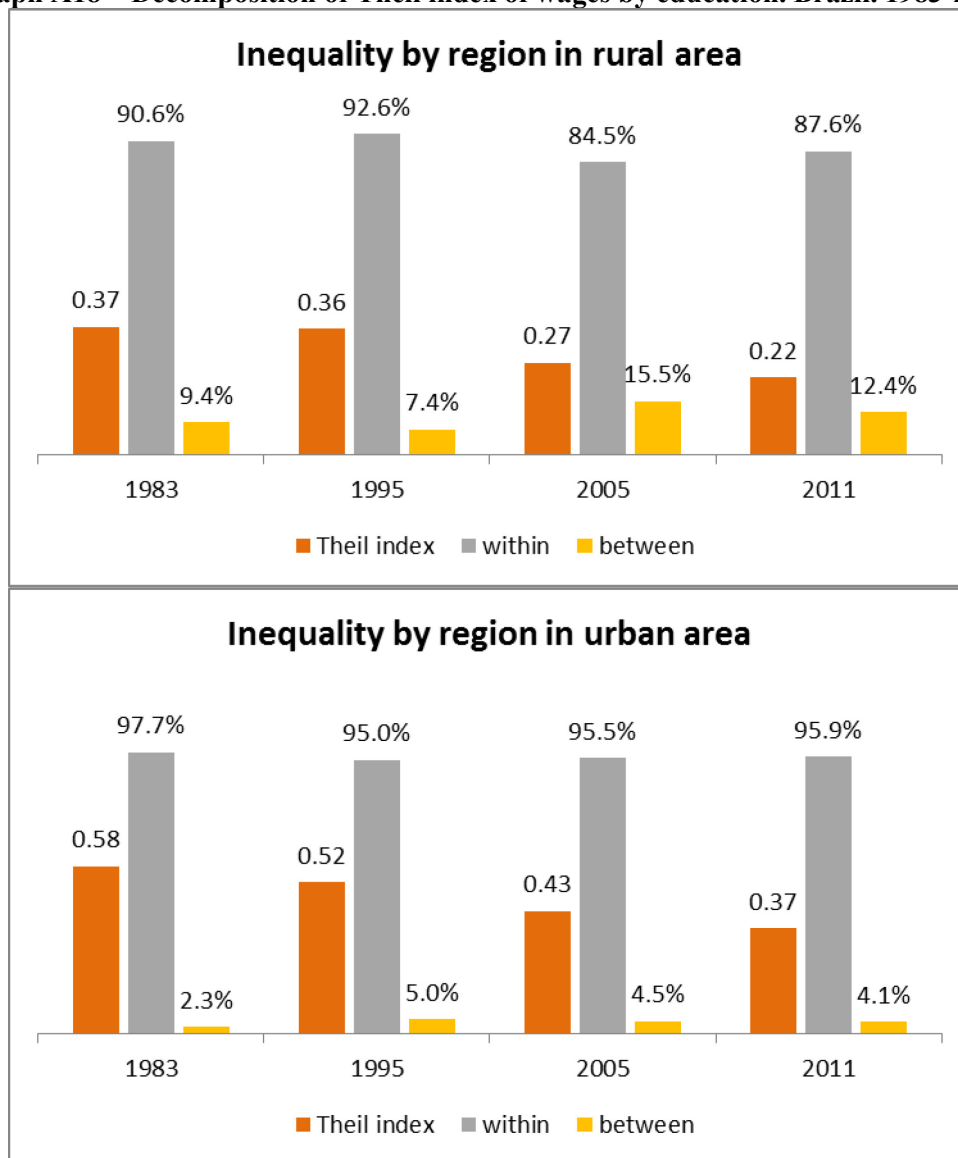
Graph A17 – Average of real wages by region. Brazil. 1983-2011 (constant 2012 R\$)



* Rural North was included in PNAD from 2004 onwards.

Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A18 – Decomposition of Theil index of wages by education. Brazil. 1983-2011.



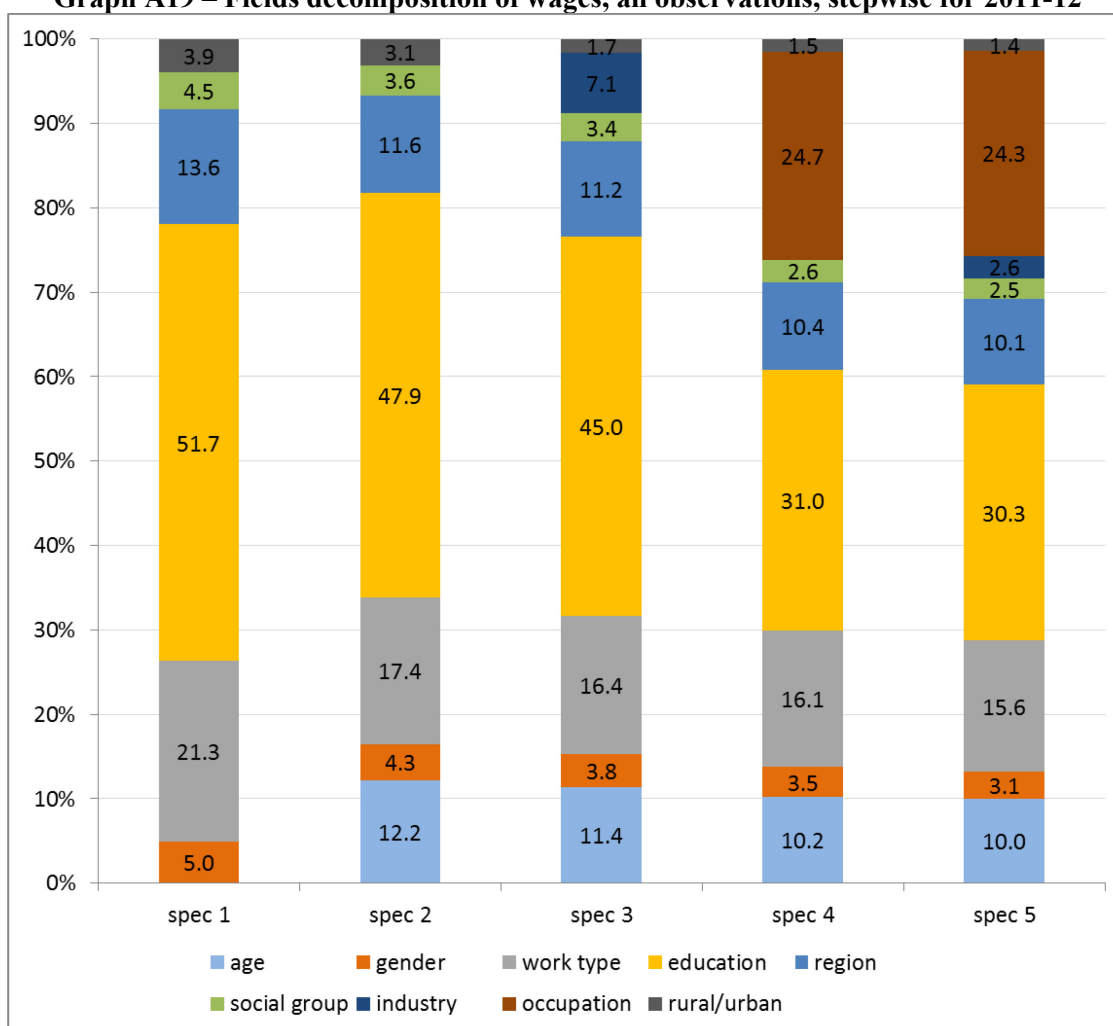
Source: Prepared by authors based on PNAD/IBGE microdata.

Table A3 – Decomposition of Theil index of wages by region, across sex, work status and area (Percentage of between-groups inequality). Brazil. 1983-2011 (in %).

Area	Work status	Sex	1995	2005	2011
Rural	Registered	Total	1.1	7.9	6.9
		Male	0.3	9.1	8.0
		Female	7.9	5.9	6.5
	Non-registered	Total	10.9	14.7	9.4
		Male	8.8	15.1	10.1
		Female	24.2	14.0	12.0
Urban	Registered	Total	2.7	2.6	2.6
		Male	2.7	3.0	3.2
		Female	2.8	2.1	2.0
	Non-registered	Total	5.8	5.3	5.4
		Male	5.9	6.3	6.6
		Female	5.9	3.8	3.7

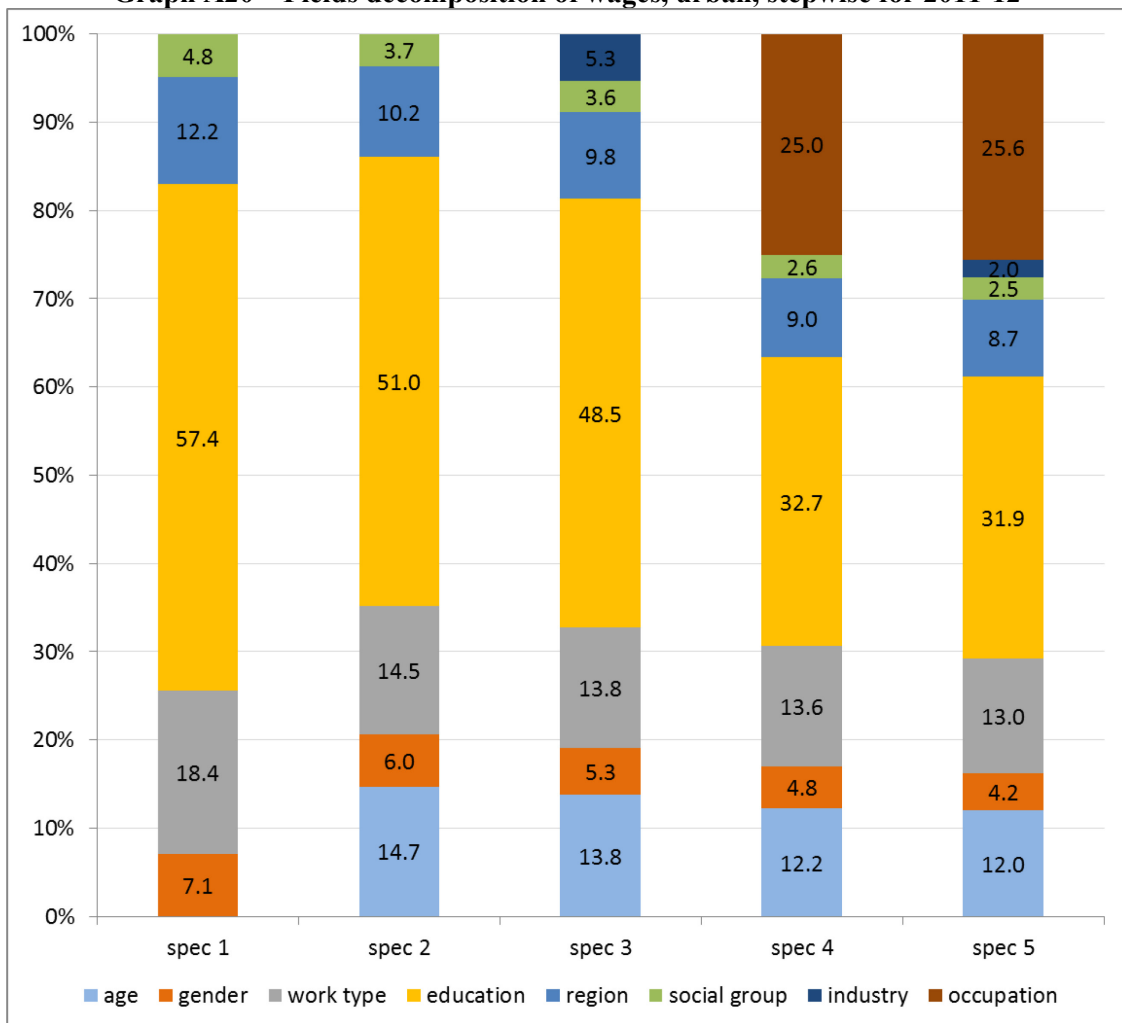
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A19 – Fields decomposition of wages, all observations, stepwise for 2011-12



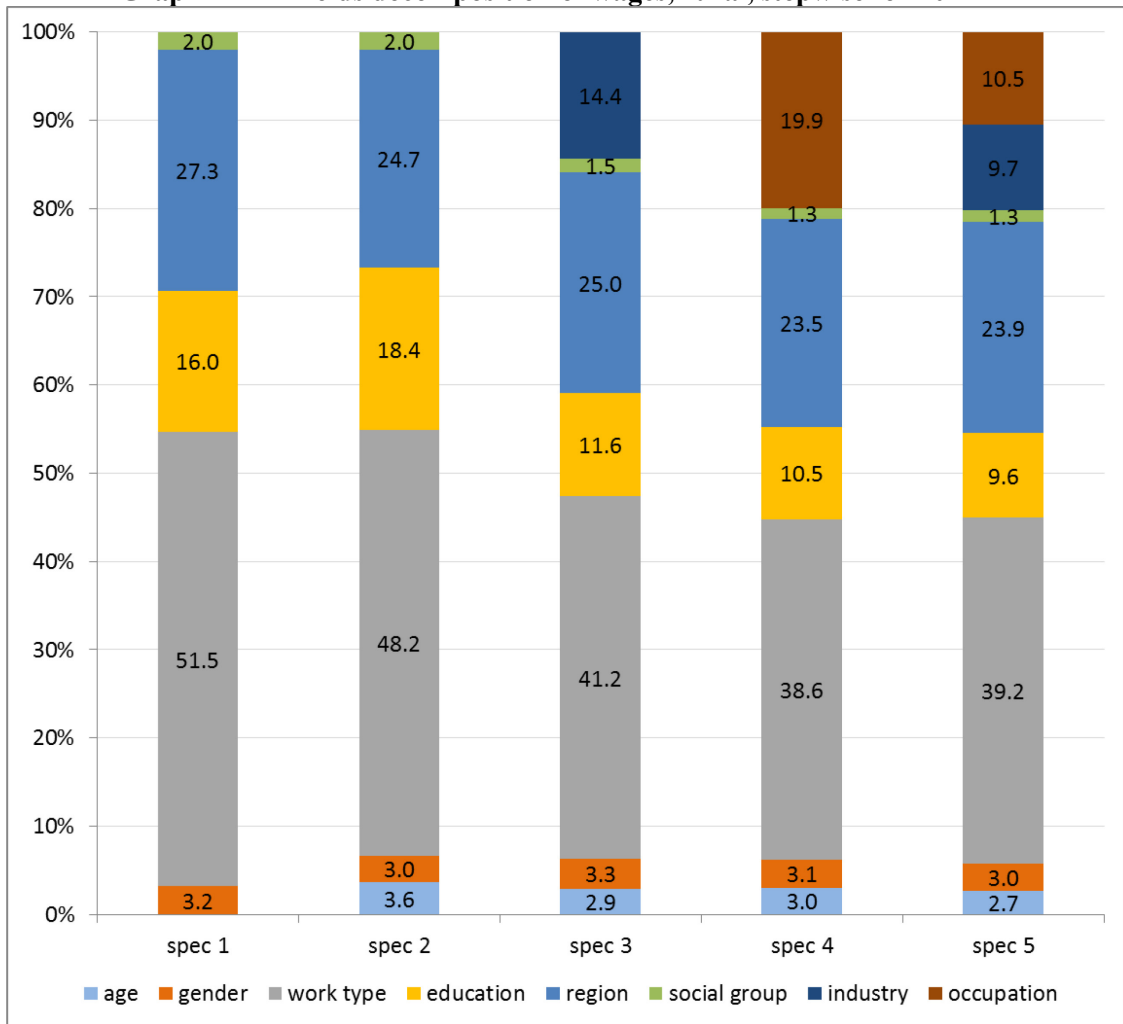
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A20 – Fields decomposition of wages, urban, stepwise for 2011-12



Source: Prepared by authors based on PNAD/IBGE microdata.

Graph A21 – Fields decomposition of wages, rural, stepwise for 2011-12



Source: Prepared by authors based on PNAD/IBGE microdata.