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IHD-CEBRAP Project on Labour Market Inequality in Brazil and India

Wage Inequality in Brazil and India: A Quantitative Comparative Analysis

Maria Cristina Cacciamali, Gerry Rodgers
Vidya Soundararajan and Fabio Tatei

INSTITUTE FOR HUMAN DEVELOPMENT
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LABOUR MARKET INEQUALITY IN BRAZIL AND INDIA

A comparative study, carried out by the Brazilian Centre for Analysis and Planning (Cebrap), São Paulo and the Institute for Human Development (IHD), New Delhi, with support from the Canadian International Development Research Centre (IDRC)

Project Description

High inequality in income and welfare is a major policy concern in both Brazil and India, for it undermines efforts to reduce poverty and promote inclusive growth. Over the last decade, the connections between inequality and growth, and between inequality and poverty reduction, have been receiving increasing attention in both national and international development communities. There are many sources of income inequality – production structures, the distribution of assets, the relative power of capital and labour, political forces and social hierarchy, as well as differences in education and capability. But among these many factors, labour market structures and institutions are of central importance. Understanding the pattern of labour market inequality and its determinants is therefore essential.

The Cebrap-IHD research project aims to address these issues and their implications for development policies in both Brazil and India. Policy choices in the two countries intersect, but operate in different historical and social contexts, and have had differing degrees of success. Today in particular, the trends in labour market inequality in the two countries are different, and it is important to understand why, how far this results from underlying social and economic institutions and relationships, and how far from policy choices and their implementation. Relying on extensive existing literatures in both countries, but also contributing to these literatures by bringing together historical, macro and micro perspectives, the project aims to add to knowledge and contribute to policy choice through in-depth comparisons of the relationships and outcomes in the two countries.

The methodology of the project combines three difference approaches. The first is a long term historical analysis of the social, institutional and economic changes that affect labour market inequality; the second is an empirical analysis of survey data, which investigates the patterns and determinants of inequality and their changes over time; and the third is a process of policy dialogue that brings together social actors and researchers to examine policy implications.

The project teams include Alexandre de Freitas Barbosa, Maria-Cristina Cacciamali, Fabio Tatei and Ian Prates from Cebrap, São Paulo; and Taniya Chakrabarty, Nandita Gupta, Gerry Rodgers, Janine Rodgers and Vidhya Soundararajan from the Institute for Human Development, New Delhi.

This project is being carried out with the financial support of the International Development Research Centre, Canada.

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INTRODUCTION*

This paper seeks to present and analyse the trends and recent dynamics of wage distributions in Brazil and India. An analysis of survey data is undertaken with particular reference to the 1990s and 2000s. During this period, the economies of both countries have grown considerably, but their wage inequality pattern is different. In India, during the rapid growth since the 1990s, the dualistic structures of production and work have not changed and nor have the labour institutions. This segmentation, along with a shortfall of skilled labour increased the wage differentials and raised inequality. In Brazil, the story was different. One of the by-products of the redemocratization process of the 1980s was the new constitution of 1988. This Law introduced inclusive and redistributive social policies and increased protection in the labour market.

These two opposing trends were reinforced by two factors: the behaviour of productivity – increasing in India and stagnant in Brazil – and the processes of discrimination and segregation. The first trend describes the differences caused by the economic performance of sectors and regions; and the second, the effects of differentiation by gender and social groups – caste and religion in India, and race in Brazil.

Furthermore, in Brazil since the mid-1990s, and especially in the 2000s when President Lula's government took office, income transfer policies were strengthened and the minimum wage was tied to output growth and inflation. Both policies contributed to the fall of wage and income inequalities among different categories of workers. In India, social security protection has been mainly confined to the small proportion of workers in regular jobs in the formal sector, while the redistributive efforts were concentrated on food subsidies and public works programmes, especially in rural areas.

Such patterns led to distinct dynamics of wage inequality in both countries, and these differences are what we try to understand in this study. This theme will be developed in six sections.

We start with an analysis of trends in wages and in wage inequality since the 1990s, mainly focusing on wage differences between casual and regular workers in India, and unregistered and registered workers in Brazil. We follow with the decomposition of wage inequality between these different work types, considered as labour market segments.

After this, we focus our attention on gender inequality, regional inequality, race, caste, and education, with particular attention to the contribution of these factors to the decomposition of wage inequality. For this purpose, we use a decomposition of the Theil index of wage inequality. The decomposition is a standard technique to establish the proportion of overall wage inequality that is due to inequality within the groups being analysed, and the proportion due to wage inequality between them. The between-group inequality depends not only on differences in mean wages between the groups, but also on the number of groups and their relative sizes. If one group is much larger than the others, variation within that group will tend to dominate the results. On the other hand, the fact that the "between" component for a

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* In addition to the principal authors, several other team members contributed to this paper with inputs and comments: Alexandre de Freitas Barbosa, Taniya Chakrabarty, Nandita Gupta, Ian Prates and Janine Rodgers.

specific variable is small does not mean that it is unimportant. If the "between" component rises or falls over time, it is likely that this reflects in some way a change in the importance of the concerned factor.

Finally, we present some multivariate results. This is an econometric exercise based on the methodology proposed by Fields (2002) that aims to measure the determinants of inequality. In the final remarks, we will discuss the interpretation of our findings.

This paper draws on two separate papers, one each for India and for Brazil – Rodgers and Soundararajan (2015) and Cacciamali and Tatei (2015). Full references are not included here but can be found in those papers.

A. EMPLOYMENT AND WAGES IN SEGMENTED LABOUR MARKETS: WAGE DIFFERENCES BY WORK STATUS

In India, by the end of the 2000s, work in the unorganized sector (i.e., broadly speaking, in establishments and household enterprises with less than ten employees) amounted to 83.6 per cent of employment, and self-employment constituted 52.2 per cent. In Brazil, self-employment accounted for 21.3 per cent of all employment, and the unpaid workers in family businesses only 6.3 per cent (Table 1). Almost half (47.8 per cent) consisted of employees, though most without labour rights: 11 per cent of workers on a regular basis, but informal (without social security protection), and 29.9 per cent casual – that is, hired and paid by the day, although in practice they could be working in the same place for a longer period. In Brazil, the formalization of the labour market is greater than in India: 49.6 per cent were public and formal private employees, and 15.7 per cent were informal – hired without a signed labour card, and so without full labour rights. In short, in India wage and salaried workers constituted half of the workforce, while in Brazil this proportion amounted to two-thirds.

Table 1
Share in Total Employment of different Work Status Categories (%), Brazil and India, 1999 to 2012

Brazil share (%) in total employment of :	***1999***	***2005***	***2012***
Private registered wage-earners	29.7	33.6	41.8
Public employees	7.1	6.8	7.8
Non registered wage earners	18.1	18.6	15.7
Self-employed	24.9	22.7	21.3
Domestic workers	7.9	8.1	7.1
Unpaid and subsistence economy	12.3	10.1	6.3
India share (%) in total employment of :	***1999–00***	***2004–05***	***2011–12***
Regular wage employment	14.0	14.3	17.9
Regular-formal	5.4	5.6	6.8
Regular informal	8.6	8.6	11.0
Casual wage employment	33.3	28.9	29.9
Self-employment	52.6	56.9	52.2
Unorganized sector	90.7	88.9	83.6

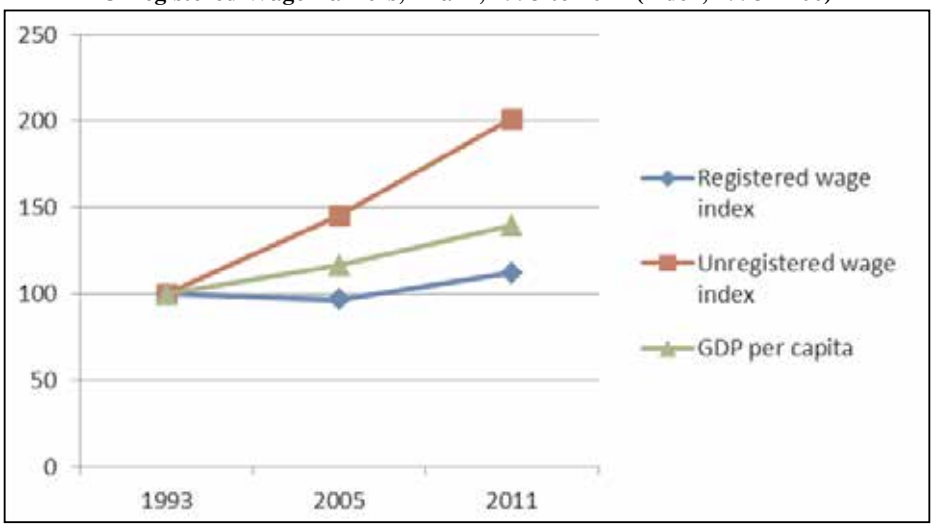
Source: India: National Sample Survey, various rounds. Prepared by Ajit Ghose for the 2014 India Labour and Employment Report (Institute for Human Development, 2014). Brazil: Prepared by authors based on PNAD/IBGE micro-data.

In the 2000s, the proportions of wageworkers in India fluctuated from year to year but grew very little in that period and most regular workers were informal; while in Brazil there was a significant increase in the formalization of employees – 11.7 per cent points. The employment growth and the increased institutionalization of the Brazilian labour market are the keys to understanding the widespread reduction in wage differentials among different categories of workers, male and females, whites and non-whites, between regions and economic sectors.

In Brazil, real wages did not change greatly in the 1990s (graph 1), but they have been

Graph 1

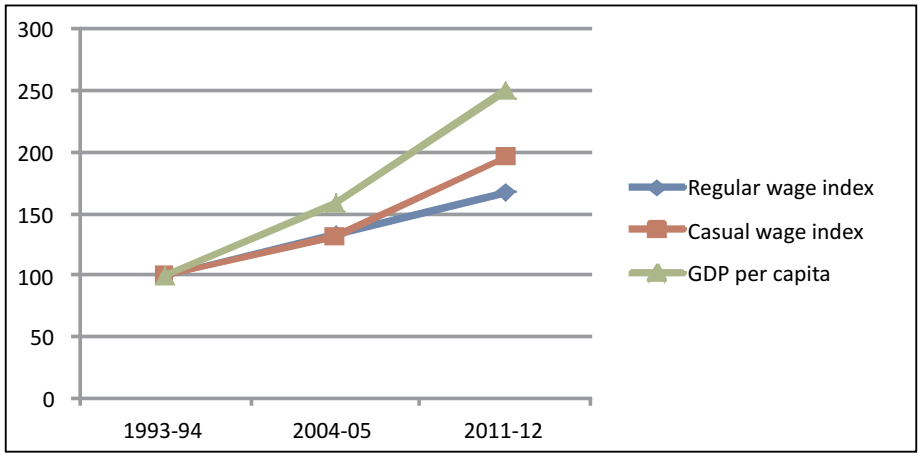
Real GDP per capita and Average Real Wages for Registered and Unregistered Wage Earners, Brazil, 1993 to 2011 (index, 1993=100)



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

Graph 2

Real GDP per capita and Average Real Wages for Regular and Casual Workers, India, 1993-94 to 2011-12 (index, 1993-94=100)



Source: Computed from NSS unit level data

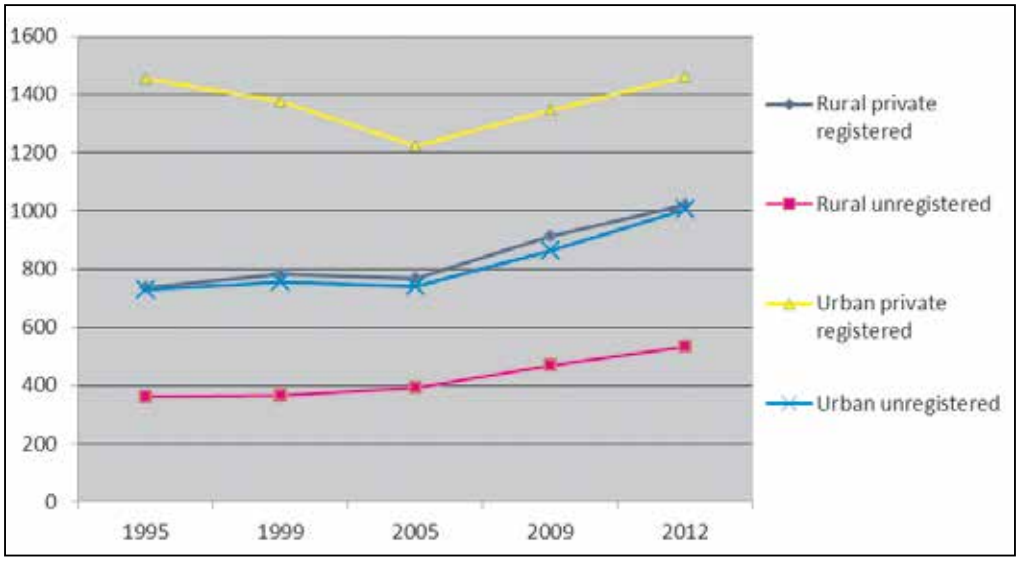
rising since 2003. Wages of registered workers have stayed almost constant in real terms over the period as a whole, while those of unregistered workers rose sharply since 2005, although their average wage is still at a much lower level than that of registered workers. In contrast, there has been a substantial rise in real wages in India since the 1980s. Graph 2 shows the broad trend in regular and casual wages compared with GDP per capita since 1993-94. It can be seen that both labour market categories benefitted, but that casual workers did distinctly better than regular workers after 2004-5. This was largely due to a rise in rural casual wages – in urban areas the ratio of casual to regular wages hardly changed.

This is a very large difference between the two countries, but much of it arises out of the economic and political crisis in Brazil in the 1980s, to which there was no Indian counterpart. Graphs 3 and 4 trace changes in real wages in more detail since 1993 for casual/unregistered and regular/registered workers in rural and urban areas. In Brazil, wage differentials between private registered and unregistered workers are much lower than in India, especially in urban areas (graph 3). Wages of the former are around 90 per cent higher in rural areas and 45 per cent higher in urban areas in 2012; the latter figure has shown a remarkable fall from a differential of 76 per cent in 2003. This trend towards a reduction of gaps between these categories of wage workers in urban areas can be partly explained by the fact that some unregistered workers have become registered during the period, reducing the average real wage of the registered workers. Most of new jobs were low skilled, thus the remaining unregistered wage earners have been performing tasks similar to their registered counterparts, leading to a less intense segmentation of the labour market, or at least one that manifests itself in other ways, such as the lower overall level of wages and schooling requirements for each type of job. Rural differentials have not narrowed, but there has been a larger increase in the real wage in rural areas, so the gap with urban areas has been reduced. We must consider a further factor. The increase in the minimum wage, tied to output growth and to the rate of inflation, and the high rate of compliance with the minimum wage legislation narrowed the differences between these segments.

In the case of India (graph 4), the rise in wages was substantial for all groups, with the exception of the period 1999-2000 to 2004-05. In addition, although casual average wages rose at a faster rate than regular in both urban and rural areas, in 2011-12 regular wages were still almost three times those of casual workers in urban areas and over double in rural areas. In reality, the income differences are larger, as casual workers do not get work on all days and those they actually work are the base of their pay. The differences between urban and rural wages vary according to the nature of employment: the urban-rural differential is higher among regular workers at 49 per cent than among casual workers (25 per cent) (IHD, 2014, table 4.1). A rural casual worker earns less than 7 per cent of the salary of a public sector employee in India. There is also a persistent wage differential between male and female workers, though it is narrowing (discussed in the next section). Another significant trend is that wage differences are widening substantially between managerial/supervisory workers and production workers in organized industries and between public sector and private sector workers because of the awards of successive public sector pay commissions.

Graph 3

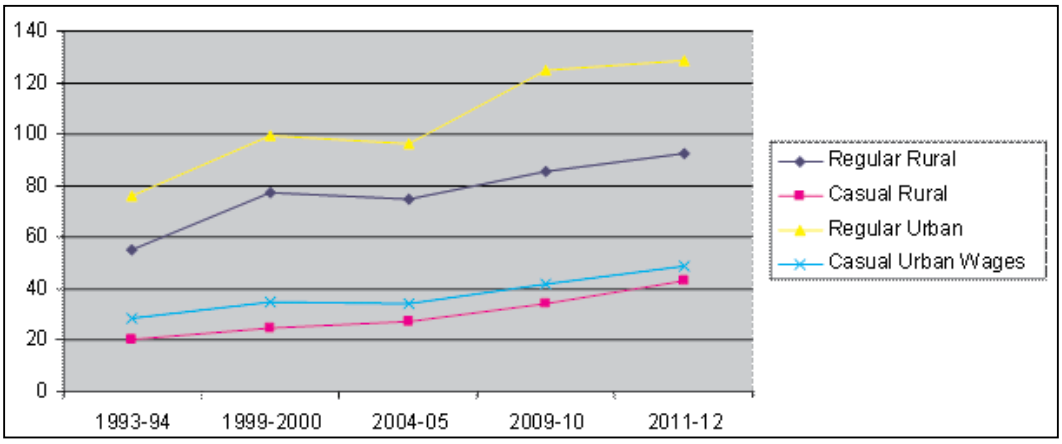
Real Average Wages of Registered and Unregistered Workers in Rural and Urban Areas, Brazil, 1995 to 2012 (in 2012 Reais)



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

Graph 4

Real Average Wages of Regular and Casual Workers in Rural and Urban Areas, India, 1993-94 to 2011-12 (in 1993-94 Rs)



Source: NSS Reports of the survey rounds concerned

The ratio of the remuneration of "employees" (clerical, supervisory and managerial staff) to workers in organized industry rose from around 1.5 in the 1980s to 3.5 around 2010 (IHD, ibid, p. 107). These structural inequalities in the labour market are clearly a major aspect of inequality overall, for they imply patterns of inclusion and exclusion, different lifetime employment experiences and differences in wages and incomes.

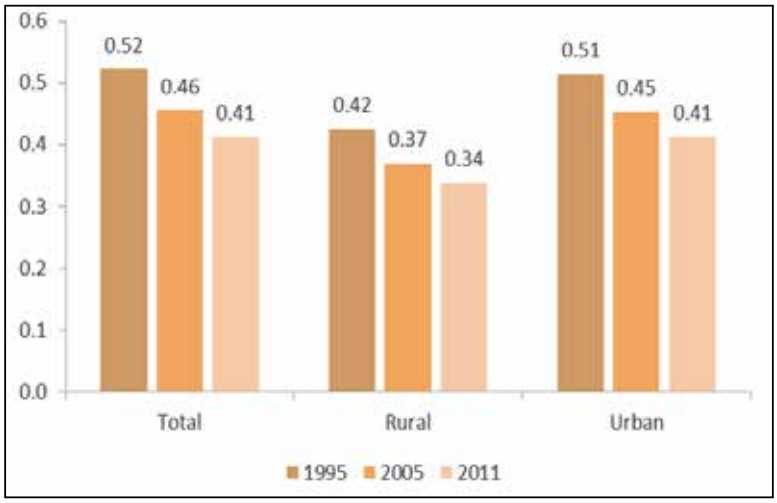
In this period, opposing factors influenced the behaviour of wage differentials in each country. In India, both the low degree of labour market institutionalization and the

processes of discrimination and segregation that reduce access to labour markets contribute to explaining the general rise in wage differentials. In Brazil, on the other hand, the rise of formalization and unionization, the minimum wage policy and the increase in schooling – along with reduction in the inequality across schooling levels as well – were substantive factors to explain the reduction in wage gaps.

Graphs 5 and 6 show the Gini coefficients of wage inequality for the period 1995 to 2011 and 1993-94 to 2011-12 for Brazil and India respectively, for the whole country, and for rural and urban areas separately. There are two striking results here. First, wage inequality in the two countries has been of the same order of magnitude over the last 30 years. This

Graph 5

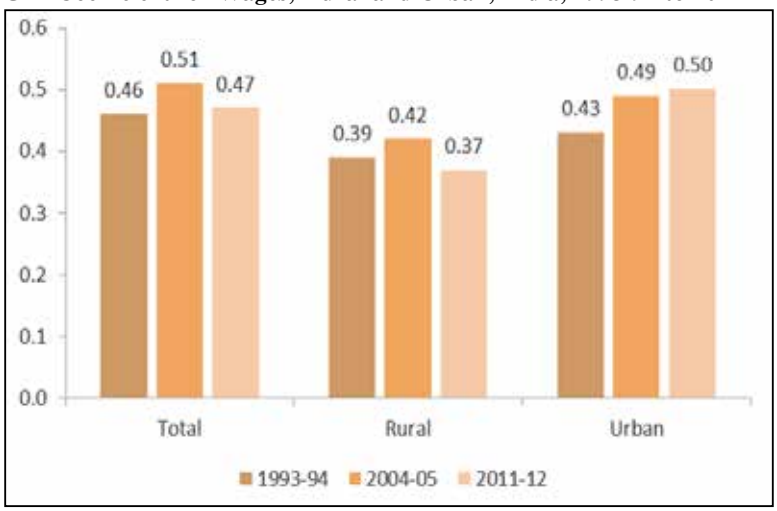
Gini Coefficient for Wages, Rural and Urban, Brazil, 1995 to 2011



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

Graph 6

Gini Coefficient for Wages, Rural and Urban, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data

outcome is a sharp contrast with the Gini coefficients for consumption and income (reference to comparative paper C), which show Brazil consistently more unequal than India. Wage inequality does not cover the whole economy, but it confirms our doubts about the widespread belief that Brazil is more unequal than India.

Second, the trends in the two countries are quite different, with inequality falling systematically in Brazil, and fluctuating with an upward tendency in India, at least until 2004-05. In fact, it is striking to note that in 1993-94, wage inequality was greater in Brazil in all three categories (total, urban and rural); whereas in 2004-05 and 2011-12 wage inequality was greater in India, again in all three categories. In urban areas of India, inequality has been rising steadily in the dynamic urban pole of economic growth, while the trend in rural areas is downwards in recent years. In Brazil the trend is downward in both regions, but more in urban than in rural areas. The social policies implemented in the two countries in this period had much influence on the outcomes in the rural areas of each country.

In India the increase inequality in 2004-05, followed by a decline in 2011-12, is essentially a rural phenomenon. It is possible that this is partly due to a surge of low productivity employment in a period of rural distress due to poor harvests, followed by a series of good agricultural years (Himanshu, 2011). In any case, the difference in pattern between rural and urban areas is sharp. Another relevant factor is the National Rural Employment Guarantee Act 2005 (MGNREGA), which assures the right to work for 100 days a year in rural India, applies minimum wage and covers a large number of women and workers in lower social groups. This factors and rural-urban migration have helped raise the reservation wage in rural areas.

How much of the overall pattern and trend of wage inequality can be explained by the segmentation of the labour markets in the two countries? A decomposition of the inequality measure can provide a first answer. However, the decomposition of the Gini coefficient into inequality within and between population subgroups poses methodological problems. In this case, the Theil Index is a more suitable tool.

Graphs 7 and 8 give the results for Brazil and India for rural and urban areas separately. For, for Brazil we have estimates from 1995 to 2011, for India from 1993-94 to 2011-12. The number at the top of the bar shows the Theil index of total inequality for rural and urban areas. The bottom part of the column is the proportion of total wage inequality accounted for wage inequality within each group (in this case, within registered and within unregistered workers in Brazil, and within regular and within casual workers in India). The top part of the column shows the proportion of wage inequality between groups (between registered and unregistered workers in Brazil, and between regular and casual workers in India).

Taking rural areas first, in Brazil the contribution of registered-unregistered differences is smaller, and it has been declining in the most recent period. This may reflect the impact of the rising minimum wage, which affects unregistered workers as well as registered. In India, casual-regular wage differences accounted for about one third of overall wage inequality in 1993-94 and 2004-05, falling to a quarter in 2011-12. This is a very substantial part of inequality (larger than other factors which we examine in later sections), especially when we

consider that measured inequality by work status also reflects measurement errors, regional differences, interpersonal differences and many other factors. The decline in 2011-12 is substantial, and probably reflects a tightening labour market for casual labour, as we had explained before. It is certainly a major factor in the overall inequality decline, the Theil index dropped from 0.37 in 2004-05 to 0.28 in 2011-12.

In urban areas, there is a similar pattern, but also a larger difference between the two countries. First, the casual-regular and registered-unregistered urban differences account for a much smaller fraction of wage inequality than in rural areas, no doubt because there is much more inequality within regular and registered work in urban areas. Moreover, the downward trend is visible in both countries, especially in Brazil. Registered-unregistered differences account for only 3.4 per cent of inequality in 2011 in this country, and casual-regular differences for 12 per cent in India. This of course also reflects the formalization of the Brazilian labour market – the numbers of unregistered workers have been declining as their relative wage increases. In short, in 2011 this segmentation of the labour market is not a major influence on wage inequality in Brazil, while it remains important in India.

We can conclude from this analysis that:

1. Wage inequality has been falling in Brazil, and is now lower than in India, where it has shown some tendency to rise, especially in urban areas;
2. Casual-regular and registered-unregistered differences contribute to this inequality, but their contribution has been falling, especially in Brazil;
3. The fall in wage differences between registered and unregistered workers is one of the reasons for the decline of wage inequalities in Brazil, but the slow reduction in the gaps between casual and regular wages in India is one of the sources why wage inequality is increasing, especially in urban areas.

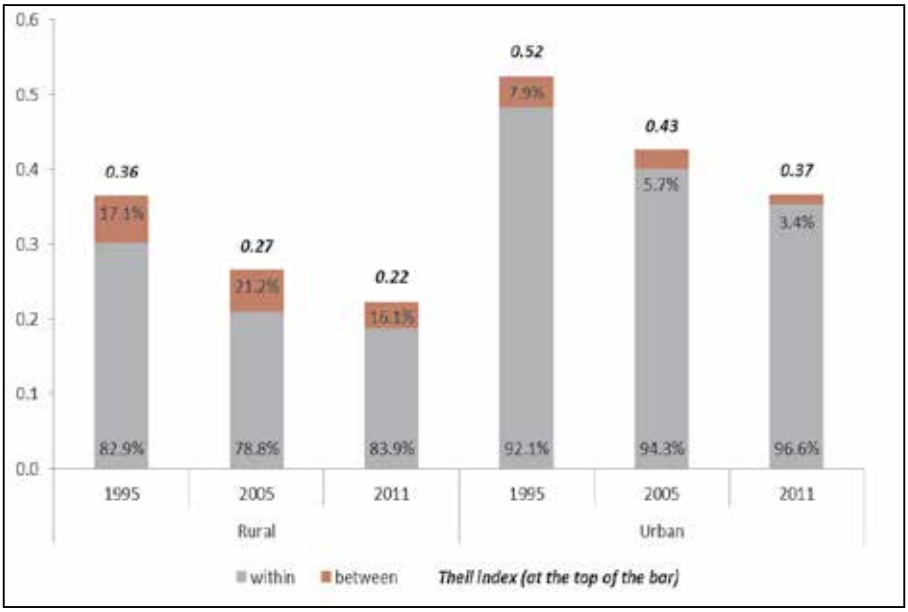
B. GENDER INEQUALITY

Wage differences by gender remain significant in Brazil and India, even though the trend is downward in both countries. In Brazil, in 1995, women received on average 78 per cent of men's wage while in 2011, this difference was 83 per cent, although between 2005 and 2011 there has been a partial reversal (graph 9). Over the period 1995-2011, the pay gap between women and men has diminished among registered workers, both in urban and rural areas, and among unregistered workers in rural areas, but has remained constant among the unregistered in urban areas. Part of this behaviour is due to a shift in the pattern of women's employment from unregistered to registered work, especially in urban areas (table 2), but it also suggests an increase in the proportion of feminized occupational groups whose wages are adjusted by the minimum wage.

It is noteworthy that several studies show that this differential of wages 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.

Graph 7

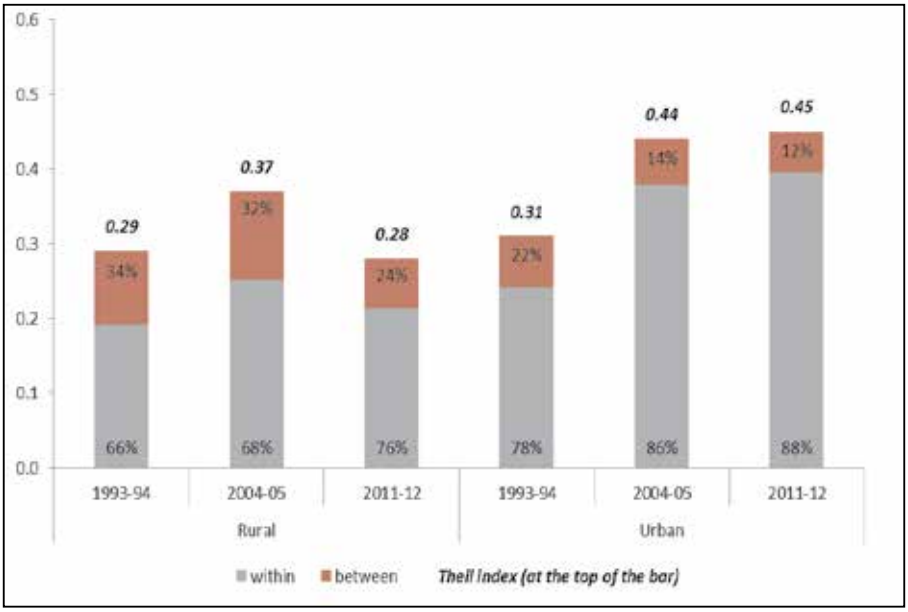
Decomposition of Wage Inequality Across Registered and Unregistered Workers, Rural and Urban, Brazil, 1995 to 2011



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

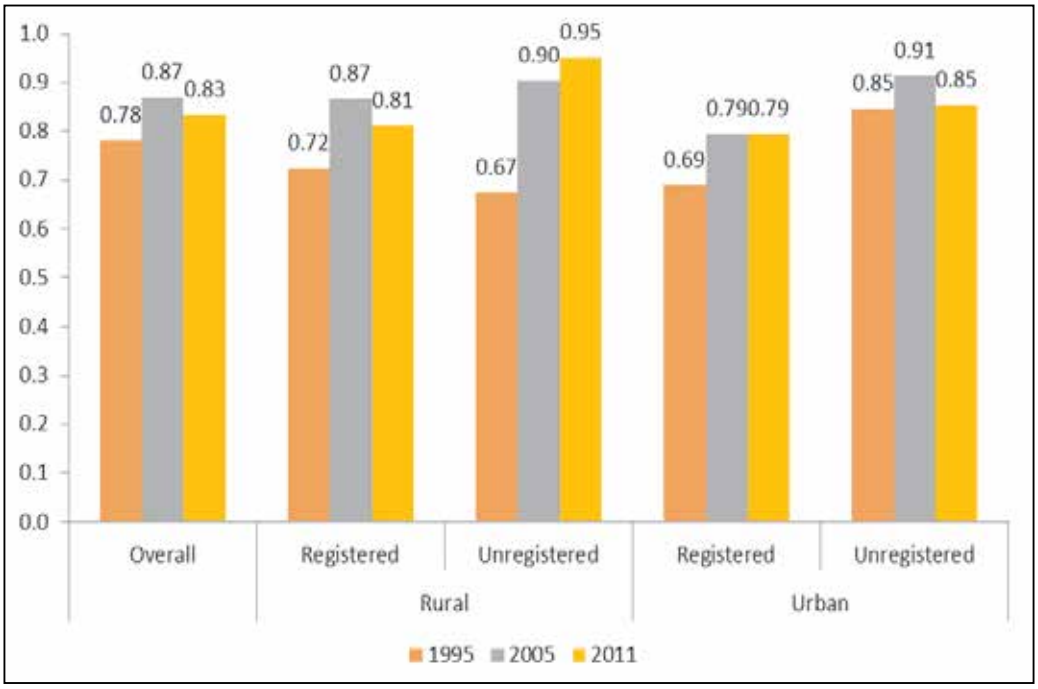
Graph 8

Decomposition of Wage Inequality across Regular and Casual Workers, Rural and Urban, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data.

Graph 9
Ratio of Female to Male Wages for Different Work Categories, Rural and Urban, Brazil, 1995 to 2011



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

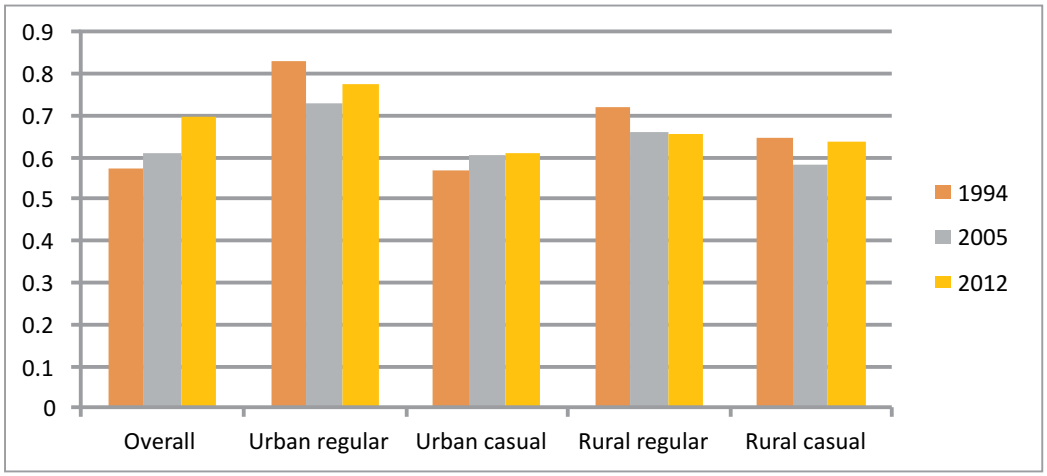
Table 2
Distribution of Male and Female Wage Workers across Registered-Unregistered and Urban-Rural Categories, Brazil, 1995 to 2011 (%)

		1995		*2005*		*2011*	
		Male	***Female***	***Male***	***Female***	***Male***	***Female***
Urban	Registered	56.0	66.0	57.5	64.7	67.1	72.4
	Unregistered	27.0	24.7	29.1	28.9	22.9	22.8
Rural	Registered	6.3	4.1	5.2	2.7	4.6	2.3
	Unregistered	10.7	5.2	8.2	3.6	5.4	2.5
Total		100.0	100.0	100.0	100.0	100.0	100.0
Distribution of the work force by sex (percent)		70.5	29.5	65.9	34.1	63.1	36.9

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

In India, women's average wages are much lower than men's, but the overall ratio between female and male wages rose from 0.58 in 1994 to 0.70 in 2011-12 (graph 10). However, this has not been a uniform improvement, since it results from the combination of economic, social and cultural factors that affect employment access, and its distribution among sectors and regions and between work statuses and rural and urban areas.

Graph 10
Ratio of Female to Male Wages for Different Work Categories, Urban and Rural, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data.

Table 3
Distribution of Male and Female Wage Workers across Regular-Casual and Urban-Rural Categories, India, 1993-94 to 2011-12 (%)

		1993-1994		*2004-2005*		*2011-2012*	
		Male	***Female***	***Male***	***Female***	***Male***	***Female***
Urban	Regular	24	11	25	16	27	22
	Casual	8	8	8	6	9	7
Rural	Regular	15	7	16	10	15	13
	Casual	52	73	51	68	49	58
Total		100	100	100	100	100	100
Distribution of the work force by sex (percent)		72	28	73	27	77	23

Note: This table uses Current Weekly Status (CWS) to measure work, i.e. based on whether an economic activity was done in the seven days prior to the survey. NSS has four different measures of employment, of which the most commonly used is UPSS (usual principal and subsidiary status). We use CWS because the wage data refer to the same seven day reference period. CWS tends to give lower levels of employment than UPSS, especially for women.

The female-male wage ratios for each type of work – regular and casual, urban and rural – show a much less consistent trend than for the labour market as a whole. While the ratio has risen in three of the four categories, the rise is less, and less regular, than the overall figure. The change in the overall ratio therefore, as is the case in Brazil, reflects a shift in the pattern of women's employment from casual to regular work (table 3). In addition, in Brazil women have penetrated traditional male occupations to a certain extent, but traditional female occupations have maintained their gender composition over the past 30 years (Madalozzo, 2010).

Nevertheless, it should also be noted that women's share of all wage workers declined from 28 per cent in 1993-94 to 23 in 2011-12. So while regular rural work at a higher wage has

partly replaced the decline in casual work, a significant proportion was replaced by withdrawal from the labour force, which of course does not appear in the wage data. Therefore, these data probably exaggerate the improvement in the situation of women in the labour market.

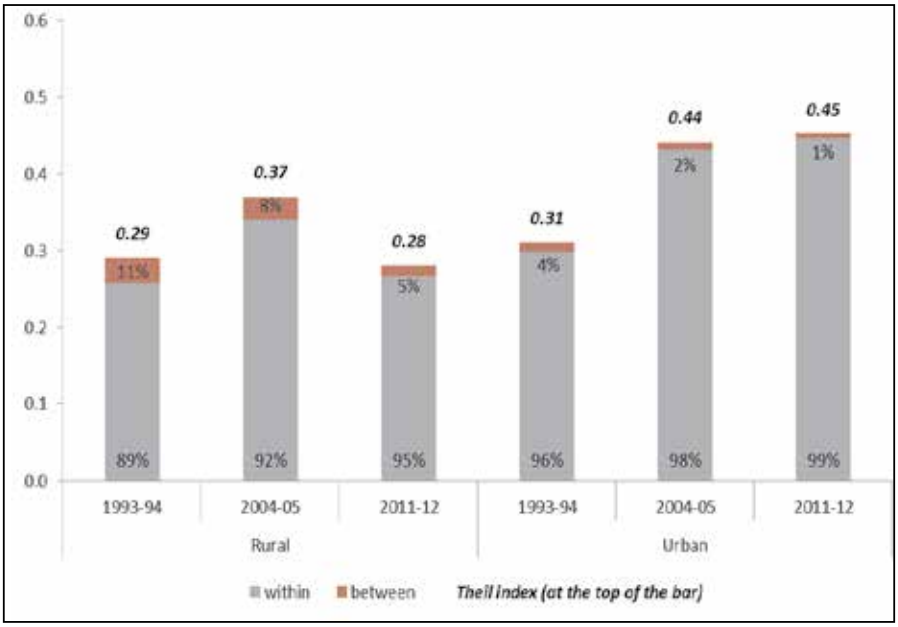
For a complete understanding of the pattern, also need to consider the nature of women's regular work. In rural areas, for instance, teaching and health work tend to dominate women's occupations in regular work. Men have a wider range of options. In that case, the trends in the wage ratio between men and women depend mainly on which types of jobs are expanding. We need to break this down by occupation to appreciate it properly.

In urban casual work, there is a clear, systematic upward trend in the wage ratio, from 0.48 to over 0.6. The gradual exhaustion of the unskilled labour surplus is one explanation of this situation. In rural areas, the pattern is not so strong, though the trend is still upwards in the recent period. Women in rural labour markets are less well integrated into the national labour market because they are less able to migrate than men, on the whole.

In line with the above, in India, the decomposition of wage inequality by sex shows a steadily declining trend in the contribution of gender inequality in both rural and urban areas (graph 11). However, when we separate casual and regular work the effects are quite different. Graph 12 shows that for casual workers alone, sex differences continue to account for a significant proportion of overall inequality in both urban and rural areas, although declining in both since 2004-05. For regular workers, on the other hand, the contribution of sex is small with no clear overall trend.

Graph 11

Decomposition of Wage Inequality by Sex, Rural and Urban, India, 1993-94 to 2011-12

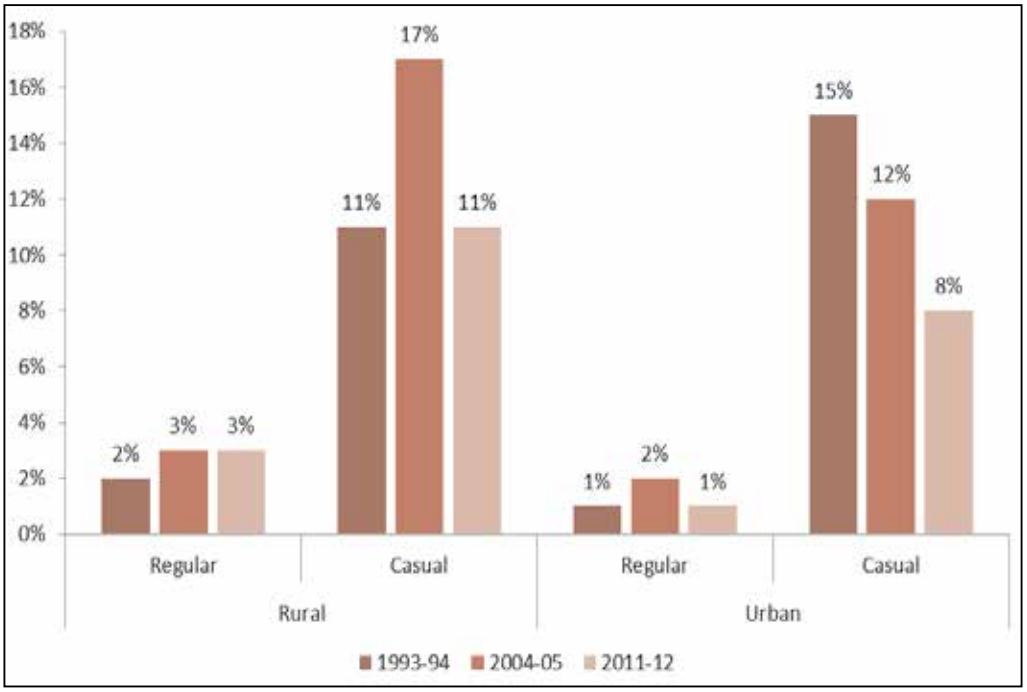


Source: Computed from NSS unit level data.

Graph 12

Percentage Contribution of Sex to Decomposition of Theil Index by

Work Type and Rural-urban Residence, India, 1993-94 to 2011-12



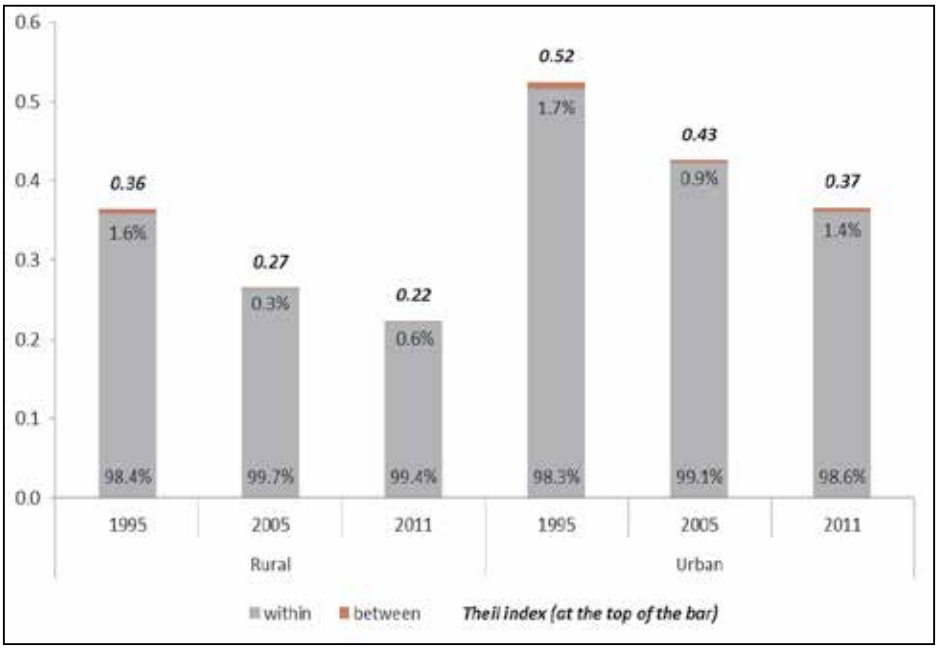
Source: Computed from NSS unit level data.

In Brazil, the contribution to inequality of sex differences in wages has fluctuated over time, but still shows a downward trend (graph 13). In addition, the contribution of wage inequality between men and women to overall inequality is smaller for unregistered workers than for registered workers. In 2011, for unregistered workers it was only 0.1 and 0.7 per cent respectively in rural and urban areas (graph 14).

These findings show the difficulties women face in the Brazilian labour market is relatively lower in the subset of wage earners. Both the wage gap compared to men and the share of wage inequality accounted for by sex differences are very small. This is a very different from what occurs in the total workforce. Furthermore, these results do not reveal other difficulties faced by women, such as the lower average wages compared to men with similar qualifications, as well as "barriers" to access to the top-level positions in companies ("glass ceiling"), though other evidence suggests that these are still present (Barbosa et al., 2015, section 5.1).

Graph 13

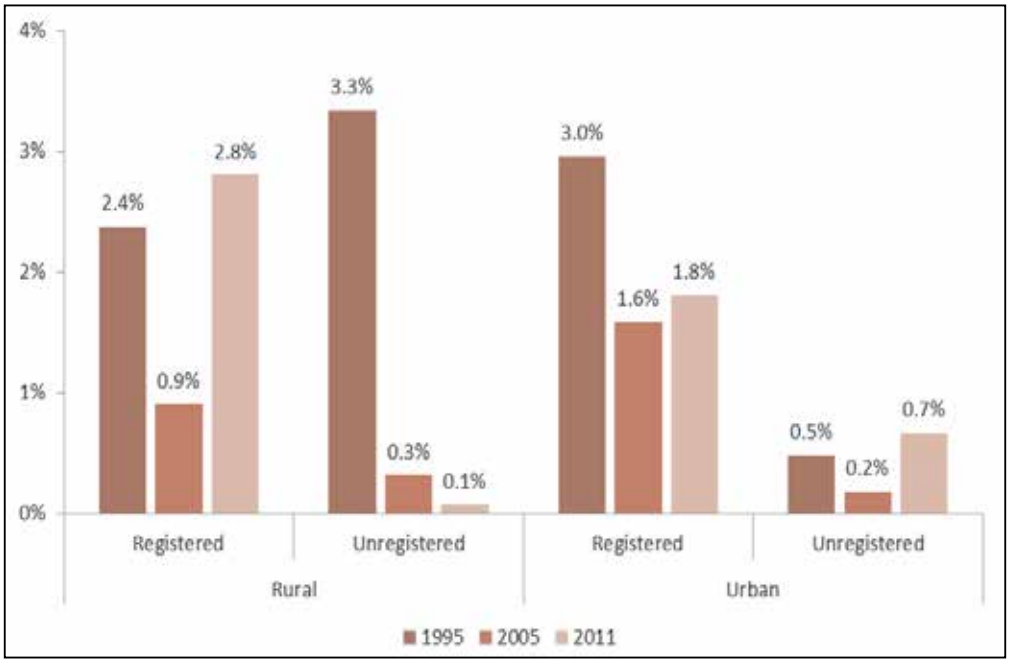
Decomposition of Wage Inequality by Sex, Rural and Urban, Brazil, 1995 to 2011



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

Graph 14

Percentage Contribution of Sex to Decomposition of Theil Index by Work Type and Rural-Urban Residence, Brazil, 1995 to 2011



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

Differences in labour market access for men and women to the disadvantage of women are well known, although when we compare the Brazilian and Indian labour markets, the former offers more employment opportunities. Several economic, social and cultural factors contribute to this outcome. In Brazil, women's participation rate in the workforce is higher than in India, the structure of employment is predominantly urban and there are no cultural obstacles for women to access any level of education. Nevertheless, as in other countries where the female participation in the labour market is high, Brazilian women face a higher level of discrimination in better jobs and in highly skilled occupations (Cacciamali and Tatei, 2012). In India, the large share of rural employment and the difficulties faced by women in migrating lead to fewer opportunities to participate in the labour market. However, when women to gain access to decent jobs, it seems that relatively there is less discrimination. We should add two factors that impede job access; the persistent patriarchal society and the role of caste status and hierarchy, which both further reduce labour market opportunities for women (see for example Rodgers et al, 2013).

C. REGIONAL FACTORS

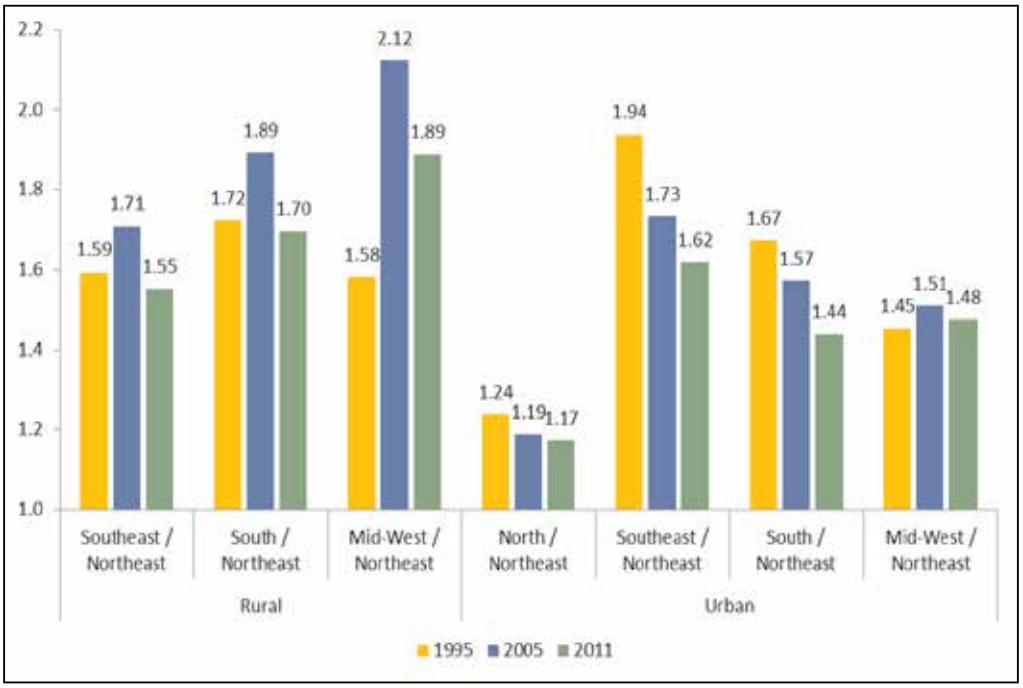
Regional inequality is a major component of overall inequality in the labour market, especially in countries as large and diverse as Brazil and India, including at one extreme "backward" areas lacking in both resources and infrastructure, and at the other end modern city complexes with global lifestyles.

Regional analysis in Brazil has converged on the identification of five macro regions of the country, reflecting its geographical territorial organization, as well as different economic structures, social characteristics and histories. The Northeast is the poorest region and we considered it as the reference point or the denominator of the wage ratio (graph 15). Workers in the Northeast tend to receive the lowest wages, especially compared to workers of the richest and most industrialized regions (Southeast and South). The regional difference is even more remarkable among workers in rural areas, and the wage ratio is highest in the region with extensive commercial agriculture and agro-business (the Mid-West), highlighting the plight of workers located in the poorest area of the country.

The comparison between Brazil and India in this respect is not straightforward, because India is larger and more heterogeneous than Brazil. In addition, there is no comparable, consensual regional breakdown for India; so, to facilitate comparison with Brazil, five regions were identified for this study, consisting of groups of states, based on similarity in terms of output and expenditure per capita, poverty and urbanization.

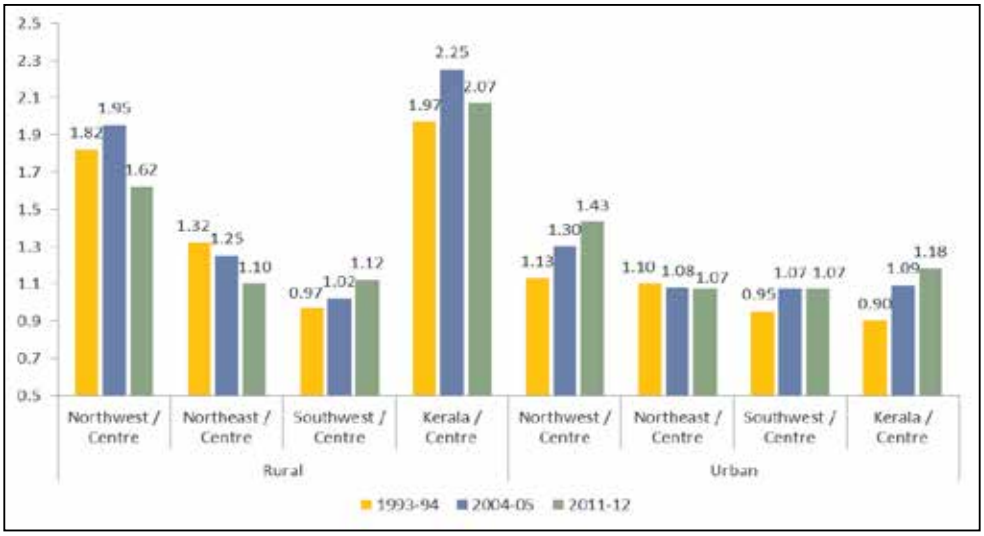
In India (graph 16), as in Brazil, we consider the poorest region, the Centre, as the reference point or the denominator of the wage ratios. These ratios are quite large in rural areas. The ratio was highest in Kerala in 1993-94 and has remained so, first rising and then falling. The Northwest also has a relatively high ratio, though it fell in the most recent period. The Northeast and the South and West region showed lower ratios and opposite tendencies. The ratio was declining in the Northeast, and rising in the South and West, but in neither region was it very different from the Centre in 2011-12. The South and West is

Graph 15
Wage Ratio by Region, Rural and Urban, Brazil, 1995 to 2011



Notes: *Rural North excluded
Source: Prepared by authors based on PNAD/IBGE microdata.

Graph 16
Wage Ratio by Region, Rural and Urban, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data.

in some sense the industrial hub of India, so it is surprising that rural wages are similar to those in the poor central region. In urban areas, there is much less difference in wages across regions. The Northwest presented the highest ratio in all years, and it has been rising. All regions followed a different pattern. The northeast saw a marginally declining wage ratio, the South and West's ratio remained stagnant and quite low and in Kerala the wage ratio was quite low but has been rising.

Another way to examine the contribution of regional differences to inequality is by decomposing the overall (Theil) inequality index into inequality within and between regions, as discussed in the introduction.

Graphs 17 and 18 give the results of the decomposition of the Theil index of wage inequality by region in the two countries, using the same five regions, for urban and rural areas separately, for the years from 1993-94 to 2011-12. The results are different in the two countries, but there are some interesting parallels.

First, the contribution of region to overall inequality is significant in both countries in rural areas, where it accounts for close to 10 per cent of the Theil index in India until 2004-05, declining to 7 per cent in the most recent data; and 12 per cent in the most recent year in Brazil, after fluctuating over time. The relative importance of regional inequality has increased in Brazil compared with the 1990s, but since overall inequality has been declining its absolute contribution has declined. In India, there has been some decline in both absolute and relative importance of regional inequality in rural areas after 2004-05.

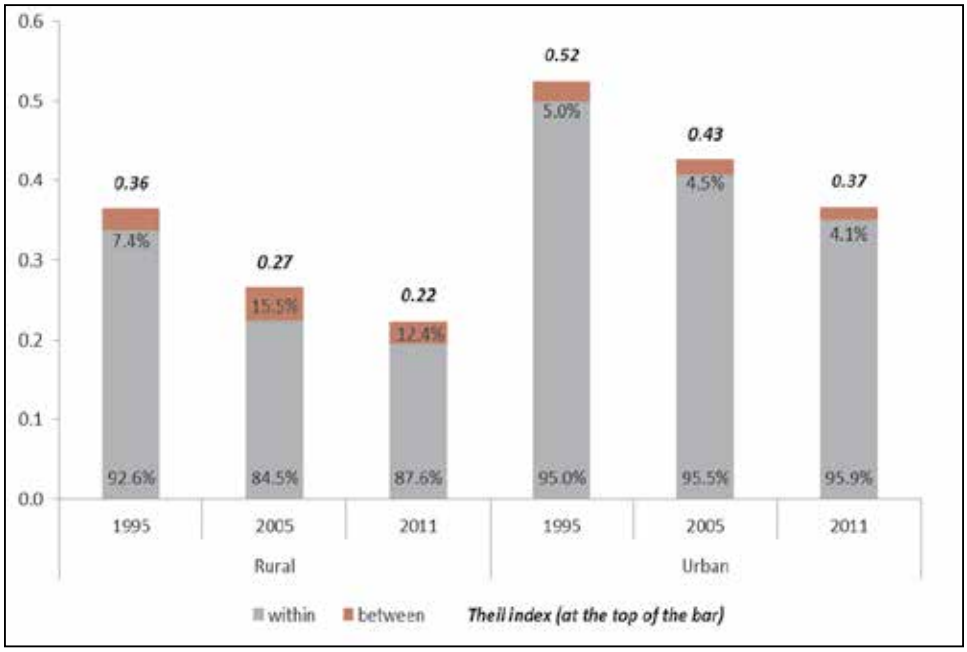
In urban areas, the contribution of regional differences is much less than in rural areas in both countries, but it is more important in Brazil, where it has shown some tendency to decline since the 1990s. In India, the contribution is small, but has started to increase.

To interpret these differences we need to take into account the segmentation of the labour market. There are flows of migrant workers between regions, which would tend to equalize wages, but these flows and their impact are likely to be different in casual and regular labour markets, in rural and urban areas, and as between men and women. There is some expectation that the labour markets for regular or registered work would be better integrated at the national level than those for casual or unregistered work, since wages of the former are likely to be more standardized and regulated while those of the latter will respond to local factors. For similar reasons one would expect urban labour markets to be better integrated than rural. As between men and women, insofar as women are less free to migrate for work (which is largely the case in India, but not in Brazil) one would expect regional differences to be more important for them.

Tables 4 and 5 show the contributions of regional differences to the Theil index when we break down the labour market into these different segments, in the two countries and for the same three years.

Graph 17

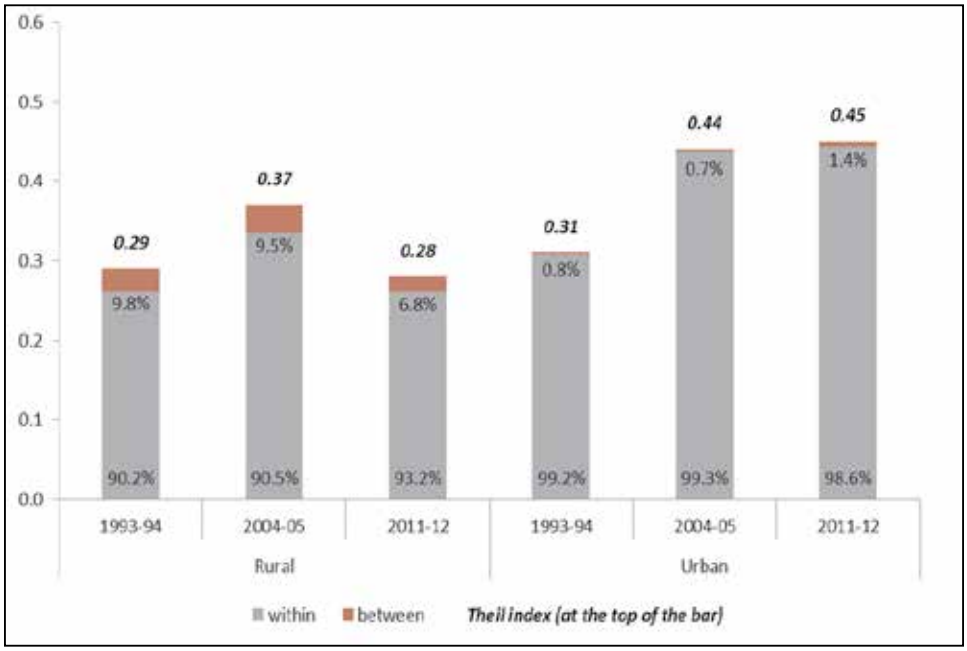
Decomposition of Wage Inequality by Region, Rural and Urban, Brazil, 1995 to 2011



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

Graph 18

Decomposition of Wage Inequality by Region, Rural and Urban, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data.

Table 4
Percentage Contribution of Regional Differences to Decomposition of Theil Index by Work type, Sex and Rural-Urban Residence, Brazil, 1995 to 2011

Area	*Work status*	*Sex*	*1995*	*2005*	*2011*
Rural	Registered	All	1.1	7.9	6.9
		Male	0.3	9.1	8.0
		Female	7.9	5.9	6.5
	Unregistered	All	10.9	14.7	9.4
		Male	8.8	15.1	10.1
		Female	24.2	14.0	12.0
Urban	Registered	All	2.7	2.6	2.6
		Male	2.7	3.0	3.2
		Female	2.8	2.1	2.0
	Unregistered	All	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.

Table 5
Percentage Contribution of Regional Differences to Decomposition of Theil Index by Work Type, Sex, and Rural-Urban Residence, India, 1993-94 to 2011-12

Area	*Work status*	*Sex*	*1993-94*	*2004-05*	*2011-12*
Rural	Regular	All	1	4	5
		Male	3	5	5
		Female	1	4	6
	Casual	All	24	28	24
		Male	18	22	11
		Female	25	31	30
Urban	Regular	All	0	1	2
		Male	3	3	4
		Female	0	1	2
	Casual	All	10	18	14
		Male	8	13	9
		Female	10	23	18

Source: Computed from NSS unit level data

Taking India first, we find that regional differences do indeed contribute much more to wage inequality for casual than for regular workers, in both urban and rural areas, and among both casual and regular workers, the contribution is distinctly greater in rural than in urban areas. These differences are sustained over time, but for casual workers in both urban and rural areas there is a tendency for the contribution of region to rise until 2004-05, and then to fall somewhat thereafter. For regular workers the pattern is less consistent, but there is a slight tendency for the regional contribution to increase in the most recent data. There is a tendency for regional factors to be somewhat less important for women than for men, except in urban regular work. This is contrary to expectations if migration is playing an important role, and suggests that patterns of gender inequality across the country mainly reflect other factors.

In Brazil, we find the same pattern as for India when we compare registered and unregistered workers (which we treat as comparable with regular and casual workers). The contribution of region is much higher for unregistered workers in both rural and urban areas. In addition, like in India, the contribution of region is greater in rural than in urban areas. In absolute terms as well, these patterns are not very different for regular workers, but there is a bigger gap for casual workers. Taking the most recent data (2011 in Brazil and 2011-12 in India), for rural regular workers the contribution of region is 5 per cent in India and 7 per cent in Brazil. In urban areas, for regular wages it is 2 per cent and 3 percent respectively, while for rural casual workers it is 24 per cent in India and 9 per cent in Brazil, and for urban casual wages 14 per cent and 5 per cent.

The pattern for female versus male workers is also somewhat similar in the two countries. In general, regional differences tend have a larger impact on inequality for men than for women in regular or registered work, and a larger impact for women than for men in casual or unregistered work (though this latter pattern is weak in Brazil).

How do these results relate to the broad picture we presented above? Overall, in India we see that the contribution of regional inequality to overall wage inequality has risen for most segments of the labour market, with the clearest growth in inequality between 1993-94 and 2004-05. This is in line with the conclusions based on data on output, expenditure and poverty. This general picture is, however, not completely consistent; for example the trend is less clear after 2004-05. In Brazil the relative importance of region has been quite stable in urban areas (the majority of the population), but the absolute contribution of region has declined along with other factors. In rural areas, the pattern is less consistent with some tendency to decline after 2005.

D. SOCIAL GROUPS

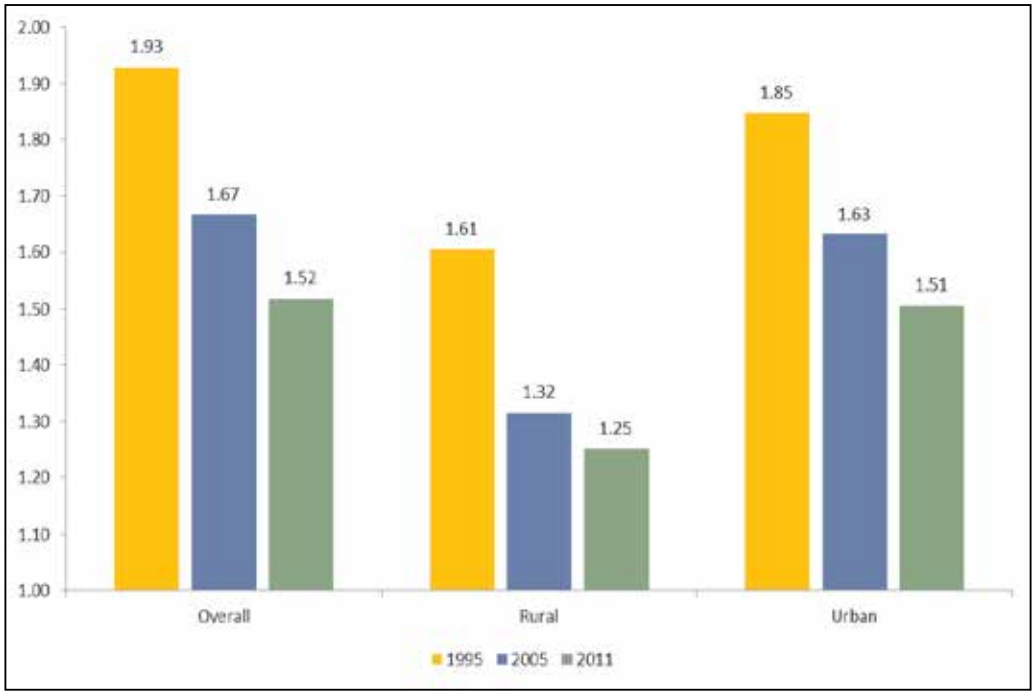
Inequality between social groups plays a powerful role in labour market segmentation in Brazil and India. In both countries, historical inequalities among population groups, with different origins but with similar effects, give rise to unequal labour market opportunities that reflect in labour market structures. Similarly, changes in labour market structures, either because of the emergence of new growth regimes or due to new social and labour policies, may affect inequality patterns.

These segmentations show up in disparities in wages and incomes of workers that are not just a result of the differences in capabilities, endowments and productivity but also due to labour market structures and institutions. In reality there are different employment opportunities for different groups, reflecting segmented production structures, patterns of power and control in the growth regimes of the two countries, as well as employers' and the society's attitudes towards different categories of workers. This can take the form of overt or hidden discrimination against some groups on the basis of social attributes such as caste, ethnicity, religion, language and, as we saw before, gender.

Because these inequalities are embedded in quite different social frameworks, it is obviously difficult to make a parallel between them. However, wage inequality across caste

in India and race in Brazil are important sources of differentiation inequality and inequality in each of those countries, and they must be examined. Graph 19 shows the wage ratio for "race" for Brazil two groups, white and non-white. On average, white workers' wages are much higher than non-white's, but the ratio has been declining, especially in rural areas.

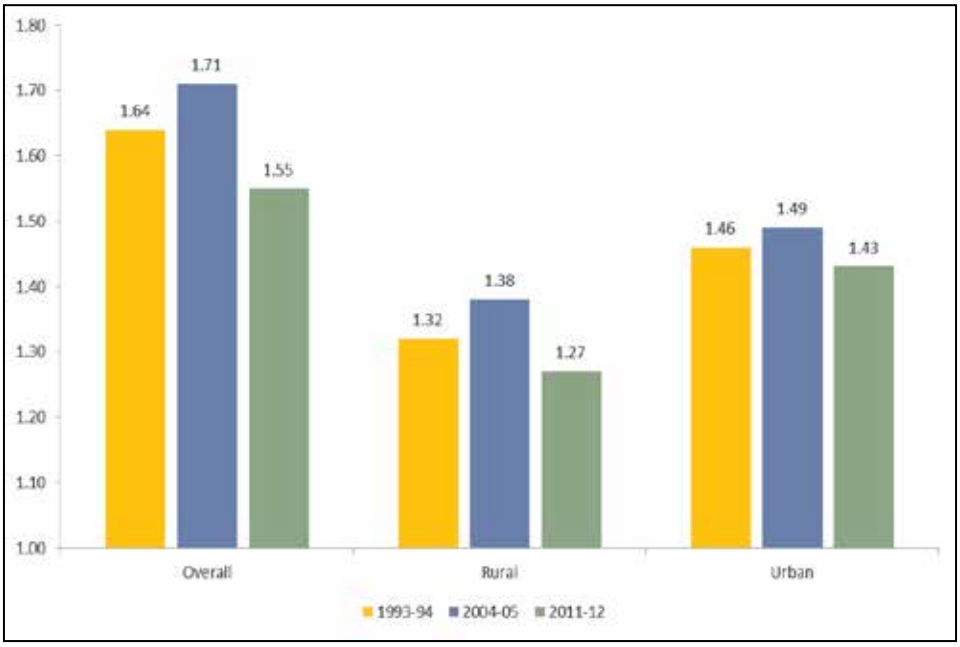
Graph 19
Ratio of White to Non-white Average Wages, Rural and Urban, Brazil, 1995 to 2011



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

To analyse the social pattern of discrimination in India we first break down the Indian population into two groups: Scheduled Castes and Scheduled Tribes on the one hand, and all others. Graph 20 displays the wage ratios for all other groups in relation to Scheduled Caste/ Tribe, for rural and urban areas, since 1993-94. It can be seen that the overall differential remains high in 2011-12, 27 per cent in rural areas and 43 per cent in urban, and slightly higher overall (55 per cent) because SC and ST tend to be concentrated in lower wage rural areas. However, there is some sign that after rising up to 2004-05 the ratio has started to come down. It fell by about 8 per cent in rural areas and 4 per cent in urban areas between 2005 and 2012. This pattern can largely be traced to the improvement in the relative position of casual workers, where STs and SCs are overrepresented.

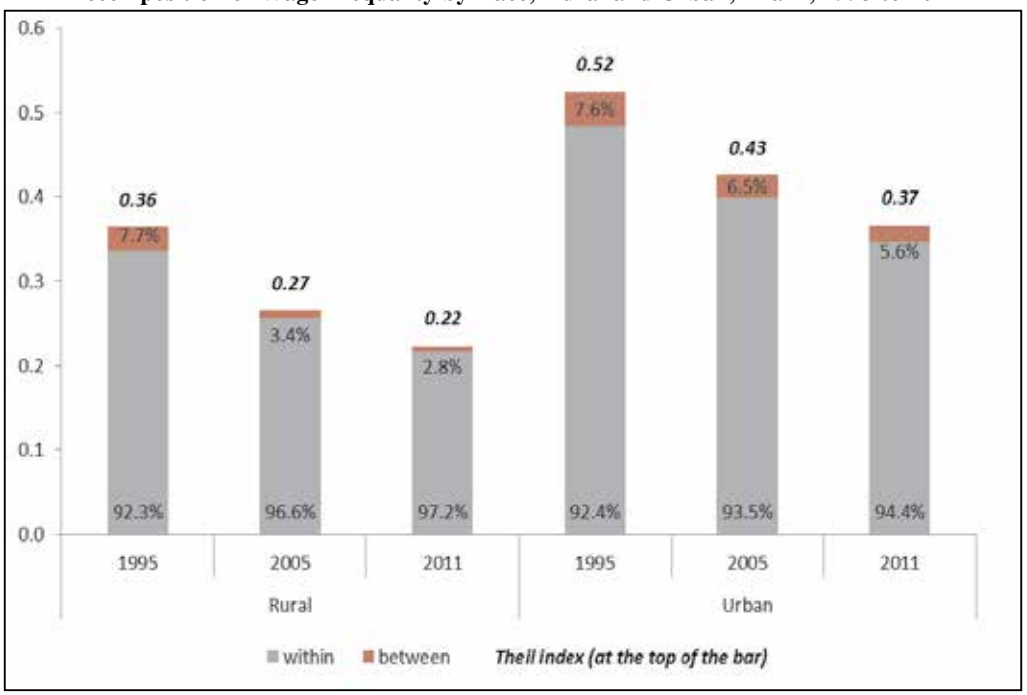
Graph 20
Ratio of all Others to Scheduled Caste/Tribe Average Wages, Rural and Urban, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data

Graph 21 shows the decomposition of wage inequality across race in Brazil. It can be seen that this factor contributed significantly to inequality in 1995, but has declined in both rural and urban areas, from 7.7 to 2.8 per cent in rural and from 7.6 to 5.6 per cent in urban. In India, decomposition in these terms accounts for only 3 per cent of wage inequality since 1993-94 in both urban and rural areas, declining to 2 per cent in the most recent period. This would suggest at first sight that the caste factor in India is less important in wage inequality than race in Brazil.

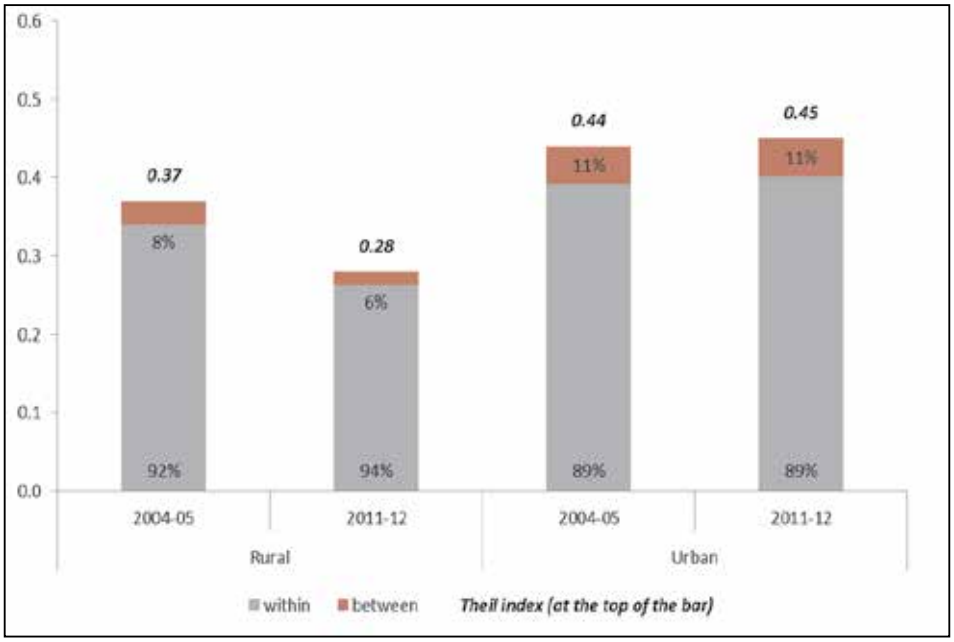
Graph 21
Decomposition of Wage Inequality by Race, Rural and Urban, Brazil, 1995 to 2011



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

However, this is not sufficient as a comparison, given the fragmentation of the Indian labour market. A more detailed breakdown is available for 2004-05 and 2011-12 in India, which identifies seven groups: Scheduled Tribe, Scheduled Caste, Hindu Other Backward Class, Hindu other (upper castes), Muslim Other Backward Class, Muslim other (upper) and other religion. This breakdown is used in the Theil decomposition given in graph 22.

Graph 22
Decomposition of Wage Inequality by Social Groups, Rural and Urban, India, 2004-05 to 2011-12



Source: Computed from NSS unit level data

Here we see a fairly strong relationships. The contribution of social group is lower in rural areas, where it is declining, but is stable and quite high in urban areas. When urban and rural areas are combined social group accounts for 15 per cent of inequality overall in 2004-05, declining to 13 per cent in 2011-12. These contributions to inequality are much higher than in Brazil, but the results for the two countries cannot be compared directly, not least because in this type of decomposition the degree of explanation increases with the number of groups defined.

However, even graph 22 understates the contribution of social group to inequality in India, because the patterns vary greatly from one part of the country to another. In Bihar the impact of caste is large and rising. In Punjab it is low and stable. In rural Tamil Nadu it is high and stable. Different castes dominate in different parts of the country. These factors are lost in a national analysis. It seems quite reasonable to argue that caste and community differences play a distinctly greater role in wage inequality in India than does race in Brazil.

With respect to the different segments of the labour market in the two countries, table 6 shows that the average wage in Brazil is always in favour of white workers for every employment category. It also shows an overall fall in the ratio over the period. The exception is that the wage ratio for rural registered workers has slightly increased between 2005 and 2011, which might be reflecting the increase in the percentage of this category of workers in the labour market.

In India, Table 7 separates SC and ST from OBC ("other backward classes", in practice a middle caste group) and others (mostly upper castes). It can be seen that casual wages rose more than regular and within that STs and SCs did about as well as the average. However, upper and middle castes did much better than them in regular urban work. Upper castes in regular, urban work had significantly higher earnings than other groups; and STs had significantly lower earnings in casual work than other groups. Overall there is some sign here of wage differentials widening, with STs doing badly and upper castes doing well.

Table 6

Average Monthly Wage for White and Non-white Workers (in 2012 Brazilian Reals), Registered and Unregistered Workers, Rural and Urban, Brazil, 1995 to 2011

Area	*Work type*	*Race*	*1995*	*2005*	*2011*
Rural	Registered	non-white wage	594	732	889
		white wage	856	812	1005
	Unregistered	non-white wage	317	359	525
		white wage	445	467	610
Urban	Registered	non-white wage	998	925	1121
		white wage	1703	1426	1645
	Unregistered	non-white wage	526	568	789
		white wage	934	927	1157

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

Table 7

Real Daily Wages across Social Groups (in 2011-12 rupees), Regular and Casual Workers, Rural and Urban, India, 2004-05 to 2011-12

Work type	*Caste*	*Rural*		*Urban*	
		2004-05	*2011-12*	*2004-05*	*2011-12*
Regular	ST	203	288	325	423
	SC	189	249	233	324
	OBC	206	272	263	360
	Other	294	348	399	558
Casual	ST	73	114	94	141
	SC	86	137	112	165
	OBC	88	140	120	175
	Other	89	139	119	153

Source: Computed from NSS unit level data

Tables 8 and 9 look at the contribution of race and caste to wage inequality within different segments of the labour market in the two countries – rural/urban, male/female and registered/unregistered in Brazil and regular/casual in India. The caste breakdown here is in two categories, SC/ST and others, for greater comparability with Brazil. We can see that the order of magnitude of the effects of race or caste – mostly accounting for 4 to 8 per cent of wage inequality within each of these categories – is similar in the two countries. In both countries there is a tendency for the effect to be larger in urban than in rural areas. And both show some decline over time. But at a more detailed level the patterns are not the same. For instance, in India the effect is larger for regular than for casual work, especially

for women, and is largest for women in regular urban jobs. In Brazil there is mostly not much difference between registered and unregistered work; the effect was largest for women in unregistered rural work in 1995, but that has declined sharply and in 2011 it was largest for men in registered urban work. It is hard to find consistent patterns which would indicate that similar processes are operating in the two countries.

Table 8

Percentage Contribution of Race to Decomposition of Theil Index by Work Type, Sex and Rural-Urban Residence, Brazil, 1995 to 2011

Area	*Work status*	*Sex*	*1995*	*2005*	*2011*
Rural	Registered	All	1.1	7.9	6.9
		Male	0.3	9.1	8.0
		Female	7.9	5.9	6.5
	Unregistered	All	10.9	14.7	9.4
		Male	8.8	15.1	10.1
		Female	24.2	14.0	12.0
Urban	Registered	All	2.7	2.6	2.6
		Male	2.7	3.0	3.2
		Female	2.8	2.1	2.0
	Unregistered	All	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.

Table 9

Percentage Contribution of Social Group to Decomposition of Theil Index by Work Type, Sex and Rural-Urban Residence, India, 2004-05 and 2011-12

Area	*Work status*	*Sex*	*2004-05*	*2011-12*
Rural	Regular	All	4	3
		Male	4	3
		Female	8	6
	Casual	All	6	4
		Male	6	4
		Female	2	2
Urban	Regular	All	8	7
		Male	8	6
		Female	12	10
	Casual	All	4	3
		Male	4	3
		Female	3	3

Source: Computed from NSS unit level data

In India caste, and to some degree community (religion), have a deep and pervasive effect on labour market access. Lower castes are disproportionately found in the more precarious jobs, with lower wages and incomes. Thus, the primary mechanism of inequality is one of exclusion of lower castes from good jobs, and only to a secondary extent, lower remunerations for those who gain access.

In Brazil there is also a striking differentiation in the opportunities of whites and non-whites, but the mechanisms seem to be weaker. Women and black or coloured populations historically

suffer from inequality of opportunities in Brazil. In the case of women, they have 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, the labour market does not reflect this educational gain. In the case of non-whites, the main problem is discrimination before labour market entry. On average, this group has lower schooling levels than whites, with negative consequences for their earnings. Thus, non-white women in Brazil are the most disadvantaged, since they are doubly discriminated against – both colour and gender (Cacciamali and Tatei; 2012).

E. EDUCATION

In India and Brazil, as elsewhere, wage patterns show that there are very considerable returns to education. Graphs 23 and 24 show the wage ratios between different educational levels in the two countries, and how they have changed over time.

In India, we used the following classification for this graph: illiterate (no schooling) (32%); below primary or literate without schooling (18%); primary completed (14%); middle school completed (14%); secondary or higher secondary completed (16%); graduates and other tertiary education (7%). Figures in brackets are the percentages of the population in each category in 2011-12, according to NSS data.

Graph 24 shows the wage ratios between these different educational categories for three survey years, 1993-94, 2004-05 and 2011-12. There is an interesting and very clear pattern. The premium to education is everywhere above 1, indicating that more education is reflected in higher wages. And the overall difference between the top and the bottom has not changed very much, declining from 4.5 to 3.7 times higher in rural areas between 1993-94 and 2011-12, but rising from 3.9 to 4.4 in urban areas in the same period. Nevertheless, the premium for all schooling levels up to secondary school are either falling over time, or little changed. Thus the wage premium for minimal schooling or literacy, as compared with illiteracy, has fallen from 27 per cent to 11 per cent in rural areas and from 28 per cent to 13 per cent in urban areas, and there is now little additional gain from completing primary or middle school. In contrast, the premium to secondary and college education (and above) is higher. The premium to secondary and higher secondary increased up to 2004-05 in urban areas, falling in 2011-12 but still 50 per cent compared with middle school (though less in rural areas). Meanwhile, the returns to tertiary education are increasing rapidly. The premium to college education over secondary/higher secondary has risen from 60 per cent to 110-120 per cent over the period considered. This shows the upward shift in the educational credentials demanded by the labour market. Secondary schooling is no longer sufficient to deliver a substantial wage premium; it is necessary to move up the scale. Even at the bottom of the scale, primary education conveys very little labour market advantage any more.

In Brazil we used the following educational categories: no schooling (6.1%), incomplete primary (21.3%), complete primary (18.5%), secondary (43.0%) and tertiary (11.1%). Figures in brackets are the percentages of the wage worker population in each category in 2011. The wage ratios in graph 23 give a picture which is in some respects similar to India. First, the returns to education are substantial, and similar in order of magnitude to India.

At the same time, the income gap between poorly educated and better educated workers has declined. In 1995 illiterate workers in urban areas earned, on average, 11.4% of the average income of a worker with a higher education degree, while in 2011 this had risen to 25.4%. Most of the gain for poorly educated workers occurred after 2005.

Second, like in India, the returns to lower levels of education have fallen. But unlike in India, the returns to tertiary education have also fallen, more sharply in rural than in urban areas. The wage ratio between tertiary and secondary education was significantly higher in Brazil than in India in 1995 and in 2005; by 2011-12 the ratio was similar in the two countries. This is certainly one of the factors explaining the difference between the two countries in the trend of overall inequality. The decline in wage differentials by educational level between 1995 and 2011 was largely due to an increase in the wage floor for more poorly-skilled segments, brought about by the higher-than-inflation growth in the minimum wage.

Another way at looking at returns to education is in relation to the segmentation of the labour market. In Brazil (table 10), we can see the fall of wage differentials across education levels for registered workers, especially among those with tertiary education compared to secondary. The fall was even sharper among the unregistered workers. Two points stand out for this wage convergence: increase of workers' average schooling, and rise of the minimum wage above the average wage, which helped more the unskilled workers.

Table 11 shows the pattern of wages by education separately for regular and for casual work in India, for two years, 1999-2000 and 2011-12. The pattern is quite different from Brazil. For those in regular wage work, wage differences by level of education are very large, and the gap between the top and the bottom has widened over time. In 2011-12, in regular employment a worker with secondary schooling had wages almost twice as high as someone who was illiterate. With a tertiary qualification the difference was over four times. On the other hand, while there is some increase in casual wages with education level, this is far smaller than for in regular work. And these differences seem to have been narrowing. So the influence of education is quite different in the two segments of the labour market.

There is some difference in these patterns between urban and rural areas (not shown in the table). The returns to education were lower in rural than in urban areas for both regular and casual work – indeed for the latter differences across education levels were negligible in rural areas. In urban areas, casual wages do tend to rise with increasing education levels, but still much less than for regular wages.

Table 10

Average Monthly Wages of Registered and Unregistered Workers by Level of Education, Brazil, 1995 and 2011 (in 2012 Brazilian reals)

Schooling	*Registered*		*Unregistered*	
	1995	*2011*	*1995*	*2011*
Without schooling	626	901	344	572
Incomplete Primary	893	989	510	655
Complete Primary	1175	1142	740	851
Secondary	1604	1629	971	1067
Tertiary	4774	3254	3465	2478

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

Table 11
Average Daily Wages of Regular and Casual Workers by Level of Education, India, 1999-00 and 2011-12 (in 2011-12 rupees)

	Regular Wage		*Casual Wage*	
	1999-00	*2011-12*	*1999-00*	*2011-12*
Not Literate	152	171	99	145
Below Primary	178	195	119	159
Primary	183	205	131	168
Middle	225	233	129	183
Secondary	315	322	146	188
Higher Secondary	397	389	141	181
Diploma and above	-	498	-	240
Graduate and above	560	760	171	210
Total	336	445	117	166

Note: *Secondary education includes Higher Secondary; **Higher Secondary includes Diploma and above
Source: NSS 38th, 55th, and 68th Rounds

In both Brazil and India, these changes in the returns to education have to be analysed in the light of the changing educational composition of the population. In both countries the share of the higher educational groups has risen substantially. The fact that wage differentials nevertheless continued to rise in India suggests either an extremely rapid increase in demand for highly qualified workers, or a capturing of the gains from growth by a relatively small category of workers, or both. In Brazil, on the other hand, and contrary to the human capital theses, educational improvements did not lead to a more than proportional income rise for the more educated segments. This is in all likelihood due to the occupational profile of the jobs occupied by each educational segment and to the fact that in some segments (like middle school) the rise in the labour supply was quite substantial.

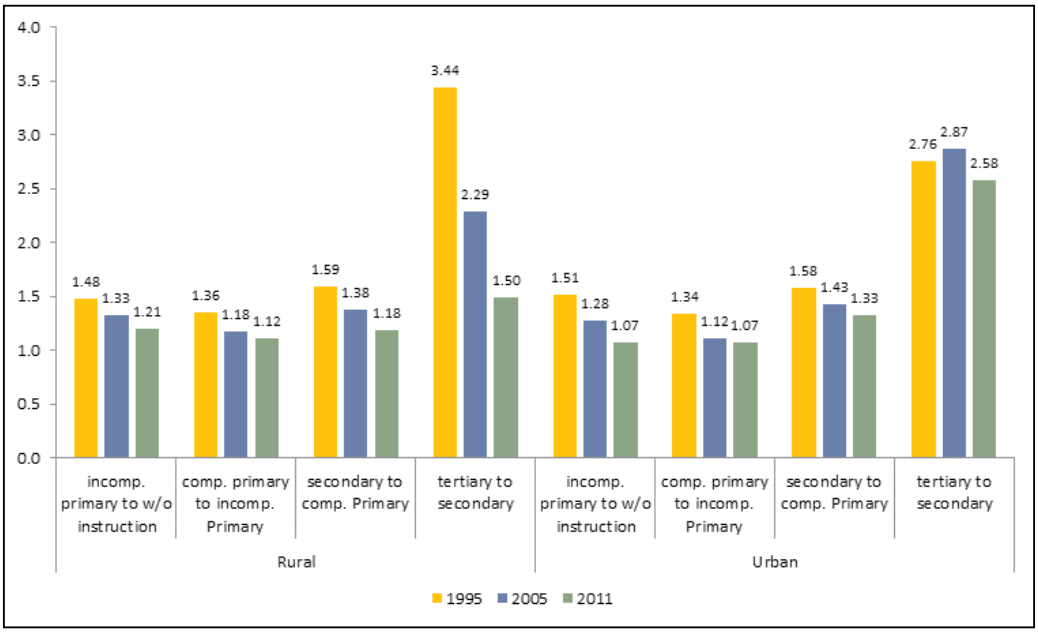
What was the overall contribution of education to wage inequality? A partial answer is provided by a decomposition of wage inequality by education level, as has been done for other factors in previous sections. This uses the same educational categories as in graphs 23 and 24 above. Graphs 25 and 26 give the decomposition separately for rural and urban areas for India and Brazil respectively.

The first point to notice is that the contribution of education to wage inequality is substantial, and larger than the other factors we have considered in previous sections. In India it accounts for 25 to 40 per cent of the Theil index. The contribution of education is generally higher in urban areas, although the difference between urban are rural areas is not large. Over time, in both rural and urban areas, the percentage contribution of education to inequality first rose (until 2004-05) and then fell. But the fall is small in urban areas. In addition, there has been a long term tendency for inequality to rise in urban areas, so the absolute contribution of education to wage inequality, after rising until 2004-05, subsequently stabilized up to 2011-12, while it fell in rural areas. It seems that wage compression in the lower part of the education hierarchy compensated for the growing gap at the top.

In Brazil, there are some similarities, in that the contribution of education to the Theil index is of a similar order of magnitude to India in 1995; it is higher in urban than in rural

Graph 23

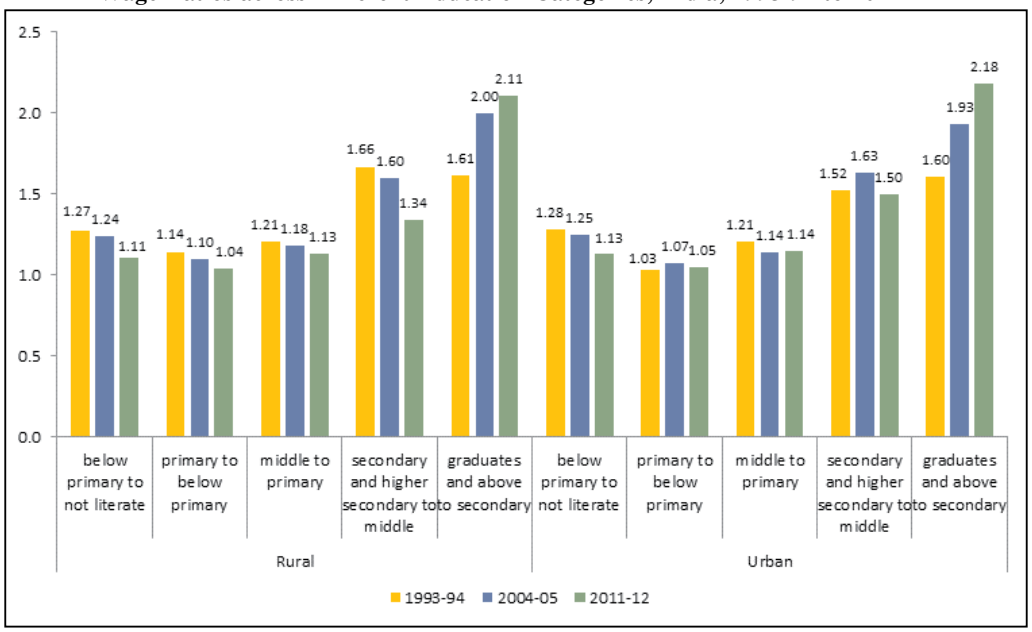
Wage Ratios across Different Education Categories, Rural and Urban, Brazil, 1995 to 2011



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

Graph 24

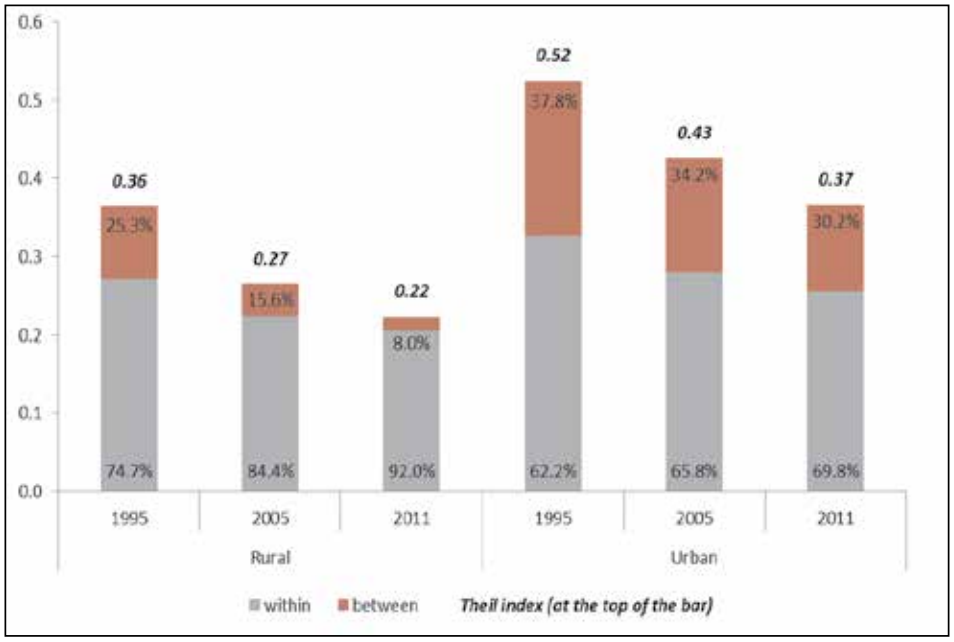
Wage Ratios across Different Education Categories, India, 1993-94 to 2011-12



areas and it first rises and then falls. Nevertheless, the time pattern is different, since in Brazil the peak was reached in 1995, compared with 2005 in India. Moreover, after 1995 there is a much sharper decline than in India in both urban and rural areas, especially in rural areas. Compared with the 1980s, in India education is playing a larger role in wage inequality today, while in Brazil its impact has been reduced.

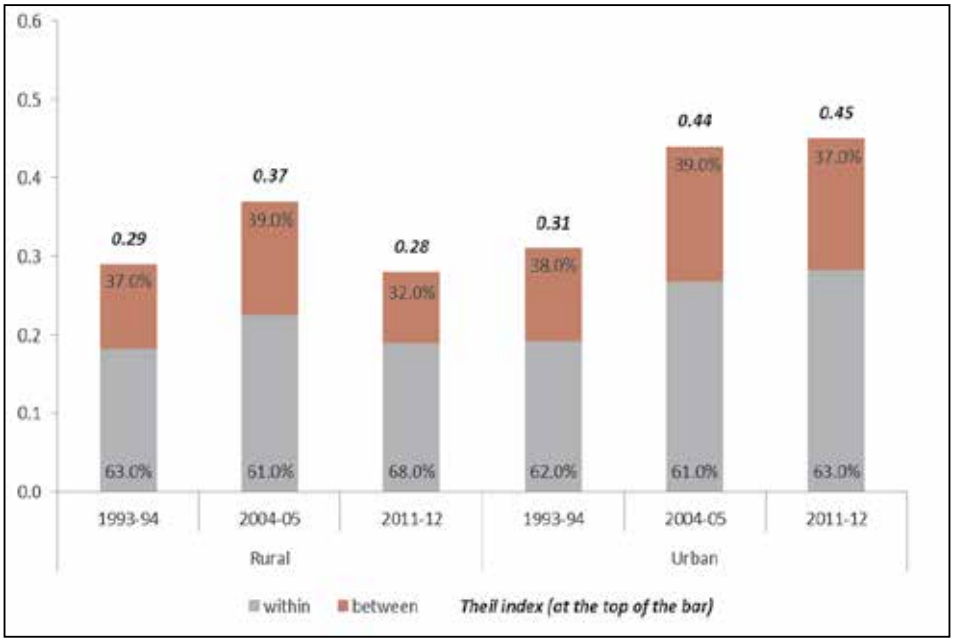
Therefore, a considerable process of wage compression across education levels was occurring in Brazil, especially in the last decade, at the same time, no such compression was occurring at the top of the educational pyramid in India – wage gaps were widening slightly, although they were narrowing in the middle. Moreover, this in turn surely helps to explain the increase in inequality in India.

Graph 25
Decomposition of Wage Inequality across Education Categories, Rural and Urban, Brazil, 1995 to 2011



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

Graph 26
Decomposition of Wage Inequality across Education Categories, Rural and Urban, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data.

It is also instructive to break down the decomposition by work type and sex (tables 12 and 13). This confirms that the contribution of education to inequality is very different in different segments of the labour market, but the gap is much larger in India than in Brazil. In India, education accounts for around 30 per cent of the Theil index, on average, in regular work, but only around 5 per cent in casual work. The similar difference in Brazil between registered and unregistered work is much weaker, and declining over time. By 2011, there was very little difference between the registered and unregistered segments of the labour market. There is also a difference between men and women in India, with the contribution of education greater for women except in rural casual work. In Brazil, education is more important for women in rural areas, but less in urban areas, where there is not much difference between men and women for either registered or unregistered work.

Table 12

Percentage Contribution of Education to Decomposition of Theil Index by Work Type, Sex and Rural-Urban Residence, Brazil, 1995 to 2011

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
	Unregistered	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
	Unregistered	Total	31.4	30.1	26.8
		Male	37.7	32.9	32.4
		Female	32.7	35.4	28.9

Note: * Results are not statistically significant for rural area.

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

Table 13

Percentage Contribution of Education to Decomposition of Theil Index by Work Type, Sex and Rural-Urban Residence, India, 1993-94 to 2011-12

			1993-94	*2004-05*	*2011-12*
Rural	Regular	All	32	23	20
		Male	30	22	20
		Female	43	31	26
	Casual	All	7	9	4
		Male	4	5	2
		Female	2	1	1
Urban	Regular	All	29	33	24
		Male	29	32	33
		Female	37	31	24
	Casual	All	5	7	4
		Male	2	4	3
		Female	2	7	5

Source: prepared by authors on the basis of NSS data (38th, 50th, 61st and 68th rounds)

F. SOME MULTIVARIATE RESULTS

In the preceding sections, we have explored the statistical contribution to wage inequality of different factors – the type of employment, gender differences, regional variations, differentiation by race or caste, and the role of education. In this section, we examine the joint effects of the different variables studied above, along with others. For this purpose, we use the decomposition method developed by Fields (2002). A simple Ordinary Least Squares regression of the determinants of log wages is conducted on various worker characteristics such as age, education, social group, industry of work, etc. The coefficients obtained from this regression are used to calculate the contribution of each of these characteristics to the overall observed inequality of wages.

For this decomposition we used the following characteristics of the individuals concerned in the two countries:

Chart 1

Description of the Variables included in the Regression

Brazil	
dependent variable (lnwage)	log of worker's wage
age	worker's age in years
sex	0 if male, 1 if female
race	0 if non-white, 1 if white
urban	0 if rural, 1 if urban
work type	0 if private registered worker, 1 if unregistered worker
education	5 categories; dummy for tertiary education not include in the regression
region	5 categories; dummy for Southeast not include in the regression
industrial sector	11 categories in 1995, 13 categories in 2005 and 2011; dummy for manufacturing industry not include in the regression
occupation	8 categories in 1995, 10 categories in 2005 and 2011; dummy for managers not include in the regression
India	
dependent variable	log worker's wage
age	worker's age in years
sex/gender	0 if female, 1 if male
socio-religious group	1 "Hindu SC&ST" 2 "Hindu – OBC & other caste" 3 "Islam" 4 "Other religion"
socio-religious group (detailed)	1 "Hindu ST" 2 "Hindu SC" 3 "Hindu - OBC" 4 "Hindu - other caste" 5 "Islam - OBC" 6 "Islam – non OBC" 7 "Other religion"
sector	1 if rural, 2 if urban
work type	0 if regular worker, 1 if casual worker
education	1 "not literate" 2 "literate not through formal education or below primary" 3 "primary" 4 "middle school" 5 "secondary and higher secondary" 6 "Graduates and above"
region	1 "NorthWest" 2 "Centre" 3 "Northeast " 4 "South & West" 5 "Kerala"
industry	Categories of one-digit National Industrial Classification
occupation	Categories of one-digit National Classification of Occupation

With the exception of age, industry and occupation, these are the variables that were used in the previous sections. We add age because it is generally included in earnings functions of this type as a proxy for experience; there is an expectation that productivity is a positive function of experience, so this should appear as a positive relation of wages with age. In addition, we consider industrial sector and occupation because of the expectation that these are important influences on wages that need to be taken into account in a multivariate analysis. In Brazil, the decomposition was undertaken for 1995, 2005 and 2011, using unit level data from the PNAD. In India it was undertaken for 1993-94, 2004-05 and 2011-12, using unit level data from the NSS.

Some caution is required in comparing these results between the two countries, because the explanatory power of each variable in the decomposition depends not only on the differences in wages between categories, but also on the sizes of those categories. Therefore, the contribution of urban-rural differences in Brazil is relatively small, but only a small part of the Brazilian labour market is rural today, while the Indian labour market is more evenly balanced. Moreover, the declining contribution of gender in India, and its increase in Brazil, may in part be due to the declining share of women in the Indian labour force and an increasing share in Brazil. The results, however, are aligned with the findings of the qualitative analysis that we did in the previous sections

When all of these variables are included in the decomposition, the level of statistical explanation of (log) wages overall is quite similar in the two countries: 50.1 per cent in Brazil in 2011; and 52 per cent in India in 2011-12. These degrees of explanation can be considered high, since there are always important interpersonal variations between individuals that cannot be captured by these standardized models, as well as unknown but probably significant errors of measurement, which introduce random variation into the data.

In both countries, the largest contribution comes from education – over 30 per cent – while there is a downward tendency in Brazil (graph 27) and slight upward tendency in India (graph 28). The second largest factor since 2005 is occupation. In both countries the contribution of occupation is rising, as the labour market diversifies, while at the same time the contribution of industrial sector is much less important than occupation and is decreasing.

The influence of labour market segmentation (work type) is significant but not preponderant, accounting for about 10 per cent of inequality in 2012, down from a maximum of 16 per cent in 1993-94, and rather more in Brazil, where it is also in slight decline. In fact it should be considered in conjunction with occupation, since many occupations typically fall within one or other of these labour categories (white collar workers are mostly regular; unskilled labour is casual). Occupation and work type together account for over 30 per cent of wage inequality in India, and almost over 40 per cent in Brazil in the most recent data.

Gender is much more important in India, where it accounted for almost 10 per cent in 2011-12 (though down from 13 per cent in 1993-94) than in Brazil, where it was under 4 per cent (though increasing), showing there is real discrimination or differentiation to the disadvantage of women. Age is also a significant factor in both but its contribution has grown in Brazil and stagnated in India, which may reflect a labour market that favours career

progression in the former, if we are considering age as a proxy for experience.

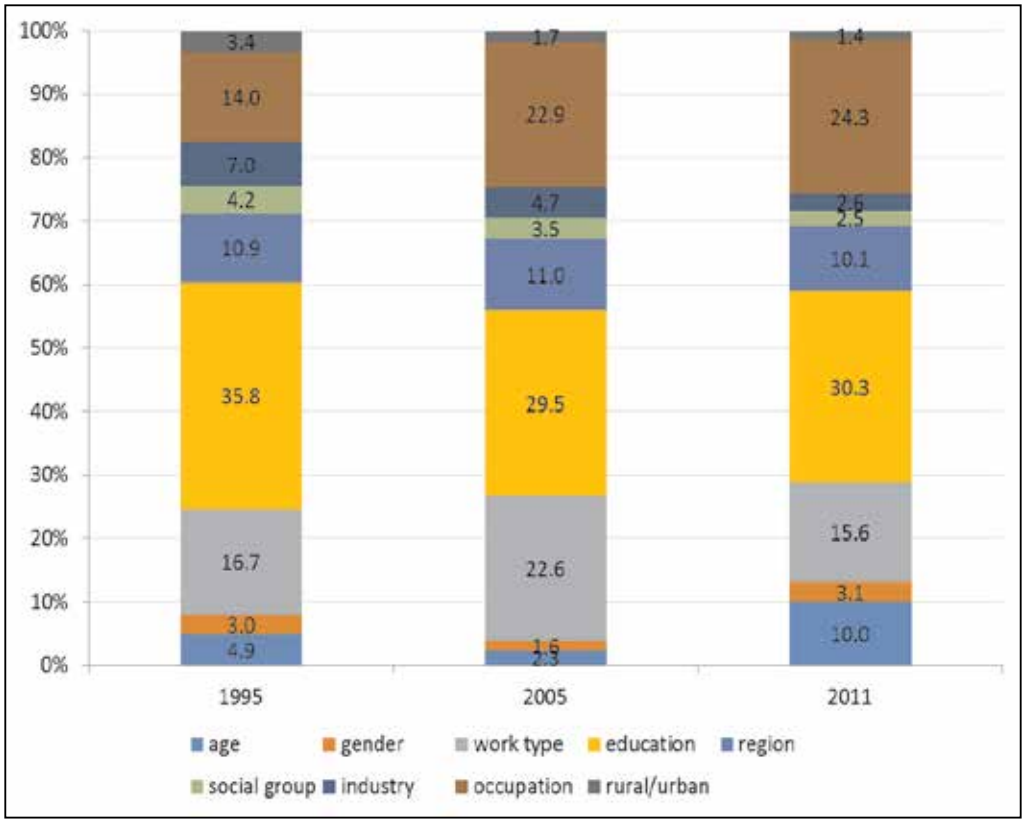
Regional differences were more important in Brazil, where they accounted for around 10 per cent, than in India (around 7 per cent). However, its real impact is probably greater if we consider the differences between states rather than regions. On the other hand, rural-urban differences were more important in India, around 8 per cent in recent years against only 2 per cent in Brazil. If we take region and rural-urban together as an overall indicator of regional disparity, there is not a large difference between the two countries

The largest surprise in these charts comes in the contribution of social differences (race and caste) to wage inequality – quite small in both countries, but especially in India. The breakdown in India is quite limited (SC, ST, Muslims and others) but the small contribution to inequality is still contrary to expectations. It is nevertheless consistent with the finding in section E that discrimination in India operates more at the point of entry to employment than in wage differences of those in work.

The results for gender and social groups also indicate that the inequality within population subgroups is becoming more significant than the inequality between groups, even among those socially vulnerable.

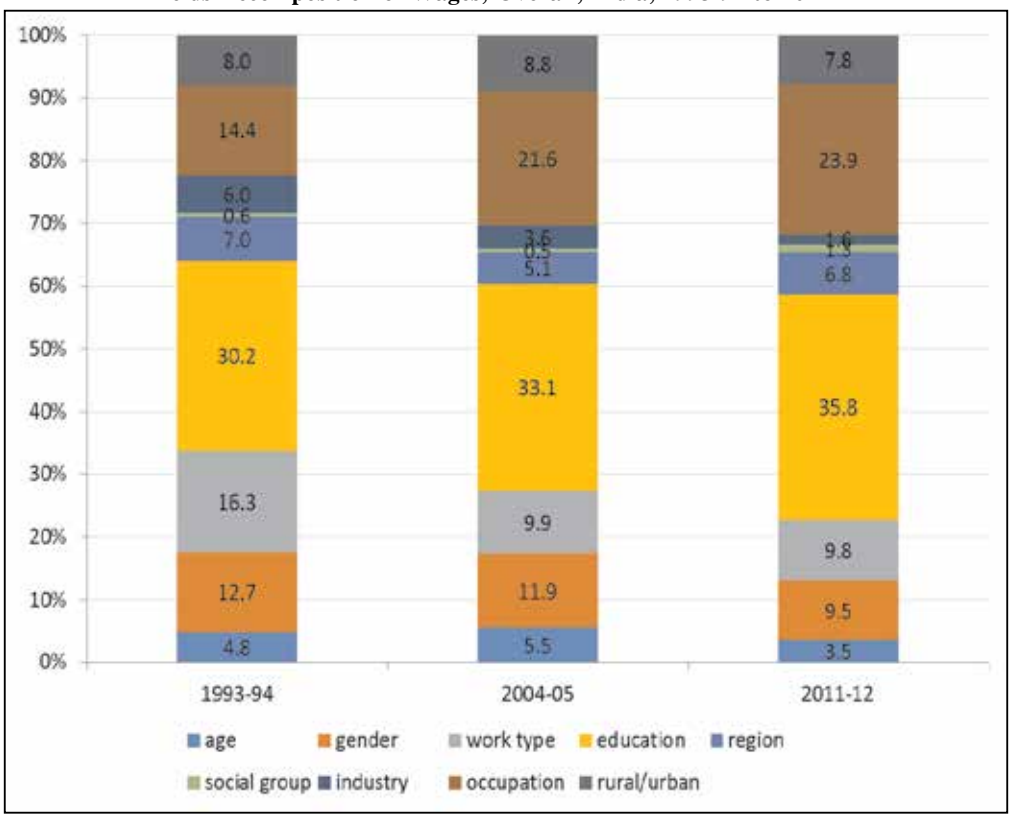
Graph 27

Fields Decomposition of Wages, Overall, Brazil, 1995 to 2011



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

Graph 28
Fields Decomposition of Wages, Overall, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data.

Separate rural and urban analyses suggest that there is more difference between rural and urban areas in the pattern of explanation in each country than there is between the two countries.

The differences on the determinants of wage inequality are noteworthy in rural areas of Brazil (graph 29). In 2011, the main contributor is work type (39.2%), followed by regional inequality (24%). These are quite different results from those of the overall decomposition, and reflect the peculiar composition of the agricultural labour force in Brazil, in which the informality is still predominant. In addition to these factors, education (9.6%) is also behind occupation (10.5%) and industry (9.7%), which also reflects the large differences in productivity, qualification and wages of rural workers of traditional agricultural activities compared to those of the export agribusiness.

In rural India (graph 30), education remains the main contributor to wage inequality (27.1%) in 2011-12, but at a much lower level and is closely followed by gender (20.3%). As in Brazil, occupation (16.8%), industry (10%) and region (15.4%) are quite relevant in rural areas of India; however, work type (6.9%) is much less important, although the contribution of this variable is much higher if we consider the total work force in Brazil,

which includes self-employed, domestic workers, public employee and employers (Barbosa, Cacciamali, Tatei et al., 2015). Since we do not have data on the income of the self-employed in India, we cannot pursue this issue further here.

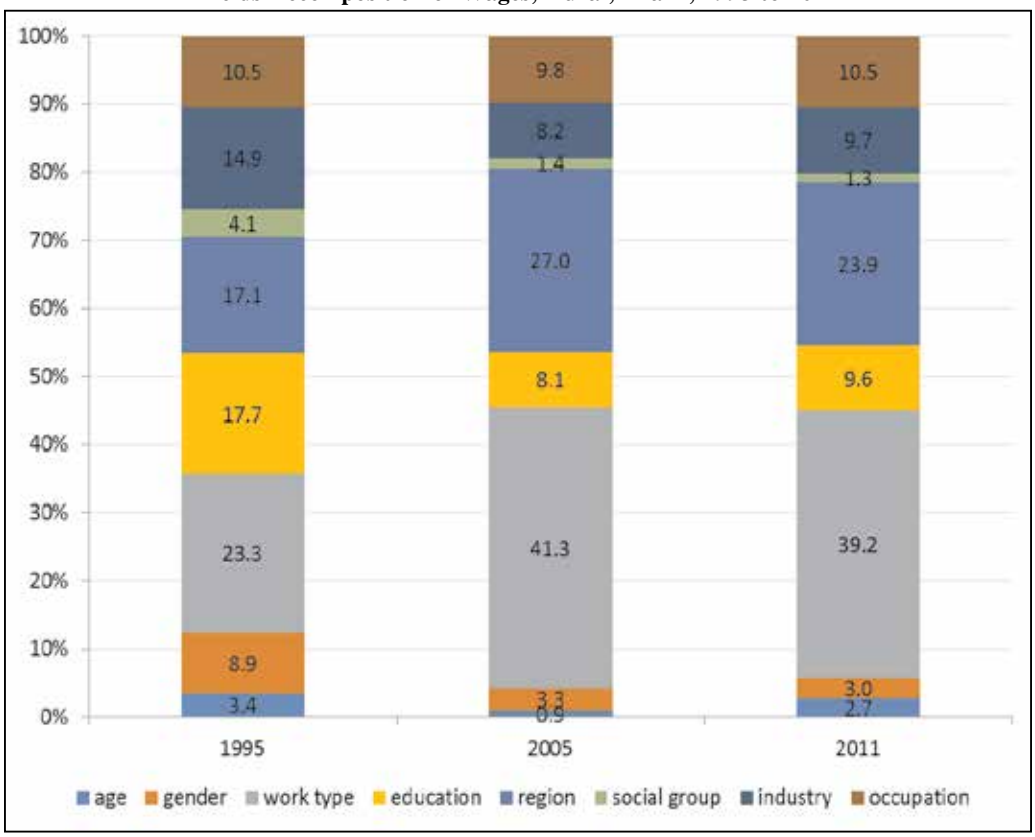
The estimates for the determinants of wage inequality in urban areas are quite similar to the overall results in Brazil (graph 31), which is not really surprising since urbanization levels are high. In fact, only region, industry and work type show contributions below those in the overall analysis. On the other hand, although India is not as urbanized, the results for urban areas in India are similar to Brazil (graph 32). The contribution to inequality of variables related to professional skills (education and age) are more prevalent than in rural areas, as well as occupation, indicating a more diverse and specialized labour market; while gender and work type are relatively less important.

These results indicate that the pattern of wage inequality is quite different in areas with a more limited and less dynamic labour market. In rural areas of Brazil, employment characteristics are more relevant than the individual characteristics. This also reinforces the regional differences brought about by agribusiness in certain parts of the country. In India, the results highlight the difficulties faced by women in rural areas, as gender differentials account for a very substantial share of wage inequality – 20 per cent in rural areas, compared with 6 per cent in urban.

In general, the results of the multivariate analysis are consistent with the bivariate analysis in preceding sections. In other words, the interdependence between these variables does not seem to undermine the conclusions based on bivariate relationships. The weak effect of social group in India is perhaps the main exception to this conclusion. It suggests is that the influence of social group on wage inequality comes not directly as discrimination, but through the impact on access to education and occupation. On the other hand, the substantial and persistent influence of gender in this analysis suggests that women are subject to significant direct wage discrimination, and that this is an important factor in wage inequality overall.

Graph 29

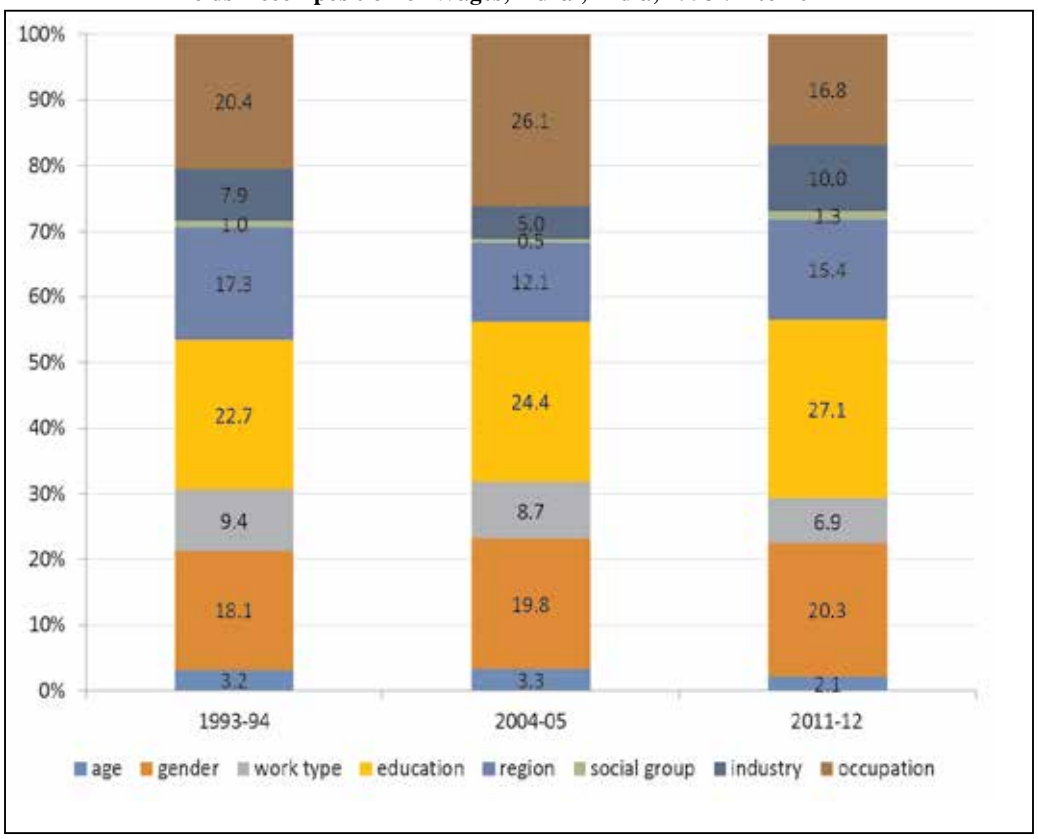
Fields Decomposition of Wages, Rural, Brazil, 1995 to 2011



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

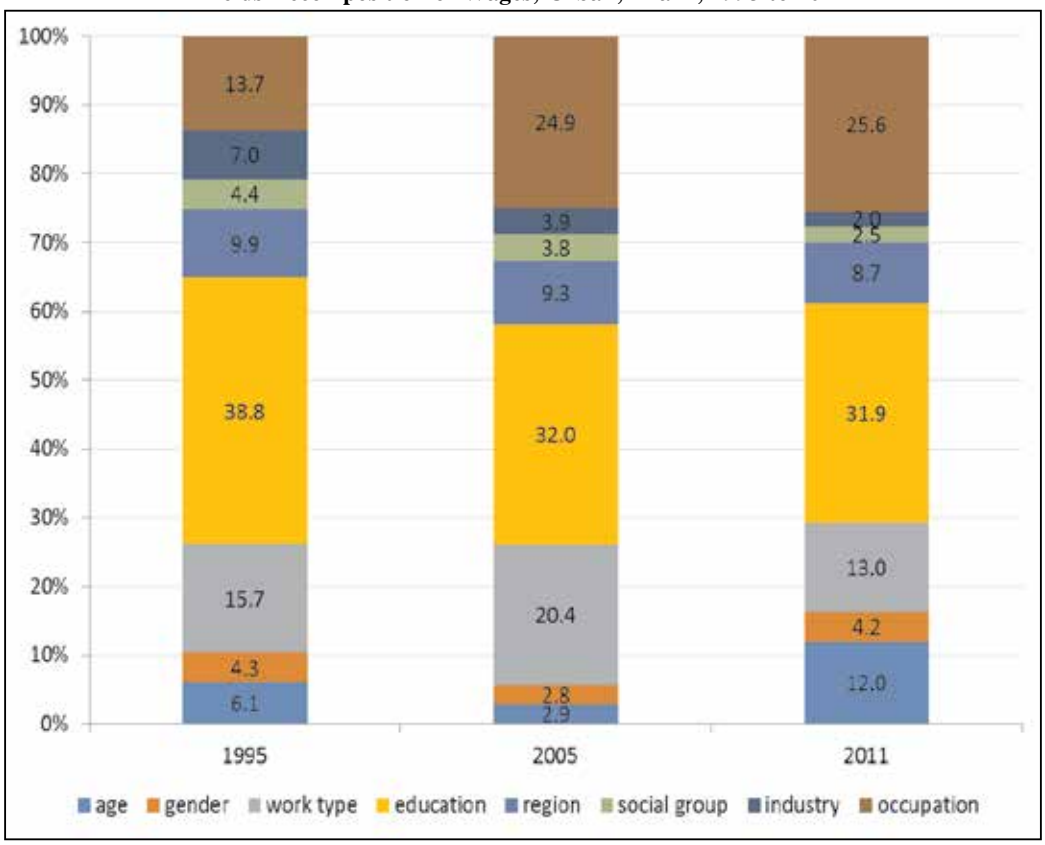
Graph 30

Fields Decomposition of Wages, Rural, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data.

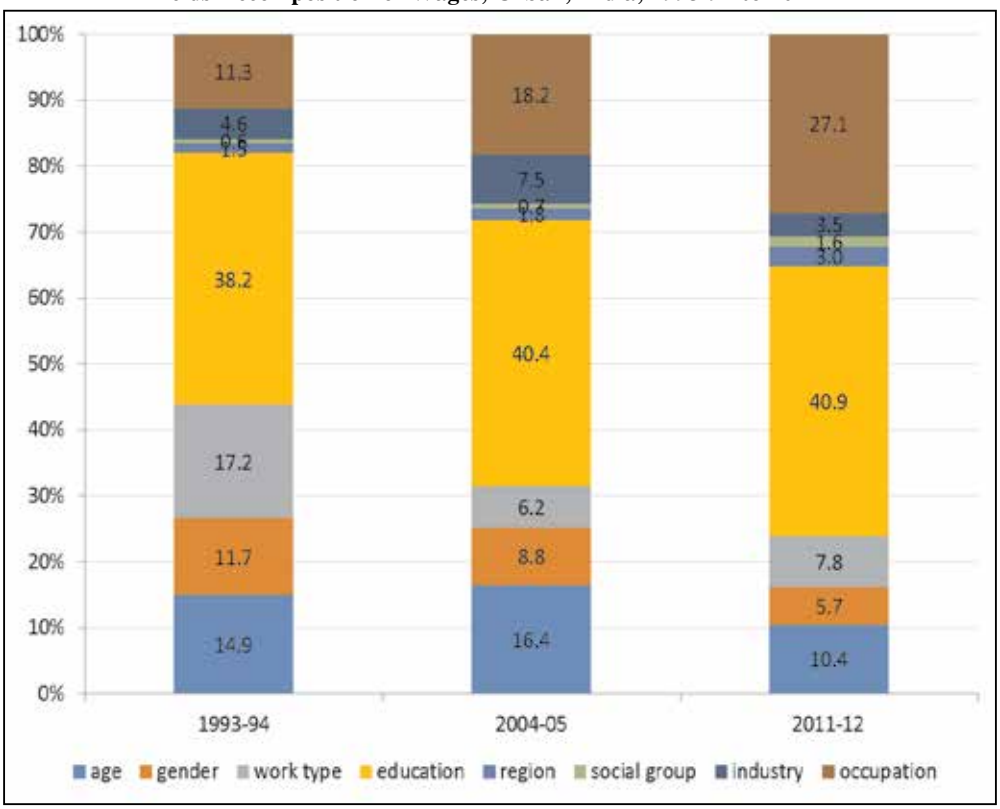
Graph 31
Fields Decomposition of Wages, Urban, Brazil, 1995 to 2011



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

Graph 32

Fields Decomposition of Wages, Urban, India, 1993-94 to 2011-12



Source: Computed from NSS unit level data.

G. FINAL REMARKS

This comparative analysis of wage inequality in Brazil and India throws up both similarities and differences.

Brazil and India have quite segmented labour markets in which wage relationships are somewhat overshadowed by the high degree of informality, especially in India. The labour market restricted to wage earners is relatively less heterogeneous, but even this "privileged" part of the labour market still reflects many of the existing cleavages in society, such as the disadvantaged position of women, the vulnerable social groups, the less educated and the residents of poor and economically less dynamic regions.

In both countries, our estimates derived from the Theil index showed that these segmentations have become relatively less important over time (decrease of the share of inequality corresponding to differences between groups), but even so they persist. This trend has occurred in opposite economic environments of falling wage inequality (Brazil) and increasing wage inequality (urban India). This behaviour is mainly due to the specific economic growth regime of each country in the 2000s, and among the main features, we can highlight at least three. In Brazil, economic growth was slow, the formal sector offered the greatest number of jobs, especially for unskilled workers, and the economic policy involved a rise in the minimum wage. In India, economic growth was high, most job opportunities in urban areas were for casual workers and the casual labour market was largely unregulated. In Brazil, the fall in wage differences between registered and unregistered workers is one of the reasons for the decline in wage inequality, while in India, the slow reduction in the gaps between casual and regular wages, along with an increasing dispersion of regular wages, is one of the factors explaining why wage inequality is increasing, especially in urban areas.

In India, the high concentration of the population in rural areas is also one of the major structural features that results in differences in the pattern of inequality between the two

countries. In urban areas, women have more job opportunities. The patriarchal tradition, the occupational structure - much more narrow in rural areas - and the difficulties that women face to migrate to urban areas have contributed to maintain the pattern of gender inequality. In India, only a minority of women gain access to the labour market. The ratio of female to male wages has shown opposite trends in urban and rural areas, as has the contribution of gender differences to wage inequality. In urban areas, the trend is descending, while in rural areas it is rising. Nevertheless, the pay gap tends to be higher among urban workers. This finding reflects two aspects of urban areas: broader occupational stratification and wider salary range, and less access for women in good jobs. In Brazil, the rate of female participation in the workforce is higher than in India, the structure of employment is predominantly urban, opportunity and access for women and non-whites are wider than in India and there are no cultural obstacles for women to access any level of education. The contribution to inequality of sex differences shows a downward trend, although this outcome hides difficulties faced by women in the labour market, such as lower average wages compared to men with similar qualifications, or less access to the top-level positions in companies ("glass ceiling").

According to the decomposition of the Theil index, the contribution of region, education and social group (caste for India, and white and non-white for Brazil) to wage inequality tends to repeats the gender pattern in both countries. In India, in rural areas, the contribution of these variables is trending downward, while in urban areas it is rising. On the other hand, in Brazil, these three additional variables show downward trends both in rural and urban areas.

We must stress that the contribution to overall wage inequality of the differences between genders and social groups is relatively small. However, the statistical indices fail to reflect other important factors, especially regarding the access and opportunities for the most vulnerable groups. Differentials in access to employment between castes and genders is as important as wage differences.

In respect of education, the expansion of secondary education and the increase in the average schooling of Brazilian workers led to a compression of wages, reflected in the falling of wage ratios across educational levels. In contrast, in India there was an increase of the wage gap between the most educated workers and the rest, while the gap between other educational levels fell to some extent. These factors contributed to the increasing of wage inequality in urban areas, where education is more significant variable.

In India, labour market segmentation is reinforced as a large proportion of wage jobs are casual and daily paid; only a minority of jobs are regular, and not all of these are formal in the sense that they are protected by contract and social security. On the other hand, in Brazil, the registered worker is fully protected by the labour legislation, and even unregistered workers have some labour rights.

These results are broadly replicated in the multivariate analysis, where in both countries education is found to be the main component that explains wage inequality – though we also need to explain inequality in education. The multivariate analysis gives somewhat more importance to gender and somewhat less to social group.

Overall we can see that in both countries the labour market is an important mechanism for differentiation, and plays a significant role in the degree and structure of inequality. This is an element which both countries share, and the analysis above highlights many relationships which need to be addressed by policy makers in both countries.

Of course, it should be borne in mind that we have restricted ourselves in this paper to one method and one data source. The data source consists of large scale national household surveys in each country, and the method consists of dissecting the patterns of wage inequality that these data sources depict, and their changes over time. Inequality is much wider than that, both in terms of its content (not only wages but incomes, expenditure, wealth, access to public services and other indicators) and in terms of its sources. For inequality is embedded in institutions and power relations in ways that can hardly be addressed with these quantitative techniques. In another paper (Barbosa, Cacciamali, Chakrabarty et al, 2015) we examine inequality in its wider economic, social and political setting, and connect it with these quantitative results. It is by drawing on these complementary methods of analysis that we can form an overall understanding of the sources, dimensions and implications of inequality in the two countries.

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ANNEX 1: FIELDS' DECOMPOSITION

Suppose that we have a standard wage (income) equation, where wage is expressed as a function of a number of relevant explanatory variables based on theory. Given this estimated equation, Fields (2002) asks how it is possible to use it to "account for" or "decompose" wage/income inequality.

More technically, given a standard Mincerian semi-log equation where log wages or log income is expressed as a function of contributing factors such as age, education, social group among other things, Fields decomposition can directly tell us how much of the inequality can be decomposed to obtain contributions of various contributing explanatory variables based on a standard semi-logarithmic wage (or income) regression model. Fields also notes that under reasonable assumptions, this method is independent of the measure of inequality chosen and is based on robust decomposition rules derived axiomatically. Here, I provide the method for variance decomposition based on Fields (2002). Methods for other inequality measures are obtained in a similar way.

Consider the equation of a household "i" at time "t", using J explanatory variables.

$$\ln Yit = = at \text{ `}Zit \qquad (1)$$

where at and Zit represent the coefficient and the regressor matrices respectively which are of the following form:

$$at = [\alpha t \ \beta 1t \ \beta 2t \ \ldots \ \beta Jt \ 1] \text{ and } Zit = [1 \ Xi1t \ Xi2t \ \ldots \ XiJt \ \varepsilon it] .$$

As a first step for decomposition, obtain variances of both sides of equation 1. On the left-hand side is a simple measure of inequality, the log-variance, by definition. The variance of the right-hand side can be manipulated in the following way. Since,

$$\ln Y = \sum_{j=1}^{J+2} a_j Z_j$$

we can rewrite Var(Y) as the following

$$\operatorname{cov}\left[\sum_{j=1}^{J+2} a_j Z_j, \ln Y\right] = \sum_{j=1}^{J+2} \operatorname{cov}[a_j Z_j, \ln Y]$$

Where the left hand side of this equation is just the variance of Y and the right hand side is based on some theorems of covariance (Mood, Graybill, and Boes, 1974). So we have

$$\sigma^2(\ln Y) = \sum_{j=1}^{J+2} \operatorname{cov}[a_j Z_j, \ln Y]$$

Dividing by σ2 (ln Y) throughout, we get the following:

$$100\% = \frac{\sum_{j=1}^{J+2} \operatorname{cov}[a_j Z_j, \ln Y]}{\sigma^2(\ln Y)} \equiv \sum_{j=1}^{J+2} S_j \ (\ln Y)$$

Here, we define Sj (ln Y) as the "relative inequality weight" given by:

$$s_j(\ln Y) = \text{cov}\,[a_j Z_j, \ln Y] / \sigma^2 (\ln Y).$$

Note that ignoring the last element of Z, the remaining relative factor inequality weights sums exactly to R2(ln Y) of the original regression equation (1), from basic formulas we know about regression analysis. We also know that the correlation coefficient (cor) and covariance (cov) and variances (var) are related in the following way:

$$\text{cor}\,[ajZj, \ln Y] = \text{cov}\,[ajZj\ , \ln Y] / \sigma(ajZj)\ \sigma\ (\ln Y),$$

Hence we can rewrite,

$$s_j(\ln Y) = \text{cov}\,[a_j Z_j, \ln Y] / \sigma^2 (\ln Y) = \frac{a_j * \sigma(Z_j) * cor[Z_j, \ln Y]}{\sigma(\ln Y)}$$

The fraction of the R^2 explained by the jth explanatory factor, $P_j(\ln Y)$ is given by $P_j(\ln Y) = S_j (\ln Y) / R^2 (\ln Y)$. Note that by definition, the sum of P_j is R^2. These set of equations provide the full and exact decomposition of the log-variance.

ANNEX 2: REGRESSION OF LOG WAGE ON RHS VARIABLES. FULL RESULTS FOR BRAZIL

Brazil, overall, 1995

Source	SS	df	MS
Model	30698,2496	30	1023,27499
Residual	25931,8744	67213	,385816351
Total	56630,124	67243	,842171289

Number of obs = 67244
F(30, 67213) = 2652,23
Prob > F = 0,0000
R-squared = 0,5421
Adj R-squared = 0,5419
Root MSE = ,62114

lnwage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
v8005	,0084171	,0001515	55,56	0,000	,0081202	,0087141
mulher	-,4078808	,0059802	-68,21	0,000	-,4196019	-,3961597
ocup3	-,4029198	,0056046	-71,89	0,000	-,4139048	-,3919348
educ1	-1,419647	,0148985	-95,29	0,000	-1,448848	-1,390446
educ2	-1,269719	,0125484	-101,19	0,000	-1,294314	-1,245124
educ3	-1,067266	,012818	-83,26	0,000	-1,092389	-1,042143
educ4	-,7256196	,0121041	-59,95	0,000	-,7493436	-,7018956
reg1	-,1596452	,0131717	-12,12	0,000	-,1854616	-,1338287
reg2	-,4055771	,0068153	-59,51	0,000	-,4189351	-,3922191
reg4	-,0963056	,0068715	-14,02	0,000	-,1097736	-,0828375
reg5	-,0543051	,0098772	-5,50	0,000	-,0736645	-,0349457
cor_b	,1446736	,0054634	26,48	0,000	,1339652	,1553819
ativ1	-,2083006	,0202544	-10,28	0,000	-,2479993	-,168602
ativ3	-,0428353	,0107748	-3,98	0,000	-,0639539	-,0217166
ativ4	,1140604	,0177326	6,43	0,000	,0793045	,1488164
ativ5	-,1981148	,0100037	-19,80	0,000	-,217722	-,1785075
ativ6	-,1348505	,0095557	-14,11	0,000	-,1535797	-,1161213
ativ7	-,1601331	,013584	-11,79	0,000	-,1867577	-,1335085
ativ8	-,0140318	,0134339	-1,04	0,296	-,0403621	,0122986
ativ9	-,3528267	,0109829	-32,13	0,000	-,3743532	-,3313003
ativ10	-,2115777	,0142726	-14,82	0,000	-,2395521	-,1836034
ativ11	,2308004	,0155446	14,85	0,000	,2003329	,2612679
cat1	,011294	,011739	0,96	0,336	-,0117144	,0343024
cat3	-,4126266	,0204179	-20,21	0,000	-,4526457	-,3726075
cat4	-,239562	,0096804	-24,75	0,000	-,2585356	-,2205883
cat5	-,2155445	,0111035	-19,41	0,000	-,2373074	-,1937816
cat6	-,0395178	,0136098	-2,90	0,004	-,066193	-,0128426
cat7	-,2314435	,0147262	-15,72	0,000	-,2603068	-,2025802
cat8	-,430654	,0096228	-44,75	0,000	-,4495147	-,4117933
urbano	,1635294	,0081363	20,10	0,000	,1475822	,1794766
_cons	6,748024	,0171718	392,97	0,000	6,714368	6,781681

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

Brazil, rural, 1995

Source	SS	df	MS		
Model	23583,6591	29	813,229625	Number of obs	= 57997
Residual	22971,6937	57967	,39628916	F(29, 57967)	= 2052,11
				Prob > F	= 0,0000
Total	46555,3529	57996	,802733858	R-squared	= 0,5066
				Adj R-squared	= 0,5063
				Root MSE	= ,62952

lnwage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
v8005	,0084326	,0001601	52,67	0,000	,0081188	,0087465
mulher	-,4006695	,006357	-63,03	0,000	-,4131293	-,3882097
ocup3	-,4019026	,0061408	-65,45	0,000	-,4139385	-,3898666
educ1	-1,419007	,0162634	-87,25	0,000	-1,450884	-1,387131
educ2	-1,24774	,0129244	-96,54	0,000	-1,273072	-1,222408
educ3	-1,047903	,0131615	-79,62	0,000	-1,073699	-1,022106
educ4	-,7125664	,0123693	-57,61	0,000	-,7368102	-,6883226
reg1	-,173961	,013657	-12,74	0,000	-,2007287	-,1471933
reg2	-,4159	,0076613	-54,29	0,000	-,4309161	-,4008838
reg4	-,1070325	,0073996	-14,46	0,000	-,1215358	-,0925292
reg5	-,0876649	,010854	-8,08	0,000	-,1089388	-,0663909
cor_b	,1486113	,0059624	24,92	0,000	,1369249	,1602977
ativ1	-,2366467	,0275413	-8,59	0,000	-,2906277	-,1826656
ativ3	-,0559317	,0114309	-4,89	0,000	-,0783363	-,033527
ativ4	,1241729	,0189169	6,56	0,000	,0870956	,1612501
ativ5	-,1960626	,0103204	-19,00	0,000	-,2162905	-,1758346
ativ6	-,1402837	,0099388	-14,11	0,000	-,1597639	-,1208036
ativ7	-,1577826	,01394	-11,32	0,000	-,1851052	-,1304601
ativ8	-,0124423	,0139109	-0,89	0,371	-,0397078	,0148232
ativ9	-,3260157	,0114722	-28,42	0,000	-,3485012	-,3035301
ativ10	-,1934198	,0150537	-12,85	0,000	-,2229252	-,1639145
ativ11	,2361627	,0158534	14,90	0,000	,20509	,2672354
cat1	,039892	,0122062	3,27	0,001	,0159678	,0638162
cat3	-,3960669	,0282098	-14,04	0,000	-,4513581	-,3407756
cat4	-,2305623	,0100863	-22,86	0,000	-,2503315	-,2107932
cat5	-,2094493	,0113942	-18,38	0,000	-,2317819	-,1871167
cat6	-,035735	,0141547	-2,52	0,012	-,0634782	-,0079918
cat7	-,2131971	,0154757	-13,78	0,000	-,2435295	-,1828648
cat8	-,4297768	,0100624	-42,71	0,000	-,4494991	-,4100545
_cons	6,887089	,0157404	437,54	0,000	6,856238	6,91794

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

Brazil, urban, 1995

Source	SS	df	MS		
Model	23583,6591	29	813,229625	Number of obs	= 57997
Residual	22971,6937	57967	,39628916	F(29, 57967)	= 2052,11
				Prob > F	= 0,0000
Total	46555,3529	57996	,802733858	R-squared	= 0,5066
				Adj R-squared	= 0,5063
				Root MSE	= ,62952

lnwage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
v8005	,0084326	,0001601	52,67	0,000	,0081188	,0087465
mulher	-,4006695	,006357	-63,03	0,000	-,4131293	-,3882097
ocup3	-,4019026	,0061408	-65,45	0,000	-,4139385	-,3898666
educ1	-1,419007	,0162634	-87,25	0,000	-1,450884	-1,387131
educ2	-1,24774	,0129244	-96,54	0,000	-1,273072	-1,222408
educ3	-1,047903	,0131615	-79,62	0,000	-1,073699	-1,022106
educ4	-,7125664	,0123693	-57,61	0,000	-,7368102	-,6883226
reg1	-,173961	,013657	-12,74	0,000	-,2007287	-,1471933
reg2	-,4159	,0076613	-54,29	0,000	-,4309161	-,4008838
reg4	-,1070325	,0073996	-14,46	0,000	-,1215358	-,0925292
reg5	-,0876649	,010854	-8,08	0,000	-,1089388	-,0663909
cor_b	,1486113	,0059624	24,92	0,000	,1369249	,1602977
ativ1	-,2366467	,0275413	-8,59	0,000	-,2906277	-,1826656
ativ3	-,0559317	,0114309	-4,89	0,000	-,0783363	-,033527
ativ4	,1241729	,0189169	6,56	0,000	,0870956	,1612501
ativ5	-,1960626	,0103204	-19,00	0,000	-,2162905	-,1758346
ativ6	-,1402837	,0099388	-14,11	0,000	-,1597639	-,1208036
ativ7	-,1577826	,01394	-11,32	0,000	-,1851052	-,1304601
ativ8	-,0124423	,0139109	-0,89	0,371	-,0397078	,0148232
ativ9	-,3260157	,0114722	-28,42	0,000	-,3485012	-,3035301
ativ10	-,1934198	,0150537	-12,85	0,000	-,2229252	-,1639145
ativ11	,2361627	,0158534	14,90	0,000	,20509	,2672354
cat1	,039892	,0122062	3,27	0,001	,0159678	,0638162
cat3	-,3960669	,0282098	-14,04	0,000	-,4513581	-,3407756
cat4	-,2305623	,0100863	-22,86	0,000	-,2503315	-,2107932
cat5	-,2094493	,0113942	-18,38	0,000	-,2317819	-,1871167
cat6	-,035735	,0141547	-2,52	0,012	-,0634782	-,0079918
cat7	-,2131971	,0154757	-13,78	0,000	-,2435295	-,1828648
cat8	-,4297768	,0100624	-42,71	0,000	-,4494991	-,4100545
_cons	6,887089	,0157404	437,54	0,000	6,856238	6,91794

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

Brazil, overall, 2005

Source	SS	df	MS		
Model	29380,5092	33	890,318462	Number of obs =	90747
Residual	28514,1451	90713	,314333614	F(33, 90713) =	2832,40
				Prob > F =	0,0000
Total	57894,6544	90746	,637985744	R-squared =	0,5075
				Adj R-squared =	0,5073
				Root MSE =	,56065

lnwage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
v8005	,0029822	,0000748	39,85	0,000	,0028355	,0031289
mulher	-,2830366	,0044654	-63,38	0,000	-,2917888	-,2742843
ocup3	-,4607786	,0042399	-108,68	0,000	-,4690888	-,4524684
educ1	-,9329993	,0120797	-77,24	0,000	-,9566755	-,9093232
educ2	-,8667446	,0093468	-92,73	0,000	-,8850643	-,8484249
educ3	-,8010889	,0093528	-85,65	0,000	-,8194202	-,7827576
educ4	-,5910795	,0083389	-70,88	0,000	-,6074237	-,5747353
reg1	-,0531275	,0081469	-6,52	0,000	-,0690953	-,0371596
reg2	-,3541662	,0051498	-68,77	0,000	-,3642596	-,3440727
reg4	-,0392281	,0054392	-7,21	0,000	-,0498889	-,0285674
reg5	,0255996	,0073619	3,48	0,001	,0111704	,0400289
cor_b	,1122637	,0041145	27,28	0,000	,1041992	,1203282
ativ1	-,369382	,0250277	-14,76	0,000	-,418436	-,320328
ativ3	-,2598215	,0171924	-15,11	0,000	-,2935184	-,2261246
ativ4	-,2954494	,018365	-16,09	0,000	-,3314447	-,2594541
ativ5	-,3686591	,0174385	-21,14	0,000	-,4028384	-,3344799
ativ6	-,3322325	,0195124	-17,03	0,000	-,3704767	-,2939883
ativ7	-,1096778	,0182997	-5,99	0,000	-,1455451	-,0738105
ativ8	-,1969223	,0194594	-10,12	0,000	-,2350625	-,158782
ativ9	-,3502107	,0180381	-19,42	0,000	-,3855651	-,3148562
ativ10	0	(omitted)				
ativ11	-,3038555	,019383	-15,68	0,000	-,341846	-,265865
ativ12	-,2248216	,0178199	-12,62	0,000	-,2597484	-,1898947
ativ13	-,4598411	,0959991	-4,79	0,000	-,6479983	-,2716838
cat2	-,3132401	,01245	-25,16	0,000	-,337642	-,2888382
cat3	-,4899005	,0114454	-42,80	0,000	-,5123335	-,4674676
cat4	-,731303	,0107753	-67,87	0,000	-,7524226	-,7101835
cat5	-,8325686	,0111364	-74,76	0,000	-,8543957	-,8107414
cat6	-,7636918	,0118572	-64,41	0,000	-,7869318	-,7404519
cat7	-,8775374	,0202553	-43,32	0,000	-,9172375	-,8378372
cat8	-,7251847	,0107689	-67,34	0,000	-,7462917	-,7040777
cat9	,037124	,0656242	0,57	0,572	-,0914988	,1657469
cat10	-,7703551	,0891927	-8,64	0,000	-,945172	-,5955382
urbano	,0884426	,0068462	12,92	0,000	,075024	,1018611
_cons	7,96504	,0213396	373,25	0,000	7,923215	8,006866

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

Brazil, rural, 2005

Source	SS	df	MS		
Model	2624,61532	31	84,6650104	Number of obs =	10443
Residual	3209,03422	10411	,308234965	F(31, 10411) =	274,68
				Prob > F =	0,0000
Total	5833,64954	10442	,558671667	R-squared =	0,4499
				Adj R-squared =	0,4483
				Root MSE =	,55519

lnwage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
v8005	,0013251	,0001807	7,33	0,000	,0009708	,0016794
mulher	-,3583659	,0159821	-22,42	0,000	-,3896939	-,3270378
ocup3	-,5665998	,0123945	-45,71	0,000	-,5908953	-,5423042
educ1	-,5022409	,0616215	-8,15	0,000	-,6230309	-,3814509
educ2	-,4819314	,0603037	-7,99	0,000	-,6001382	-,3637246
educ3	-,4417806	,0611762	-7,22	0,000	-,5616977	-,3218635
educ4	-,2419876	,060151	-4,02	0,000	-,3598952	-,1240801
reg1	,1202206	,0207277	5,80	0,000	,0795902	,1608509
reg2	-,3666127	,0142135	-25,79	0,000	-,3944739	-,3387514
reg4	,0415732	,0182588	2,28	0,023	,0057824	,077364
reg5	,2283369	,0230001	9,93	0,000	,1832523	,2734215
cor_b	,054248	,0123678	4,39	0,000	,0300046	,0784913
ativ1	-,4175685	,0637991	-6,55	0,000	-,542627	-,2925099
ativ3	-,3363663	,0542776	-6,20	0,000	-,4427608	-,2299719
ativ4	-,2517937	,0576034	-4,37	0,000	-,3647073	-,1388801
ativ5	-,3005592	,0588044	-5,11	0,000	-,4158271	-,1852914
ativ6	-,2923346	,0695838	-4,20	0,000	-,4287322	-,155937
ativ7	-,109729	,0624752	-1,76	0,079	-,2321924	,0127343
ativ8	-,1476927	,0647006	-2,28	0,022	-,2745182	-,0208672
ativ9	-,1319517	,0615107	-2,15	0,032	-,2525244	-,011379
ativ10	0	(omitted)				
ativ11	-,3076753	,069651	-4,42	0,000	-,4442047	-,1711459
ativ12	-,2315136	,0669641	-3,46	0,001	-,362776	-,1002512
ativ13	0	(omitted)				
cat2	-,298148	,0691537	-4,31	0,000	-,4337026	-,1625934
cat3	-,449984	,0528479	-8,51	0,000	-,5535759	-,346392
cat4	-,5650082	,0539542	-10,47	0,000	-,6707687	-,4592477
cat5	-,6635577	,0482407	-13,76	0,000	-,7581187	-,5689966
cat6	-,734356	,0580072	-12,66	0,000	-,8480612	-,6206507
cat7	-,6771799	,0409801	-16,52	0,000	-,7575088	-,5968511
cat8	-,5937889	,0475649	-12,48	0,000	-,6870252	-,5005525
cat9	,5316651	,3707051	1,43	0,152	-,194988	1,258318
cat10	-1,216008	,517079	-2,35	0,019	-2,229582	-,2024339
_cons	7,554361	,0905	83,47	0,000	7,376963	7,731758

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

Brazil, urban, 2005

Source	SS	df	MS		
Model	23655,4698	32	739,233432	Number of obs =	80304
Residual	25099,9332	80271	,312689927	F(32, 80271) =	2364,11
				Prob > F =	0,0000
Total	48755,403	80303	,607142983	R-squared =	0,4852
				Adj R-squared =	0,4850
				Root MSE =	,55919

lnwage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
v8005	,0033365	,000082	40,67	0,000	,0031757	,0034973
mulher	-,2759249	,0046322	-59,57	0,000	-,285004	-,2668459
ocup3	-,4436677	,0045026	-98,54	0,000	-,4524928	-,4348426
educ1	-,9476819	,0134275	-70,58	0,000	-,9739998	-,921364
educ2	-,8697597	,0095288	-91,28	0,000	-,888436	-,8510834
educ3	-,8016382	,0094895	-84,48	0,000	-,8202375	-,7830389
educ4	-,5918729	,008399	-70,47	0,000	-,6083348	-,575411
reg1	-,0891318	,0088998	-10,02	0,000	-,1065753	-,0716883
reg2	-,3435321	,0055509	-61,89	0,000	-,3544119	-,3326524
reg4	-,0465195	,00568	-8,19	0,000	-,0576523	-,0353868
reg5	,0021034	,0077504	0,27	0,786	-,0130873	,0172941
cor_b	,1192325	,0043475	27,43	0,000	,1107114	,1277537
ativ1	-,3288289	,0291621	-11,28	0,000	-,3859864	-,2716714
ativ3	-,2494766	,0180678	-13,81	0,000	-,2848893	-,2140639
ativ4	-,2983036	,0193061	-15,45	0,000	-,3361434	-,2604637
ativ5	-,3667027	,0182764	-20,06	0,000	-,4025243	-,3308811
ativ6	-,3301757	,0203471	-16,23	0,000	-,3700559	-,2902955
ativ7	-,104382	,0191441	-5,45	0,000	-,1419043	-,0668598
ativ8	-,1954493	,0203813	-9,59	0,000	-,2353966	-,1555021
ativ9	-,3593777	,0188838	-19,03	0,000	-,3963899	-,3223655
ativ10	0	(omitted)				
ativ11	-,3009796	,0202089	-14,89	0,000	-,3405889	-,2613703
ativ12	-,2199695	,0186144	-11,82	0,000	-,2564537	-,1834854
ativ13	-,4603197	,0956265	-4,81	0,000	-,6477471	-,2728923
cat2	-,3158272	,0126263	-25,01	0,000	-,3405747	-,2910797
cat3	-,4938771	,0117027	-42,20	0,000	-,5168144	-,4709398
cat4	-,7381182	,0109881	-67,17	0,000	-,7596547	-,7165816
cat5	-,8437179	,0114436	-73,73	0,000	-,8661473	-,8212885
cat6	-,7655074	,0120891	-63,32	0,000	-,7892019	-,7418128
cat7	-,9321501	,025183	-37,02	0,000	-,9815086	-,8827916
cat8	-,7298977	,0110602	-65,99	0,000	-,7515756	-,7082198
cat9	,0193241	,0663407	0,29	0,771	-,1107033	,1493516
cat10	-,7692833	,090064	-8,54	0,000	-,9458081	-,5927584
_cons	8,037698	,0211582	379,89	0,000	7,996228	8,079168

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

Brazil, overall, 2011

Source	SS	df	MS		
Model	21767,5299	33	659,622118	Number of obs =	87280
Residual	21701,4546	87246	,248738676	F(33, 87246) =	2651,87
				Prob > F =	0,0000
Total	43468,9845	87279	,498046317	R-squared =	0,5008
				Adj R-squared =	0,5006
				Root MSE =	,49874

lnwage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
v8005	,0125494	,0001515	82,82	0,000	,0122524	,0128464
mulher	-,2541021	,0040127	-63,33	0,000	-,2619669	-,2462374
ocup3	-,3463142	,0041517	-83,41	0,000	-,3544516	-,3381768
educ1	-,8317187	,010074	-82,56	0,000	-,8514636	-,8119737
educ2	-,7683069	,0079804	-96,27	0,000	-,7839483	-,7526655
educ3	-,6558672	,0078144	-83,93	0,000	-,6711833	-,6405512
educ4	-,4751953	,0067359	-70,55	0,000	-,4883976	-,4619929
reg1	-,1046236	,0073605	-14,21	0,000	-,1190501	-,0901971
reg2	-,3042124	,004676	-65,06	0,000	-,3133773	-,2950475
reg4	-,0175006	,0048982	-3,57	0,000	-,0271009	-,0079002
reg5	,0141936	,0064229	2,21	0,027	,0016048	,0267825
cor_b	,0789407	,0036739	21,49	0,000	,0717399	,0861416
ativ1	-,3026983	,0244001	-12,41	0,000	-,3505222	-,2548744
ativ3	-,2432908	,0157294	-15,47	0,000	-,2741203	-,2124613
ativ4	-,2129226	,0164483	-12,94	0,000	-,245161	-,1806841
ativ5	-,3188647	,0160854	-19,82	0,000	-,3503919	-,2873376
ativ6	-,2715587	,0173177	-15,68	0,000	-,3055012	-,2376162
ativ7	-,1666419	,0164871	-10,11	0,000	-,1989564	-,1343274
ativ8	-,2284701	,0181063	-12,62	0,000	-,2639583	-,192982
ativ9	-,3889979	,0165324	-23,53	0,000	-,4214012	-,3565945
ativ10	0	(omitted)				
ativ11	-,2790952	,0179529	-15,55	0,000	-,3142828	-,2439076
ativ12	-,2119692	,0161091	-13,16	0,000	-,2435428	-,1803956
ativ13	-,3364241	,0581667	-5,78	0,000	-,4504303	-,2224178
cat2	-,2159647	,0115351	-18,72	0,000	-,2385734	-,193356
cat3	-,4240614	,0112124	-37,82	0,000	-,4460376	-,4020853
cat4	-,6144468	,0104833	-58,61	0,000	-,6349941	-,5938995
cat5	-,7410901	,010714	-69,17	0,000	-,7620896	-,7200907
cat6	-,6113836	,0113707	-53,77	0,000	-,63367	-,5890971
cat7	-,7809637	,0210851	-37,04	0,000	-,8222902	-,7396371
cat8	-,5988579	,0104013	-57,58	0,000	-,6192443	-,5784715
cat9	,2637691	,0261254	10,10	0,000	,2125635	,3149747
cat10	-,540772	,069073	-7,83	0,000	-,6761545	-,4053895
urbano	,0842784	,0068554	12,29	0,000	,0708418	,097715
_cons	7,869758	,0204136	385,51	0,000	7,829747	7,909769

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

Brazil, rural, 2011

Source	SS	df	MS		
Model	1626,50655	32	50,8283296	Number of obs =	7719
Residual	2157,81974	7686	,280746778	F(32, 7686) =	181,05
				Prob > F =	0,0000
Total	3784,32628	7718	,490324732	R-squared =	0,4298
				Adj R-squared =	0,4274
				Root MSE =	,52986

lnwage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
v8005	,0065452	,0005374	12,18	0,000	,0054918	,0075987
mulher	-,3157023	,0174359	-18,11	0,000	-,3498815	-,2815231
ocup3	-,4871916	,0138858	-35,09	0,000	-,5144116	-,4599717
educ1	-,4682821	,0468912	-9,99	0,000	-,5602017	-,3763625
educ2	-,3951364	,0447253	-8,83	0,000	-,4828102	-,3074625
educ3	-,3281417	,0457072	-7,18	0,000	-,4177403	-,238543
educ4	-,1917151	,0436731	-4,39	0,000	-,2773263	-,1061039
reg1	-,0203944	,0228578	-0,89	0,372	-,0652019	,024413
reg2	-,3601243	,0163381	-22,04	0,000	-,3921515	-,3280972
reg4	-,0000477	,0196583	-0,00	0,998	-,0385834	,038488
reg5	,1747104	,026797	6,52	0,000	,1221809	,2272398
cor_b	,0446004	,013848	3,22	0,001	,0174546	,0717462
ativ1	-,3276052	,0634592	-5,16	0,000	-,4520025	-,2032079
ativ3	-,2407245	,0546656	-4,40	0,000	-,3478839	-,1335651
ativ4	-,0842016	,0566176	-1,49	0,137	-,1951875	,0267842
ativ5	-,2710967	,0601483	-4,51	0,000	-,3890039	-,1531896
ativ6	-,2299359	,0670902	-3,43	0,001	-,3614511	-,0984208
ativ7	-,0464902	,0619636	-0,75	0,453	-,1679557	,0749754
ativ8	,0018947	,0641951	0,03	0,976	-,1239452	,1277345
ativ9	-,0282597	,0630644	-0,45	0,654	-,151883	,0953637
ativ10	0	(omitted)				
ativ11	-,180062	,0803497	-2,24	0,025	-,3375693	-,0225548
ativ12	-,1103476	,0633853	-1,74	0,082	-,2346002	,0139049
ativ13	-,1190916	,2165404	-0,55	0,582	-,5435699	,3053868
cat2	-,2487287	,0685655	-3,63	0,000	-,3831359	-,1143216
cat3	-,3687268	,0596841	-6,18	0,000	-,4857238	-,2517297
cat4	-,4079062	,057401	-7,11	0,000	-,5204278	-,2953845
cat5	-,5400759	,0540137	-10,00	0,000	-,6459575	-,4341943
cat6	-,4724039	,0615089	-7,68	0,000	-,5929782	-,3518296
cat7	-,5269514	,0491802	-10,71	0,000	-,623358	-,4305448
cat8	-,4135254	,0516285	-8,01	0,000	-,5147313	-,3123194
cat9	,4017375	,1461239	2,75	0,006	,1152948	,6881803
cat10	-,264438	,1587647	-1,67	0,096	-,5756601	,0467841
_cons	7,597862	,0851114	89,27	0,000	7,43102	7,764703

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

Brazil, urban, 2011

Source	SS	df	MS		
Model	18459,9293	32	576,872789	Number of obs =	79561
Residual	19358,0952	79528	,243412323	F(32, 79528) =	2369,94
				Prob > F =	0,0000
Total	37818,0245	79560	,475339674	R-squared =	0,4881
				Adj R-squared =	0,4879
				Root MSE =	,49337

lnwage	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
v8005	,013167	,0001574	83,66	0,000	,0128585	,0134755
mulher	-,2493317	,0040954	-60,88	0,000	-,2573587	-,2413047
ocup3	-,3275519	,0043458	-75,37	0,000	-,3360696	-,3190341
educ1	-,8273901	,0107006	-77,32	0,000	-,8483633	-,806417
educ2	-,784569	,0081432	-96,35	0,000	-,8005295	-,7686084
educ3	-,6637146	,0078995	-84,02	0,000	-,6791977	-,6482316
educ4	-,4792459	,0067643	-70,85	0,000	-,4925038	-,465988
reg1	-,1203587	,0078171	-15,40	0,000	-,1356802	-,1050372
reg2	-,2950944	,0048931	-60,31	0,000	-,3046849	-,285504
reg4	-,0179321	,0050345	-3,56	0,000	-,0277996	-,0080646
reg5	,000953	,006575	0,14	0,885	-,011934	,0138399
cor_b	,0799951	,0037904	21,10	0,000	,072566	,0874242
ativ1	-,2453094	,0283894	-8,64	0,000	-,3009524	-,1896664
ativ3	-,2435676	,0163651	-14,88	0,000	-,2756431	-,2114922
ativ4	-,2255565	,0171191	-13,18	0,000	-,2591098	-,1920032
ativ5	-,3222723	,0166894	-19,31	0,000	-,3549834	-,2895612
ativ6	-,2740412	,0179147	-15,30	0,000	-,3091538	-,2389286
ativ7	-,172647	,0170939	-10,10	0,000	-,206151	-,139143
ativ8	-,247548	,0188123	-13,16	0,000	-,2844201	-,210676
ativ9	-,4051581	,0171313	-23,65	0,000	-,4387353	-,371581
ativ10	0	(omitted)				
ativ11	-,2876836	,0184984	-15,55	0,000	-,3239403	-,2514269
ativ12	-,2183155	,016696	-13,08	0,000	-,2510395	-,1855915
ativ13	-,3556379	,0601112	-5,92	0,000	-,4734555	-,2378203
cat2	-,2195395	,0116076	-18,91	0,000	-,2422903	-,1967887
cat3	-,4287255	,0113353	-37,82	0,000	-,4509425	-,4065085
cat4	-,6207779	,0105859	-58,64	0,000	-,6415261	-,6000296
cat5	-,751377	,0108645	-69,16	0,000	-,7726714	-,7300826
cat6	-,6166031	,0114839	-53,69	0,000	-,6391115	-,5940948
cat7	-,8327354	,0256659	-32,45	0,000	-,8830405	-,7824303
cat8	-,60721	,0105634	-57,48	0,000	-,6279142	-,5865059
cat9	,2615914	,0263619	9,92	0,000	,2099223	,3132605
cat10	-,5760666	,0779626	-7,39	0,000	-,7288728	-,4232603
_cons	7,944835	,0200457	396,34	0,000	7,905546	7,984125

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

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