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Wage Determination in Northeast Brazil

By

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Abstract

This paper analyzes the labor markets in the states of Pernambuco, Bahia, Ceará, and the Northeast region of Brazil. The findings show a rather heterogeneous impact pattern of individual characteristics on monthly wages across the wage distribution. That is, the magnitude of the affect of a wage determinant is different depending on whether the worker is placed in the lower, median or top of the wage distribution. The findings reveal that education is key. Basic schooling matters for all four geographical areas and across the income distribution. However, poor workers are awarded lower returns than their richer peers and in Bahia and Ceará, the poor do not obtain any returns to basic schooling. Furthermore, the impact of 5-8 or 9-11 years of education is larger than that of 1-4 years of completed education. The returns obtained by a median worker are higher in Ceará and Pernambuco than in Bahia. Finally, completed *tertiary education* offers the largest returns of all levels of education; the median worker receives a premium of 105, 249, and 216 percent in Ceará, Pernambuco, and Bahia, respectively. Hence, one direct policy implication is to increase the quality of education, in particular in poorer neighborhoods.

Experience impacts positively on wages and it is increasing with age until workers reach 50 years of age. However, returns to experience are falling significantly across the wage distribution. For the poor and younger generations, experience contributes more to wages than education. The occupation of workers is important for wage determination; all workers in the included occupational groups are paid more than workers engaged in agricultural activities. Workers employed as technicians or administrators obtain the highest returns. The white/non-white wage disparity reveals that white workers are paid 17 percent more than their non-white co-workers, taking into account other characteristics. Gender disparities are large in the Northeast and heterogeneous across the wage distribution. The time spent in the current state impacts adversely on wages. That is, those that have stayed earn, on average, less than the newcomers. There are no considerable differences between male and female workers. Union membership has a positive impact on workers' wages.

1. Introduction

The Northeast Brazil is home to most of Brazil's poor people. It is well known that the main determining factors of the level of poverty of a state, region, or country lie in the way it uses and remunerates available human resources. Moreover, the more efficient the society is in allocating resources to economic activities, the lower the level of poverty. This allocation is mainly taking place in the labor markets, and, therefore, payment is highly dependent on the functioning of these markets. In Brazil the two most important labor market inefficiencies are: (1) the economy cannot supply employment to all in the active population, thus creating unemployment or underemployment (employment in low-quality jobs); and (2) discrimination manifested by under-compensation and under-utilization of certain groups of employed workers.

This paper looks at changing ideas on how to analyze the factors behind, and the impact of such wages, or more precisely, what determines wages in Northeast Brazil. Furthermore, the paper investigates whether there is a difference between low and high-paid workers. These questions are analyzed by comparison of the wage determination process in four areas: the Northeast region as a whole, and three individual states, namely, Pernambuco, Ceará, and Bahia. The wage determination model is gauged by household data (PNAD) throughout the analysis and the quantile regression methodology is applied. This methodology characterizes the distribution of wages in more detail than traditional ordinary least squares (OLS) and two stage least squares (2SLS) regressions, as it makes it possible to break down the wage determination process across the entire wage distribution. Additionally, workers are allocated in different groups with different characteristics. Wages are compared across workers organized by gender, education, race, and geographical location.

So far, very little research has been done on labor markets in Northeast Brazil and even less so at the state level. Barros and Mendonça (1997) study wages in the Northeast and find that the average impact on wages of completed basic education is lower than that of secondary and superior education in 1987 and 1990. Furthermore, the comparison of the Northeast to São Paulo reveals that the effect on wages is lower for the second part of primary education and higher for the secondary and tertiary in the Northeast. The tendency shows increasing returns over time for secondary and tertiary education. Finally, the paper shows that returns are higher for whites than non-whites, controlling for education, age, gender, and residence area.

This paper analyzes for each quantile, each state and for the Northeast region, whether the impact of various individual characteristics on wages is homogeneous both across the wage distribution in a particular state or region, and across states and regions. The findings indicate that wages are by no means determined in the same way across states and regions, and for high and low-paid workers. Moreover, the data sample reveals substantial heterogeneity among *Nordestinos* and, hence, different impacts of the explanatory variables exist across the samples and wage distributions. For example, the return to education is far larger in the upper-income quantiles than in the lower ones. Furthermore, the findings reveal that large differences also exist across the Northeastern states. For example, for the median worker the impact on wages of being employed in the formal sector is higher in Pernambuco and Bahia than in Ceará.

The paper is organized as follows: Section 2 outlines labor market developments in the Northeast region. Section 3 describes the methodology and data used in this study. Section 4 presents descriptive analyses, and Section 5 presents the regression results. The last section concludes with a summary of findings. The appendices include the tables mentioned in the text, for example, A1 refers to the table 1 in Appendix A. .

2. The Northeast Labor Market

In the Northeast of Brazil, the labor market tendencies over the past decade indicate that: *first*, real wages fell; *second*, formal employment decreased; *third*, open unemployment increased; and, *fourth,* precarious and informal sector employment augmented. In the Northeast, formal employment declined 5.4 percent over the 1990s, which is about half of the national average of 10.0 percent (Oliveira and Guimarães Neto 1999). According to these authors the total number of lost jobs in the Northeast was 185,000. There exists a large degree of heterogeneity with in the Northeast, for example, in Pernambuco and Ceará, 10.0 and 1.1 percent, respectively, of the jobs were lost. The number of jobs lost is by far the largest in Pernambuco (72,000), Bahia (54,000) follows fairly close and Ceará lost 4,000 positions. These figures also reveal that the Pernambucan economy is far more formalized than other states in the Northeast region. Ceará grew faster than Pernambuco in the 90s, which may explain the relative low reduction in formal employment in the state.

In Pernambuco, industries hit the hardest in terms of jobs lost were food and beverages including sugar production (45,900 workers lost their jobs in the 1989-94 period, see Oliveira and Guimarães Neto 1999). The deregulation and the halt in the use of *Proálcool* as automobile fuel dramatically damaged the sugar industry. Despite the smaller dimensions, Pernambuco experienced a reduction in positions in other industrial sectors. In textiles the job loss (around 9,000), was mainly caused by increased competition and a reduction in *aliquotas*. Metal sectors were affected less than the previous two, but the sector still experienced a 5,300 job cut, mainly attributable to deregulation of steel prices, which set in motion a number of firm closings. In electronics and communications, 3,700 jobs were eliminated.

The reduction in the number of formal jobs did not cause a comparable increase in open unemployment in the Northeast as a whole or in the states individually. Rather the decline in formal jobs has set in motion job creation in the informal sector. The indicators for informal job creation show a 7, 1, and 1 percentage point increase in Pernambuco, Ceará, and Bahia, respectively, in the first half of the 1999s. Furthermore, in Pernambuco, urban open unemployment fell 28 percentage points in the same period, compared to 12 percentage points in Bahia and 0 percentage points in Ceará (Oliveira and Guimarães Neto 1999).

To obtain coverage by the Brazilian labor code, workers need a formal contract or signed working card (*carteira assinada*). In Brazil, as a whole, as well as in the Northeast states, the proportion of workers with a signed working card has fallen considerably in the 1990s. In Pernambuco, around 50 percent of workers had a signed

card in 1990. In 1997, the number has dropped substantially and reached 30 percent: 25 percent for men and 36 percent for women.

One of the main labor market problems in the Northeast seems not to be the lack of job creation—the rate is around 2.5 percent in Recife, 3.0 percent in Fortaleza, and 2.4 percent in Salvador (Paes de Barros et al. 1999)—but rather the number of poor quality jobs that are being created in the states. These jobs are largely informal in nature and characterized by low pay, low productivity, bad working conditions, and high turnover.

3. Methodology and Data

This section is organized in three sub-sections addressing the economic model applied in the analysis, quantile regression techniques, and data.

Economic model

The underlying economic model used in the analysis will simply follow Mincer's (1974) human capital earnings function extended to control for a number of other variables that relate to location. In particular, we apply a semi-logarithmic framework that has the form:

$$\ln y_i = \varphi(x_i, z_i) + u_i \qquad (1)$$

where $\ln y_i$ is the log of earnings or wages for an individual; i, x_i is a measure of a number of personal characteristics, including human capital variables, ethnicity, etc.; and z_i represents location specific variables—for instance, metropolitan living. The functional form is left unspecified in equation (1). The empirical work makes extensive use of dummy variables in order to catch non-linearities in returns to years of schooling, tenure, and other quantitative variables. The last component, u_i, is a random disturbance term that captures unobserved characteristics.

Quantile regressions

Labor market studies usually make use of conditional mean regression estimators, such as ordinary least squares. This technique is subject to criticism because of several, usually heroic, assumptions underlying the approach. One is the assumption of homoskedasticity in the distribution of the error terms. If the sample is not completely homogenous, this approach, by forcing the parameters to be the same across the entire distribution of individuals may be too restrictive and may hide important information.

The method applied in this paper is quantile regression. The idea is that one can choose any quantile and thus obtain many different parameter estimates on the same variable. In this manner the entire conditional distribution can be explored. By testing whether coefficients for a given variable across different quantiles are significantly different, one implicitly also tests for conditional heteroskedasticity across the wage distribution. This is in particular interesting for developing countries such as Brazil

where wage disparities are huge and returns to, for example, human capital may vary across the distribution.

The method has many other virtues apart from being robust to heteroskedasticity. When the error term is non-normal, for instance, quantile regression estimators may be more efficient than least square estimators. Furthermore, since the quantile regression objective function is a weighted sum of absolute deviations, one obtains a robust measure of location and, as a consequence; the estimated coefficient vector is not sensitive to outlier observations on the dependent variable.[2]

The main advantage of quantile regressions is the semi-parametric nature of the approach, which relaxes the restrictions on the parameters to be fixed across the entire distribution. Intuitively, quantile regression estimates convey information on wage differentials arising from non-observable characteristics among individuals otherwise observationally equivalent. In other words, by using quantile regressions, we can determine if individuals that rank in different positions in the conditional distribution (i.e., individuals that have higher or lower wages than predicted by observable characteristics) receive different premiums to education, tenure, or to other relevant observable variables.

Formally the method, first developed by Koenker and Basset (1978), can be formulated as[3]

$$y_i = x_i'\beta_\theta + u_{\theta i} = \text{Quant}_\theta(y_i \mid x_i) = x_i'\beta_\theta \qquad (2)$$

where $\text{Quant}_\theta(y_i \mid x_i)$ denotes the θ^{th} conditional quantile of y given x, and *i* denotes an index over all individuals, $i = 1,\ldots,n$.

In general, the θ^{th} sample quantile $(0 < \theta < 1)$ of y solves

$$\min_{\beta} = \frac{1}{n}\left\{ \sum_{i:y_i \geq x_i'\beta} \theta \mid y_i - x_i'\beta \mid + \sum_{i:y_i < x_i'\beta} (1-\theta) \mid y_i - x_i'\beta \mid \right\} \qquad (3)$$

Buchinsky (1998) examines various estimators for the asymptotic covariance matrix and concludes that the *design matrix bootstrap* performs the best. In this paper, the standard

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[2] That is, if $y_i - x_i'\hat{\beta}_\theta > 0$, then y_i can be increased toward + ∞, or if $y_i - x_i'\hat{\beta}_\theta < 0$, y_i can be decreased toward -∞, without altering the solution $\hat{\beta}_\theta$. In other words, it is not the magnitude of the dependent variable that matters but on which side of the estimated hyperplane the observation is. This is most easily seen by considering the first-order-condition, which can be shown to be given as (see Buchinsky 1998) $\frac{1}{n}\sum_{i=1}^{n} (\theta - \frac{1}{2} + \frac{1}{2}\text{sgn}(y_i - x_i'\hat{\beta}_\theta))x_i = 0$.

This can be seen both as a strength and weakness of the method. To the extent that a given outlier represents a feature of "the true" distribution of the population, one would prefer the estimator to be sensitive to such an outlier – at least to a certain degree.

[3] See Buchinsky (1998).

errors are obtained by bootstrapping using 200 repetitions. This is in line with the literature.

Data

The analysis in this paper uses micro data from *Pesquisa Nacional por Amostra de Domicilios* - PNAD (the Brazilian annual National Household Survey) for 1997. This survey is an annual national household survey performed in the third quarter that interviews around 100,000 households every year. It is conducted by IBGE, the Brazilian Census Bureau, and began at national level in 1971 and underwent major revision between 1990 and 1992. The survey contains extensive information on personal characteristics, including information on income, labor force participation and educational attainment and attendance.

The wage is spatially deflated to compensate for differences in the average cost-of-living across the country, according to the spatial price index by Ferreira and Barros (1999).

4. Descriptive Analysis and Background Information

This section presents background information on key variables for wage determination used in this study. The analysis considers different elements contributing to the wage determination: (1) human capital accumulation such as formal education, and experience; (2) ethnic background; (3) gender; (4) metropolitan, rural or urban living; (5) union membership; and, (6) occupation and sector of employment.

Wages

This subsection discusses unconditional wages and wage inequality. The individuals included in the analysis are those who reported that they were employed during the interview period and reported the amount earned.[4] The applied wage data is calculated on a monthly basis. Table A1 supplies information on the number of observations and distribution of the different groups of variables for the four data samples—the Northeast, Bahia, Ceará, and Pernambuco. The number of observations varies over the samples; for example, the sample of workers in each of the three Northeastern states is below 2000.

The unconditional average monthly wages in Pernambuco is larger than in Bahia, Ceará and the Northeast as a whole (table A1 and A2). This may be due to higher average age and accumulated human capital of the sample workers in Pernambuco. The average number of years schooling calculated from the data studied are, by and large, in line with other data sources; namely, that the average is higher in Pernambuco (5.8 years) than in Bahia (5.3 years), Ceará (5.4 years) and in the Northeast region (5.6 years).

[4] Individuals that answered yes to question v4705 and reported a monthly prime income, that is, question v9532.

The entire distribution of monthly wages for the four regions is shown in figures 1A-10A in appendix F. The plots indicate that the wage distribution follows a similar pattern in all four areas. Furthermore, the variation at each percentile is small (see figure 1A). In the following, the impact on the wage distribution of individual characteristics is discussed.

The wage distribution of workers belonging to different tenure groups is given in figure 2A. The plot reveals large differences from the median to the top of the distribution among tenure groups. As expected, workers with the highest tenure earn significantly more than other tenure groups, not accounting for any other individual characteristics as accounted or in the analysis. This is the case for all four areas. The wage dispersion for each percentile above the median is lower in Pernambuco than in Ceará and Bahia, indicating that tenure may be less important in the former state in the wage determination process than elsewhere. When comparing the level of earnings for each of the four samples, it turns out that workers placed above the 70 percentile in Pernambuco with 13 years or more of tenure, earn less than do workers in other states.

General experience seems to be an important factor in explaining wage differentials among workers, when only considering the experience level as the sole wage gap explanatory factor (see figure 3A). In particular, less experienced workers (below 20 years of age) are clearly being paid less than their older and more experienced peers. At the top of the distribution the wage gap is huge between workers with different experience levels.

Education plays an important role in the wage-setting process in all four regions (figure 4A). In particular, workers who have completed between 9 and 11 years of education and more than 12 years of education obtain a substantially higher wage than their less educated peers. The figures show that wages in Ceará for women with more than 9 years of completed education clearly exceed those obtained in Pernambuco and Bahia.

Trade-union members are clearly paid more than non-members all across the wage distributions. This finding holds for all samples (figure 5A). However, the data does not take into consideration that this group may also be more educated.

By occupational sector, the figures reveal that agricultural workers earn far less than non-agricultural sector workers. This finding holds for all states and all along the wage distributions (figures 6A-1 and 6A-2). Surprisingly, there does not seem to be much difference between secondary and tertiary sectors in any of the four samples. Hence, the earnings in industry and service are at the same level.

The wage distributions of the gender and racial groups are plotted in figures 9A and 10A. A gender gap is very pronounced from around the 20^{th} percentile and above, and favors males. This finding is homogeneous and of similar magnitude in all the four samples. By racial origin—white *versus* non-whites—the wage differential is less marked in Pernambuco than in other states. The racial gap is smaller in Pernambuco and tends to widen less rapidly across the wage distribution than elsewhere in the region. However, it still indicates that racial may be an important explanatory factor in the wage determination process.

Wage inequality

For 1997, the percentiles for monthly wages are reported in table A3 for different groups of workers (union and non-union members, males and females, and whites and non-whites). Additionally, table A3 reports on wage inequality. The wage inequality measured by the 10 percent richest relative to the 10 percent poorest (90/10) is very heterogeneous across the four regions—the Northeast, Bahia, Ceará, and Pernambuco. The wage inequality ratio 90/10 indicates how much more workers placed in the 90^{th} percentile earn relative to workers placed in the 10^{th} percentile of the wage distribution. The 90/10 ratio of 10 reveals that the richest 10 percent of the workers earn 10 times more than the poorest 10 percent, which is the case in the Northeast and Pernambuco. The number is slightly higher in Ceará (12.1) and a little lower in Bahia (8.6). The 99/10 ratio shows the most variation of the reported ratios. It is as high as 40 in Ceará, and 24 and 33 in Bahia and Pernambuco, respectively. The median worker (50^{th}) earns around 300 percent more than the poor workers placed in the 10^{th} percentile in all the states and regions analyzed here. Furthermore, the 10 percent richest earn 3.6, 3.0, 3.8, and 3.3 times more than the median worker in the Northeast, Bahia, Ceará, and Pernambuco, respectively.

In Pernambuco and Bahia, the wage inequality, measured by the top of the distribution (90^{th}) and the median (50^{th}) relative to the 10 percent poorest, is larger among males than females and whites than non-whites. The results are different for Ceará where the wage dispersion is larger among women than men. Table A4 shows that in the Northeast education is an important wage-equalizing variable. The ratio of the 90^{th} percentile to the median falls from 3.5 for workers with non-completed education to 3.1 for workers with 12 or more years of completed education. In Bahia, Pernambuco, and Ceará, the ratio drops to 2.7, 2.8, and 3.1, respectively. Furthermore, the 90/50 ratio reveals that wages are more unequal in urban than in rural areas.

Formal education and training

Table A1 gives the distribution of completed education for workers in the four regions. In 1997, a large share of workers in the sample did not complete any level of formal education. In the Northeast region, 19 percent of the males and 14 percent of the females did not complete any level of education. For the individual states the pictures show that 16 percent in Bahia and Pernambuco, and 21 percent in Ceará did not complete any level of formal education. Again, in Pernambuco there are fewer people than elsewhere with no completed education. Thirty-one percent finished between one and four years (except 36 percent in Bahia). Only 9 percent in Ceará and Pernambuco, and 6 percent in Bahia completed more than 12 years of education. The data do not indicate any large discrepancies in the level of education between female and male workers.

Furthermore, non-white workers obtained a lower level of education than did white co-workers in all four samples. In the Northeast, the percentage of the population with higher education is 7 percentage points higher for whites than for non-whites.

5. Wage Quantile Regression Findings

This section presents findings of the mean and quantile regressions for 1997. We use standard quantiles, namely the 10^{th}, 25^{th}, 50^{th}, 75^{th}, and 90^{th} quantiles. The same wage equation is estimated for each of the four samples: (1) Pernambuco; (2) Bahia; (3) Ceará; and, (4) the Northeast. Furthermore, we analyze subgroups at different levels of education, of different genders, races, and urban-rural living.

Wages are modeled by using log monthly wages as the dependent variable. The general wage model contains explanatory variables in levels and allows for non-linearities in the data. For example, the log wage equation is found to be non-linear in education and experience. This way of modeling wages indicates that returns to education and experience are not constant but decreasing over the life cycle. In addition, the model contains dummy variables that take the value of one if, for example, a worker holds a job in the formal sector, and zero otherwise. Such a dummy variable may reveal whether there is a wage premium related to the formal sector employment. Appendix C presents the estimated wage equations. The median regression specification explains between 31 and 35 percent of the variance in wages in the quantile regressions for the Northeast, Pernambuco, Bahia, and Ceará, see table D1 that shows the pseudo-R^2.[5] In all samples the pseudo-R^2 is rising with the increasing quantile; that is, more is being explained in the high-income quantiles than in the low-income quantiles of the wage distribution.[6]

In the four samples, all included explanatory variables have the expected signs. Very few included variables are not statistically significantly different from zero for all quantiles. Each explanatory variable will now be discussed in turn: (1) education; (2) experience; (3) labor market association; (4) occupation and sector; (5) gender and ethnicity; (6) state, metropolitan, rural *versus* urban living; and, (7) union membership.

Education

Human capital has proven to be important in enhancing long-term economic growth.[7] A more educated workforce is likely to increase worker productivity, to be flexible and innovative, and to facilitate the adoption and use of new technologies. The increasing speed of technological change faced by firms today and international economic integration means that workers need to have more skills at higher levels in order for firms to be competitive. One reason for this is that more skilled employees can adjust more easily to changes in their firm's economic and technological environment than less skilled workers.[8] Hence, low returns, or the complete lack of returns, are an

[5] The standard R^2, which is based on the breakdown of the entire variation between the fitted and residual values, is incorrect for quantile regressions. Therefore, the so-called pseudo-R^2 is used and it is defined as the squared correlation between original and fitted observations.

[6] The OLS regressions explain between 53 (Ceará) and 46 (Bahia) percent (see Table D2).

[7] See, for example, Barro (1991) and Mankiw, Romer, and Weil (1992).

[8] One issue that needs to be mentioned relates to the endogeneity of education in the regressions. There is vast evidence of a positive correlation between earnings and education. However, social scientists are

obstacle to economic growth in the Northeast and its states. Furthermore, findings may indicate that large differences in the quality of education across regions within the Northeast are important.[9]

Knowledge about educational wage differentials or wage gaps serves at least three different purposes. First, wage differentials reveal the magnitude of incentives or returns obtained by workers acquiring education, and, hence, individual educational demand. Second, knowing the extent of economic returns to human capital makes it possible to access whether it is worth making this kind of investment instead of others. Third, wage differentials disclose how the labor market translates educational inequalities into wage inequalities, which is important information in the process of reducing the latter. Furthermore, educational returns link to some extent education to labor productivity and indicate the magnitude of the contribution of education to economic growth. Therefore, it is of interest to estimate the impact of different levels of education and experience on money wages. Furthermore, this analysis may indicate areas of education scarcity and hence areas for policy intervention.

This study confirms the findings of hundreds of other studies, namely that education plays an important role in the wage determination process. Better-educated individuals earn higher wages and work in more prestigious jobs than their less-educated peers.

Are returns to education homogeneous across the states and regions and constant over income distributions? According to the findings presented in table C1 and figures 1 to 4, the answer is no to both questions.[10] In this analysis, findings allow comparison for workers with no completed level of education (the reference group) or compared with their co-workers who have completed first part of primary school (1-4), second part of primary school (5-8), secondary school (9-11), and with those who completed tertiary school (12 or more years of education).[11]

In the Northeast of Brazil, I found that returns to 1-4, 5-8, 9-11, and 12 or more years of completed education were statistically significantly different from zero and positive for all at the analyzed quantiles, controlling for other individual characteristics.

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cautious to draw strong inference about the causal effect of education. In the absence of experimental evidence, it is tricky to recognize whether higher earnings observed for better educated employees are caused by their higher level of completed education, or whether employees with greater earnings capacity have chosen to acquire more education. Card (1998) surveys the literature on the causal relationship between education and earnings and finds that the average marginal returns to education is not much below the estimate that emerges from standard human capital earnings function studies. The PNAD data does not supply information which can be used to solve this problem.

[9] Measurement errors in schooling would be expected to lead to a downward bias in the OLS estimator of the relationship between schooling and wages, see Griliches (1979).

[10] Unmeasured ability and measurement error problems have been dealt with in the literature applying data on twins, see for example Card (1998) and Arias, Hollack, and Sosa (1999).

[11] The so-called "sheepskin effect" states the existence of wage premiums for completing the final year of elementary school, high school, or university. Therefore, it has been argued that credentials such, as a school diploma or university degree are more important than years of schooling per se. That is one reason for not having a continuous education variable in the regressions.

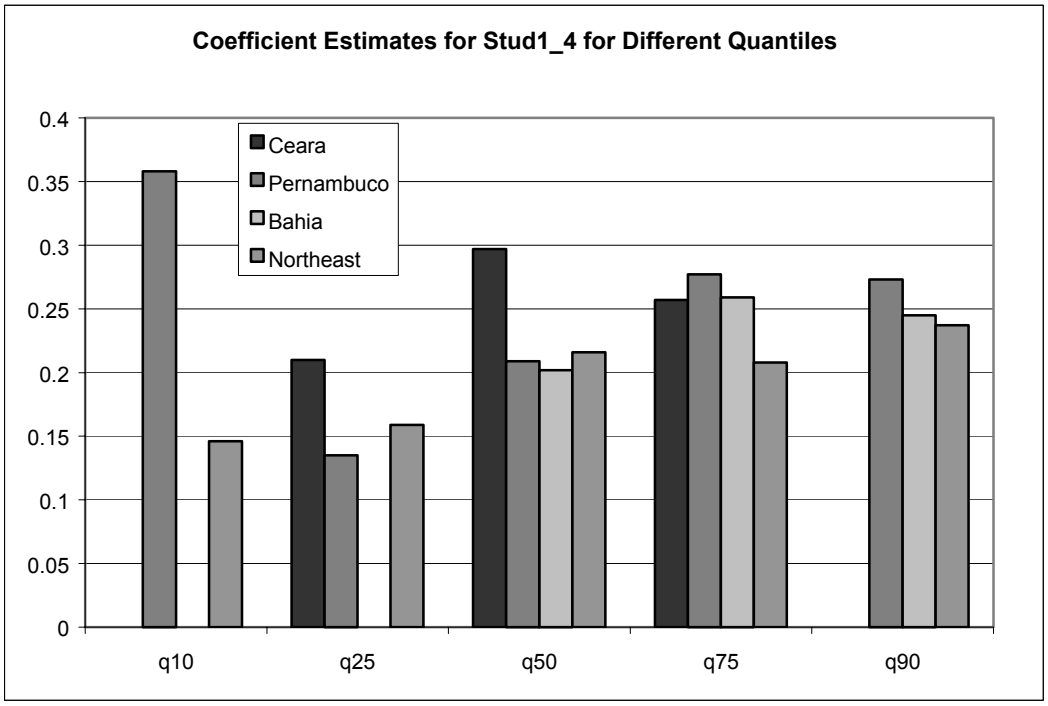
This finding means that having completed at least a few years of education contributes more to wages than not having completed any education at all. Moreover, the premium is: first, rapidly increasing with attained education. In the Northeast, a median worker experience an impact on wages of 24, 37, 55, and 197 percent for completed 1-4, 5-8, 9-11, or 12 or more years of education, respectively.[12] Better-educated individuals in the Northeast earn dramatically higher wages than do their less-educated counterparts. Second, the premium is increasing across quantiles. That is clearly seen by the following example. A poor worker (10^{th} quantile) receives a 103 percent return to 12 years or more of completed education while a rich worker obtains 252 percent return, both relative to those who had not completed any level of education. Furthermore, this indicates that in the determination of returns to education there are other mechanisms at play than pure individual characteristics. One explanation for the difference in returns could be found in the quality of education achieved, i.e., that poor attended schools where teaching was of lower quality than schools attended by richer people; which the regression analysis does not capture. Another explanation relates to social capital, that is, who you know. Poor people do not benefit to the same degree as richer people from connections, recommendations, etc.

In the following, we look at returns to each level of completed education:

Basic schooling, having four years or less completed years of education, matters for all four geographical areas and across the income distribution except for the poorest in Bahia and Ceará (see figure 1). The poor (10^{th} quantile) in Bahia and Ceará do not receive a wage premium when completing first part of primary education. One explanation may be the low number of observations since for the Northeast as a whole findings reveal that four years of completed education generate a return of 16 percent for the poorest. In the Northeast as a whole, the findings reveal a large degree of heterogeneity in returns to education across the wage distribution (see table F1 and figure 1). Workers in the low end of the wage distribution (10^{th} and 25^{th} quantiles) obtain lower returns than workers in the top end (75^{th} and 90^{th} quantiles). Hence, workers with the same level of education are not compensated equally. In Pernambuco, a worker at the median receives a 43 percent return, and findings reveal that the poor (10^{th} quantile)) and also workers in the 75^{th} quantile receive the same return to 1-4 years of completed education. But, workers placed in the 10^{th}, 50^{th} and 75^{th} quantile receive statistically significant higher returns than co-workers in the top end (90^{th} quantile) where the returns are only 31 percent. In Bahia and Ceará, no statistically significant wage heterogeneity is present for workers with 1-4 years of education, except that the poor do not obtain any returns (see above).

[12]The percentage return is calculated as (exp(coefficient estimate) – 1) * 100.

Figure 1

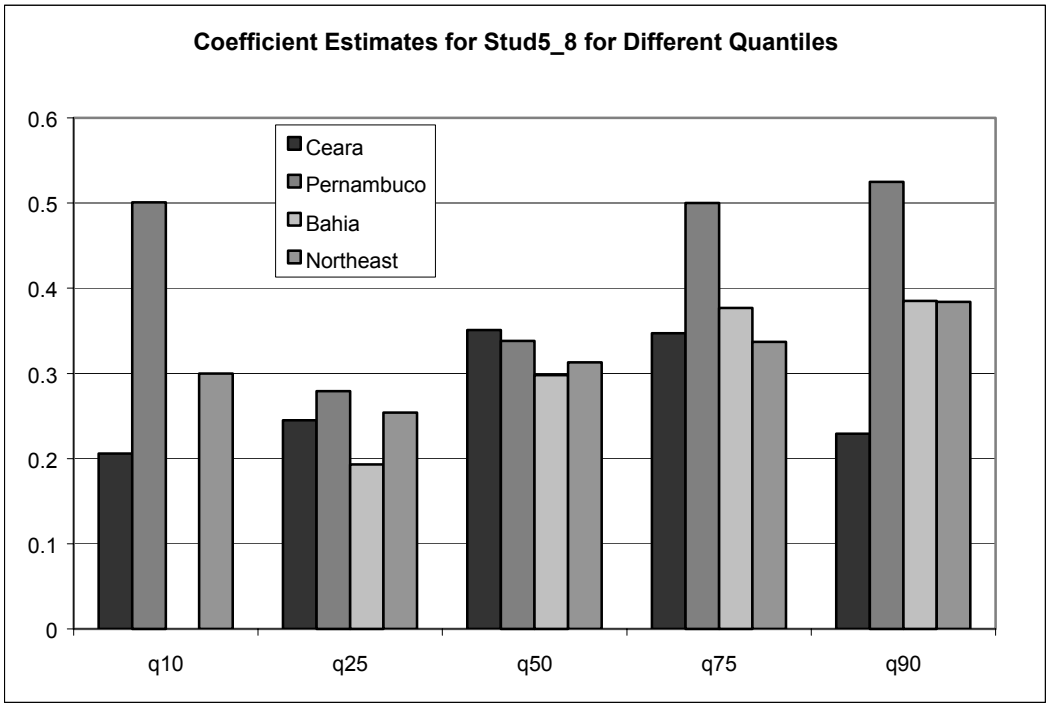


Data source: Author's calculation.

Second part of primary school also impacts wages significantly in Pernambuco and the Northeast region. The returns are larger in Pernambuco than elsewhere, and the poor are compensated similarly to the rich. The returns are higher for 5-8 years of education than for 1-4 years of education for all quantiles (see figure 2). This is also the case in Ceará and Bahia.

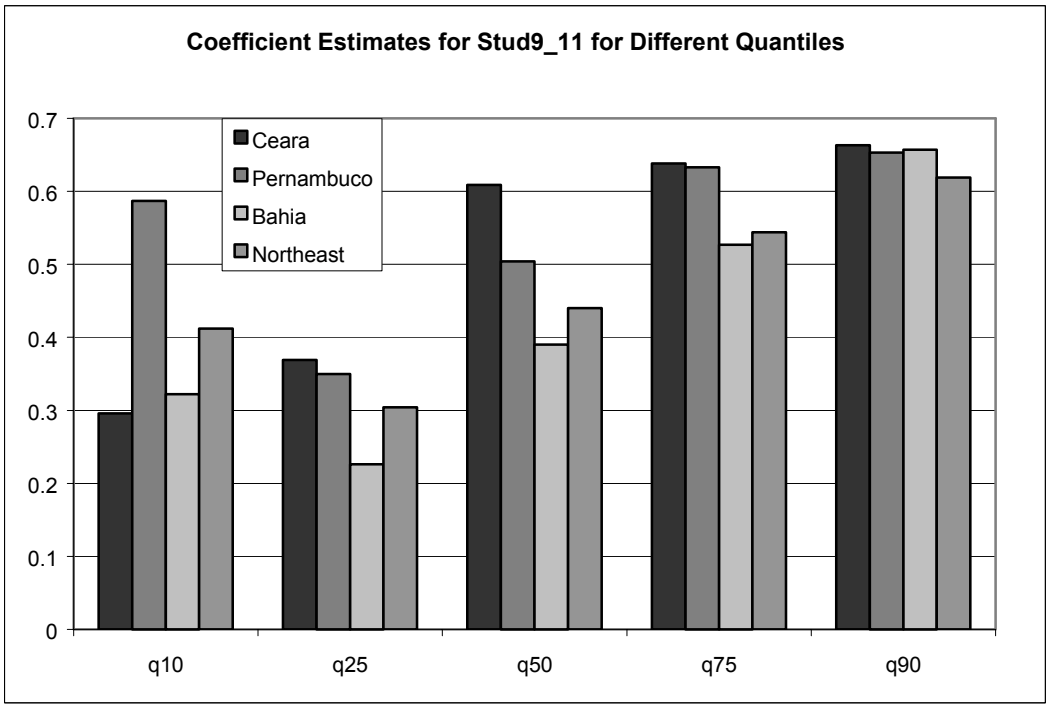
Secondary education impacts significantly on the wage distribution in all samples. Furthermore, in Pernambuco, Ceará, Bahia and the Northeast returns to secondary education (9-11 years) are present at all quantiles. The returns obtained by a median worker are higher in Ceará (84 percent) and Pernambuco (66 percent) than in Bahia (48 percent) (see figure 3). In Ceará returns are rapidly increasing across the distribution and the poor (10^{th} quantile) receive a 35 percent return and the rich (90^{th} quantile) a much higher, namely 93 percent return to completed secondary education. The same is true in Bahia. In Pernambuco, there is less variation across the distribution, and returns are high also in the low end of the wage distribution (80 percent) and in the high end returns are 92 percent.

Figure 2



Data source: Author's calculation.

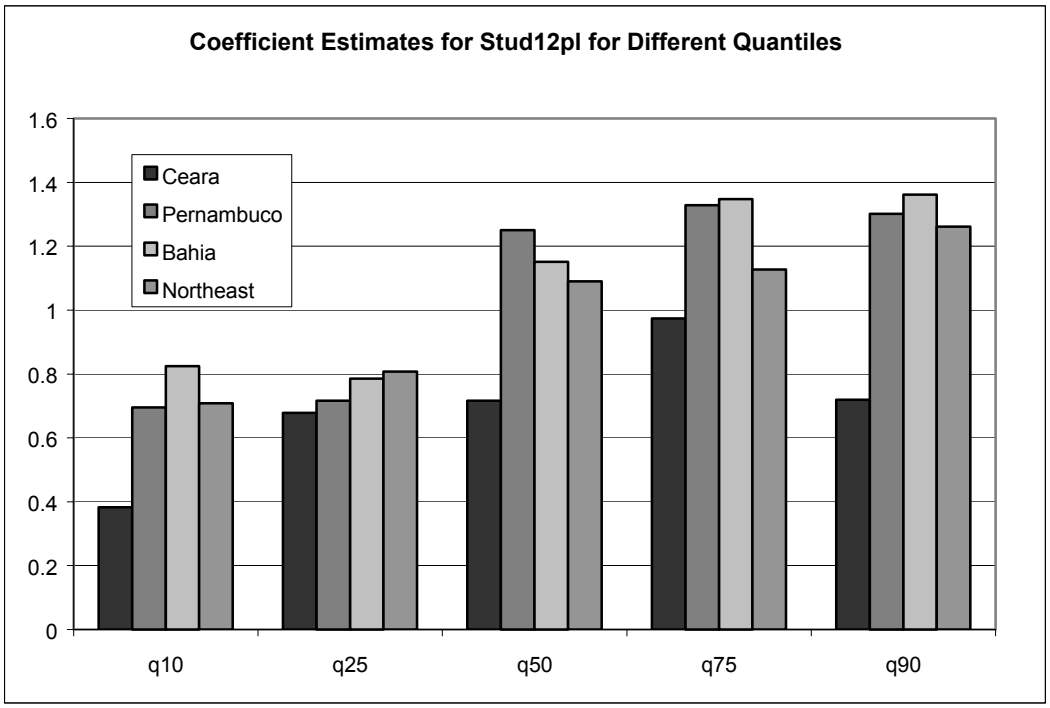
Figure 3



Data source: Author's calculation.

For *tertiary education* (12 years or more of completed education), the findings show that the median worker receives a premium of 105, 249, and 216 percent in Ceará, Pernambuco, and Bahia, respectively (see figure 4). The test for equality of returns at various quantiles (which is also a test for homogeneity) is presented in Table F1. The findings reveal that workers placed in the 90th quantile earn significantly higher returns to secondary and tertiary education than workers in the 10th, 50th and 75th quantiles. One explanation for the lower returns at lower quantiles may relate to social capital. It is easier to obtain a "good" job when richer, since richer workers generally socialize with richer people that have better connections and information than poor people. Hence, poor people do not have the same access to high quality jobs as rich people. In addition, the findings reveal that Pernambuco pays higher returns than Bahia for all levels of education and Ceará and Pernambuco alternate for different quantiles and level of education.

Figure 4



Data source: Author's calculation.

Gender differences related to education. In the following, the sample is disaggregated into two sub-samples: one for male and one for female workers (see tables C2 and C3). Education plays a very important role in determining income for both genders. For all four geographical samples the determinants of income differ substantially between the two groups. The income of male workers increases more rapidly than dies income of females with the level of completed education and experience. For instance in the Northeast, a median (50th) male worker who has completed between 9 and 11 years of education (secondary education) obtains returns of 65 percent while a female worker with the same characteristics only receives a 34 percent. The exception being that females with more than 12 years of studies (university education) receive a return at least equal to that obtained by their male colleagues. In the Northeast as a whole, encouraging or facilitating females to continue beyond the 11th year

of completed education will more than double the impact on wage. These findings suggest that, for all quantiles, university education delinks gender from wages.

Experience

There are several reasons for including experience characteristics in the analysis. One such reason is that a trained and educated workforce provides flexibility in adapting to changes in technology or other economic changes. Experience and years of schooling are widely used in analyses of wage determination (see Welch 1969, Mincer 1974, and Levy and Murnane 1992). Two measures of experience are included in this analysis, namely general and job-specific experience. The former is measured by the age of the worker and the latter by years of experience on the current job that is tenure.

Are returns to experience homogeneous across the population and over the life cycle? According to the findings presented in table C1, the answer is no to both questions.

General experience. The reference experience group is workers between 10 and 20 years old. The five age groups included in the regression models are 21-30, 31-40, 41-50, and 51 and above.

For Pernambuco, Ceará, Bahia and the Northeast region, the experience variables are statistically significantly different from zero and positive for all five reported quantiles and experience groups, controlling for other individual characteristics. These findings highly indicate that returns to experience are not constant throughout the life cycle. The impact of experience on wages is positive and increases with age until workers reach 50 years of age. Thereafter, the returns fall dramatically at all quantiles (table C1). One explanation may be that older workers adapt less easily to new technologies than do younger workers. Returns to experience are falling significantly across the wage distribution in Pernambuco, Ceará, Bahia, and the Northeast. Hence, the experience wage gap is largest at the lower quantiles. Workers located in the middle of the distribution (50^{th}) and between 21 and 30 years of age receive premia ranging from 21 percent (Pernambuco) to 38 percent (Ceará) and 40 percent (Bahia). The variation within an age group and across quantiles is huge, and, in particular in Bahia, where the gap ranges from 67 percent in the 10^{th} quantile to 28 percent in the 90^{th} quantile. The variation in returns across the distribution decreases in all samples with increased experience. For the high age groups (51-70 year olds), the impact of experience on wages for a median worker range from 67 percent in Ceará to 56 percent in Bahia and 34 percent in Pernambuco. Interestingly, the general experience contributes more to wages than education in the younger generations placed in the lower end of the wage distribution in Pernambuco, Ceará, and Bahia. This compares to workers in the higher end of the wage distribution where the education impact on wages is by far larger than the experience impact.

Job-specific experience. The findings for experience or tenure obtained on-the-job differ from the findings for general experience (see table C1). The comparison group in this case is workers with less than one year of experience on-the-job. The four other groups included in the analysis are workers with more than 13 years, between 12 and 7, 6 and 3, and 2 and 1 years of experience in their current job.

In the Northeast the impact on wages of increased on-the-job experience is statistically significantly different from zero and positive. Furthermore, returns are monotonically increasing with on-the-job experience. This is the case in all quantiles in the wage distribution. A median worker in the Northeast receives a 34, 21, 15, and 4 percent premium for more than 13 years, between 12 and 7, 6 and 3, and 2 and 1 years of experience on-the-job, respectively, compared to a worker with less than one year of experience. In Pernambuco and Bahia, the job specific experience variable is insignificant for the lowest quantile (10^{th}). This indicates that in these states the poor do not receive any premium for job-specific experience.

Workers with more than 13 years, between 12 and 7, and 6 and 3 years of experience in their current jobs earn a constant return across the wage distribution, except for between 3 and 6 years of experience and in the 10^{th} quantile in Bahia and in the 90^{th} quantile in Pernambuco, where it is insignificantly different from zero. The Pernambucan worker placed in the 50^{th} quantile earns for, more than 13 years, between 12 and 7, and 6 and 3 years of experience 53, 28, and 17 percent more than a co-worker with less than a year on-the-job, respectively. The findings are similar for Bahia, but lower for Ceará (24, 28 and 13 percent, respectively).

Gender differences related to experience. To measure differences between men and women in the effect of experience on the determination of wages, I divide the sample into two sub-samples: one for males and one for females (see tables C2 and C3). The impact on wages of medium and high levels of experience (measured both by age and tenure in the job) is positive for both men and women, and significantly different from zero for all quantiles. Returns to experience, general as well as on-the-job, are higher for males than for females. Furthermore, returns to general experience increases faster for men than for women.

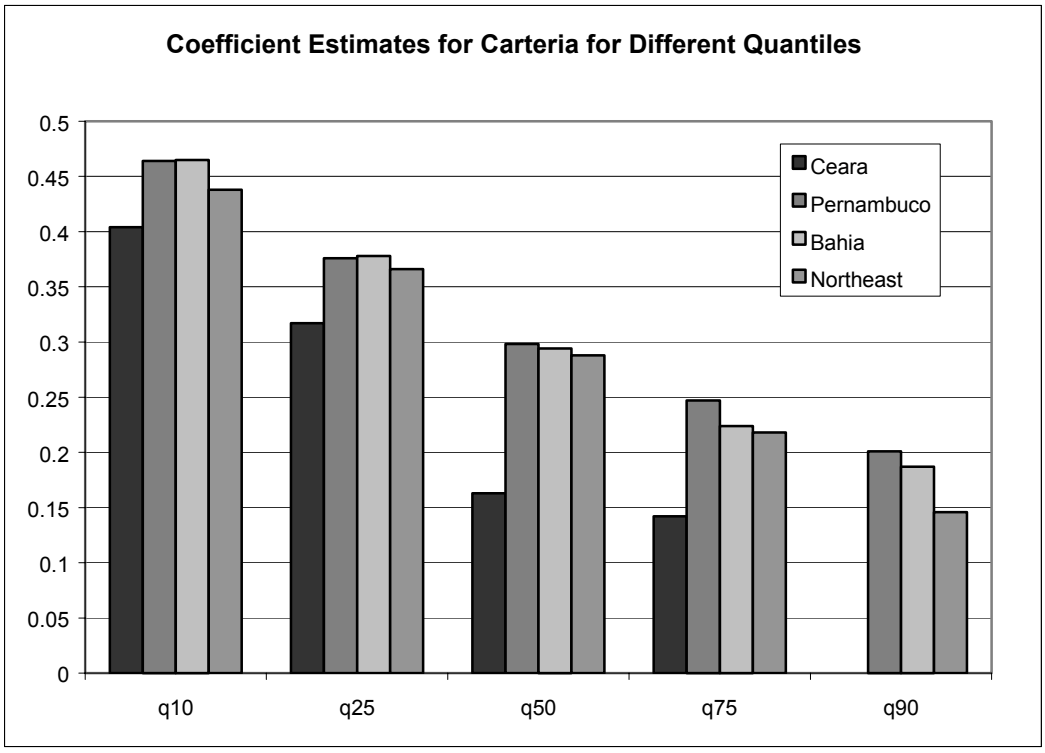
Labor market association

Labor market association is measured by the formality of a worker's job status. That is, whether a worker is engaged in the formal or informal sector. Workers with a signed working card (*carteira assinada*) I allocate to be in the formal sector.

In the Northeast region, workers who held a signed working card obtain statistically significant higher pay than their peers without a signed working card (see table C1). This finding appears in all four samples. For Pernambuco and Bahia, a median worker with a signed working card obtains a 34 percent higher wage premium than a non-signed working cardholder. The premium is generally lower for Ceará where a median worker with a signed working card only earns 18 percent more than a worker without a signed working card. For all samples, the premium declines across the wage distribution (see figure 5). That is, low wage earners benefit more in terms of wages from a signed working card than do high wage earners. In the Northeast, a worker placed in the 10^{th} quantile obtains a wage premium of 55 percent whereas a worker in the 90^{th} quantile only receives a 16 percent premium. These findings indicate that returns to formality in job position are not constant across states or across the wage distributions. The formal sector generally supplies higher quality jobs than the informal sector. Since higher quality may require more skills, the signed workbook may capture skill differences between the two groups of workers, which the other included variables do not capture. The wage gap

between the formal and informal sector may also be caused by lower productivity in the informal sector relative to the formal sector, which is not captured by human capital or job specific information. Hence, workers in the informal sector are disadvantaged in at least two ways: first, they do not have access to social security or alike; and second, they obtain lower wages, which evidently does not compensate informal workers for the absence of social security. The informal sector workers are not only disfavored in terms of wages and social security, but they may also work in an environment where they are more exposed to the risk for accidents occurring, etc.

Figure 5



Data source: author's calculation.

Gender differences related to labor market association. In the Northeast, a worker in the lowest income quantile (10^{th}) experiences an impact on wages of being in the formal sector of 68 and 44 percent for male and female, respectively. Returns are significantly different from zero at all quantiles. Both returns and gender difference are falling as income increases. This also holds in Bahia and Ceará. In Pernambuco females placed in the lowest end of the income distribution (10^{th}) employed in the formal sector obtain a higher premium than their male colleagues.

Occupation and Sector

The occupation of workers is also included in the determination of wages. Six occupation groups are introduced: (1) agriculture and agricultural products; (2) technician or administration; (3) transformation industry/manufacturing; (4) transport, communication, commerce, or trade; (5) service; and (6) other. The reference group in the analysis is agriculture and agricultural products.

In the Northeast all the included occupational groups are statistically significant and different from zero and positive. This indicates that workers in the above-mentioned occupation groups are paid more than workers engaged in agricultural activities. Workers employed as technician or as administrators obtain the highest return (for the median worker it is 93 percent), and workers in transport, communication, commerce, or trade receive the second highest return (64 percent), controlling for other factors such as level of human capital. Workers in the transformation industry or manufacturing obtain a 54 percent premium, and in service a 49 percent premium. Furthermore, the wage gap is constant across the distribution for all occupational groups. In Bahia, technicians and administrators obtain lower wage premium than colleagues in Pernambuco or Ceará. For the 90^{th} quantile, the premium is 54, 134 and 243 percent for Bahia, Pernambuco and Ceará, respectively. Hence, regarding occupation there exist substantial regional differences in the wage determination process.

Sector. The findings reveal that the sector of employment of a worker is important in the wage determination process. The agricultural sector (the primary sector) is compared to industry (the secondary sector) and services (the tertiary sector). Workers employed in industry in the Northeast are paid significantly less than their colleagues in the agricultural sector (except at the 90^{th} quantile). The wage gap is largest at the 50^{th} quantile (18 percent) and lowest at the 10^{th} quantile (3 percent).

The picture changes substantially when considering Pernambuco, Ceará, and Bahia separately. Here, there is no measurable difference between wages in the agricultural and industrial sectors, controlling for occupation and other individual characteristics. The same holds for the agricultural and service sectors (except for workers placed in the 25^{th} quantile who earn significantly more when employed in the agricultural sector in Bahia and Ceará).

Gender differences related to sector and occupation. A decomposition of the geographical sample into two sub-samples; one for males and one for females (see tables C2 and C3), discloses interesting differences with regard to sector of employment. For all geographical areas considered, the sector has no statistically insignificant impact on the wages for males. Conversely, the sector of employment impacts statistically significantly on female wages. In the Northeast, a median female worker in the tertiary sector receives 30 percent less than a female worker in the primary (agricultural) sector. The sector coefficients show a similar pattern for the individual regions (Pernambuco, Bahia, and Ceará), but are rarely statistically significant, which probably is due to the lower number of observations compared to the Northeast as a whole.

The impact of occupation also differs across gender. In the Northeast as a whole, Pernambuco and Ceará, working as a technician or administrator increases wages both

for males and females. The coefficient is statistically significant for all quantiles in these three areas, except for the 10th quantile in Pernambuco and Ceará (male and female) and in Pernambuco the 25th quantile for female and 50th quantile for male. The female premium clearly exceeds the premium obtained by males. For instance, in the Northeast, the median female administrator receives a premium of 142 percent while her male peers obtain a 65 percent premium.

Race and Gender

Discrimination at an individual level is said to arise if an otherwise identical person is treated differently by virtue of that person's ethnicity or gender, and ethnicity or gender by themselves have no direct effect on productivity. Under perfect competition in the capital and labor markets, equivalent employees in equivalent jobs are compensated equally, that is, there is no discrimination.

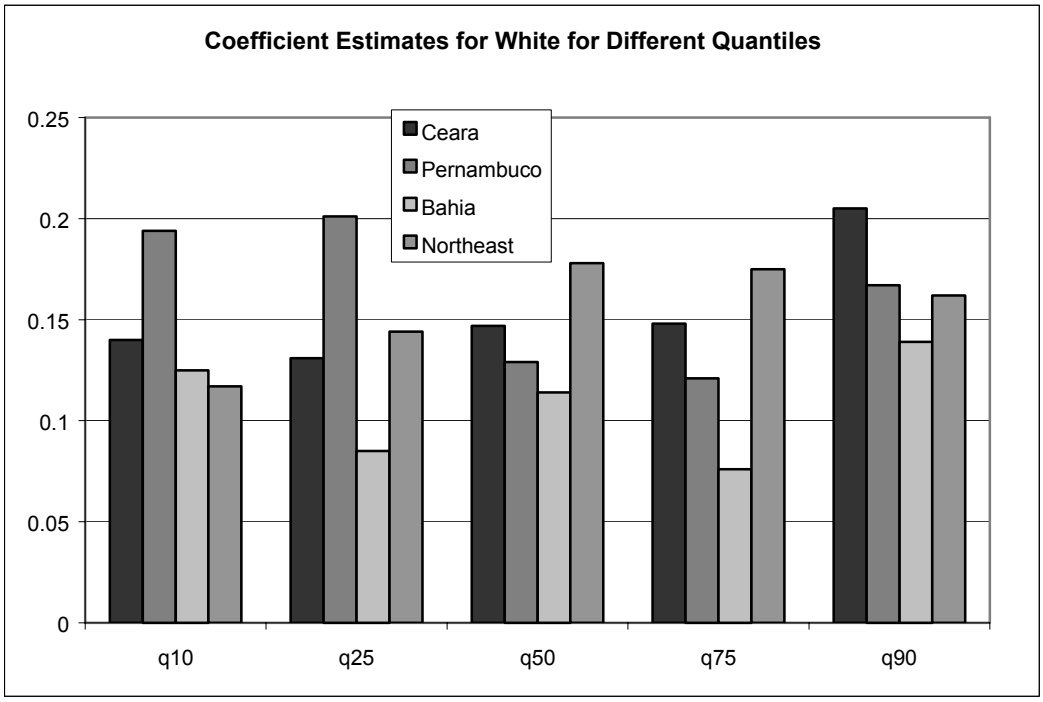
The estimation of discrimination is difficult. Worker productivity is seldom observed directly, so data must be used to proxy for the relevant productivity characteristics. The main debate occurs over whether relevant omitted characteristics differ between ethnicity, and between gender, and whether certain included characteristics capture productivity differences or instead are a proxy for ethnicity or gender. The following section reports findings on gender and ethnic differences in data.

Race. The quantile regression findings indicate that the racial background of an employee is important in Brazil, but less so in the Northeast and the three states (see table C1); this is measured by the size of the estimated coefficients on the variable white. These findings hold across quantiles, controlling for the level of human capital and other worker characteristics.

The wages of white relative to non-white workers are statistically significantly different from zero and positive for all quantiles in the Northeast and the three states, except in two cases: the 10th quantile in Ceará and the 75th quantile in Bahia (table C1).[13] Furthermore, the white/non-white wage gap is constant across the distributions (see table F1 that presents statistical tests thereof and figure 6). Differences in wages are hence at play in both the upper and lower quantiles in the wage distribution. This indicates that white Brazilians workers generally are paid more than their non-white co-workers. The ethnic wage gap is 17 percent in the Northeast. It is measured at 15 percent in Pernambuco, 16 percent in Ceará; and 11 percent in Bahia. The analysis cannot reveal whether the wage disparate is due to discrimination or unmeasured skills, which are not included in the analysis. However, the findings should not be interpreted, as white workers are necessarily more productive than others.

[13] There are very few indigenous people covered by the survey in the Northeast.

Figure 6



Data source: Author's calculation.

The data set used in this analysis did not include many relevant characteristics actually used by employers in their hiring and promotion choices. Nor is it idle speculation to conjecture that difference in family and schooling environments may account for any systematic variation in unmeasured characteristics between racial groups.

Is labor market discrimination by race a first-order problem in the Northeast and Brazil? Undoubtedly, there are employers and employees with discriminatory intentions in Brazil and in its states as well as in other countries. In most countries, the goal of achieving economic progress for racial minorities is better served by policies that promote skill formation, and not necessarily by strengthening the content and enforcement of civil rights laws.

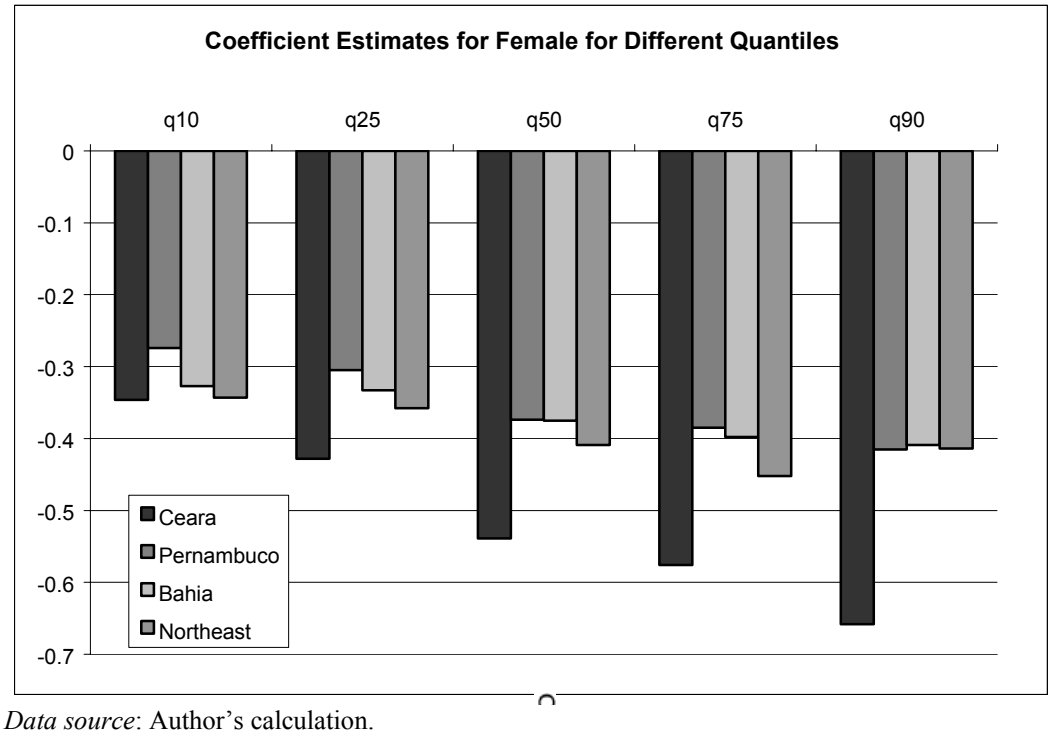
G*ender with regard to ethnicity.* When the sample is divided in two sub-samples—one for males and one for females—there are no major differences to the above findings between the samples. The white workers are paid more and the premium to race is constant across the distribution in Northeast (tables C2 and C3). In Pernambuco, race plays a role in the wage determination process. In the female sample, returns are decreasing across the sample. Hence, in the low end of the distribution, white women are paid 28 percent more than non-whites while in the top; the wage gap is 15 percent. This contrasts the findings for the males where the wage disparity is fairly constant across the distribution (around 18 percent).

Gender. Are returns to gender homogeneous across the population living in a region and across regions? The regression findings show signs of large measurable inequalities between men and women and they suggest that the gender gap is

heterogeneous across the quantiles but to a less extent heterogeneous across regions (table C1).

Female wages are statistically significantly different from male wages at all quantiles, and this holds for all three states and the Northeast region, adjusting for human capital and other worker characteristics. Furthermore, the gender gap is large (see figure 7). The Northeast sample reveals that women placed at the median (50th quantile) are paid around 29 percent less than their male colleagues. Additionally, the wage disparity increases with income group. For the 10th quantile the gender gap is 29 percent. It increases to 36 and 34 percent for the 75th and 90th quantiles, respectively. The wage difference in Pernambuco and Bahia is pretty much in line with the rest of the Northeast. In Ceará, the gender wage differentials are larger than in the other Northeastern states. Furthermore, the wage differential between rich and poor is huge. For the rich the gender gap is almost double the size of the poor. Female workers in the 75th and 90th quantiles are paid 44 and 48 percent less, respectively, than their male peers.

Figure 7



Data source: Author's calculation.

These findings, together with the findings presented in other sub-sections, suggest large differences in the wage determination process for men and women. The gender-earning gap may to some degree be explained by choice of jobs chosen by women. Women are more likely than men to select jobs, which are more flexible in nature. For example, women may choose part time jobs or jobs with lower working hours than men as they wish to spend more time minding children and the like. A second factor that influences wages is that, the sector variables included in these regressions are very broad. For example, women employed in the service sector work as maids as well as bankers.

This may influence the gender parameter estimates as relatively more women than men will be working in low skill jobs such as the former. A third explanation may be gender differences in unmeasured skills. The education levels are taken into account, but women's skill levels may be lower than men's. Hence, the data reveals that women are under capitalized not in terms of education, as they have more completed education than males (see table A1), but they may well be in terms of experience. Additionally, many women choose professions where they are less forced to capitalize, for example, they work more often in teaching than male peers. Hence, the data is not able to give a clear-cut answer as to whether the wage disparity is due to pure discrimination in an economic sense or omitted information. It is very likely that including a larger set of very finely separated occupational variables would reduce the size of the estimated gender impacts.

State, Metropolitan, Rural, and Urban living

This subsection analyzes wage premia related to three variables on location and time lived in a state. The first variable, urban, quantifies the wage effect of living in urban *versus* rural areas. The second variable, metropol, measures the impact on wages of living in a metropolitan versus a non-metropolitan area. The third variable, liveten, determines the effect of having lived in the state for 10 years or more compared to having spent less than 10 years in the current state.

Urban areas exist because it is an advantage to pursue production and consumption activities in a spatially concentrated fashion. This, combined with the high population density, drives up prices of, for example, land. To compensate for higher prices the workers in urban areas require recompense. Findings show that in the Northeast and the three states, workers do receive compensation (table C1). Urban workers are paid statistically significantly more than workers in rural areas, when other characteristics are controlled for. These findings show that there are asymmetries in some areas of Brazil, and urban living delinks wages for some quantiles in, for example, Pernambuco.

The urban-rural wage gap for the Northeast is significantly different from zero for three quantiles (the 25^{th}, 50^{th} and 90^{th}) and declining across the wage distribution, controlling for other covariates. In the Northeast, the urban premium is seven percent for the median worker. In the individual states, the urban variable is not statistically significantly different from zero. This is probably due to a combination of factors. First, a low number of observations are available for the three individual states, and, secondly, a metropolitan variable is included in the regressions. The expected higher wages in the urban area may, therefore, be captured by the metropolitan variable.

Workers living in the *metropolitan areas* in the Northeast, Bahia, Ceará, and Pernambuco are compensated in the form of a significant and positive wage premium at all quantiles. Hence, metropolitan living is more important in the wage determination than living in an urban area. The metropolitan variable estimates reveal that the wage premium differs across the wage distribution and samples. The median worker receives a 38 percent premium in the Northeast. This finding is constant across the distribution. In Pernambuco, Ceará, and Bahia, the compensation is 40, 47, and 44 percent, respectively, and heavily decreasing across the wage distribution. The difference in wages, which can be attributed to location, may capture more, for example, unmeasured skills than the difference in the cost of living in the urban and rural areas.

Gender differences related to Metropolitan living. Splitting up the sample into two sub-groups, one for male and one for female, reveals that gender impacts the wage determination process also with regarding to habitation. Females in metropolitan areas obtain a substantial higher wage premium, almost the double, than their male co-workers in metropolitan areas. This is the case for all samples. The habitation contributes 51, 46, 56, and 65 percent for the median female in the Northeast, Pernambuco, Bahia and Ceará, respectively, while males obtain 28, 33, 29, and 36 percent, respectively.

The time spent in the current state proves statistically significant in the wage determination process for the Northeast as a whole, Pernambuco and Ceará. Having spent more than 10 years in the same state impacts adversely on wages. That is, those that have stayed earn, on average, less than the newcomers. For a median worker in the Northeast, the impact of having lived more than 10 years in a state implies a 9 percent decrease in the wage. Furthermore, the magnitude is not constant across samples. For Pernambuco and Ceará, the time-in-state wage gap is larger; namely 17 and 20 percent, respectively, for the 90^{th} quantile. For Bahia, the time spent in the state has no influence on the wage obtained, except for the 50^{th} quantile where the time spent in the state is marginally significant and negative (8 percent). There are no considerable differences between male and female workers (tables C2 and C3). This negative gap is rather puzzling. One explanation may be that many educated and skilled workers left the region to move to the South expecting a higher wage premium and higher returns to their skills, leaving behind, as a consequence, their less-skilled and less-educated peers in, for example, Pernambuco. The newcomers to the Northeastern states may, therefore, on average be more skilled (of a kind not included in the analysis) and that could explain the wage difference. Also, the return of *Nordestinos* who moved to the South and obtained new skills that now return to the region could be another explanatory factor. Further analysis is needed to uncover the whole migration story behind the above findings.

Union membership

Union membership has an important impact on workers' wages. Trade union membership appears statistically significant and positive in all four samples, even when all the above-mentioned factors are taken into account.

For the Northeast as a whole, a union member in the low end of the wage distribution obtains a higher premium than a worker at the top. A worker placed in the 10^{th} and 90^{th} quantiles receives a 24 and 17 percent premium, respectively. Hence, returns are not constant but rather falling across the wage distribution.

In Pernambuco, union members are benefiting relative to non-union members in the wage process (except in the 90^{th} quantile, where union membership impact wages insignificantly). The return to union membership is around 18 percent and constant across the distribution. For Ceará and Bahia, the union wage gap is declining across the distribution and the median worker obtains 22 and 3 percent premia, respectively.

These findings are very much in line with the premium that European labor markets pay union members. For the poorest region in Brazil, these results are surprising due to high levels of underemployment and unemployment. The findings are different from other studies on developing countries and unions where the wage differential between

members and non-union members often are negative, for example, in Africa or insignificant as in Mexico.[14]

In the theoretical literature on unions, it has long been recognized that unions may influence factors other than wages, such as security in employment (tenure).

Hence, union members are favored in terms of wages by the unions, given measured characteristics. It could be due to more successful bargaining over firm rents by this group of workers or insider power. Another explanation could be missing non-observable characteristics in the analysis; for example, union members could have an exceptionally high motivation and are reliable or have unmeasured skills, which are captured by the union variable. If the union wage gap is indeed truly caused by unions, it may indicate lack of social awareness among the union members since this will secure neither the Pernambucan nor other Northeast states' competitiveness and their own future employment in a world of rapid technological change.

Gender differences related to union membership. Estimating the wage determination process for each gender separately shows no consistent difference between male and female workers.

6. Conclusion

The mean and quantile wage regression analyses for Pernambuco, Bahia, Ceará and the Northeast region as a whole for 1997 show a rather heterogeneous impact pattern of individual characteristics on monthly wages. This is also the case across the wage distribution, that is, the magnitude of the affect of a wage determinant is different depending on the worker being rich, poor or placed in the median of the wage distribution. In the following each of the wage determinants are discussed in turn.

Basic schooling matters for all four geographical areas and across the income distribution. However, poor workers are awarded lower returns than their rich peers. A striking finding shows that in Bahia and Ceará, the poor do not obtain any returns to basic schooling. Completed s*econd part of primary school* impacts wages significantly in the Northeast. The returns are larger in Pernambuco than elsewhere, and the poor are compensated similarly to the rich. Furthermore, the impact of 5-8 years of education is larger than of 1-4 years of completed education. Also, completed s*econdary education* affects significantly wages in all samples. The returns obtained by a median worker are higher in Ceará and Pernambuco than in Bahia. In Ceará the returns are rapidly increasing across the distribution, and the poor people receive a 35 percent return and the rich a much higher, namely 93 percent return to completed secondary education. The same is true in Bahia. In Pernambuco, there is less variation across the distribution. Finally, completed *tertiary education* offers the largest returns of all levels of education;

[14] See Maloney and Ribeiro (1999) on Mexico and Rama (1998), Verner (1999a), and Kristensen and Verner (2000) on Africa.

the median worker receives a premium of 105, 249, and 216 percent in Ceará, Pernambuco, and Bahia, respectively.

Explanations for the lower returns that the poor obtain may relate to quality of supplied education and lack of social capital. Labor market capital is more abundant for richer workers. It is easier to obtain a "good" job when richer, since richer workers generally socialize with people that have connections, information and power. Hence, poor people do not have the same access to well paid jobs as rich people. The findings reveal that Pernambuco pays higher returns than Bahia for all levels of education and Ceará and Pernambuco alternate for different quantiles and levels of education. Hence, one direct policy implication is to increase the quality of education, in particular, in poorer neighborhoods. Additionally, launching of mentoring programs where well-heeled workers help less well off peers could aid and reduce the labor market capital disparities. These findings indicate that education tends to reduce the risk of poverty. The less education you have, the more likely it is that you move into poverty (also see Verner 2000).

General experience impacts positively on wages and it is increasing with age until workers reach 50 years of age. Returns to experience are falling significantly across the wage distribution. Hence, the poor experience a larger wage gap than richer workers. For the poor and younger generations, experience contributes more to wages than education. However, for workers in high end of the wage distribution, the educational impact is by far larger than the experience impact. *Job-specific experience* or tenure affects wages positively and returns are monotonically increasing with experience.

Labor market association is measured by the formality of one's job status. For Pernambuco and Bahia, a median worker with a signed working card obtains a 34 percent higher wage premium than a non-signed working cardholder and the premium declines across the wage distribution. That is, low-wage earners benefit more in term of wages from formal sector employment than high wage earners. Higher-quality jobs may require more skills; hence the signed workbook factor may partly capture unmeasured skills. The wage gap may also be caused by lower productivity in the informal sector compared to the formal sector, which is not picked up by education and other human capital or job specific information. Hence, workers in the informal sector are disadvantaged in at least two ways: first, they are less protected and second, they obtain lower wages, which evidently does not compensate informal workers for the absence of the protection which goes along formal sector work.

Sector of employment of a worker is included in the analysis and the agricultural sector is compared to industry and services and no measurable differences are revealed. *The occupation* of workers is important for wage determination; all workers in the included occupational groups are paid more than workers engaged in agricultural activities. Workers employed as technicians or administrators obtain the highest returns. Furthermore, the wage gap is constant across the distribution for all occupational groups.

The white/non-white wage disparity is significant for both the poor and rich workers. White workers are paid 17 percent more than their non-white co-workers, taking into account human capital, etc.

Gender disparities are large in the Northeast and heterogeneous across the quantiles. For the poor the gender gap is 29 percent and it increases to 34 percent for the rich. In Ceará, the gender wage differentials are larger than in the other Northeastern states. Furthermore, the income of male workers increases more rapidly than income of females with the level of completed education and experience. Moreover, the returns to experience, in general as well as on-the-job, are higher for males than for females.

Urban area workers are compensated at higher prices. The urban-rural wage gap for the Northeast is 7 percent for the median worker and declining across the distribution. Workers living in the *metropolitan areas* are compensated in the form of a positive wage premium at all quantiles and metropolitan living is more important in the wage determination than living in an urban area.

The time spent in the current state impacts adversely on wages. That is, those that have stayed earn, on average, less than the newcomers. There are no considerable differences between male and female workers.

Union membership has an important impact on workers' wages. For the Northeast as a whole, a union member in the low end of the wage distribution obtains a higher premium than a peer at the top. A worker placed in the 10^{th} and 90^{th} quantiles receives a 24 and 17 percent premium, respectively.

The analysis shows that education has an important effect on wages and, therefore, on well being in the Northeast and the three states. The findings show the importance of improving the quality of obtained education, in particular, that of primary education. It is important to reduce dropout rates, so that more children continue and complete their secondary education. One direct action plan for the government would be to work with the private sector in order to expand the Bolsa de Escola program to the entire region and, furthermore, supply education credits so more children can complete secondary education.

One observation, which appears from this study, is a lack of skills. The reason may be that, in general, investing in training is risky for a firm, since the return is unclear, as the human capital obtained is not fixed in the firm. The trained workers own their brains, and can leave with the human capital and work in another firm. High labor turnover (47 percent) in Brazil increases this risk (see Gonzaga (1996)), resulting in too little investment in training by firms. The state can assist in the process of moving from a low-training equilibrium to a higher equilibrium with better jobs and more skills. Policy makers can facilitate the access to training for workers--both with and without a working card, in collaboration with the private sector. This would also increase the competitiveness of the workers when they have to compete with workers in other states and countries. In a world of increased globalization, job-saving technologies are widely being applied.

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Appendixes

Wage determination in Pernambuco, Bahia, Ceará amd the Northeast: An Application of Quantile Regression

Appendix A: Summary Statistics
Appendix B: Definition of Variables
Appendix C: Quantile Regression Findings
Appendix D: R? for Quantile Regression and OLS Regressions
Appendix F: ?

Appendix A. TABLE A1-BRAZIL. BASIC DESCRIPTIVE STATISTICS

variable	all		union		nonunion		males		females		white		non-white	
	freq	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**
All	106,282	100.0	18,024	100.0	88,258	100.0	62,574	100.0	43,708	100.0	56,971	100.0	49,311	100.0
male	62,574	58.9	11,300	62.7	51,274	58.1	na	na	na	na	32,711	57.4	29,863	60.6
female	43,708	41.1	6,724	37.3	36,984	41.9	na	na	na	na	24,260	42.6	19,448	39.4
white	56,971	53.6	11,141	61.8	45,830	51.9	32,711	52.3	24.260	55.5	na	na	na	na
non-white	49,311	46.4	6,883	38.2	42,428	48.1	29,863	47.7	19,448	44.5	na	na	na	na
union	18,024	17.0	na	na	na	na	11,300	18.1	6,724	15.4	1,114	19.6	6,883	14.0
non union	88,258	83.0	na	na	na	na	51,274	81.9	36,984	84.6	45,830	80.4	42,428	86.0
age10_20	15,433	14.5	760	4.2	14,673	16.6	9,626	15.4	5,807	13.3	7,260	12.7	8,173	16.6
age21_30	30,885	29.1	4,462	24.8	26,423	29.9	17,974	28.7	12,911	29.5	16,181	28.4	14,704	29.8
age31_40	28,613	26.9	5,923	32.9	22,690	25.7	15,891	25.4	12,722	29.1	15,988	28.1	12,625	25.6
age41_50	19,308	18.2	4,297	23.8	15,011	17.0	11,012	17.6	8,296	19.0	10,887	19.1	8,421	17.1
age51_70	12,043	11.3	2,582	14.3	9,460	10.7	8,071	12.9	3,972	9.1	6,655	11.7	5,388	10.9
stud0	10,886	10.2	1,307	7.3	9,579	10.9	7,555	12.1	3,331	7.6	3,292	5.8	7,594	15.4
stud1_4	29,318	27.6	3,177	17.6	26,141	29.6	19,085	30.5	10,233	23.4	13,491	23.7	15,827	32.1
stud5_8	29,886	28.1	3,907	21.7	25,979	29.4	18,194	29.1	11,692	26.8	15,891	27.9	13,995	28.4
stud9_11	23,772	22.4	4,961	27.5	18,811	21.3	11,927	19.1	11,845	27.1	14,452	25.4	9,320	18.9
stud12pl	12,420	11.7	4,672	25.9	7,748	8.8	5,813	9.3	6,607	15.1	9,845	17.3	2,575	5.2
primary sector	12,433	12.0	2,111	12.3	10,322	11.9	10,943	17.9	1,490	3.5	5,214	9.4	7,219	14.9
second. sector	22,831	22.0	4,148	24.2	18,683	21.5	18,137	29.7	4,694	11.0	12,281	22.2	10,550	21.7
tertiary sector	68,585	66.0	10,854	63.4	57,731	66.6	32,007	52.4	36,578	85.5	37,786	68.4	30,799	63.4
married	81,762	76.9	14,305	79.4	67,457	76.4	51,004	81.5	30,758	70.4	44,692	78.5	37,070	75.2
not married	24,520	23.1	3,719	20.6	20,801	23.6	11,570	18.5	12,950	29.6	12,279	21.5	12,241	24.8
tenure0	14,754	13.9	973	5.4	13,781	15.6	8,492	13.6	6,262	14.3	6,845	12.0	7,909	16.0
tenure1_2	32,076	30.2	3,702	20.5	28,374	32.2	18,252	29.2	13,824	31.6	16,923	29.7	15,153	30.7
tenure3_6	25,442	23.9	4,254	23.6	21,188	24.0	14,754	23.6	10,688	24.5	14,092	24.7	11,350	23.0
tenure7_12	16,207	15.3	3,803	21.1	12,404	14.1	9,573	15.3	6,634	15.2	9,076	15.9	7,131	14.5
tenure13pl	17,803	16.8	5,292	29.4	12,511	14.2	11,503	18.4	6,300	14.4	10,035	17.6	7,768	15.8

Appendix A. TABLE A1-NORTH-EAST. BASIC DESCRIPTIVE STATISTICS

variable	all		union		nonunion		males		females		white		non-white	
	freq	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**
All	8,802	100.0	1,417	100.0	7,385	100.0	5,242	100.0	3,560	100.0	3,865	100.0	4,937	100.0
male	5,242	59.6	955	67.4	4,287	58.1	na	na	na	na	2,257	58.4	2,985	60.5
female	3,560	40.4	462	32.6	3,098	41.9	na	na	na	na	1,608	41.6	1,952	39.5
white	3,865	43.9	693	48.9	3,172	42.9	2,257	43.1	1,952	54.8	na	na	na	na
non-white	4,937	56.1	724	51.1	4,213	57.1	2,985	56.9	1,608	45.2	na	na	na	na
union	1,417	16.1	na	na	na	na	955	18.2	462	13.0	693	17.9	724	14.7
non union	7,385	83.9	na	na	na	na	4,287	81.8	3,098	87.0	3,172	82.1	4,213	85.3
age10_20	741	8.4	31	2.2	710	9.6	427	8.2	314	8.8	264	6.8	477	9.7
age21_30	2,253	25.6	301	21.2	1,952	26.4	1,331	25.4	922	25.9	983	25.4	1,270	25.7
age31_40	2,430	27.6	428	30.2	2,002	27.1	1,333	25.4	1,097	30.8	1,100	28.5	1,330	26.9
age41_50	1,933	22.0	393	27.7	1,540	20.9	1,143	21.8	790	22.2	873	22.6	1,060	21.5
age51_70	1,445	16.4	264	18.6	1,181	16.0	1,008	19.2	437	12.3	645	16.7	800	16.2
stud0	1,497	17.0	178	12.6	1,319	17.9	1,017	19.4	480	13.5	488	12.6	1,009	20.4
stud1_4	2,752	31.3	299	21.1	2,453	33.2	1,767	33.7	985	27.7	1,091	28.2	1,661	33.6
stud5_8	2,362	26.8	331	23.4	2,031	27.5	1,346	25.7	1,016	28.5	1,081	28.0	1,281	26.0
stud9_11	1,489	16.9	327	23.1	1,162	15.7	758	14.5	731	20.5	760	19.7	729	14.8
stud12pl	702	8.0	282	19.9	4,201	5.7	354	6.8	348	9.8	445	11.5	257	5.2
primary sector	713	8.3	132	9.7	581	8.0	631	12.3	82	2.3	180	4.8	533	11.0
second. sector	2,000	23.2	344	25.3	1,656	22.8	1,668	32.5	332	9.5	843	22.4	1,157	23.8
tertiary sector	5,921	68.6	884	65.0	5,037	69.3	2,834	55.2	3,087	88.2	2,747	72.9	3,174	65.3
married	6,782	23.0	1,105	22.0	5,677	76.9	4,3	82.2	2,471	69.4	2,991	77.4	3,791	76.8
not married	2,020	77.0	312	78.0	1,708	23.1	11 931	17.8	1,089	30.6	874	22.6	1,146	23.2
tenure0	1,160	13.2	68	4.8	1,092	14.8		12.6	502	14.1	418	10.8	742	15.0
tenure1_2	2,662	30.2	309	21.8	2,353	31.9	658	28.4	1,172	32.9	1,169	30.3	1,493	30.2
tenure3_6	2,118	24.1	340	24.0	1,778	24.1	1,490	24.2	850	23.9	961	24.9	1,157	23.4
tenure7_12	1,411	16.0	302	21.3	1,109	15.0	1,268	16.8	528	14.8	666	17.2	745	15.1
tenure13pl	1,451	16.5	398	28.1	1,053	14.3	883 943	18.0	508	14.3	651	16.8	800	16.2

Appendix A. TABLE A1-BAHIA. BASIC DESCRIPTIVE STATISTICS

variable	all		union		nonunion		males		females		white		non-white	
	freq	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**
all	1988	100.0	279	14.0	1709	86.0	1153	58.0	835	42.0	755	100	1233	100
male	1153	58.0	187	67.0	966	56.5	na	na	na	na	440	58.3	713	57.8
female	835	42.0	92	33.0	743	43.5	na	na	na	na	315	41.7	520	42.2
white	755	38.0	121	43.4	634	37.1	440	38.2	315	37.7	na	na	na	na
non-white	1233	62.0	158	56.6	1075	62.9	713	61.8	520	62.3	na	na	na	na
union	279	14.0	na	na	na	na	187	16.2	92	11.0	121	16.0	158	12.8
non union	1709	86.0	na	na	na	na	966	83.8	743	89.0	634	84.0	1075	87.2
age10_20	195	9.8	10	3.6	185	10.8	115	10.0	80	9.6	61	8.1	134	10.9
age21_30	534	26.9	70	25.1	464	27.2	304	26.4	230	27.5	200	26.5	334	27.1
age31_40	518	26.1	69	24.7	449	26.3	273	23.7	245	29.3	192	22.4	326	26.1
age41_50	413	20.8	86	30.8	327	19..1	227	19.7	186	22.3	168	22.3	245	19.9
age51_70	328	16.5	44	15.8	284	16.6	234	20.3	94	11.3	134	17.8	194	15.7
stud0	326	16.4	28	10.0	298	17.4	201	17.4	125	15.0	93	12.3	233	18.9
stud1_4	716	36.0	70	25.1	646	37.8	441	38.3	275	32.9	256	33.9	460	37.3
stud5_8	562	28.3	71	25.5	491	28.7	307	26.6	255	30.5	214	28.3	348	28.2
stud9_11	263	13.2	57	20.4	206	12.1	143	12.4	120	14.4	125	16.6	138	11.2
stud12pl	121	6.1	53	19.0	68	4.0	61	5.3	60	7.2	67	8.9	54	4.4
primary sector	159	8.1	16	5.7	143	8.4	143	12.6	16	2.0	44	6.0	115	9.4
second. sector	541	27.6	81	29.0	460	26.9	458	40.2	83	10.1	192	26.0	349	28.6
tertiary sector	1259	64.3	173	62.0	1086	63.6	538	47.2	721	87.9	504	68.1	755	61.9
married	1508	75.9	212	76.0	1296	75.8	930	80.7	578	69.2	577	76.4	931	75.5
not married	480	24.1	67	24.0	413	24.2	223	19.3	257	30.8	178	23.6	302	24.5
tenure0	292	14.7	13	4.7	279	16.3	150	13.0	142	17.0	85	11.3	207	16.8
tenure1_2	633	31.8	72	25.8	561	32.8	354	30.7	279	33.4	247	32.7	386	31.3
tenure3_6	481	24.2	66	23.7	415	24.3	287	24.9	194	23.2	177	23.4	304	24.7
tenure7_12	286	14.4	58	20.8	228	13.3	171	14.8	115	13.8	127	16.8	159	12.9
tenure13pl	296	14.9	70	25.1	226	13.2	191	16.6	105	12.6	119	15.8	177	14.4

Appendix A. TABLE A1-PERNAMBUCO. BASIC DESCRIPTIVE STATISTICS

variable	all		union		nonunion		males		females		white		non-white	
	freq	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**
All	1,356	100.0	213	100.0	1,143	100.0	839	100.0	517	100.0	693	100.0	663	100.0
male	839	61.9	149	69,9	690	60.4	na	na	na	na	418	60.3	421	63.5
female	517	38.1	64	30.1	453	39.6	na	na	na	na	275	39.7	242	36.5
white	693	51.1	109	51.2	584	51.1	418	49.8	275	53.2	na	na	na	na
non-white	663	48.9	104	48.8	559	48.9	421	50.2	242	46.8	na	na	na	na
union	213	15.7	na	na	na	na	149	17.8	64	12.4	109	15.7	104	15.7
non union	1,143	84.3	na	na	na	na	690	82.2	453	87.6	584	84.3	559	84.3
age10_20	117	8.6	5	2.4	112	9.8	69	8.2	48	9.3	50	7.2	67	10.1
age21_30	318	23.5	44	20.7	274	24.0	186	22.2	132	25.5	167	24.1	151	22.8
age31_40	385	28.4	62	29.1	323	28.3	221	26.3	164	31.7	202	29.2	183	27.6
age41_50	313	23.1	59	27.7	254	22.2	200	23.8	113	21.9	160	23.1	153	23.1
age51_70	223	16.5	43	20.2	180	15.8	163	19.4	60	11.6	114	16.5	109	16.4
stud0	215	15.9	30	14.1	185	16.2	159	19.0	56	10.8	75	10.8	140	21.1
stud1_4	427	31.5	49	23.0	378	33.1	292	34.8	135	26.1	222	32.0	205	30.9
stud5_8	368	27.1	53	24.9	315	27.6	214	25.5	154	29.8	194	28.0	174	26.2
stud9_11	229	16.9	46	21.6	183	16.0	114	13.6	115	22.2	126	18.2	103	15.5
stud12pl	117	8.6	35	16.4	82	7.2	60	7.2	57	11.0	76	11.0	41	6.2
primary sector	121	9.0	26	12.4	95	8.4	109	13.2	12	2.4	34	5.0	87	13.2
second. sector	322	24.1	63	30.1	259	22.9	253	30.6	69	13.5	169	24.9	153	23.3
tertiary sector	895	66.9	120	57.4	775	68.6	465	56.2	430	84.2	477	70.1	418	63.5
married	1,067	78.7	178	83.6	889	77.8	700	83.4	367	71.0	555	80.1	512	77.2
not married	289	21.3	35	16.4	254	22.2	139	16.6	150	29.0	138	19.9	151	22.8
tenure0	165	12.2	16	7.5	149	13.0	101	12.0	64	12.4	83	12.0	82	12.4
tenure1_2	420	31.0	40	18.8	380	33.3	227	27.1	193	37.3	222	32.0	198	29.9
tenure3_6	351	25.9	58	27.2	293	25.6	223	26.6	128	24.8	175	25.3	176	26.6
tenure7_12	208	15.3	47	22.1	161	14.1	139	16.6	69	13.4	100	14.4	108	16.3
tenure13pl	212	15.6	52	24.4	160	14.0	149	17.8	63	12.2	113	16.3	99	14.9

Appendix A. TABLE A1-CEARA. BASIC DESCRIPTIVE STATISTICS

variable	all		union		nonunion		males		females		white		non-white	
	freq	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**	**freq**	**perc**
All	1275	100.0	229	100.0	1046	100.0	802	100.0	473	100.0	652	100.0	623	100.0
male	802	62.9	156	68.1	646	61.8	na	na	na	na	391	58.0	411	66.0
female	473	37.1	73	31.9	400	38.2	na	na	na	na	261	40.0	212	34.0
white	652	51.1	128	55.9	524	50.1	391	48.8	261	55.2	na	na	na	na
non-white	623	48.9	101	44.1	522	49.9	411	51.2	212	44.8	na	na	na	na
union	229	18.0	na	na	na	na	156	19.5	73	15.4	128	19.6	101	16.2
non union	1046	82.0	na	na	na	na	646	80.5	400	84.6	524	80.4	522	83.8
age10_20	95	7.5	0	0.0	95	9.1	55	6.9	40	8.5	36	5.5	59	9.5
age21_30	312	24.5	48	21.0	264	25.2	195	24.3	117	24.7	177	27.2	135	21.7
age31_40	337	26.4	64	28.0	273	26.1	196	24.4	141	29.8	172	26.4	165	26.5
age41_50	306	24.0	60	26.2	246	23.5	195	24.3	111	23.5	169	25.9	137	22.0
age51_70	225	17.7	57	24.9	168	16.1	161	20.1	64	13.5	98	15.0	127	20.4
stud0	264	20.7	45	19.7	219	20.9	188	23.4	76	16.1	90	13.8	174	27.9
stud1_4	400	31.4	50	21.8	350	33.5	260	32.4	140	29.6	176	27.0	225	36.0
stud5_8	316	24.8	53	23.1	263	25.1	189	23.6	127	26.9	182	27.9	134	21.5
stud9_11	184	14.4	34	14.9	150	14.3	95	11.9	89	18.8	120	18.4	64	10.3
stud12pl	111	8.7	47	20.5	64	6.1	70	8.7	41	8.7	84	12.7	27	4.3
primary sector	114	9.1	32	14.6	82	8.0	97	12.5	17	3.6	22	3.5	92	15.0
second. sector	288	23.1	53	24.2	235	22.9	237	30.4	51	10.9	140	22.2	148	24.1
tertiary sector	845	67.8	134	61.2	711	69.2	445	57.1	400	85.5	470	74.4	375	61.0
married	1024	80.3	183	79.9	841	80.4	673	83.9	351	74.2	523	80.2	501	80.4
not married	251	16.7	46	20.1	205	19.6	129	16.1	122	25.8	129	19.8	122	19.6
tenure0	138	10.8	9	3.9	129	12.3	83	10.4	55	11.6	49	7.5	89	14.3
tenure1_2	368	28.9	49	21.4	319	30.5	220	27.4	148	31.3	187	28.7	181	29.1
tenure3_6	311	24.4	50	21.8	261	25.0	188	23.4	123	26.0	168	25.8	143	23.0
tenure7_12	237	18.6	57	24.9	180	17.2	157	19.6	80	16.9	145	22.2	92	14.8
tenure13pl	221	17.3	64	28.0	157	15.0	154	19.2	67	14.2	103	15.8	118	18.9

Appendix A. TABLE A2. MEAN AND STANDARD DEVIATIONS

variable	**Brazil**		**North-East**		**Bahia**		**Pernambuco**		**Ceara**	
	mean	std	mean	std	mean	std	mean	std	mean	std
income	523.87	1013.40	515.85	780.69	511.30	778.94	548.39	926.16	539.58	811.45
age	34.12	12.45	37.22	12.61	36.72	12.90	37.63	12.69	38.03	12.51
tenure	6.40	7.95	6.45	7.94	5.89	7.36	6.40	8.05	6.81	7.91
years studied	6.76	4.38	5.64	4.34	5.25	4.06	5.77	4.35	5.37	4.46

Appendix A. TABLE A3-BRAZIL. PERCENTILES AND RATIO'S OF PERCENTILES FOR MONTHLY WAGES

percentiles and ratio's	**all**	**union**	**non-union**	**males**	**females**	**white**	**non-white**
percentiles							
10	87.20	144.52	77.52	104.34	66.32	116.27	62.98
50	265.28	497.39	232.55	309.49	221.06	339.13	193.79
90	1105.31	1989.57	906.36	1326.38	884.25	1627.27	663.19
99	4421.26	5747.63	3391.29	4644.70	3094.88	5526.57	2232.44
ratio's							
50/10	3.04	3.44	3.00	2.97	3.33	2.92	3.08
90/10	12.67	13.77	11.69	12.71	13.33	14.00	10.53
99/10	50.70	39.77	43.75	46.43	46.67	47.53	35.45
90/50	4.17	4.00	3.90	4.29	4.00	4.80	3.42
99/50	16.67	11.56	14.58	15.65	14.00	16.30	11.52
99/90	4.00	2.89	3.74	3.65	3.50	3.40	3.37

Appendix A. TABLE A3-NORTH-EAST. PERCENTILES AND RATIO'S OF PERCENTILES FOR MONTHLY WAGES

percentiles and ratio's	**all**	**union**	**non-union**	**males**	**females**	**white**	**non-white**
percentiles							
10	110.53	166.95	104.34	116.27	87.20	122.09	88.43
50	309.49	552.66	276.33	377.68	231.67	386.86	265.28
90	1105.31	1879.03	909.67	1162.73	872.05	1381.64	872.05
99	3372.14	4973.91	2906.82	3853.88	2906.82	4421.26	2713.03
ratio's							
50/10	2.80	3.31	2.65	3.25	2.66	3.17	3.00
90/10	10.00	11.26	8.72	10.00	10.00	11.32	9.86
99/10	30.51	29.79	27.86	33.15	33.33	36.21	30.68
90/50	3.57	3.40	3.29	3.08	3.76	3.57	3.29
99/50	10.90	9.00	10.52	10.20	12.55	11.43	10.23
99/90	3.05	2.65	3.20	3.31	3.33	3.20	3.11

Appendix A. TABLE A3_BAHIA. PERCENTILES AND RATIO'S OF PERCENTILES FOR MONTHLY WAGES

percentiles and ratio's	**all**	**union**	**non-union**	**males**	**females**	**white**	**non-white**
percentiles							
10	116.27	241.83	115.62	132.64	110.53	132.64	112.40
50	331.59	552.66	309.49	387.22	267.49	385.39	309.49
90	994.78	2210.63	884.25	1156.16	770.78	1453.41	823.60
99	2763.28	5526.57	2210.63	3315.94	2763.29	3868.60	2210.63
ratio's							
50/10	2.85	2.29	2.68	2.92	2.42	2.91	2.75
90/10	8.56	9.14	7.65	8.72	6.97	10.96	7.33
99/10	23.77	22.85	19.12	25.00	25.00	29.17	19.67
90/50	3.00	4.00	2.86	2.98	2.88	3.77	2.66
99/50	8.33	10.00	7.14	8.56	10.33	10.04	7.14
99/90	2.78	2.50	2.50	2.87	3.59	2.66	2.68

Appendix A. TABLE A3-PERNAMBUCO. PERCENTILES AND RATIO'S OF PERCENTILES FOR MONTHLY WAGES

percentiles and ratio's	**all**	**union**	**non-union**	**males**	**females**	**white**	**non-white**
percentiles							
10	115.62	174.41	115.62	116.27	110.53	132.64	96.35
50	331.59	519.36	309.49	386.86	265.28	386.86	271.30
90	1105.31	1453.41	968.94	1215.85	872.05	1252.51	884.25
99	3853.88	3338.94	3853.88	3853.88	3372.14	4421.26	2713.03
ratio's							
50/10	2.86	2.98	2.68	3.33	2.40	2.92	2.82
90/10	9.56	8.33	8.38	10.46	7.89	9.44	9.18
99/10	33.33	19.14	33.33	33.15	30.51	33.33	28.16
90/50	3.33	2.80	3.13	3.14	3.29	3.24	3.26
99/50	11.62	6.43	12.45	9.96	12.71	11.43	10.00
99/90	3.49	2.30	3.98	3.17	3.87	3.53	3.07

Appendix A. TABLE A3-CEARA. PERCENTILES AND RATIO'S OF PERCENTILES FOR MONTHLY WAGES

percentiles and ratio's	**all**	**union**	**non-union**	**males**	**females**	**white**	**non-white**
percentiles							
10	96.35	116.27	96.35	116.27	58.43	123.65	58.43
50	309.49	481.73	276.33	385.39	221.06	385.39	231.23
90	1162.73	1926.94	968.94	1326.38	884.25	1657.97	674.38
99	3853.88	7751.52	3315.94	4166.44	3391.29	4752.85	1937.88
ratio's							
50/10	3.21	4.14	2.87	3.31	3.78	3.11	3.96
90/10	12.07	16.57	10.06	11.41	15.13	13.41	11.54
99/10	40.00	66.67	34.42	35.83	58.04	38.44	33.17
90/50	3.76	4.00	3.51	3.44	4.00	4.30	2.91
99/50	12.45	16.09	12.00	10.81	15.34	12.33	8.38
99/90	3.31	4.02	3.42	3.14	3.84	2.87	2.87

Appendix A. TABLE A4. SOME MORE PERCENTILES AND RATIO'S OF PERCENTILES

Brazil	stud0	stud1_4	stud5_8	stud9_11	stud12pl	rural	urban
10th	99.478	97.268	83.474	77.372	77.515	46.954	106.583
50th	290.682	309.488	276.329	239.986	232.546	135.644	290.682
90th	1182.686	1326.377	1326.377	1105.314	775.152	449.590	1215.846
99th	4421.257	4650.911	4642.320	4421.257	2441.728	2086.838	4421.257
50/10	2.922	3.182	3.310	3.102	3.000	2.889	2.727
90/10	11.889	13.636	15.890	14.286	10.000	9.575	11.407
99/10	44.444	47.816	55.614	57.143	31.500	44.444	41.482
90/50	4.069	4.286	4.800	4.606	3.333	3.314	4.183
99/50	15.210	15.028	16.800	18.423	10.500	15.385	15.210
99/90	3.738	3.506	3.500	4.000	3.150	4.642	3.636
NE	stud0	stud1_4	stud5_8	stud9_11	stud12pl	rural	urban
10th	116.273	115.616	96.894	96.894	104.342	43.394	116.273
50th	331.594	331.594	309.488	289.041	289.041	157.253	331.594
90th	1162.728	1259.622	1162.728	994.783	884.251	472.069	1105.314
99th	3853.879	3853.879	3853.879	3372.144	2210.629	2712.116	3391.289
50/10	2.852	2.868	3.194	2.983	2.770	3.624	2.852
90/10	10.000	10.895	12.000	10.267	8.475	10.879	9.506
99/10	33.145	33.333	39.774	34.802	21.186	62.500	29.167
90/50	3.506	3.799	3.757	3.442	3.059	3.002	3.333
99/50	11.622	11.622	12.452	11.667	7.648	17.247	10.227
99/90	3.315	3.060	3.315	3.390	2.500	5.745	3.068
Bahia	stud0	stud1_4	stud5_8	stud9_11	stud12pl	rural	urban
10th	128.869	116.273	116.273	115.616	116.273	78.678	116.273
50th	339.783	337.214	331.594	331.594	331.594	195.272	337.214
90th	1105.314	1215.846	1105.314	934.566	884.251	505.788	1105.314
99th	2890.409	3315.943	3372.144	2809.925	2210.629	1123.974	2763.286
50/10	2.637	2.900	2.852	2.868	2.852	2.482	2.900
90/10	8.577	10.457	9.506	8.083	7.605	6.429	9.506
99/10	22.429	28.519	29.002	24.304	19.012	14.286	23.766
90/50	3.253	3.606	3.333	2.818	2.667	2.590	3.278
99/50	8.507	9.833	10.169	8.474	6.667	5.756	8.194
99/90	2.615	2.727	3.051	3.007	2.500	2.222	2.500
Pernambuco	stud0	stud1_4	stud5_8	stud9_11	stud12pl	rural	urban
10th	125.210	116.273	110.531	110.531	114.776	57.315	116.273
50th	364.754	353.701	331.594	314.905	313.026	156.513	348.818
90th	1162.728	1326.377	1156.164	1105.314	884.251	460.830	1105.314
99th	4360.229	4421.257	4421.257	3853.879	2210.629	2820.601	4360.229
50/10	2.913	3.042	3.000	2.849	2.727	2.731	3.000
90/10	9.286	11.407	10.460	10.000	7.704	8.040	9.506
99/10	34.823	38.025	40.000	34.867	19.260	49.212	37.500
90/50	3.188	3.750	3.487	3.510	2.825	2.944	3.169
99/50	11.954	12.500	13.333	12.238	7.062	18.022	12.500
99/90	3.750	3.333	3.824	3.487	2.500	6.121	3.945
Ceara	stud0	stud1_4	stud5_8	stud9_11	stud12pl	rural	urban
10th	116.273	88.425	81.387	83.474	84.916	26.085	116.273
50th	340.437	331.594	290.682	290.682	287.382	134.877	331.594

90th	1326.377	1326.377	1252.511	1059.817	884.251	521.709	1215.846
99th	4166.440	4166.440	4421.257	3853.879	2422.349	2608.547	3853.879
50/10	2.928	3.750	3.572	3.482	3.384	5.171	2.852
90/10	11.407	15.000	15.390	12.696	10.413	20.000	10.457
99/10	35.833	47.118	54.324	46.169	28.526	100.000	33.145
90/50	3.896	4.000	4.309	3.646	3.077	3.868	3.667
99/50	12.239	12.565	15.210	13.258	8.429	19.340	11.622
99/90	3.141	3.141	3.530	3.636	2.739	5.000	3.170

Appendix B. TABLE B1. DEFINITION OF VARIABLES

uf	identifier
v0102	Identifier, control number
v0103	identifier, serial number
female	dummy=1 if female and zero if male, from v0302
age	from v8005
famsize	size of family from v0403
race	from v0404
region	geographical region from v5030
ostate	lived in other state? yes=1, from v0504
livefive	lived in this state for 5-9 years, from v5063
liveten	lived in this state for at least ten years, from v5065
rrr	self-assessed read and write ability (not arith.), from v0601
eduatt	highest level of education attended in the past, from v0607
educompl	yes/no to the previous question v0607, from v0608
worked	worked in reference week yes/no? (incl. self-empl, from v9001)
metropol	metropolitan area or not, from v4727
urban	urban rural dummy, from v4728
income	monthly income from primary/principle source, from v9532
union	union member yes/no?, from v9087
income2	monthly income from additional source, from v9982
educatio	education level reached, from v4701
ystudy	years spend in school, from v4703
occupat	occupational category, from v4706
agricul	agriculture dummy, from v4708
sector	sector or industry, from v4709
occgroup	occupational group
income3	total individual income, from v4720
income4	total household income, from v4721
famchar	family characteristics/#children, from v4723
ygstudy	yrs of school (yrs grouped), from v4738
lincome	ln(income)
tenure	tenure, calculated using v9611 and v9612
tenu0	dummy=1 if tenure is less than 6 months
tenu1_2	dummy=1 if tenure is 1-2 years
tenu3_6	dummy=1 if tenure is 3-6 years
tenu7_12	dummy=1 if tenure is 7-12 years
tenu13p	dummy=1 if tenure is 13 years and plus
tenuresq	tenure squared
age10_20	dummy=1 if age between 10-20 years
age21_30	dummy=1 if age between 21-30 years
age31_40	dummy=1 if age between 31-40 years
age41_50	dummy=1 if age between 41-50 years
age51_70	dummy=1 if age between 51-70 years
agesq	age squared
white	dummy=1 if race is white and zero otherwise
stud0	dummy=1 if zero years of study
stud1_4	dummy=1 if 1-4 years of study
stud5_8	dummy=1 if 5-8 years of study
stud9_11	dummy=1 if 9-11 years of study
stud12pl	dummy=1 if 12 or more (plus) years of study
agric	dummy=1 if sector=agricultural, v4709
manufact	dummy=1 if sector=manufacturing, v4709
construc	dummy=1 if sector=construction, v4709
otherin	dummy=1 if sector=other industry, v4709
tracom	dummy=1 if sector=transport/communication or trade/commerce, v4709
service	dummy=1 if sector=service (incl. financial services), v4709
social	dummy=1 if sector=social, v4709
public	dummy=1 if sector=public, v4709
Nasector	dummy=1 if sector=NA or other
primsec	dummy=1 if sector=primary sector (identical to agriculture (i.e.=agric))
secsec	dummy=1 if sector=secondary sector (identical to manufact+construct+otherin)
tertsec	dummy=1 if sector= tertiary sector (id. to tracom+service+social+public)
agriprod	dummy=1 if occupation=agriculture and agricultural products
techadm	dummy=1 if occupation=technician or administration
transfor	dummy=1 if occupation=transformation industry/ manufacturing
octracom	dummy=1 if occupation=transport/communication/commerce/trade
ocservic	dummy=1 if occupation=service dummy=1 if occupation=NA/other
NAoccup	dummy=1 if married and zero otherwise, from 4723
married	dummy=1 for child family and zero otherwise
childfam	dummy=1 if northern region and zero otherwise
north	dummy=1 if north-eastern region and zero otherwise
NE	dummy=1 if south-eastern region and zero otherwise

Appendix C1. Quantile regressions including all individuals

NE, all	Coef. Q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
female	-0.343	0.000	-0.358	0.000	-0.409	0.000	-0.452	0.000	-0.414	0.000
white	0.117	0.000	0.144	0.000	0.178	0.000	0.175	0.000	0.162	0.000
union	0.214	0.000	0.175	0.000	0.144	0.000	0.132	0.000	0.154	0.001
urban	0.100	0.166	0.087	0.066	0.064	0.063	0.058	0.192	0.067	0.079
metropol	0.319	0.000	0.320	0.000	0.324	0.000	0.270	0.000	0.209	0.000
liveten	-0.111	0.004	-0.096	0.000	-0.091	0.000	-0.112	0.000	-0.077	0.014
age21_30	0.352	0.000	0.318	0.000	0.277	0.000	0.324	0.000	0.264	0.000
age31_40	0.468	0.000	0.433	0.000	0.480	0.000	0.547	0.000	0.502	0.000
age41_50	0.551	0.000	0.540	0.000	0.554	0.000	0.617	0.000	0.517	0.000
age51_70	0.445	0.000	0.397	0.000	0.399	0.000	0.519	0.000	0.481	0.000
tenu1_2	0.104	0.030	0.055	0.075	0.039	0.142	0.000	0.991	0.028	0.528
tenu3_6	0.174	0.002	0.143	0.000	0.140	0.000	0.147	0.000	0.163	0.001
tenu7_12	0.236	0.000	0.203	0.000	0.190	0.000	0.195	0.000	0.231	0.000
tenu13p	0.258	0.000	0.248	0.000	0.289	0.000	0.335	0.000	0.469	0.000
stud1_4	0.146	0.011	0.159	0.000	0.216	0.000	0.208	0.000	0.237	0.000
stud5_8	0.300	0.000	0.254	0.000	0.313	0.000	0.337	0.000	0.384	0.000
stud9_11	0.412	0.000	0.304	0.000	0.440	0.000	0.544	0.000	0.619	0.000
stud12pl	0.708	0.000	0.808	0.000	1.090	0.000	1.127	0.000	1.261	0.000
secsec	0.059	0.603	-0.043	0.643	-0.073	0.250	0.025	0.695	0.159	0.033
tertsec	-0.152	0.159	-0.197	0.028	-0.200	0.001	-0.134	0.026	0.025	0.709
techadm	0.496	0.000	0.615	0.000	0.657	0.000	0.670	0.000	0.663	0.000
transfor	0.290	0.032	0.377	0.000	0.431	0.000	0.410	0.000	0.358	0.000
octracom	0.346	0.011	0.455	0.000	0.492	0.000	0.490	0.000	0.428	0.000
ocservic	0.321	0.019	0.385	0.000	0.398	0.000	0.447	0.000	0.333	0.000
NAoccup	0.194	0.146	0.210	0.037	0.259	0.000	0.251	0.000	0.186	0.015
carteira	0.438	0.000	0.366	0.000	0.288	0.000	0.218	0.000	0.146	0.000
_cons	3.522	0.000	3.987	0.000	4.335	0.000	4.667	0.000	4.948	0.000

Appendix C1. continued

Pernamb, all	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
female	-0.274	0.001	-0.305	0.000	-0.374	0.000	-0.385	0.000	-0.415	0.000
white	0.194	0.006	0.201	0.000	0.129	0.007	0.121	0.058	0.167	0.039
union	0.215	0.017	0.157	0.040	0.140	0.034	0.163	0.047	0.146	0.164
urban	-0.137	0.413	-0.012	0.918	0.093	0.434	0.095	0.407	0.075	0.571
metropol	0.407	0.000	0.393	0.000	0.338	0.000	0.253	0.000	0.272	0.000
liveten	-0.164	0.029	-0.092	0.077	-0.094	0.079	-0.185	0.007	-0.191	0.035
age21_30	0.344	0.006	0.257	0.004	0.192	0.055	0.206	0.051	0.296	0.012
age31_40	0.370	0.007	0.466	0.000	0.413	0.000	0.462	0.000	0.465	0.000
age41_50	0.570	0.000	0.534	0.000	0.569	0.000	0.642	0.000	0.602	0.000
age51_70	0.580	0.000	0.387	0.001	0.289	0.026	0.491	0.000	0.487	0.000
tenu1_2	0.049	0.716	0.044	0.604	0.026	0.754	-0.029	0.785	0.011	0.924
tenu3_6	0.182	0.177	0.116	0.219	0.158	0.064	0.133	0.209	0.122	0.315
tenu7_12	0.202	0.205	0.204	0.051	0.245	0.027	0.199	0.105	0.268	0.040
tenu13p	0.178	0.479	0.204	0.198	0.425	0.001	0.251	0.081	0.204	0.220
stud1_4	0.358	0.010	0.135	0.160	0.209	0.004	0.277	0.002	0.273	0.008
stud5_8	0.501	0.000	0.279	0.010	0.338	0.000	0.500	0.000	0.525	0.000
stud9_11	0.587	0.000	0.350	0.011	0.504	0.000	0.633	0.000	0.653	0.000
stud12pl	0.695	0.006	0.716	0.002	1.250	0.000	1.328	0.000	1.301	0.000
secsec	0.091	0.780	-0.041	0.879	0.139	0.437	0.188	0.213	0.079	0.775
tertsec	-0.025	0.939	-0.159	0.543	-0.017	0.924	-0.062	0.685	-0.088	0.751
techadm	0.646	0.078	0.724	0.007	0.529	0.014	0.627	0.002	0.849	0.007
transfor	0.511	0.197	0.566	0.051	0.333	0.105	0.297	0.106	0.484	0.116
octracom	0.563	0.148	0.620	0.029	0.400	0.057	0.457	0.015	0.514	0.099
ocservic	0.463	0.224	0.533	0.051	0.311	0.116	0.474	0.013	0.529	0.095
NAoccup	0.231	0.532	0.336	0.235	0.255	0.206	0.254	0.147	0.227	0.435
carteira	0.464	0.000	0.376	0.000	0.298	0.000	0.247	0.000	0.201	0.031
_cons	3.349	0.000	3.886	0.000	4.259	0.000	4.622	0.000	4.876	0.000

Appendix C1. continued

Bahia, all	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
female	-0.327	0.000	-0.333	0.000	-0.375	0.000	-0.398	0.000	-0.409	0.000
white	0.125	0.031	0.085	0.061	0.114	0.007	0.076	0.123	0.139	0.020
union	0.136	0.078	0.119	0.028	0.126	0.026	0.145	0.083	0.136	0.135
urban	0.089	0.387	0.131	0.131	0.145	0.042	0.105	0.209	0.037	0.749
metropol	0.352	0.000	0.357	0.000	0.365	0.000	0.318	0.000	0.225	0.000
liveten	-0.065	0.331	-0.035	0.458	-0.076	0.096	-0.033	0.517	-0.024	0.677
age21_30	0.512	0.010	0.375	0.000	0.339	0.000	0.335	0.000	0.243	0.002
age31_40	0.648	0.001	0.498	0.000	0.491	0.000	0.550	0.000	0.491	0.000
age41_50	0.771	0.000	0.618	0.000	0.595	0.000	0.524	0.000	0.493	0.000
age51_70	0.643	0.004	0.425	0.000	0.446	0.000	0.540	0.000	0.451	0.000
tenu1_2	-0.008	0.935	0.108	0.070	0.081	0.133	0.076	0.187	0.080	0.225
tenu3_6	0.066	0.498	0.169	0.010	0.168	0.004	0.183	0.010	0.304	0.001
tenu7_12	-0.003	0.980	0.138	0.156	0.272	0.001	0.249	0.003	0.306	0.007
tenu13p	0.136	0.366	0.274	0.005	0.424	0.000	0.604	0.000	0.620	0.000
stud1_4	0.034	0.693	0.090	0.117	0.202	0.000	0.259	0.000	0.245	0.006
stud5_8	0.063	0.574	0.193	0.010	0.298	0.000	0.377	0.000	0.385	0.000
stud9_11	0.322	0.015	0.226	0.009	0.390	0.000	0.527	0.000	0.657	0.000
stud12pl	0.825	0.000	0.785	0.000	1.151	0.000	1.348	0.000	1.362	0.000
secsec	-0.010	0.958	0.140	0.336	0.076	0.616	0.171	0.178	0.348	0.003
tertsec	-0.140	0.469	-0.055	0.708	-0.070	0.627	0.035	0.774	0.268	0.017
techadm	0.449	0.046	0.385	0.028	0.336	0.043	0.372	0.027	0.431	0.022
transfor	0.277	0.230	0.036	0.830	0.118	0.454	0.047	0.759	0.043	0.749
octracom	0.125	0.647	0.126	0.484	0.135	0.382	0.131	0.424	0.223	0.132
ocservic	0.279	0.242	0.123	0.474	0.107	0.515	0.129	0.438	0.126	0.407
NAoccup	0.022	0.921	-0.018	0.912	-0.028	0.860	-0.010	0.949	0.021	0.871
carteira	0.465	0.000	0.378	0.000	0.294	0.000	0.224	0.000	0.187	0.001
_cons	3.805	0.000	4.137	0.000	4.423	0.000	4.720	0.000	4.952	0.000

Appendix C1. continued

Ceara, all	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
female	-0,346	0,001	-0,428	0,000	-0,539	0,000	-0,576	0,000	-0,658	0,000
white	0,140	0,119	0,131	0,016	0,147	0,013	0,148	0,038	0,205	0,007
union	0,199	0,080	0,216	0,001	0,198	0,011	0,117	0,140	0,203	0,055
urban	0,064	0,739	0,081	0,589	0,006	0,955	-0,032	0,793	-0,073	0,605
metropol	0,587	0,000	0,439	0,000	0,385	0,000	0,313	0,000	0,337	0,000
liveten	-0,161	0,096	-0,140	0,030	-0,148	0,037	-0,198	0,024	-0,218	0,010
age21_30	0,511	0,004	0,397	0,000	0,325	0,001	0,405	0,000	0,301	0,011
age31_40	0,403	0,048	0,487	0,000	0,590	0,000	0,616	0,000	0,641	0,000
age41_50	0,494	0,030	0,508	0,000	0,604	0,000	0,691	0,000	0,498	0,001
age51_70	0,384	0,083	0,358	0,005	0,516	0,000	0,562	0,000	0,654	0,000
tenu1_2	0,260	0,162	0,179	0,168	0,072	0,441	0,034	0,745	0,024	0,838
tenu3_6	0,378	0,062	0,259	0,057	0,124	0,229	0,193	0,111	0,189	0,158
tenu7_12	0,525	0,011	0,325	0,023	0,249	0,036	0,258	0,033	0,181	0,170
tenu13p	0,642	0,006	0,433	0,005	0,218	0,058	0,276	0,085	0,269	0,223
stud1_4	0,067	0,576	0,210	0,018	0,297	0,000	0,257	0,007	0,093	0,358
stud5_8	0,206	0,120	0,245	0,004	0,351	0,000	0,347	0,001	0,229	0,028
stud9_11	0,296	0,078	0,369	0,002	0,609	0,000	0,638	0,000	0,663	0,000
stud12pl	0,383	0,121	0,678	0,000	0,716	0,001	0,974	0,000	0,719	0,002
secsec	-0,438	0,084	-0,239	0,209	-0,082	0,630	0,175	0,334	0,374	0,106
tertsec	-0,413	0,054	-0,404	0,008	-0,224	0,162	0,058	0,716	0,080	0,715
techadm	0,605	0,027	0,913	0,000	0,955	0,000	1,058	0,000	1,233	0,000
transfor	0,687	0,025	0,718	0,004	0,652	0,001	0,650	0,001	0,582	0,013
octracom	0,558	0,054	0,716	0,002	0,629	0,003	0,687	0,000	0,779	0,003
ocservic	0,356	0,174	0,699	0,001	0,592	0,003	0,593	0,001	0,750	0,002
NAoccup	0,427	0,171	0,565	0,010	0,412	0,035	0,348	0,058	0,432	0,070
carteira	0,404	0,002	0,317	0,000	0,163	0,015	0,142	0,096	0,005	0,957
_cons	3,418	0,000	3,711	0,000	4,214	0,000	4,402	0,000	4,858	0,000

Appendix C2. Quantile regressions including males only

NE, males	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
white	0.139	0.003	0.155	0.000	0.177	0.000	0.163	0.000	0.163	0.000
union	0.183	0.000	0.148	0.000	0.125	0.000	0.151	0.000	0.162	0.004
urban	-0.001	0.992	0.054	0.359	0.029	0.561	0.037	0.544	0.074	0.203
metropol	0.224	0.000	0.254	0.000	0.250	0.000	0.195	0.000	0.132	0.001
liveten	-0.178	0.000	-0.124	0.000	-0.113	0.000	-0.130	0.000	-0.094	0.047
age21_30	0.425	0.000	0.344	0.000	0.361	0.000	0.384	0.000	0.366	0.000
age31_40	0.692	0.000	0.584	0.000	0.612	0.000	0.643	0.000	0.614	0.000
age41_50	0.757	0.000	0.635	0.000	0.666	0.000	0.733	0.000	0.643	0.000
age51_70	0.546	0.000	0.506	0.000	0.509	0.000	0.592	0.000	0.563	0.000
tenu1_2	0.130	0.088	0.100	0.040	0.066	0.095	0.050	0.332	0.070	0.208
tenu3_6	0.221	0.010	0.158	0.004	0.183	0.000	0.206	0.000	0.229	0.000
tenu7_12	0.275	0.002	0.274	0.000	0.262	0.000	0.257	0.000	0.252	0.000
tenu13p	0.345	0.003	0.308	0.000	0.297	0.000	0.350	0.000	0.499	0.000
stud1_4	0.134	0.064	0.163	0.001	0.205	0.000	0.231	0.000	0.276	0.000
stud5_8	0.277	0.000	0.266	0.000	0.336	0.000	0.409	0.000	0.441	0.000
stud9_11	0.454	0.000	0.366	0.000	0.498	0.000	0.656	0.000	0.752	0.000
stud12pl	0.797	0.000	0.856	0.000	1.184	0.000	1.181	0.000	1.312	0.000
secsec	0.173	0.262	0.164	0.058	0.065	0.533	0.093	0.215	0.194	0.053
tertsec	0.048	0.753	0.067	0.464	-0.005	0.967	-0.019	0.791	0.060	0.530
techadm	0.435	0.009	0.413	0.000	0.501	0.000	0.580	0.000	0.555	0.000
transfor	0.287	0.090	0.189	0.066	0.307	0.004	0.379	0.000	0.371	0.001
octracom	0.296	0.099	0.264	0.014	0.316	0.007	0.401	0.000	0.380	0.001
ocservic	0.092	0.604	0.090	0.445	0.198	0.114	0.395	0.000	0.341	0.006
NAoccup	0.064	0.702	-0.022	0.831	0.090	0.423	0.168	0.046	0.154	0.168
carteira	0.518	0.000	0.437	0.000	0.311	0.000	0.198	0.000	0.139	0.005
_cons	3.405	0.000	3.880	0.000	4.257	0.000	4.575	0.000	4.821	0.000

Appendix C2. continued

Pernamb, males	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
	q10		q25		q50		q75		q90	
white	0.186	0.062	0.155	0.031	0.094	0.187	0.175	0.007	0.197	0.036
union	0.188	0.103	0.037	0.666	0.073	0.435	0.243	0.008	0.313	0.003
urban	-0.154	0.455	0.019	0.886	0.092	0.493	0.150	0.349	-0.123	0.530
metropol	0.361	0.001	0.313	0.001	0.282	0.002	0.126	0.078	0.119	0.239
liveten	-0.288	0.005	-0.211	0.008	-0.213	0.006	-0.235	0.005	-0.229	0.082
age21_30	0.639	0.003	0.458	0.000	0.275	0.033	0.308	0.036	0.363	0.028
age31_40	0.780	0.002	0.663	0.000	0.515	0.000	0.578	0.000	0.507	0.001
age41_50	0.944	0.000	0.784	0.000	0.690	0.000	0.779	0.000	0.679	0.000
age51_70	0.946	0.000	0.619	0.000	0.456	0.004	0.621	0.000	0.530	0.005
tenu1_2	0.173	0.242	0.098	0.441	0.112	0.276	0.164	0.100	0.292	0.060
tenu3_6	0.202	0.158	0.089	0.494	0.161	0.153	0.190	0.104	0.396	0.022
tenu7_12	0.227	0.217	0.203	0.161	0.333	0.013	0.334	0.006	0.471	0.005
tenu13p	0.139	0.566	0.247	0.157	0.356	0.037	0.376	0.013	0.542	0.010
stud1_4	0.299	0.105	0.113	0.336	0.169	0.097	0.138	0.165	0.203	0.098
stud5_8	0.454	0.026	0.253	0.060	0.327	0.005	0.374	0.003	0.574	0.000
stud9_11	0.737	0.001	0.421	0.008	0.557	0.000	0.581	0.000	0.775	0.000
stud12pl	0.342	0.320	0.579	0.056	1.237	0.000	1.168	0.000	1.220	0.000
secsec	0.260	0.520	0.081	0.789	0.276	0.392	0.269	0.197	0.284	0.343
tertsec	0.170	0.676	0.034	0.913	0.184	0.560	0.091	0.671	0.105	0.740
techadm	0.692	0.126	0.661	0.028	0.459	0.119	0.695	0.003	0.699	0.060
transfor	0.535	0.251	0.489	0.101	0.274	0.361	0.376	0.050	0.293	0.372
octracom	0.512	0.274	0.482	0.127	0.279	0.378	0.495	0.011	0.493	0.135
ocservic	0.290	0.556	0.210	0.514	0.177	0.577	0.460	0.062	0.378	0.348
NAoccup	0.261	0.564	0.263	0.373	0.211	0.481	0.272	0.140	0.217	0.494
carteira	0.236	0.070	0.388	0.000	0.339	0.000	0.263	0.004	0.109	0.398
_cons	3.153	0.000	3.793	0.000	4.149	0.000	4.358	0.000	4.787	0.000

Appendix C2. continued

Bahia, males	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
white	0.130	0.113	0.146	0.014	0.128	0.014	0.090	0.131	0.159	0.066
union	0.107	0.263	0.168	0.014	0.057	0.379	0.029	0.723	0.076	0.502
urban	0.144	0.302	0.224	0.028	0.209	0.054	0.120	0.310	0.116	0.356
metropol	0.264	0.010	0.195	0.007	0.257	0.000	0.259	0.000	0.175	0.026
liveten	-0.070	0.488	-0.041	0.515	-0.054	0.435	0.007	0.914	0.014	0.864
age21_30	0.659	0.018	0.390	0.000	0.438	0.000	0.389	0.000	0.416	0.000
age31_40	0.980	0.000	0.614	0.000	0.637	0.000	0.570	0.000	0.665	0.000
age41_50	1.037	0.000	0.671	0.000	0.717	0.000	0.671	0.000	0.650	0.000
age51_70	0.855	0.002	0.546	0.000	0.609	0.000	0.564	0.000	0.634	0.000
tenu1_2	0.075	0.571	0.104	0.190	0.086	0.317	0.000	0.996	0.040	0.663
tenu3_6	0.218	0.145	0.163	0.073	0.194	0.041	0.092	0.351	0.158	0.172
tenu7_12	0.032	0.874	0.125	0.328	0.254	0.028	0.175	0.150	0.328	0.038
tenu13p	0.170	0.307	0.299	0.010	0.377	0.009	0.488	0.009	0.565	0.003
stud1_4	0.032	0.795	0.077	0.345	0.221	0.002	0.299	0.000	0.380	0.003
stud5_8	0.207	0.136	0.221	0.027	0.369	0.000	0.449	0.000	0.581	0.000
stud9_11	0.244	0.204	0.132	0.280	0.389	0.002	0.541	0.000	0.686	0.000
stud12pl	1.057	0.000	0.883	0.000	1.202	0.000	1.187	0.000	1.228	0.003
secsec	0.022	0.951	0.370	0.089	0.107	0.554	0.253	0.174	0.262	0.186
tertsec	-0.296	0.417	0.220	0.350	0.018	0.926	0.190	0.315	0.092	0.654
techadm	0.506	0.164	0.234	0.289	0.340	0.077	0.239	0.237	0.530	0.061
transfor	0.222	0.529	-0.055	0.792	0.180	0.253	0.024	0.893	0.210	0.306
octracom	0.309	0.438	-0.011	0.961	0.163	0.361	0.115	0.589	0.326	0.117
ocservic	0.347	0.458	0.070	0.799	0.026	0.903	-0.003	0.990	0.316	0.232
NAoccup	0.010	0.979	-0.248	0.286	-0.100	0.554	-0.130	0.521	0.054	0.801
carteira	0.643	0.000	0.420	0.000	0.263	0.000	0.220	0.001	0.198	0.012
_cons	3.386	0.000	3.932	0.000	4.261	0.000	4.664	0.000	4.660	0.000

Appendix C2. continued

Ceara, males	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
white	0,177	0,130	0,146	0,092	0,123	0,093	0,140	0,094	0,213	0,056
union	0,212	0,109	0,182	0,056	0,047	0,631	0,033	0,738	0,226	0,050
urban	0,229	0,325	0,208	0,252	-0,035	0,814	0,081	0,544	-0,096	0,544
metropol	0,331	0,020	0,363	0,000	0,305	0,000	0,294	0,001	0,212	0,055
liveten	-0,265	0,025	-0,146	0,111	-0,239	0,011	-0,138	0,184	-0,255	0,016
age21_30	0,416	0,042	0,279	0,104	0,328	0,026	0,352	0,024	0,384	0,014
age31_40	0,311	0,179	0,332	0,073	0,620	0,000	0,672	0,000	0,759	0,000
age41_50	0,537	0,025	0,419	0,042	0,680	0,000	0,676	0,000	0,644	0,001
age51_70	0,338	0,198	0,240	0,285	0,592	0,001	0,428	0,013	0,727	0,001
tenu1_2	0,300	0,192	0,155	0,359	0,057	0,700	-0,097	0,543	-0,068	0,671
tenu3_6	0,496	0,044	0,322	0,049	0,152	0,388	0,153	0,390	0,158	0,370
tenu7_12	0,550	0,029	0,493	0,007	0,348	0,038	0,155	0,394	0,124	0,508
tenu13p	0,779	0,004	0,575	0,004	0,350	0,041	0,241	0,165	0,111	0,647
stud1_4	0,072	0,668	0,227	0,054	0,313	0,003	0,272	0,012	0,026	0,859
stud5_8	0,039	0,825	0,152	0,307	0,322	0,008	0,330	0,012	0,218	0,136
stud9_11	0,202	0,386	0,406	0,059	0,733	0,000	0,763	0,000	0,864	0,000
stud12pl	0,190	0,547	0,657	0,044	0,744	0,031	1,173	0,000	0,943	0,000
secsec	-0,204	0,493	-0,020	0,935	0,070	0,745	0,114	0,575	0,266	0,315
tertsec	-0,258	0,352	-0,190	0,437	-0,035	0,876	-0,005	0,982	-0,006	0,984
techadm	0,775	0,024	0,756	0,016	0,928	0,000	1,148	0,000	1,240	0,000
transfor	0,610	0,083	0,502	0,104	0,607	0,010	0,793	0,000	0,770	0,011
octracom	0,565	0,153	0,526	0,092	0,586	0,024	0,805	0,002	1,018	0,004
ocservic	0,513	0,139	0,528	0,073	0,526	0,031	0,723	0,002	0,804	0,019
NAoccup	0,222	0,541	0,334	0,265	0,282	0,238	0,431	0,036	0,616	0,051
carteira	0,665	0,000	0,460	0,000	0,237	0,017	0,025	0,825	-0,113	0,395
_cons	3,270	0,000	3,644	0,000	4,167	0,000	4,424	0,000	4,949	0,000

Appendix C3. Quantile regressions including females

NE, females	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
white	0.124	0.008	0.132	0.000	0.171	0.000	0.209	0.000	0.194	0.000
union	0.207	0.009	0.187	0.001	0.201	0.000	0.113	0.085	0.154	0.076
urban	0.158	0.048	0.150	0.086	0.076	0.152	0.036	0.657	-0.048	0.675
metropol	0.364	0.000	0.410	0.000	0.415	0.000	0.374	0.000	0.279	0.000
liveten	0.025	0.656	-0.074	0.042	-0.068	0.028	-0.048	0.216	0.001	0.985
age21_30	0.323	0.002	0.225	0.000	0.209	0.000	0.216	0.000	0.174	0.006
age31_40	0.216	0.034	0.242	0.000	0.366	0.000	0.380	0.000	0.326	0.000
age41_50	0.302	0.004	0.343	0.000	0.401	0.000	0.420	0.000	0.330	0.000
age51_70	0.258	0.021	0.229	0.002	0.265	0.001	0.319	0.002	0.386	0.000
tenu1_2	0.050	0.511	0.035	0.456	-0.016	0.667	0.016	0.742	-0.063	0.330
tenu3_6	0.100	0.195	0.162	0.003	0.090	0.026	0.144	0.010	0.077	0.263
tenu7_12	0.239	0.004	0.167	0.007	0.118	0.035	0.240	0.001	0.146	0.138
tenu13p	0.191	0.059	0.213	0.012	0.292	0.000	0.345	0.001	0.400	0.001
stud1_4	0.127	0.121	0.173	0.002	0.207	0.000	0.184	0.000	0.155	0.022
stud5_8	0.261	0.000	0.231	0.000	0.249	0.000	0.237	0.000	0.258	0.003
stud9_11	0.307	0.000	0.235	0.000	0.296	0.000	0.410	0.000	0.420	0.000
stud12pl	0.730	0.000	0.669	0.000	0.887	0.000	1.122	0.000	1.197	0.000
secsec	-0.300	0.147	-0.289	0.041	-0.137	0.142	-0.058	0.614	0.186	0.149
tertsec	-0.499	0.008	-0.528	0.000	-0.358	0.000	-0.250	0.013	0.002	0.988
techadm	0.576	0.046	0.932	0.000	0.885	0.002	0.544	0.018	0.692	0.000
transfor	0.329	0.296	0.581	0.001	0.581	0.037	0.222	0.342	0.144	0.498
octracom	0.509	0.100	0.708	0.000	0.693	0.014	0.303	0.183	0.401	0.041
ocservic	0.440	0.126	0.662	0.000	0.592	0.033	0.284	0.213	0.298	0.104
NAoccup	0.329	0.266	0.563	0.001	0.518	0.056	0.150	0.508	0.211	0.257
carteira	0.366	0.000	0.297	0.000	0.241	0.000	0.196	0.000	0.138	0.005
_cons	3.508	0.000	3.737	0.000	3.987	0.000	4.565	0.000	4.859	0.000

Appendix C3. continued

Pernamb, females	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
	q10		q25		q50		q75		q90	
white	0.248	0.015	0.320	0.000	0.178	0.036	0.191	0.023	0.140	0.267
union	0.395	0.010	0.326	0.005	0.220	0.071	-0.081	0.564	-0.156	0.379
urban	0.030	0.917	0.078	0.783	0.224	0.338	0.008	0.965	0.071	0.752
metropol	0.434	0.000	0.407	0.000	0.377	0.001	0.450	0.000	0.445	0.001
liveten	-0.071	0.500	-0.024	0.741	-0.002	0.986	0.018	0.851	-0.169	0.295
age21_30	0.141	0.329	0.148	0.176	0.064	0.653	0.168	0.178	0.242	0.269
age31_40	0.203	0.281	0.221	0.071	0.250	0.093	0.264	0.052	0.335	0.135
age41_50	0.112	0.584	0.286	0.034	0.307	0.056	0.292	0.060	0.511	0.037
age51_70	0.377	0.147	0.212	0.317	0.140	0.507	0.207	0.264	0.318	0.180
tenu1_2	-0.040	0.785	0.053	0.618	-0.005	0.976	-0.146	0.354	-0.194	0.595
tenu3_6	0.264	0.136	0.361	0.005	0.191	0.229	-0.014	0.926	-0.128	0.715
tenu7_12	0.135	0.529	0.347	0.042	0.191	0.378	0.216	0.362	0.189	0.654
tenu13p	0.356	0.301	0.544	0.109	0.494	0.028	0.098	0.652	0.250	0.545
stud1_4	0.384	0.118	0.227	0.284	0.127	0.378	0.315	0.048	0.161	0.452
stud5_8	0.394	0.085	0.336	0.130	0.303	0.035	0.328	0.071	0.463	0.088
stud9_11	0.531	0.025	0.409	0.084	0.307	0.092	0.413	0.079	0.538	0.080
stud12pl	0.978	0.001	0.922	0.002	1.033	0.000	1.183	0.000	1.250	0.002
secsec	-0.051	0.892	-0.142	0.704	-0.283	0.405	-0.249	0.521	-0.187	0.650
tertsec	-0.311	0.339	-0.406	0.228	-0.419	0.199	-0.514	0.174	-0.431	0.279
techadm	0.807	0.143	0.895	0.123	1.208	0.015	1.145	0.025	1.233	0.035
transfor	0.311	0.609	0.684	0.265	1.130	0.023	0.594	0.254	0.738	0.221
octracom	0.744	0.196	0.799	0.177	1.277	0.013	0.854	0.124	0.945	0.152
ocservic	0.692	0.189	0.785	0.175	1.067	0.035	0.774	0.130	0.896	0.114
NAoccup	0.374	0.506	0.624	0.316	0.999	0.041	0.640	0.195	0.789	0.152
carteira	0.526	0.000	0.262	0.004	0.278	0.010	0.226	0.019	0.207	0.121
_cons	3.135	0.000	3.437	0.000	3.533	0.000	4.458	0.000	4.637	0.000

Appendix C3. continued

Bahia, females	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
white	0.040	0.708	0.104	0.095	0.093	0.090	0.123	0.098	0.084	0.339
union	0.148	0.251	0.111	0.347	0.277	0.081	0.418	0.005	0.193	0.144
urban	-0.223	0.395	-0.037	0.792	0.054	0.670	0.022	0.901	-0.116	0.575
metropol	0.445	0.000	0.464	0.000	0.444	0.000	0.406	0.000	0.227	0.012
liveten	-0.209	0.083	-0.036	0.637	-0.078	0.239	-0.039	0.549	-0.050	0.547
age21_30	0.276	0.215	0.325	0.002	0.232	0.034	0.260	0.023	0.114	0.335
age31_40	0.161	0.545	0.378	0.003	0.347	0.003	0.397	0.000	0.256	0.037
age41_50	0.477	0.037	0.520	0.000	0.359	0.002	0.296	0.022	0.296	0.061
age51_70	0.173	0.600	0.260	0.074	0.257	0.100	0.436	0.049	0.399	0.075
tenu1_2	0.170	0.168	0.132	0.111	0.148	0.036	0.142	0.092	0.168	0.069
tenu3_6	0.101	0.536	0.200	0.059	0.143	0.120	0.258	0.035	0.465	0.000
tenu7_12	0.307	0.115	0.201	0.110	0.300	0.005	0.371	0.003	0.463	0.002
tenu13p	0.582	0.027	0.389	0.011	0.570	0.000	0.807	0.000	0.704	0.001
stud1_4	0.018	0.912	0.155	0.138	0.063	0.482	0.222	0.032	0.222	0.084
stud5_8	0.156	0.298	0.232	0.050	0.148	0.167	0.300	0.003	0.457	0.001
stud9_11	0.291	0.124	0.369	0.011	0.321	0.015	0.421	0.008	0.918	0.000
stud12pl	0.582	0.032	0.756	0.002	0.979	0.000	1.251	0.000	1.476	0.000
secsec	-0.268	0.420	-0.105	0.650	-0.006	0.975	0.249	0.145	0.477	0.023
tertsec	-0.398	0.091	-0.223	0.227	-0.190	0.221	-0.018	0.906	0.279	0.114
techadm	0.351	0.418	0.575	0.202	0.089	0.819	-0.043	0.889	-0.082	0.791
transfor	-0.129	0.778	0.065	0.886	-0.200	0.608	-0.471	0.111	-0.495	0.124
octracom	0.104	0.822	0.299	0.505	-0.113	0.762	-0.268	0.343	-0.275	0.344
ocservic	0.154	0.709	0.292	0.505	-0.053	0.884	-0.134	0.621	-0.149	0.599
NAoccup	0.084	0.841	0.228	0.611	-0.096	0.798	-0.203	0.451	-0.073	0.794
carteira	0.513	0.000	0.291	0.001	0.308	0.000	0.146	0.071	0.139	0.084
_cons	4.297	0.000	3.966	0.000	4.604	0.000	4.757	0.000	5.045	0.000

Appendix C3. continued

Ceara, females	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
white	0,090	0,585	0,067	0,540	0,173	0,111	0,253	0,020	0,362	0,002
union	0,202	0,449	0,194	0,256	0,321	0,106	0,431	0,063	0,222	0,457
urban	0,166	0,654	-0,228	0,497	-0,064	0,774	-0,321	0,325	-0,334	0,343
metropol	0,842	0,000	0,742	0,000	0,500	0,000	0,436	0,002	0,404	0,005
liveten	-0,241	0,138	-0,221	0,075	-0,143	0,233	-0,110	0,415	-0,017	0,912
age21_30	0,402	0,070	0,588	0,002	0,372	0,021	0,395	0,006	0,536	0,004
age31_40	0,511	0,043	0,520	0,009	0,508	0,006	0,548	0,001	0,623	0,010
age41_50	0,274	0,320	0,563	0,008	0,467	0,026	0,484	0,052	0,488	0,059
age51_70	0,365	0,253	0,361	0,166	0,337	0,156	0,625	0,026	0,683	0,050
tenu1_2	0,234	0,379	0,067	0,770	-0,048	0,747	-0,020	0,889	0,001	0,994
tenu3_6	0,124	0,643	0,065	0,796	-0,038	0,810	-0,091	0,593	0,110	0,603
tenu7_12	0,279	0,296	0,190	0,453	-0,124	0,519	0,169	0,503	0,054	0,850
tenu13p	0,391	0,258	0,122	0,687	-0,059	0,827	-0,200	0,583	0,291	0,496
stud1_4	-0,046	0,844	0,085	0,641	0,277	0,052	0,173	0,324	0,263	0,188
stud5_8	0,224	0,317	0,154	0,307	0,304	0,018	0,357	0,027	0,420	0,029
stud9_11	-0,025	0,941	0,086	0,690	0,378	0,058	0,580	0,008	0,599	0,027
stud12pl	0,312	0,385	0,490	0,123	0,844	0,004	0,751	0,032	0,661	0,277
secsec	0,092	0,876	-0,902	0,069	-0,568	0,203	-0,362	0,486	0,063	0,907
tertsec	-0,291	0,587	-0,926	0,044	-0,780	0,052	-0,448	0,339	-0,053	0,914
techadm	-0,031	0,953	0,788	0,089	1,015	0,047	1,395	0,023	1,548	0,029
transfor	-0,502	0,363	0,674	0,173	0,722	0,175	0,872	0,141	0,688	0,293
octracom	-0,487	0,393	0,519	0,271	0,804	0,129	1,031	0,073	0,892	0,187
ocservic	-0,519	0,320	0,456	0,330	0,745	0,144	0,905	0,117	0,937	0,144
NAoccup	-0,381	0,478	0,648	0,164	0,721	0,156	0,651	0,295	0,690	0,333
carteira	0,315	0,050	0,272	0,009	0,145	0,186	0,213	0,094	0,141	0,422
_cons	3,937	0,000	4,374	0,000	4,258	0,000	4,248	0,000	3,909	0,000

Appendix C4. Quantile regressions including rural areas

NE, rural	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
female	-0.468	0.022	-0.437	0.002	-0.436	0.001	-0.392	0.002	-0.396	0.006
white	0.188	0.164	0.055	0.525	0.025	0.707	0.111	0.213	0.208	0.083
union	-0.016	0.929	-0.048	0.704	-0.092	0.364	-0.146	0.136	-0.238	0.127
metropol	0.514	0.000	0.401	0.000	0.392	0.000	0.426	0.000	0.420	0.004
liveten	0.012	0.932	-0.074	0.387	-0.045	0.543	0.018	0.832	0.041	0.684
age21_30	0.399	0.203	0.330	0.066	0.352	0.000	0.472	0.000	0.434	0.002
age31_40	0.466	0.158	0.515	0.007	0.523	0.000	0.597	0.000	0.539	0.001
age41_50	0.249	0.454	0.333	0.108	0.490	0.000	0.554	0.000	0.432	0.009
age51_70	0.385	0.245	0.335	0.122	0.373	0.006	0.559	0.000	0.402	0.023
tenu1_2	-0.098	0.568	0.033	0.786	0.068	0.511	-0.098	0.426	-0.116	0.410
tenu3_6	-0.071	0.740	-0.138	0.276	-0.087	0.437	-0.283	0.029	-0.191	0.283
tenu7_12	-0.178	0.505	0.031	0.827	0.066	0.628	-0.111	0.476	-0.028	0.871
tenu13p	-0.065	0.783	-0.168	0.275	-0.119	0.350	-0.363	0.019	-0.175	0.501
stud1_4	0.093	0.563	0.013	0.906	0.212	0.014	0.270	0.002	0.226	0.015
stud5_8	0.224	0.245	0.151	0.259	0.363	0.002	0.479	0.000	0.326	0.017
stud9_11	0.208	0.373	0.264	0.118	0.329	0.075	0.207	0.400	0.491	0.222
stud12pl	0.704	0.173	1.325	0.008	1.722	0.000	1.854	0.000	2.119	0.000
secsec	0.566	0.144	0.228	0.569	0.022	0.943	0.061	0.809	0.199	0.434
tertsec	0.475	0.194	0.115	0.738	-0.097	0.753	-0.229	0.404	-0.066	0.819
techadm	0.090	0.821	0.195	0.602	0.505	0.104	0.690	0.005	0.500	0.049
transfor	-0.231	0.595	-0.019	0.961	0.272	0.375	0.143	0.579	0.027	0.925
octracom	0.055	0.898	0.364	0.319	0.473	0.157	0.628	0.041	0.426	0.160
ocservic	-0.255	0.534	-0.070	0.845	0.245	0.451	0.374	0.202	0.626	0.046
NAoccup	-0.395	0.321	-0.391	0.290	0.061	0.846	0.034	0.901	-0.192	0.506
carteira	0.555	0.000	0.446	0.000	0.408	0.000	0.359	0.000	0.353	0.002
_cons	3.697	0.000	4.334	0.000	4.436	0.000	4.743	0.000	5.008	0.000

Appendix C4. continued

Pernamb, rural	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
female	-0.533	0.266	-0.473	0.272	-0.372	0.321	-0.507	0.164	-0.972	0.021
white	0.372	0.205	0.215	0.410	0.023	0.913	0.016	0.941	0.118	0.634
union	0.416	0.388	0.256	0.526	-0.371	0.283	-0.185	0.518	-0.430	0.212
metropol	0.535	0.224	0.719	0.061	0.664	0.087	0.774	0.054	0.973	0.031
liveten	-0.595	0.101	-0.449	0.131	-0.229	0.249	-0.062	0.751	-0.159	0.502
age21_30	0.752	0.171	0.922	0.043	0.304	0.392	0.453	0.171	0.876	0.022
age31_40	0.314	0.564	0.421	0.374	0.124	0.742	0.381	0.317	0.722	0.056
age41_50	1.252	0.048	1.274	0.027	0.623	0.222	0.829	0.097	1.243	0.009
age51_70	0.396	0.454	0.552	0.230	0.104	0.794	0.359	0.354	0.415	0.273
tenu1_2	-1.350	0.067	-1.007	0.096	-0.418	0.398	-0.303	0.464	0.035	0.938
tenu3_6	-0.220	0.749	-0.440	0.427	-0.470	0.315	-0.446	0.321	-0.402	0.432
tenu7_12	-0.724	0.316	-0.622	0.255	-0.041	0.936	-0.138	0.740	0.006	0.990
tenu13p	-0.334	0.656	-0.423	0.524	-0.231	0.646	-0.538	0.259	-0.150	0.781
stud1_4	0.249	0.472	0.272	0.416	0.110	0.651	0.067	0.765	-0.033	0.893
stud5_8	0.584	0.397	0.470	0.466	-0.407	0.477	-0.060	0.901	0.359	0.494
stud9_11	1.117	0.345	0.567	0.585	-0.001	0.999	-0.278	0.728	-0.381	0.637
stud12pl	2.662	0.005	2.319	0.005	2.278	0.007	1.826	0.028	1.081	0.201
secsec	-1.709	0.172	-1.134	0.258	0.288	0.694	1.091	0.121	0.805	0.307
tertsec	-1.902	0.140	-1.333	0.205	0.357	0.630	1.120	0.124	1.340	0.086
techadm	1.821	0.057	1.422	0.064	0.280	0.630	0.070	0.904	-0.035	0.958
transfor	2.497	0.033	1.782	0.070	0.033	0.965	-0.973	0.175	-1.346	0.095
octracom	2.486	0.077	1.967	0.080	-0.040	0.961	-0.944	0.230	-1.487	0.092
ocservic	3.002	0.031	2.224	0.053	0.600	0.499	-0.330	0.717	-0.842	0.371
NAoccup	2.546	0.058	1.550	0.149	-0.373	0.635	-1.012	0.172	-1.157	0.137
carteira	0.327	0.345	0.272	0.347	0.449	0.029	0.325	0.067	0.431	0.045
_cons	4.298	0.000	4.348	0.000	4.961	0.000	4.968	0.000	4.866	0.000

Appendix C4. continued

Bahia, rural	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
female	-0.398	0.157	-0.219	0.384	0.076	0.777	-0.019	0.941	-0.084	0.774
white	0.124	0.539	0.011	0.950	-0.189	0.292	-0.105	0.552	-0.022	0.910
union	-0.234	0.453	-0.307	0.254	-0.129	0.589	-0.288	0.173	-0.287	0.302
metropol	0.205	0.322	0.251	0.209	0.104	0.644	-0.104	0.658	0.011	0.966
liveten	-0.288	0.147	-0.349	0.082	-0.055	0.780	-0.044	0.828	0.018	0.936
age21_30	0.802	0.069	0.498	0.351	0.365	0.344	0.325	0.254	0.312	0.200
age31_40	1.318	0.002	0.864	0.081	0.461	0.164	0.405	0.117	0.699	0.006
age41_50	1.173	0.011	1.019	0.070	0.299	0.478	0.656	0.069	0.588	0.154
age51_70	1.330	0.006	1.019	0.046	0.480	0.184	0.693	0.024	0.510	0.126
tenu1_2	-0.033	0.880	-0.088	0.723	0.020	0.937	-0.271	0.298	-0.294	0.247
tenu3_6	-0.187	0.470	-0.201	0.432	-0.112	0.633	-0.345	0.194	-0.020	0.949
tenu7_12	-0.157	0.638	-0.286	0.400	0.002	0.995	-0.205	0.497	-0.205	0.495
tenu13p	-0.280	0.419	-0.221	0.512	0.009	0.981	-0.145	0.734	0.137	0.728
stud1_4	-0.185	0.393	0.030	0.887	0.236	0.250	0.441	0.027	0.300	0.150
stud5_8	0.180	0.455	0.550	0.037	0.348	0.151	0.693	0.003	0.683	0.017
stud9_11	0.967	0.153	0.459	0.501	0.698	0.316	0.592	0.445	1.230	0.116
stud12pl	2.060	0.077	1.383	0.212	0.436	0.693	2.805	0.021	2.697	0.039
secsec	0.310	0.692	0.130	0.873	0.043	0.955	0.625	0.465	0.543	0.539
tertsec	-0.561	0.428	-0.346	0.617	-0.445	0.535	0.124	0.875	-0.284	0.746
techadm	0.262	0.684	0.556	0.344	0.961	0.133	0.221	0.760	-0.049	0.950
transfor	0.034	0.967	-0.035	0.967	-0.031	0.969	-0.345	0.708	-0.466	0.631
octracom	1.109	0.147	0.883	0.239	1.147	0.142	0.566	0.539	0.528	0.599
ocservic	0.957	0.225	0.524	0.474	0.307	0.691	-0.132	0.870	0.327	0.712
NAoccup	0.443	0.514	0.257	0.707	0.259	0.714	-0.563	0.479	-0.543	0.537
carteira	0.420	0.047	0.534	0.002	0.481	0.011	0.219	0.263	0.095	0.659
_cons	3.699	0.000	4.199	0.000	4.592	0.000	5.001	0.000	5.156	0.000

Appendix C4. continued

Ceara, rural	Coef. q10	P>|t|	Coef. q25	P>|t|	Coef. q50	P>|t|	Coef. q75	P>|t|	Coef. q90	P>|t|
female	0,057	0,948	-0,183	0,825	-0,131	0,864	-0,065	0,929	-0,245	0,740
white	0,286	0,627	0,237	0,658	0,307	0,528	0,333	0,461	0,499	0,329
union	0,246	0,778	0,555	0,501	-0,140	0,835	-0,360	0,592	-0,194	0,778
metropol	0,889	0,162	0,620	0,270	0,495	0,349	0,134	0,818	0,276	0,659
liveten	-0,056	0,926	-0,199	0,721	0,240	0,665	0,305	0,576	0,218	0,700
age21_30	0,687	0,516	0,188	0,841	0,319	0,706	0,445	0,639	0,449	0,666
age31_40	1,324	0,234	0,886	0,363	0,950	0,243	0,413	0,642	0,910	0,348
age41_50	1,461	0,172	0,227	0,808	0,525	0,529	0,038	0,969	0,476	0,665
age51_70	1,040	0,418	0,181	0,875	0,248	0,803	-0,098	0,927	-0,280	0,812
tenu1_2	0,128	0,848	0,661	0,312	0,636	0,283	0,846	0,169	0,596	0,290
tenu3_6	-0,713	0,393	-0,123	0,882	-0,023	0,976	0,336	0,661	0,188	0,819
tenu7_12	-0,333	0,663	0,434	0,532	0,315	0,591	0,372	0,477	0,538	0,339
tenu13p	0,654	0,397	0,797	0,267	0,267	0,691	0,374	0,584	0,540	0,422
stud1_4	0,937	0,115	0,345	0,531	0,124	0,796	-0,153	0,768	-0,151	0,781
stud5_8	1,839	0,095	1,044	0,283	0,617	0,439	0,365	0,640	0,039	0,962
stud9_11	2,432	0,043	1,864	0,083	1,113	0,247	0,463	0,649	0,407	0,708
stud12pl	1,010	0,540	0,502	0,751	1,586	0,273	1,241	0,411	-0,069	0,965
secsec	-3,594	0,113	-4,143	0,059	-0,697	0,692	-0,132	0,938	0,090	0,958
tertsec	-2,235	0,182	-2,021	0,180	-1,146	0,344	-0,617	0,611	-0,188	0,879
techadm	1,655	0,428	1,248	0,502	0,498	0,749	1,054	0,488	1,641	0,293
transfor	4,484	0,061	4,533	0,051	0,796	0,670	1,213	0,514	0,886	0,659
octracom	2,798	0,180	1,932	0,311	1,375	0,368	0,721	0,624	0,459	0,760
ocservic	1,579	0,336	1,580	0,303	0,738	0,563	0,284	0,819	0,099	0,936
NAoccup	2,299	0,200	1,876	0,248	1,163	0,374	0,880	0,478	0,731	0,577
carteira	0,381	0,572	0,276	0,655	0,290	0,623	0,498	0,409	0,127	0,850
_cons	2,366	0,016	3,600	0,000	3,789	0,000	4,290	0,000	4,392	0,000

Appendix D. TABLE D2. ADJ-R-SQUARED FROM OLS REGRESSIONS

	All	males	females	rural	urban	white	nonwhite	<8 yrs school	>=8 yrs school
Bahia	0.456	0.431	0.436	0.374	0.441	0.449	0.432	0.368	0.407
Pernambuco	0.468	0.482	0.423	0.539	0.431	0.430	0.465	0.408	0.328
Ceara	0.530	0.514	0.485	0.529	0.497	0.511	0.467	0.459	0.395
NE	0.469	0.447	0.464	0.418	0.449	0.441	0.443	0.371	0.388
Brazil	0.519	0.517	0.507	0.368	0.511	0.501	0.439	0.373	0.405

Table F1. One-sided t-tests for equality of coefficients across quantiles, p-values for H_0: qA=qB

Pernambuco

1. BAHIA

female

qA\qB	q25	q50	q75	q90
q10	0.54	0.62	0.60	0.93
q25		0.89	0.99	0.70
q50			0.91	0,73
q75				0.62

white

qA\qB	q25	q50	q75	q90
q10	0.84	0.74	0.9	0.82
q25		0.81	0.97	0.92
q50			0.75	0,95
q75				0.88

union

qA\qB	q25	q50	q75	q90
q10	0.18	0.14	0.24	0.05
q25		0.64	0.86	0.23
q50			0.85	0,30
q75				0.21

urban

qA\qB	q25	q50	q75	q90
q10	0.43	0.78	0.88	0.96
q25		0.55	0.24	0.41
q50			0.43	0,63
q75				0.87

2. CEARA

female

qA\qB	q25	q50	q75	q90
q10	0.60	0.90	0.77	0.67
q25		0.38	0.33	0.35
q50			0.75	0.62
q75				0.75

white

qA\qB	q25	q50	q75	q90
q10	0.09	0.13	0.56	0.71
q25		0.87	0.30	0.36
q50			0.23	0.33
q75				0.87

union

qA\qB	q25	q50	q75	q90
q10	0.56	0.74	0.08	0.48
q25		0.80	0.07	0.68
q50			0.02	0.55
q75				0.35

urban

qA\qB	q25	q50	q75	q90
q10	0.27	0.20	0.18	0.23
q25		0.59	0.56	0.64
q50			0.87	0.90
q75				0.99

3. NORTH-EAST

female

qA\qB	q25	q50	q75	q90
q10	0.32	0.12	0.12	0.40
q25		0.44	0.44	0.97
q50			0.86	0.61
q75				0.43

white

qA\qB	q25	q50	q75	q90
q10	0.68	0.15	0.36	0.62
q25		0.12	0.46	0.81
q50			0.58	0.46
q75				0.69

union

qA\qB	q25	q50	q75	q90
q10	0.54	0.69	0.71	0.18
q25		0.13	0.26	0.04
q50			0.96	0.10
q75				0.10

urban

qA\qB	q25	q50	q75	q90
q10	0.20	0.32	0.10	0.06
q25		0.85	0.39	0.26
q50			0.19	0.14
q75				0.56

female

qA\qB	q25	q50	q75	q90
q10	0.43	0.78	0.93	0.30
q25		0.57	0.37	0.60
q50			0.53	0.34
q75				0.09

white

qA\qB	q25	q50	q75	q90
q10	0.96	0.21	0.27	0.31
q25		0.07	0.18	0.24
q50			0.96	0.89
q75				0.84

union

qA\qB	q25	q50	q75	q90
q10	0.45	0.01	0.00	0.00
q25		0.00	0.00	0.00
q50			0.00	0.03
q75				0.88

urban

qA\qB	q25	q50	q75	q90
q10	0.27	0.59	0.46	0.44
q25		0.51	0.91	0.94
q50			0.59	0.62
q75				0.96

metropol

qA\qB	q25	q50	q75	q90
q10	0.75	0.51	0.05	0.14
q25		0.57	0.02	0.12
q50			0.01	0,19
q75				0.59

metropol

qA\qB	q25	q50	q75	q90
q10	0.18	0.02	0.00	0.00
q25		0.08	0.01	0.01
q50			0.15	0.06
q75				0.28

metropol

qA\qB	q25	q50	q75	q90
q10	0.90	0.86	0.18	0.15
q25		0.91	0.08	0.07
q50			0.03	0.05
q75				0.59

metropol

qA\qB	q25	q50	q75	q90
q10	0.08	0.00	0.00	0.00
q25		0.03	0.00	0.00
q50			0.00	0.00
q75				0.01

BAHIA

liveten

qA\qB	q25	q50	q75	q90
q10	0.88	1.00	0.53	0.69
q25		0.84	0.30	0.49
q50			0.26	0,56
q75				0.66

age21_30

qA\qB	q25	q50	q75	q90
q10	0.11	0.05	0.04	0.02
q25		0.10	0.12	0.01
q50			0.64	0,12
q75				0.16

age31_40

qA\qB	q25	q50	q75	q90
q10	0.12	0.08	0.08	0.06
q25		0.37	0.40	0.26
q50			0.81	0,57
q75				0.63

age41_50

qA\qB	q25	q50	q75	q90
q10	0.10	0.08	0.03	0.02
q25		0.54	0.13	0.06
q50			0.18	0,14
q75				0.52

CEARA

liveten

qA\qB	q25	q50	q75	q90
q10	0.36	0.23	0.46	0.42
q25		0.47	0.92	0.79
q50			0.60	0.85
q75				0.81

age21_30

qA\qB	q25	q50	q75	q90
q10	0.46	0.02	0.12	0.11
q25		0.02	0.24	0.22
q50			0.29	0.50
q75				0.83

age31_40

qA\qB	q25	q50	q75	q90
q10	0.70	0.33	0.82	0.92
q25		0.35	0.88	0.61
q50			0.20	0.15
q75				0.59

Age41_50

qA\qB	q25	q50	q75	q90
q10	0.41	0.07	0.37	0.46
q25		0.09	0.79	0.87
q50			0.14	0.26
q75				0.96

PERNAMBUCO

liveten

qA\qB	q25	q50	q75	q90
q10	0.94	0.83	0.47	0.72
q25		0.84	0.47	0.76
q50			0.43	0.84
q75				0.69

age21_30

qA\qB	q25	q50	q75	q90
q10	0.13	0.05	0.02	0.04
q25		0.34	0.10	0.33
q50			0.25	0.77
q75				0.55

age31_40

qA\qB	q25	q50	q75	q90
q10	0.35	0.21	0.11	0.53
q25		0.53	0.26	0.88
q50			0.37	0.53
q75				0.12

age41_50

qA\qB	q25	q50	q75	q90
q10	0.23	0.23	0.19	0.32
q25		0.85	0.59	0.93
q50			0.61	0.97
q75				0.62

NORTH-EAST

liveten

qA\qB	q25	q50	q75	q90
q10	0.60	0.65	0.96	0.34
q25		0.99	0.59	0.11
q50			0.51	0.07
q75				0.12

age21_30

qA\qB	q25	q50	q75	q90
q10	0.10	0.03	0.04	0.02
q25		0.11	0.21	0.07
q50			0.96	0.35
q75				0.27

age31_40

qA\qB	q25	q50	q75	q90
q10	0.39	0.47	0.69	0.46
q25		0.95	0.55	0.90
q50			0.45	0.83
q75				0.43

age41_50

qA\qB	q25	q50	q75	q90
q10	0.34	0.26	0.43	0.21
q25		0.54	0.93	0.38
q50			0.59	0.56
q75				0.23

age51_70

qA\qB	q25	q50	q75	q90
q10	0.19	0.31	0.26	0.22
q25		0.53	0.87	0.84
q50			0.71	0,51
q75				0.66

Age51_70

qA\qB	q25	q50	q75	q90
q10	0.28	0.08	0.41	0.86
q25		0.28	0.92	0.46
q50			0.19	0.08
q75				0.39

age51_70

qA\qB	q25	q50	q75	q90
q10	0.08	0.11	0.12	0.45
q25		0.89	0.99	0.37
q50			0.87	0.37
q75				0.26

age51_70

qA\qB	q25	q50	q75	q90
q10	0.82	0.85	0.66	0.88
q25		0.98	0.27	0.63
q50			0.15	0.58
q75				0.62

Bahia

tenu1_2

qA\qB	q25	q50	q75	q90
q10	0.39	0.99	0.76	0.84
q25		0.26	0.22	0.65
q50			0.62	0,74
q75				0.36

tenu3_6

qA\qB	q25	q50	q75	q90
q10	0.22	0.30	0.16	0.13
q25		0.96	0.51	0.36
q50			0.49	0,39
q75				0.67

tenu7_12

qA\qB	q25	q50	q75	q90
q10	0.40	0.26	0.52	0.32
q25		0.46	0.95	0.62
q50			0.49	0,99
q75				0.50

tenu13p

qA\qB	q25	q50	q75	q90
q10	0.14	0.25	0.18	0.07
q25		0.86	0.83	0.35
q50			0.65	0,21
q75				0.29

Ceara

tenu1_2

qA\qB	q25	q50	q75	q90
q10	0.94	0.66	0.55	0.55
q25		0.45	0.36	0.40
q50			0.68	0.71
q75				0.95

tenu3_6

qA\qB	q25	q50	q75	q90
q10	0.96	0.60	0.91	0.78
q25		0.28	0.80	0.66
q50			0.50	0.76
q75				0.74

tenu7_12

qA\qB	q25	q50	q75	q90
q10	0.71	0.49	0.49	0.24
q25		0.51	0.57	0.22
q50			0.98	0.45
q75				0.31

tenu13p

qA\qB	q25	q50	q75	q90
q10	0.79	0.73	0.89	0.54
q25		0.33	0.59	0.34
q50			0.77	0.62
q75				0.45

PERNAMBUCO

tenu1_2

qA\qB	q25	q50	q75	q90
q10	0.42	0.60	0.84	0.61
q25		0.07	0.65	0.32
q50			0.32	0.80
q75				0.37

tenu3_6

qA\qB	q25	q50	q75	q90
q10	0.48	0.36	0.44	0.32
q25		0.62	0.77	0.49
q50			0.92	0.60
q75				0.53

tenu7_12

qA\qB	q25	q50	q75	q90
q10	0.57	0.97	0.85	0.89
q25		0.40	0.75	0.59
q50			0.70	0.89
q75				0.69

tenu13p

qA\qB	q25	q50	q75	q90
q10	0.66	0.23	0.17	0.75
q25		0.28	0.21	0.97
q50			0.60	0.51
q75				0.26

NORTH-EAST

tenu1_2

qA\qB	q25	q50	q75	q90
q10	0.88	0.41	0.42	0.47
q25		0.19	0.27	0.36
q50			0.89	0.95
q75				0.97

tenu3_6

qA\qB	q25	q50	q75	q90
q10	0.65	0.93	0.59	0.31
q25		0.58	0.77	0.31
q50			0.35	0.12
q75				0.32

tenu7_12

qA\qB	q25	q50	q75	q90
q10	0.75	0.53	0.47	0.34
q25		0.58	0.50	0.36
q50			0.76	0.52
q75				0.65

tenu13p

qA\qB	q25	q50	q75	q90
q10	0.80	0.57	0.28	0.17
q25		0.23	0.11	0.05
q50			0.33	0.18
q75				0.49

stud1_4

qA\qB	q25	q50	q75	q90
q10	0.47	0.37	0.05	0.22
q25		0.65	0.05	0.35
q50			0.03	0,42
q75				0.46

stud1_4

qA\qB	q25	q50	q75	q90
q10	0.36	0.25	0.29	0.10
q25		0.84	0.82	0.38
q50			0.93	0.40
q75				0.31

stud1_4

qA\qB	q25	q50	q75	q90
q10	0.57	0.93	0.83	0.10
q25		0.57	0.80	0.17
q50			0.83	0.04
q75				0.04

stud1_4

qA\qB	q25	q50	q75	q90
q10	0.35	0.18	0.01	0.01
q25		0.37	0.01	0.02
q50			0.02	0.04
q75				0.65

Bahia

stud5_8

qA\qB	q25	q50	q75	q90
q10	0.68	0.31	0.09	0.15
q25		0.27	0.06	0.14
q50			0.19	0,31
q75				0.94

stud9_11

qA\qB	q25	q50	q75	q90
q10	0.43	0.70	0.08	0.24
q25		0.09	0.00	0.04
q50			0.02	0,21
q75				0.53

stud12pl

qA\qB	q25	q50	q75	q90
q10	0.93	0.24	0.02	0.10
q25		0.08	0.01	0.05
q50			0.03	0,30
q75				0.53

rrr

qA\qB	q25	q50	q75	q90
q10	0.98	0.83	0.37	0.60
q25		0.77	0.23	0.53
q50			0.24	0,61
q75				0.76

secsec

Ceara

stud5_8

qA\qB	q25	q50	q75	q90
q10	0.63	0.86	0.84	0.54
q25		0.74	0.54	0.31
q50			0.60	0.32
q75				0.50

stud9_11

qA\qB	q25	q50	q75	q90
q10	0.90	0.11	0.04	0.02
q25		0.03	0.02	0.01
q50			0.32	0.15
q75				0.31

stud12pl

qA\qB	q25	q50	q75	q90
q10	0.75	0.30	0.14	0.04
q25		0.07	0.04	0.01
q50			0.46	0.09
q75				0.15

Rrr

qA\qB	q25	q50	q75	q90
q10	0.98	0.88	0.33	0.44
q25		0.84	0.29	0.40
q50			0.21	0.42
q75				0.97

Secsec

Pernambuco

stud5_8

qA\qB	q25	q50	q75	q90
q10	0.99	0.56	0.82	0.13
q25		0.46	0.81	0.11
q50			0.67	0.01
q75				0.02

stud9_11

qA\qB	q25	q50	q75	q90
q10	0.28	0.68	0.93	0.06
q25		0.52	0.43	0.20
q50			0.68	0.05
q75				0.01

stud12pl

qA\qB	q25	q50	q75	q90
q10	0.08	0.03	0.13	0.04
q25		0.49	0.96	0.19
q50			0.41	0.36
q75				0.13

rrr

qA\qB	q25	q50	q75	q90
q10	0.17	0.21	0.21	0.05
q25		0.85	0.77	0.26
q50			0.84	0.17
q75				0.19

secsec

North-East

stud5_8

qA\qB	q25	q50	q75	q90
q10	0.98	0.57	0.07	0.04
q25		0.34	0.01	0.01
q50			0.02	0.02
q75				0.35

stud9_11

qA\qB	q25	q50	q75	q90
q10	0.97	0.13	0.00	0.00
q25		0.02	0.00	0.00
q50			0.00	0.01
q75				0.81

stud12pl

qA\qB	q25	q50	q75	q90
q10	0.06	0.00	0.00	0.00
q25		0.00	0.00	0.00
q50			0.00	0.20
q75				0.02

rrr

qA\qB	q25	q50	q75	q90
q10	0.16	0.02	0.00	0.01
q25		0.08	0.00	0.02
q50			0.06	0.18
q75				0.87

secsec

qA\qB	q25	q50	q75	q90
q10	0.85	0.62	0.30	0.34
q25		0.57	0.20	0.28
q50			0.30	0,47
q75				0.94

qA\qB	q25	q50	q75	q90
q10	0.93	0.61	0.93	0.97
q25		0.14	0.25	0.87
q50			0.99	0.49
q75				0.45

qA\qB	q25	q50	q75	q90
q10	0.11	0.34	0.51	0.49
q25		0.35	0.28	0.51
q50			0.61	0.91
q75				0.83

qA\qB	q25	q50	q75	q90
q10	0.01	0.00	0.01	0.03
q25		0.32	0.60	0.76
q50			0.57	0.60
q75				0.82

Bahia

tertsec

qA\qB	q25	q50	q75	q90
q10	0.54	0.27	0.09	0.11
q25		0.27	0.05	0.11
q50			0.23	0,37
q75				0.98

techadm

qA\qB	q25	q50	q75	q90
q10	0.72	0.66	0.50	0.67
q25		0.23	0.19	0.85
q50			0.67	0,28
q75				0.08

trans

qA\qB	q25	q50	q75	q90
q10	0.69	0.40	0.31	0.49
q25		0.41	0.37	0.63
q50			0.75	0,92
q75				0.66

octracom

qA\qB	q25	q50	q75	q90
q10	0.78	0.98	0.86	0.38
q25		0.69	0.93	0.38
q50			0.75	0,13
q75				0.15

ocservic

qA\qB	q25	q50	q75	q90

Ceara

Tertsec

qA\qB	q25	q50	q75	q90
q10	0.98	0.40	0.34	0.75
q25		0.03	0.04	0.55
q50			0.71	0.48
q75				0.27

Techadm

qA\qB	q25	q50	q75	q90
q10	0.79	0.28	0.46	0.85
q25		0.06	0.33	0.99
q50			0.46	0.23
q75				0.33

Trans

qA\qB	q25	q50	q75	q90
q10	0.46	0.26	0.35	0.57
q25		0.28	0.51	0.94
q50			0.76	0.51
q75				0.54

Octracom

qA\qB	q25	q50	q75	q90
q10	0.69	0.30	0.47	0.96
q25		0.13	0.43	0.59
q50			0.50	0.08
q75				0.10

ocservic

qA\qB	q25	q50	q75	q90

Pernambuco

tertsec

qA\qB	q25	q50	q75	q90
q10	0.10	0.36	0.59	0.61
q25		0.21	0.15	0.34
q50			0.50	0.75
q75				0.91

techadm

qA\qB	q25	q50	q75	q90
q10	0.51	0.90	0.99	0.67
q25		0.36	0.32	0.90
q50			0.78	0.58
q75				0.37

trans

qA\qB	q25	q50	q75	q90
q10	0.34	0.81	0.86	0.99
q25		0.22	0.10	0.27
q50			0.36	0.69
q75				0.77

octracom

qA\qB	q25	q50	q75	q90
q10	0.44	0.90	0.97	0.90
q25		0.27	0.31	0.50
q50			0.87	0.97
q75				0.85

ocservic

qA\qB	q25	q50	q75	q90

North-East

tertsec

qA\qB	q25	q50	q75	q90
q10	0.04	0.05	0.18	0.38
q25		0.91	0.58	0.41
q50			0.21	0.21
q75				0.54

techadm

qA\qB	q25	q50	q75	q90
q10	0.91	0.56	0.53	0.91
q25		0.28	0.33	0.80
q50			0.86	0.53
q75				0.35

trans

qA\qB	q25	q50	q75	q90
q10	0.60	0.76	0.77	0.71
q25		0.81	0.32	0.32
q50			0.20	0.28
q75				0.82

octracom

qA\qB	q25	q50	q75	q90
q10	0.57	0.85	0.90	0.74
q25		0.63	0.41	0.91
q50			0.51	0.77
q75				0.35

ocservic

qA\qB	q25	q50	q75	q90

q10	0.53	0.21	0.22	0.34
q25		0.24	0.31	0.55
q50			0.99	0,74
q75				0.67

q10	0.44	0.11	0.20	0.54
q25		0.04	0.19	0.92
q50			0.62	0.20
q75				0.21

q10	0.43	0.80	0.64	0.64
q25		0.06	0.07	0.12
q50			0.57	0.62
q75				0.93

q10	0.57	0.17	0.07	0.05
q25		0.13	0.05	0.04
q50			0.25	0.16
q75				0.54

Bahia

Naoccup

qA\qB	q25	q50	q75	q90
q10	0.60	0.39	0.32	0.58
q25		0.46	0.39	0.83
q50			0.77	0,69
q75				0.46

Ceara

Naoccup

qA\qB	q25	q50	q75	q90
q10	0.40	0.12	0.20	0.39
q25		0.07	0.22	0.67
q50			0.60	0.38
q75				0.50

Pernambuco

Naoccup

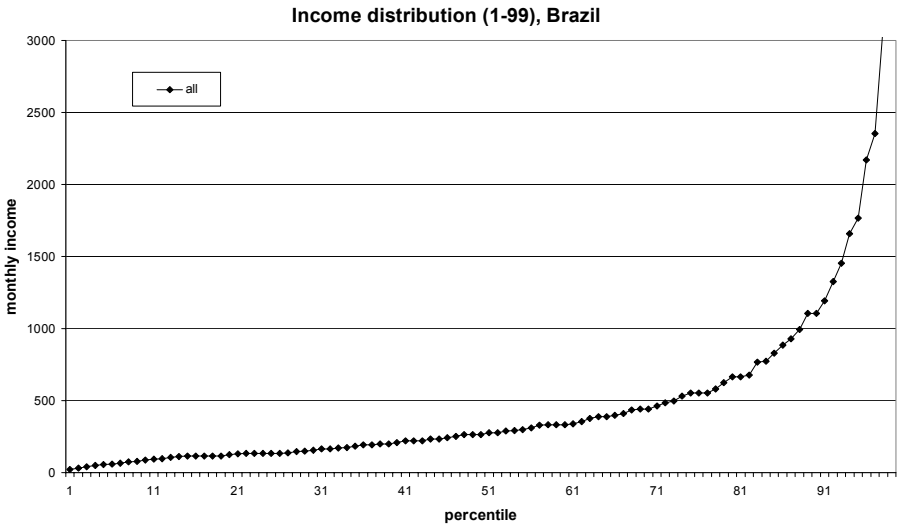
qA\qB	q25	q50	q75	q90
q10	0.33	0.71	0.91	0.94
q25		0.32	0.14	0.34
q50			0.32	0.69
q75				0.72

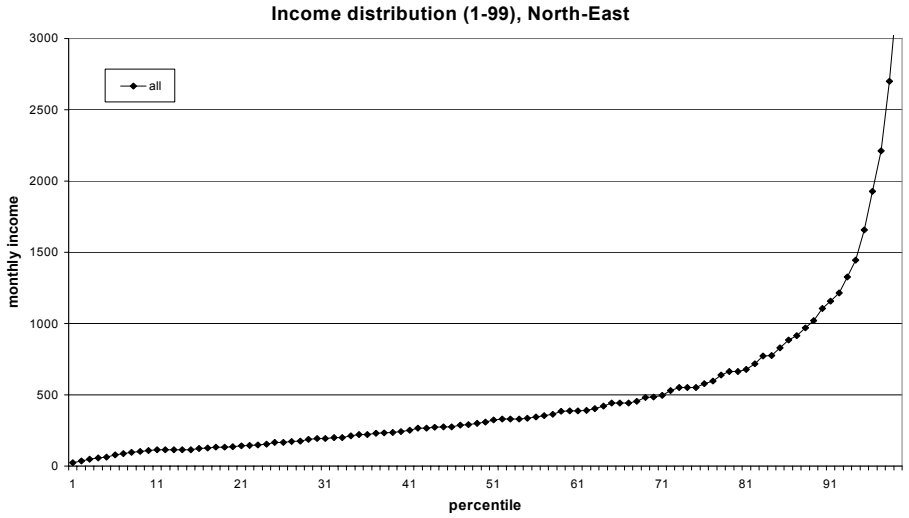
North-East

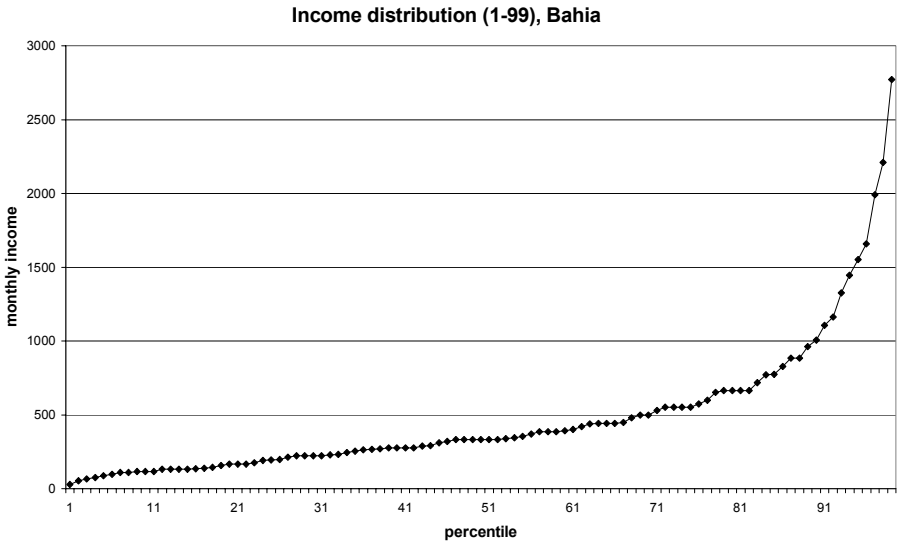
Naoccup

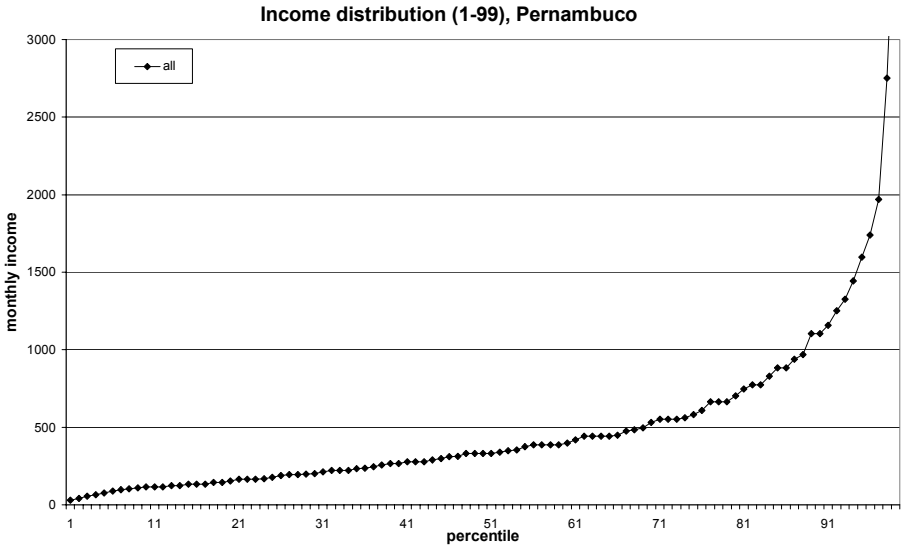
qA\qB	q25	q50	q75	q90
q10	0.84	0.48	0.24	0.24
q25		0.36	0.13	0.16
q50			0.27	0.35
q75				0.88

4. FIGURE 1A. INCOME DISTRIBUTION






Income distribution (1-99), Bahia
monthly income
3000
2500
2000
1500
1000
500
0
1
11
21
31
41
51
61
71
81
91
percentile


Income distribution (1-99), Pernambuco
all
monthly income
3000
2500
2000
1500
1000
500
0
1
11
21
31
41
51
61
71
81
91
percentile

5. FIGURE 1A, CONTINUED

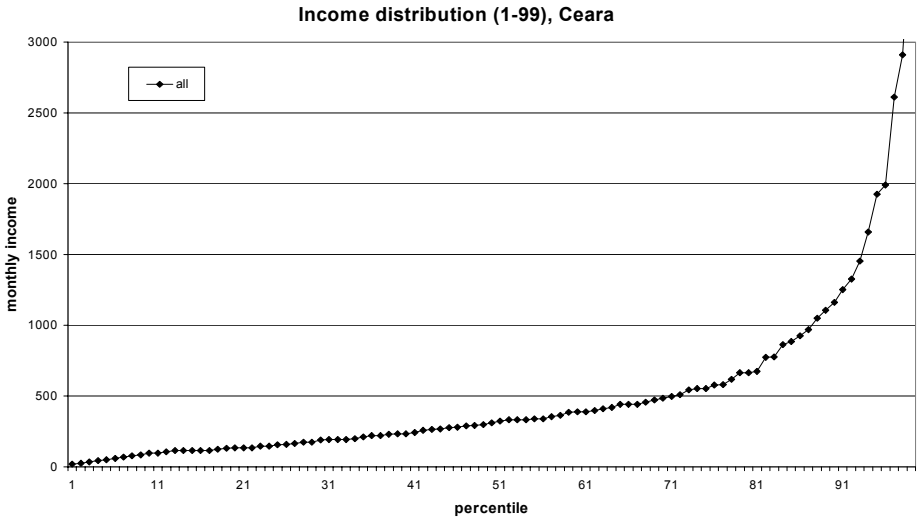
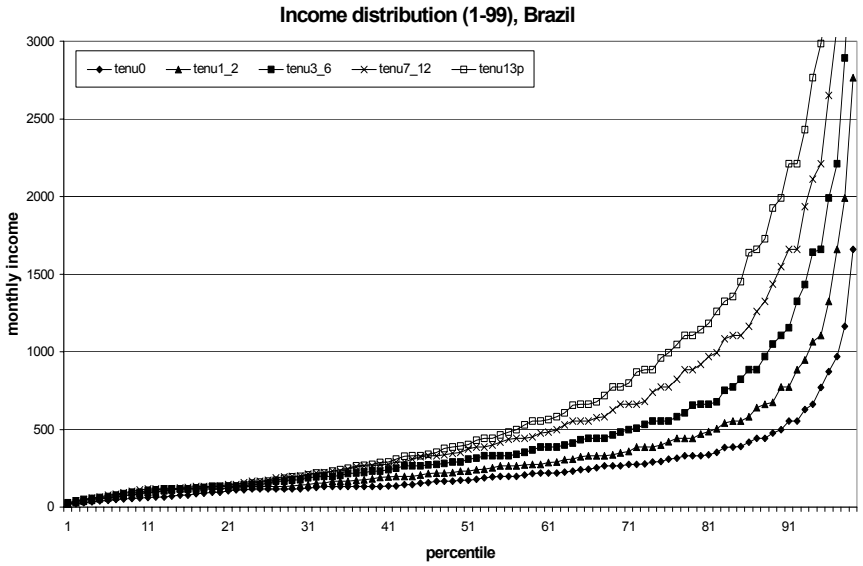
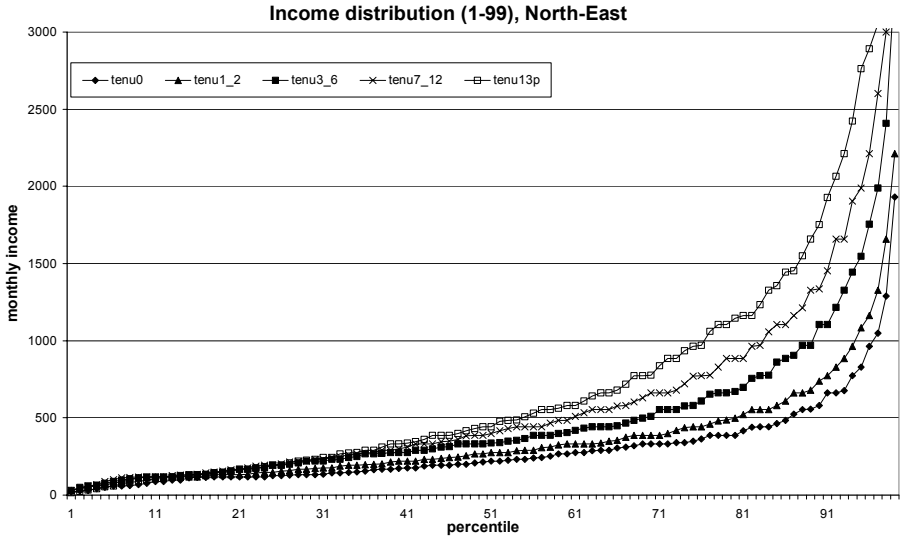
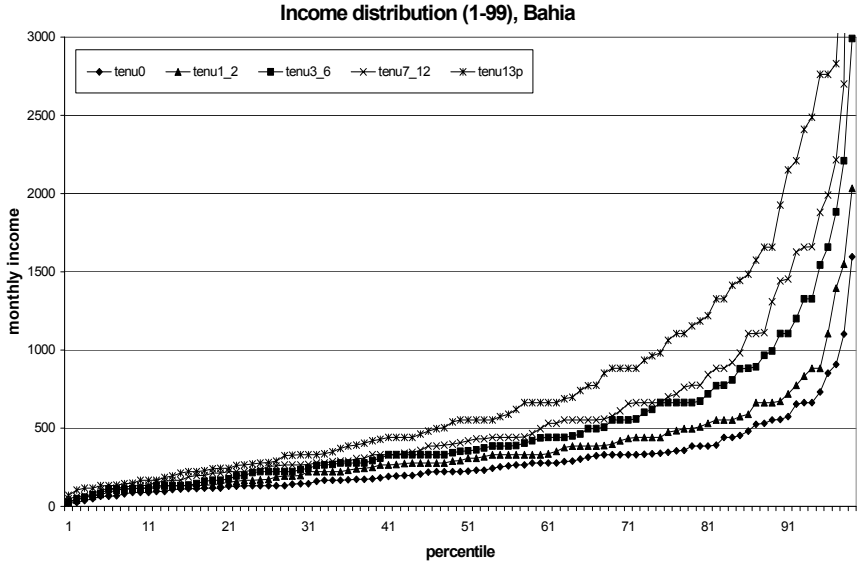
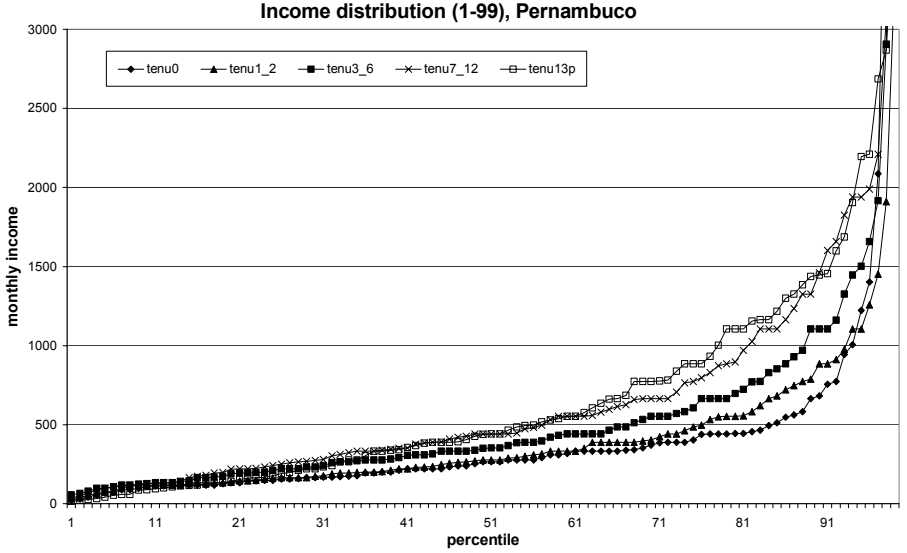


Figure 2A. Income distribution, tenure groups









6. FIGURE 2A , CONTINUED

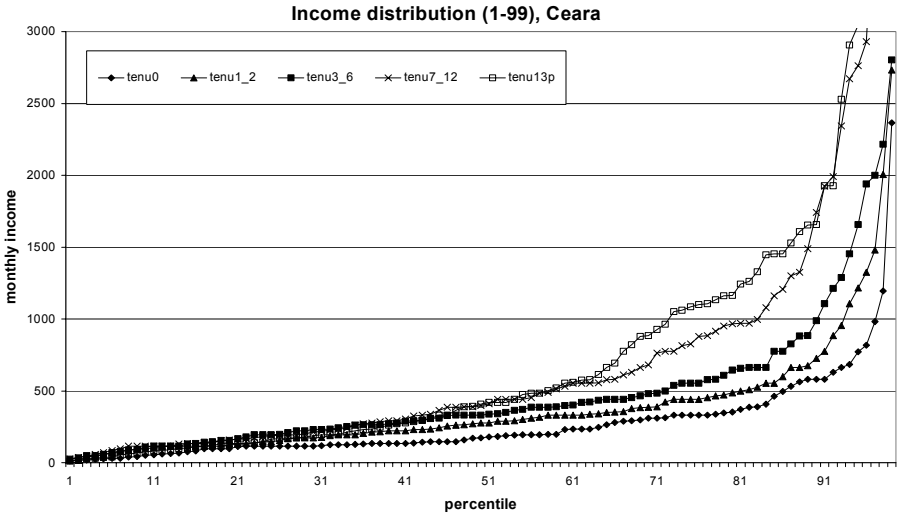
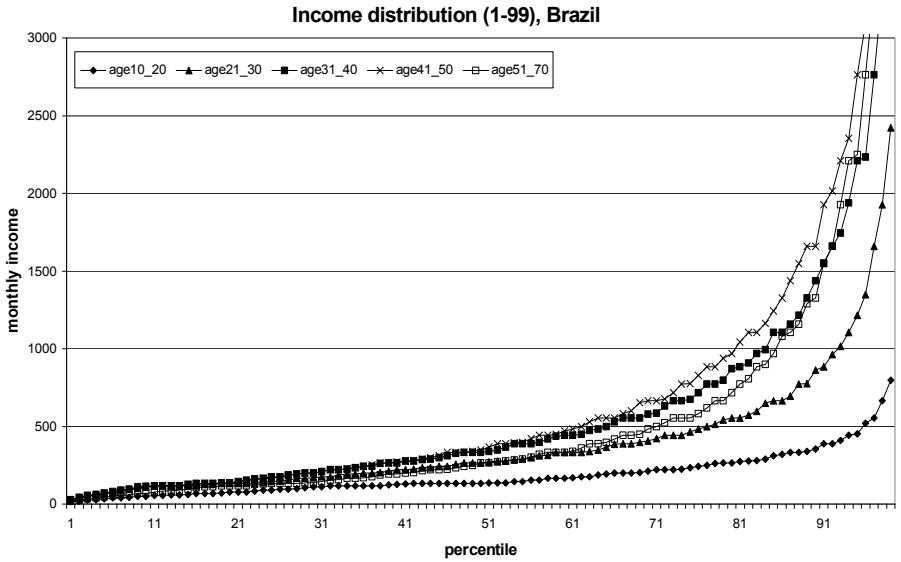
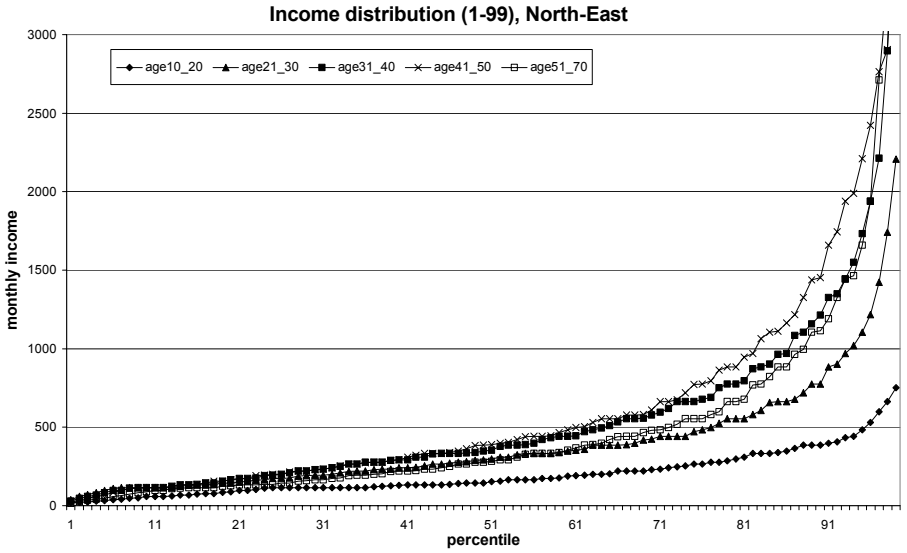
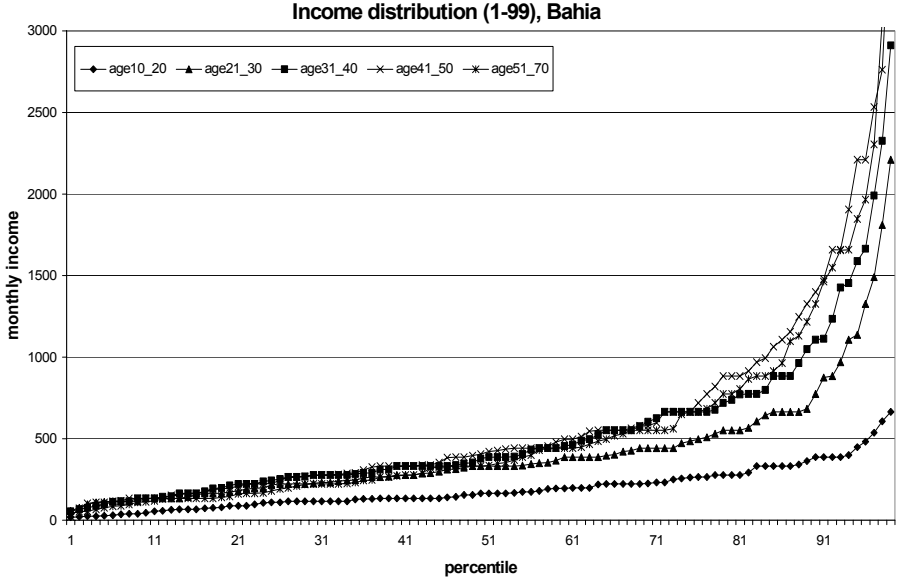
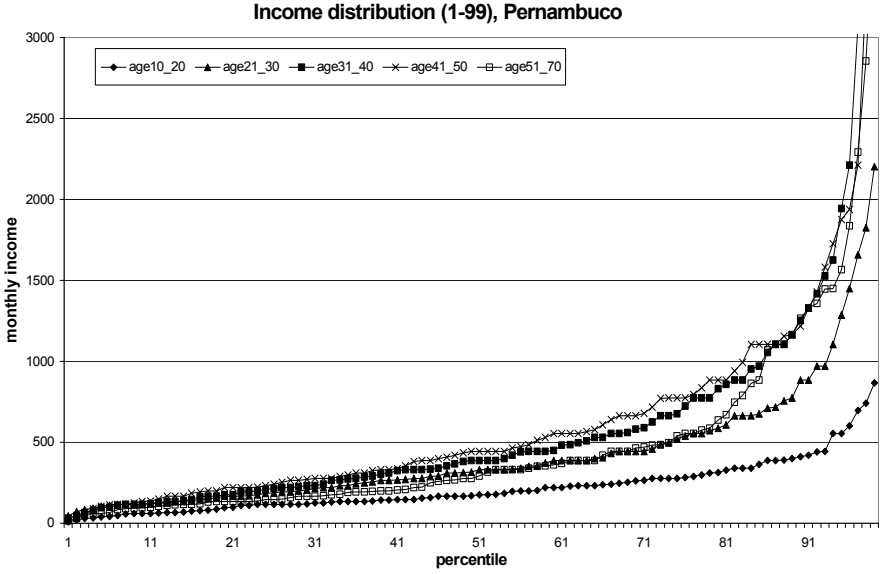


Figure 3A. Income distribution, age groups









7. FIGURE 3A , CONTINUED

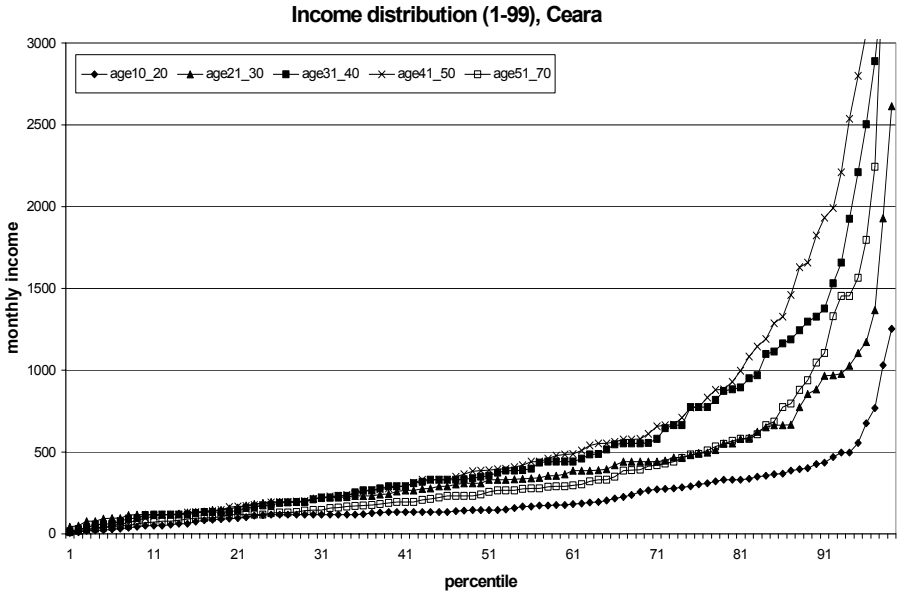
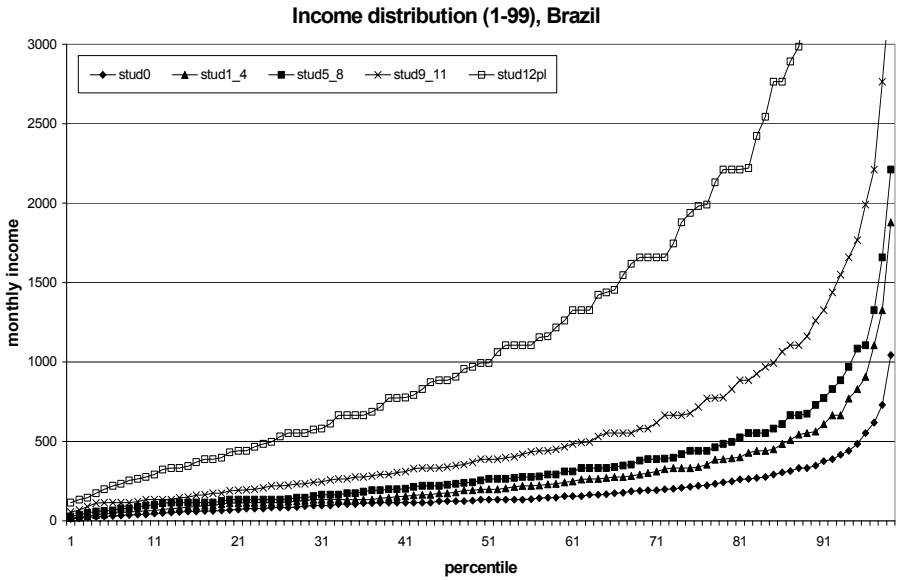
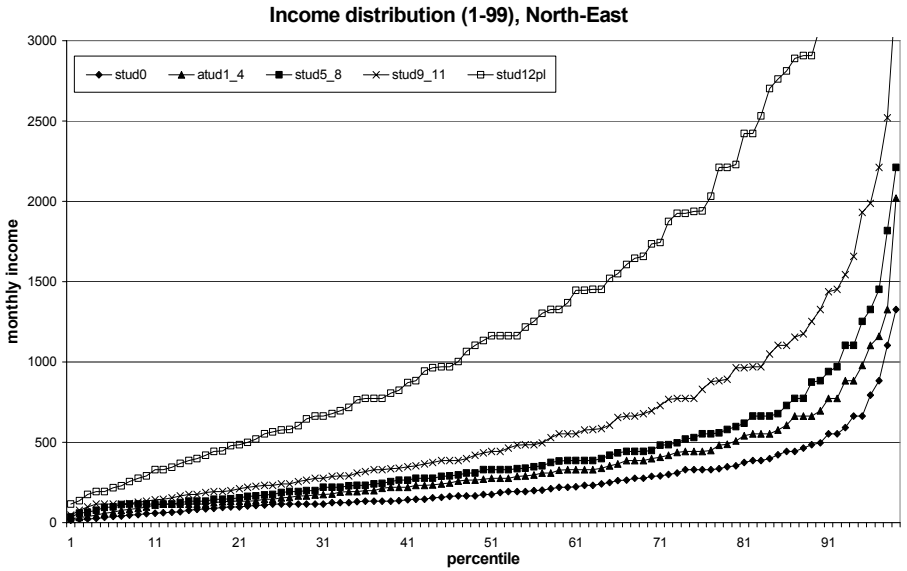
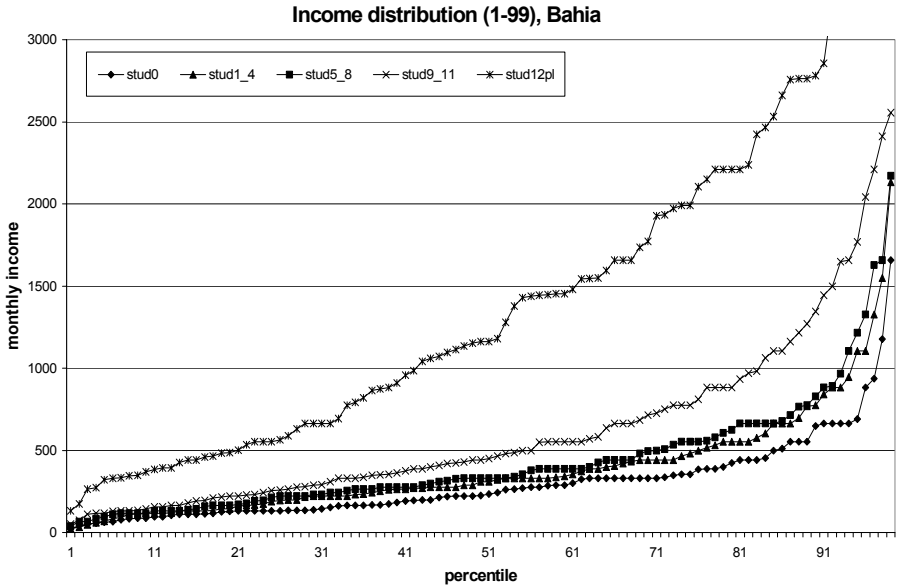
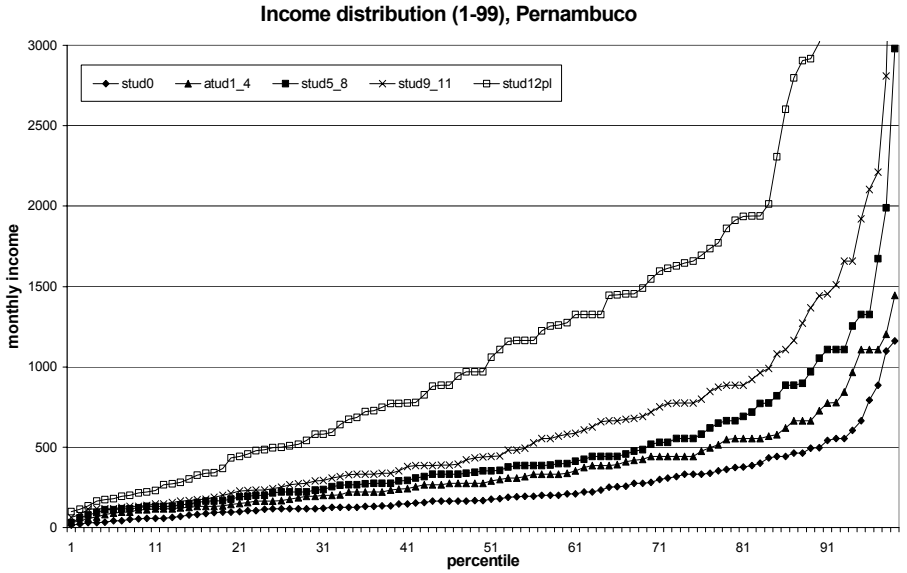


Figure 4A. Income distribution, educational groups









8. FIGURE 4A , CONTINUED

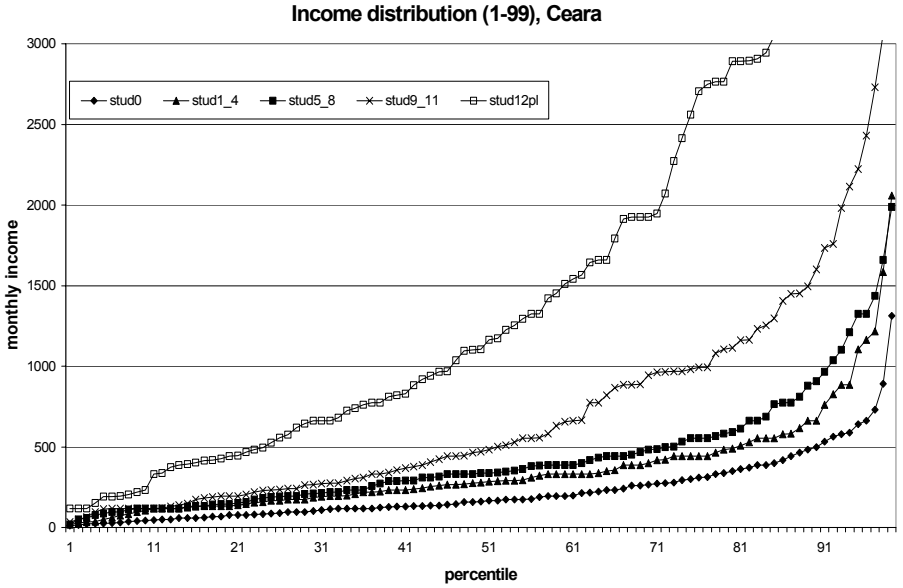
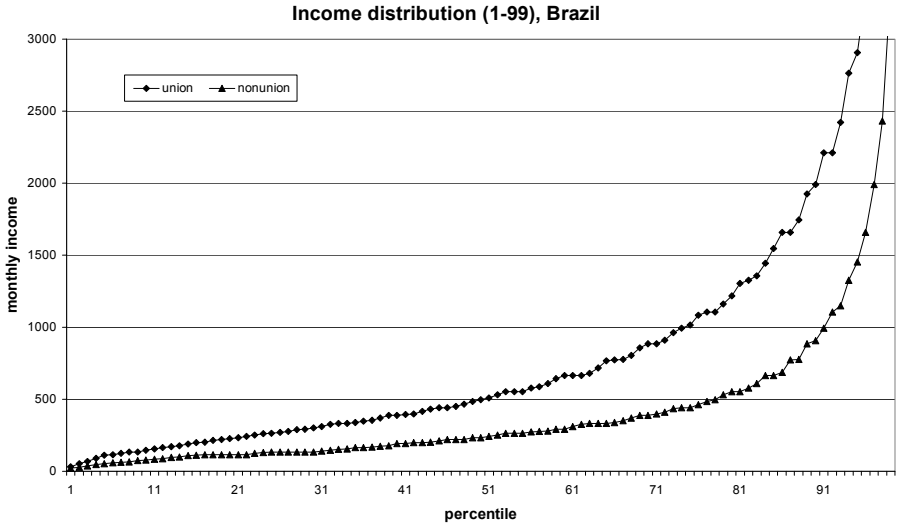
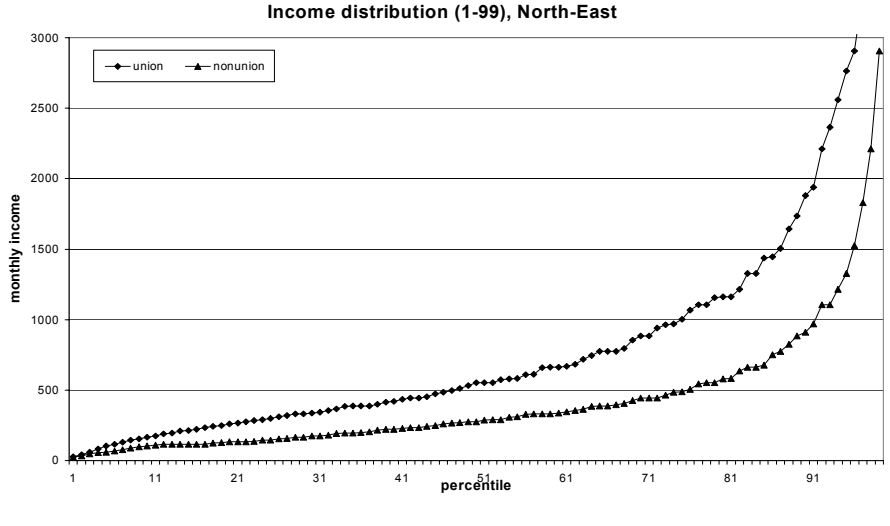
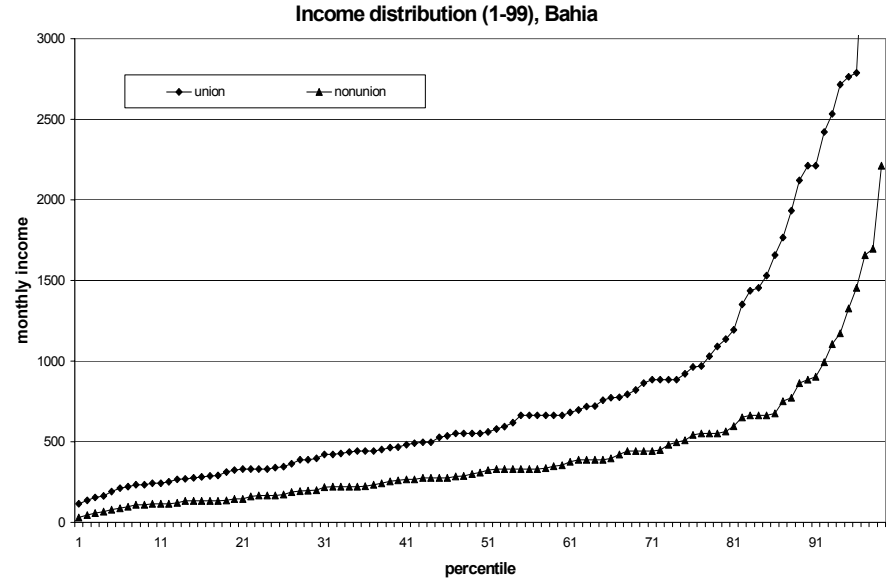
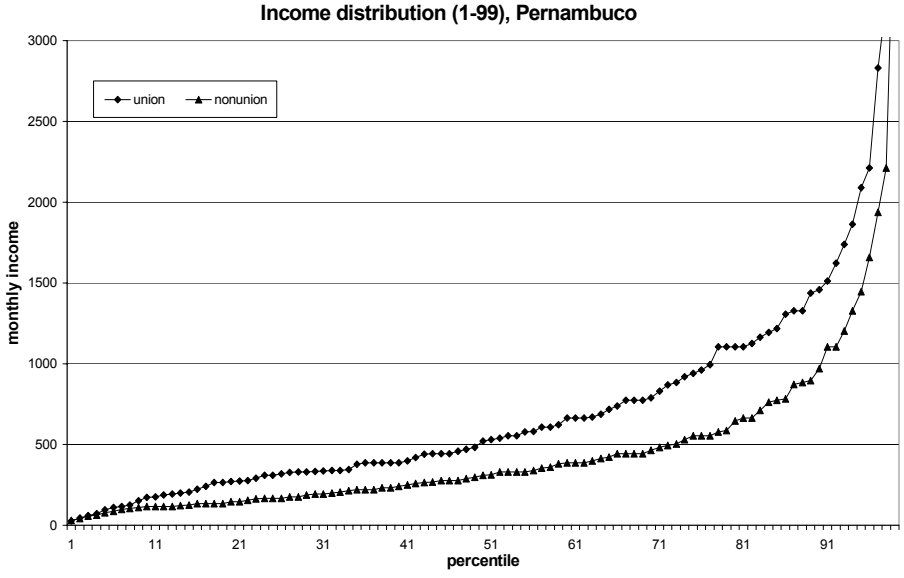


Figure 5A. Income distribution, union-nonunion groups









9. FIGURE 5A , CONTINUED

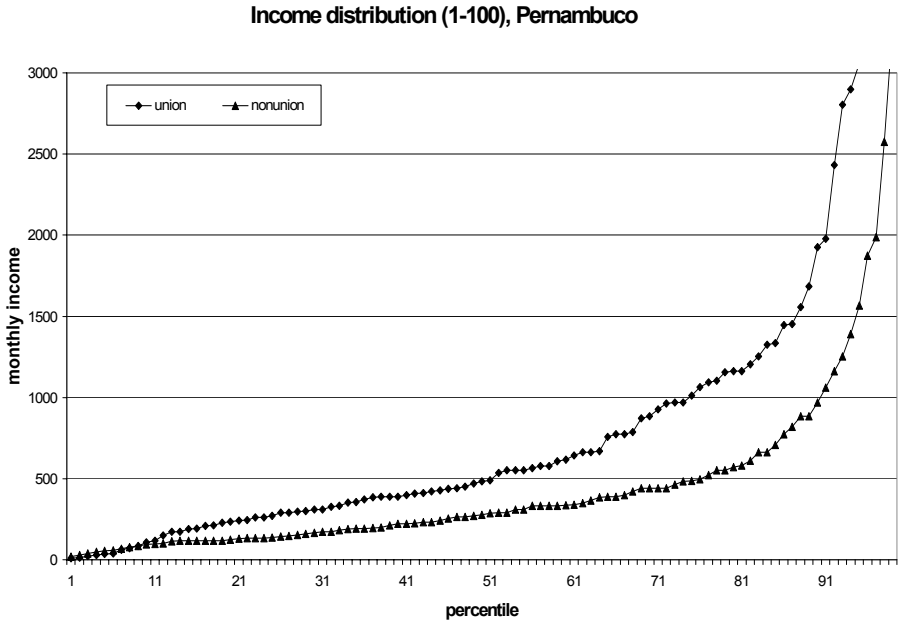
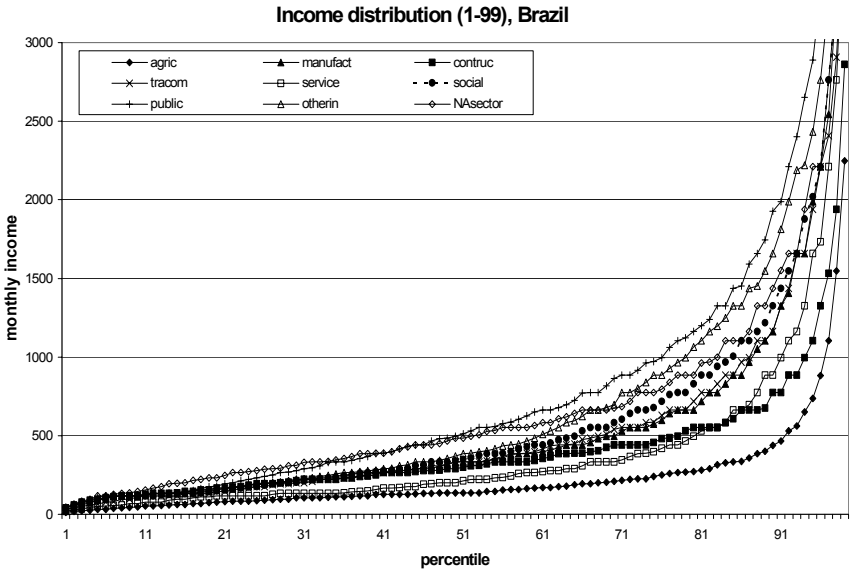
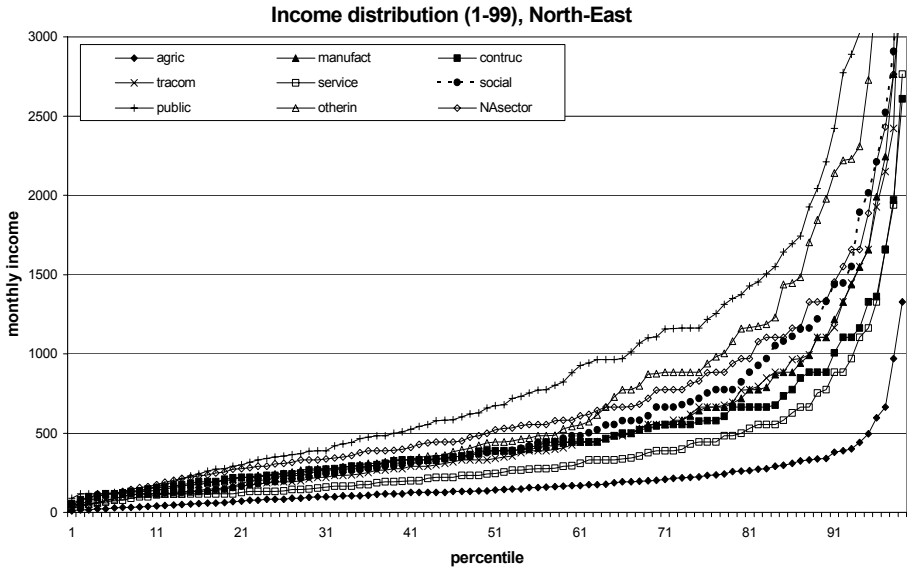
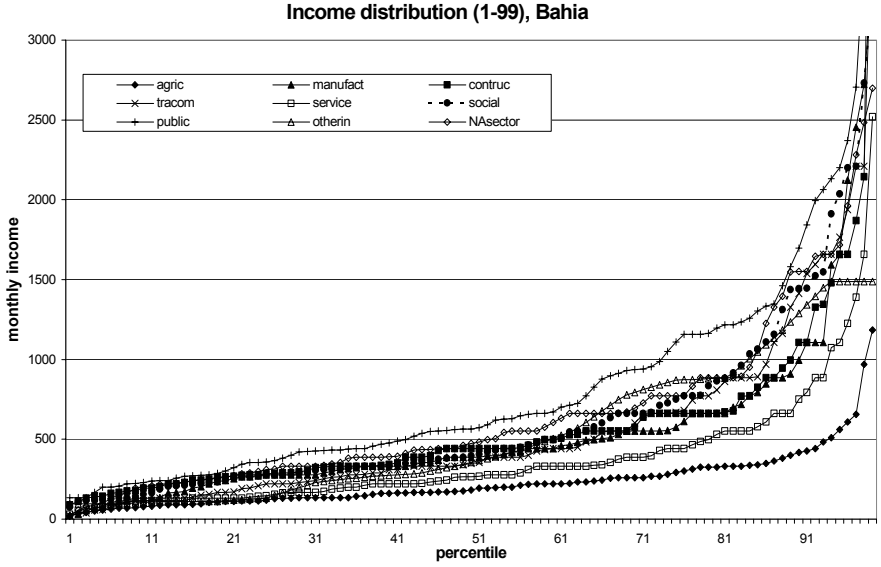


Figure 6A_1 Sectors (detailed)







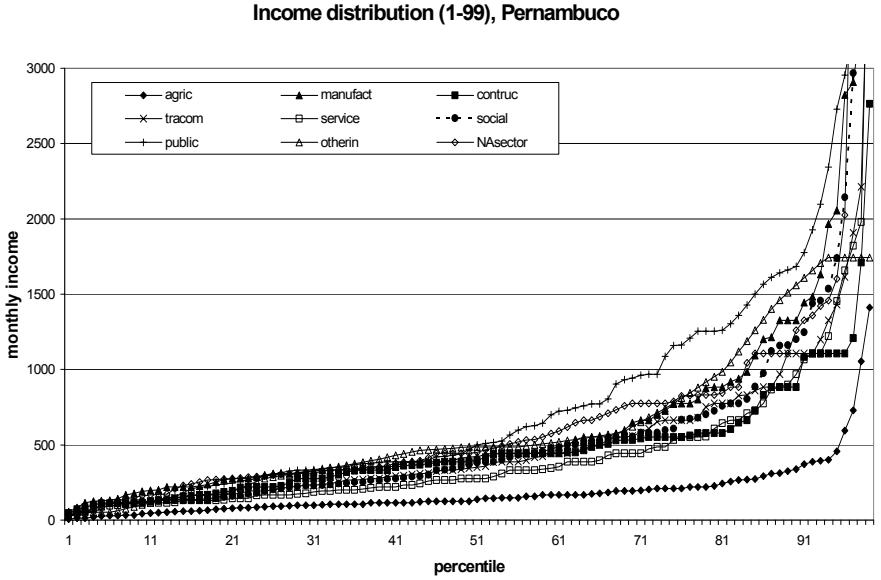
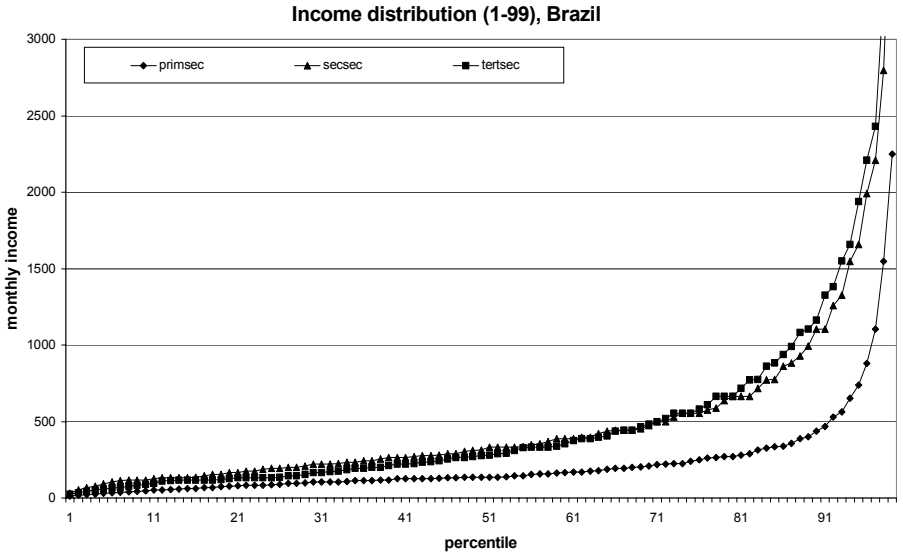
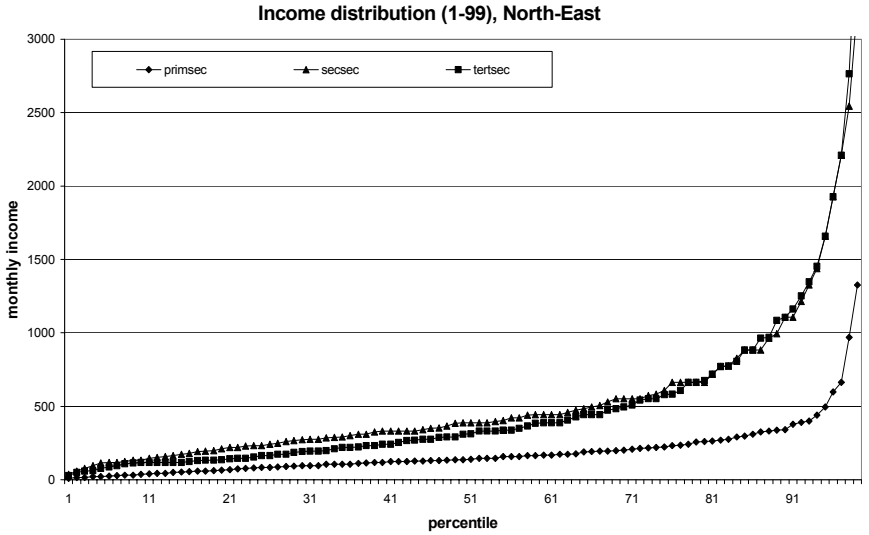
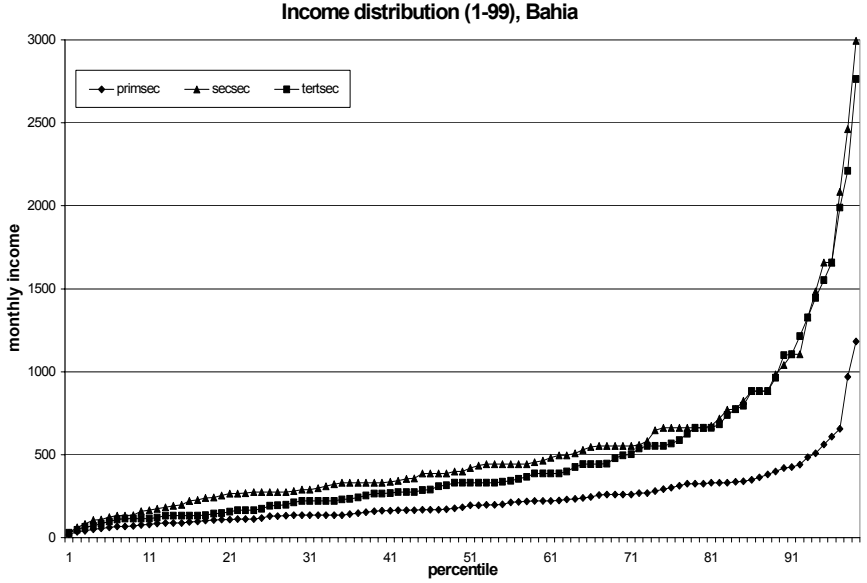
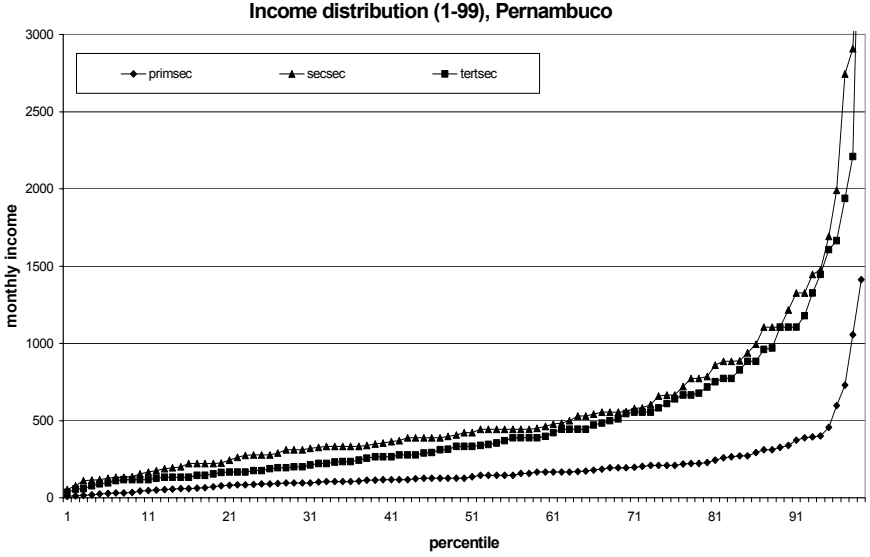


Figure 6A_2. Sectors (aggregated)

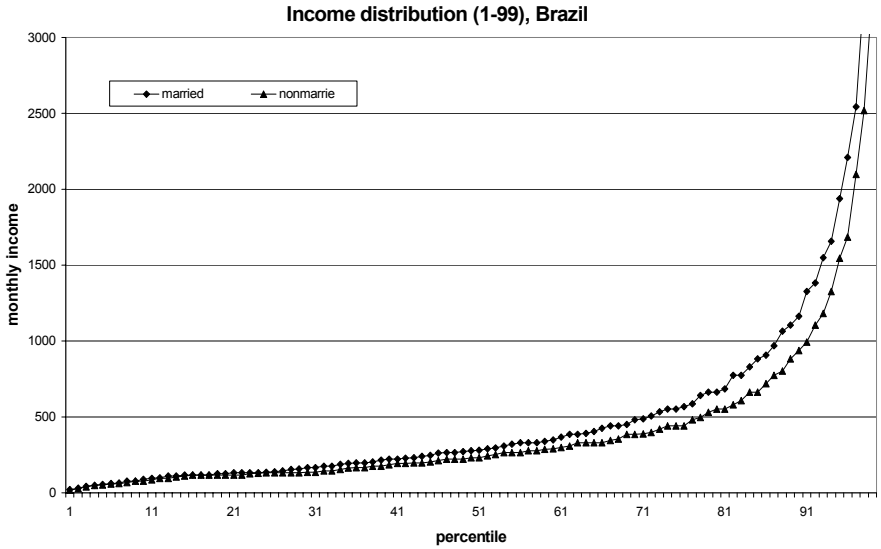


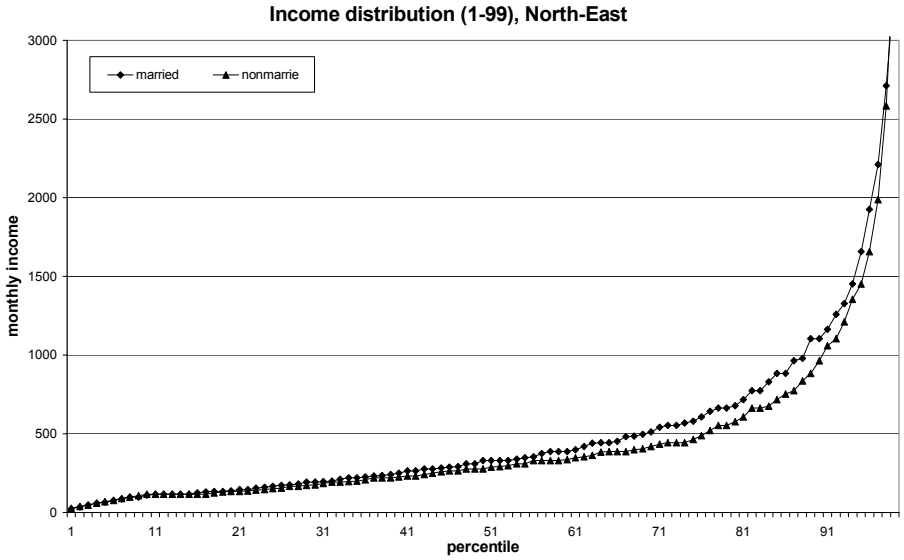


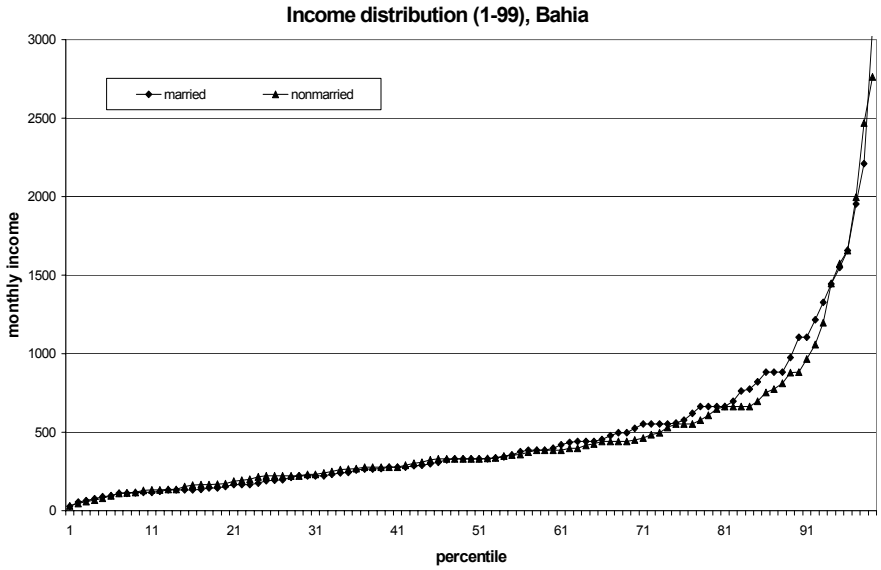




10. FIGURE 7A. INCOME DISTRIBUTION, MARRIED-NONMARRIED GROUPS






Income distribution (1-99), Bahia
married
nonmarried
monthly income
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1500
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41
51
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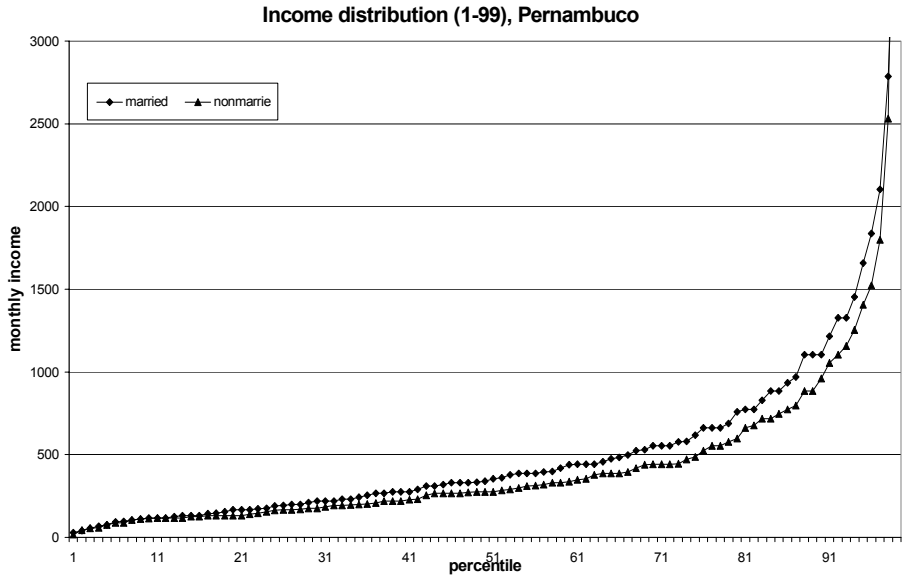
71
81
91


Income distribution (1-99), Pernambuco
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11. FIGURE 7A , CONTINUED

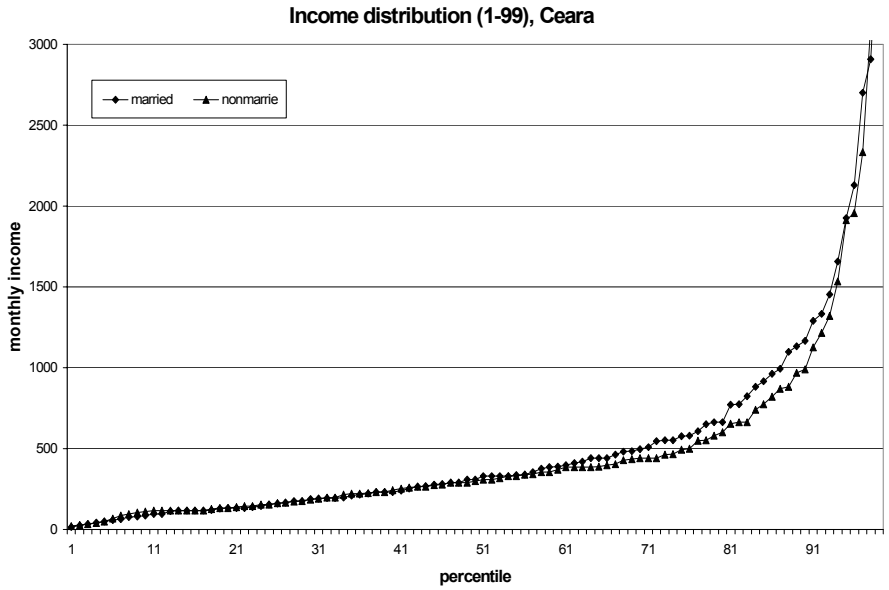
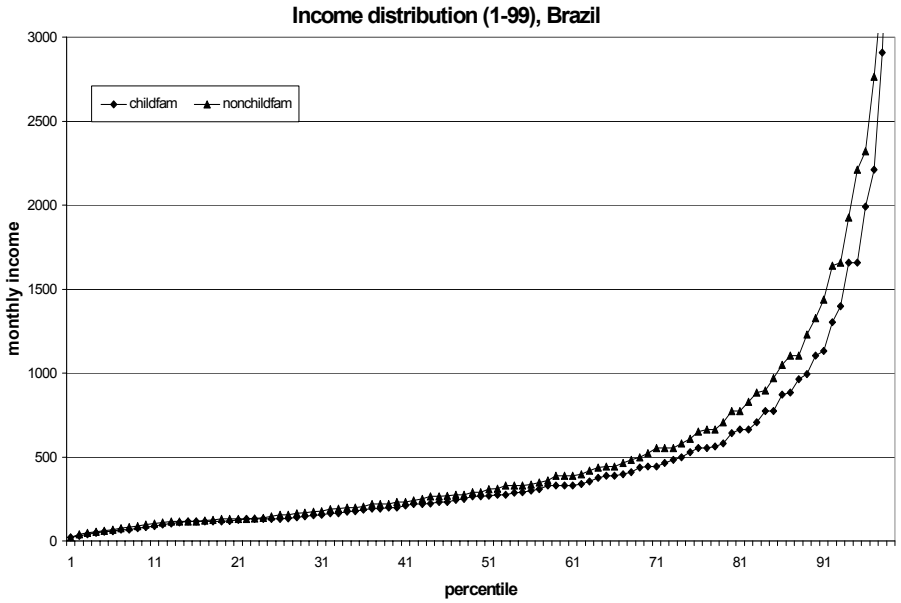
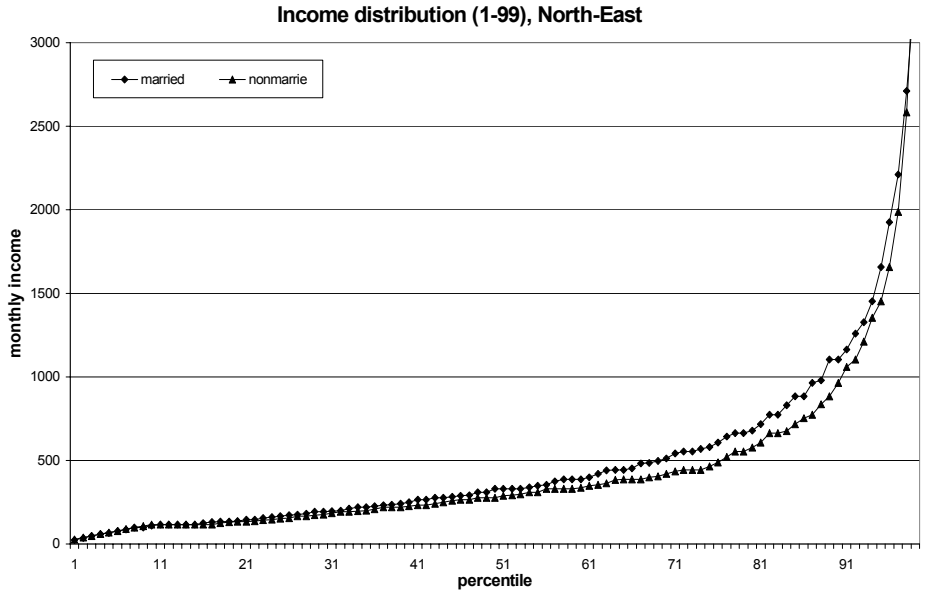
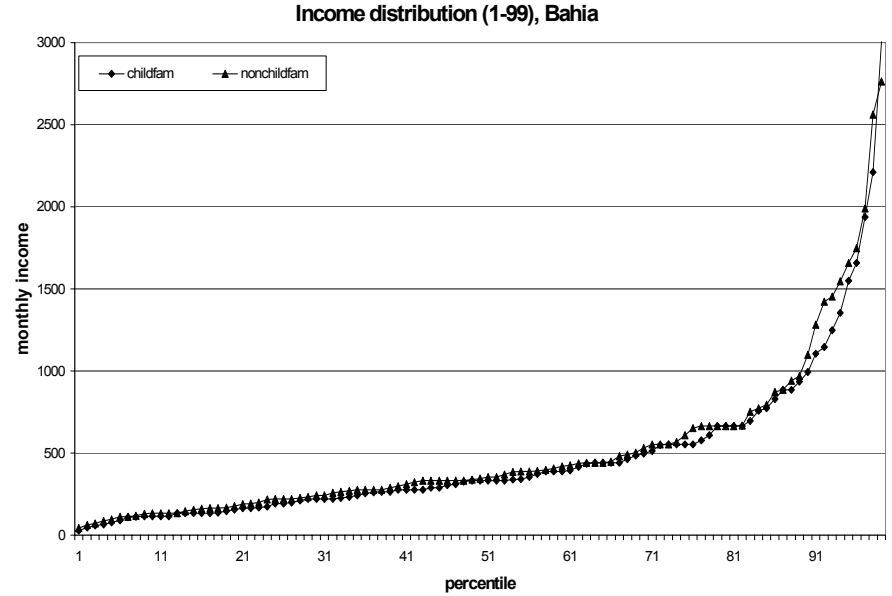
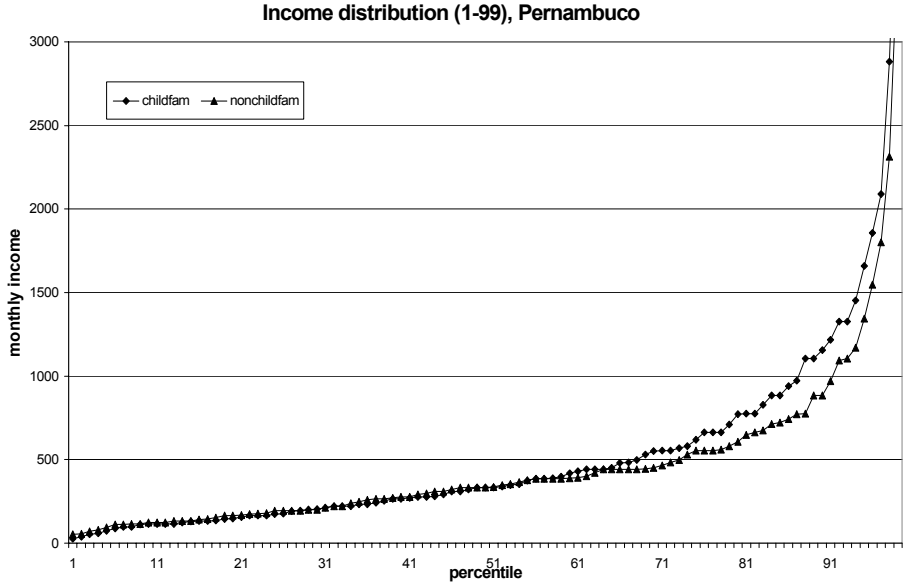


Figure 8A. Income distribution, child-family vs. non-child-family groups









12. FIGURE 8A , CONTINUED

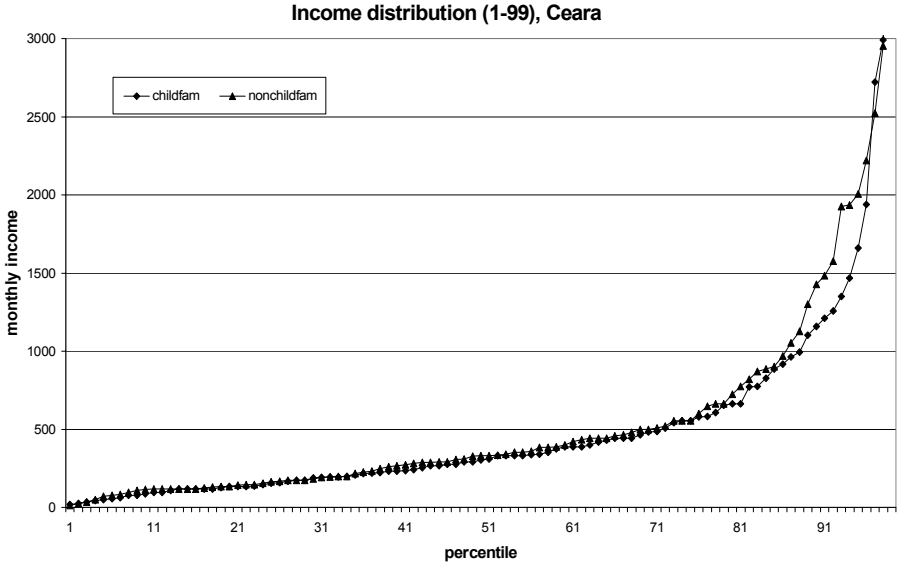
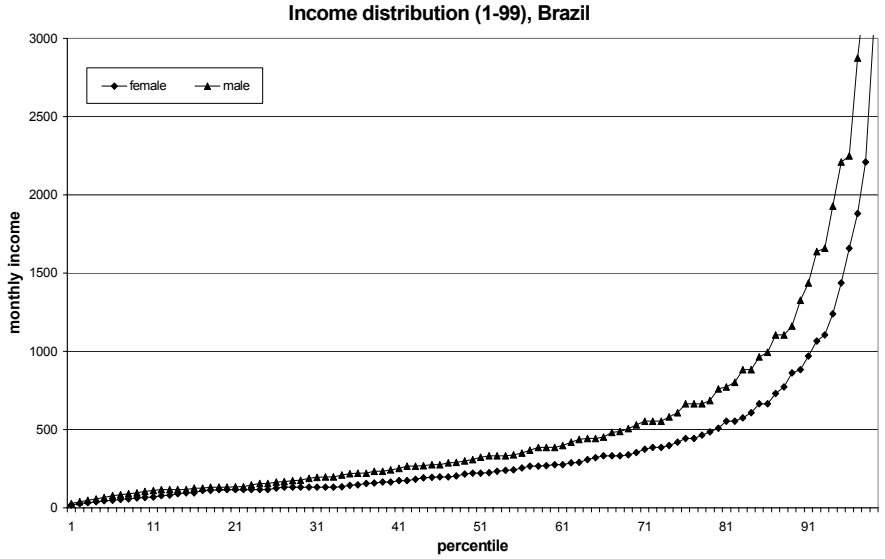
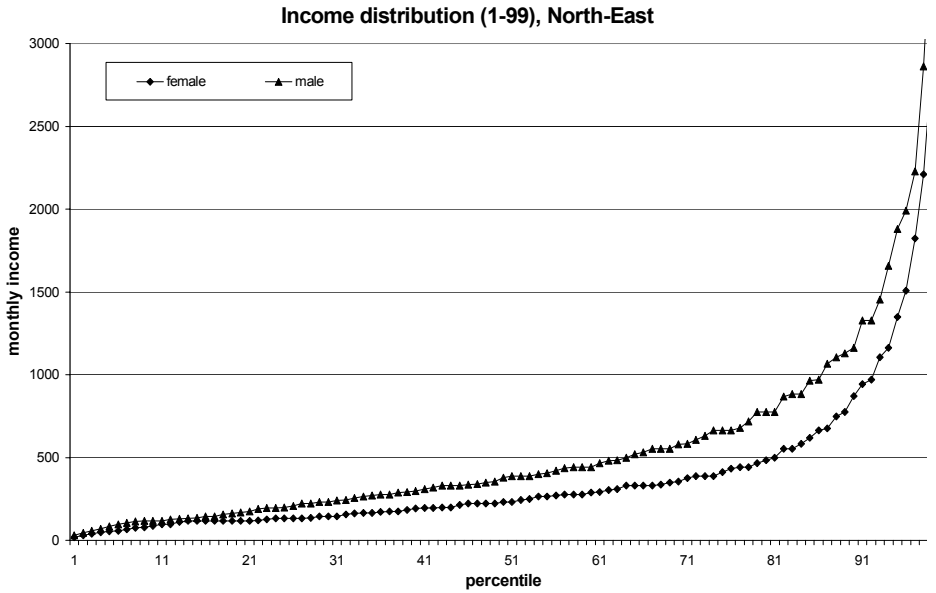
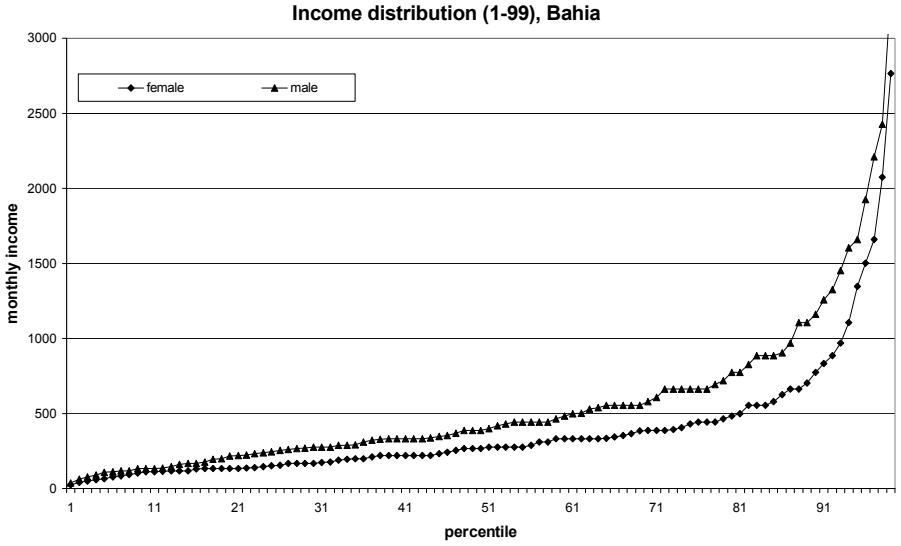
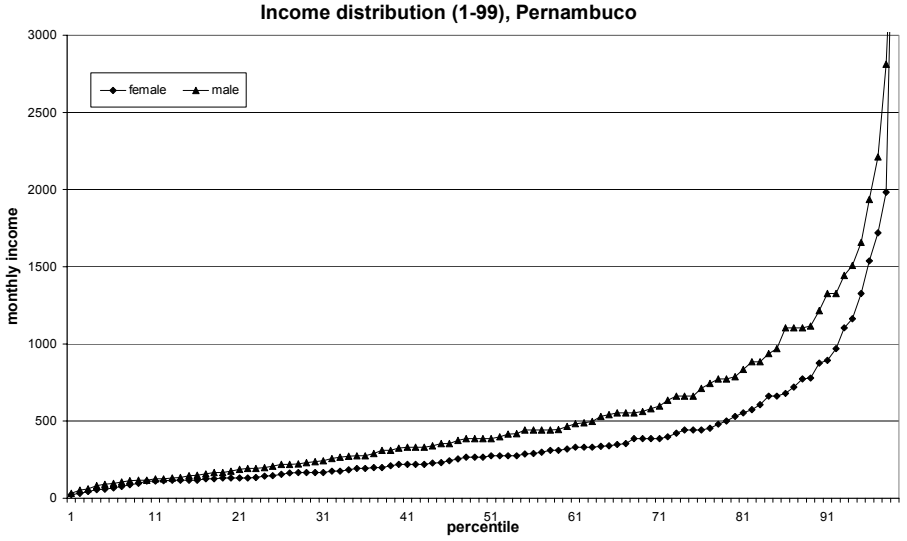


Figure 9A. Income distribution, gender groups









13. FIGURE 9A , CONTINUED

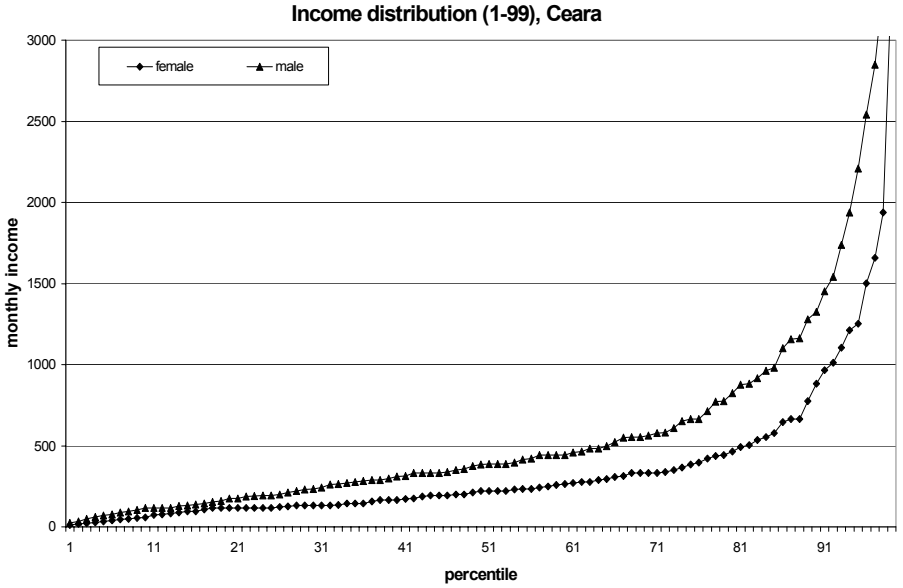
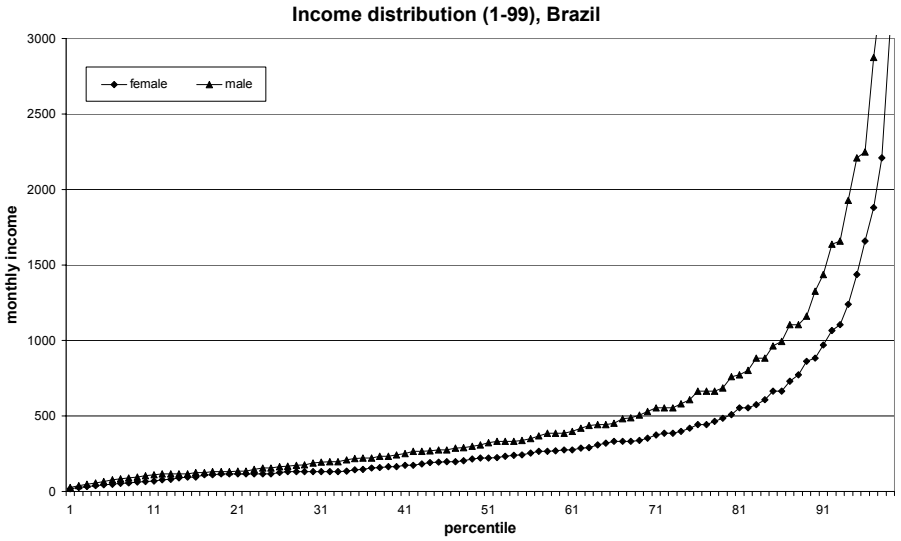
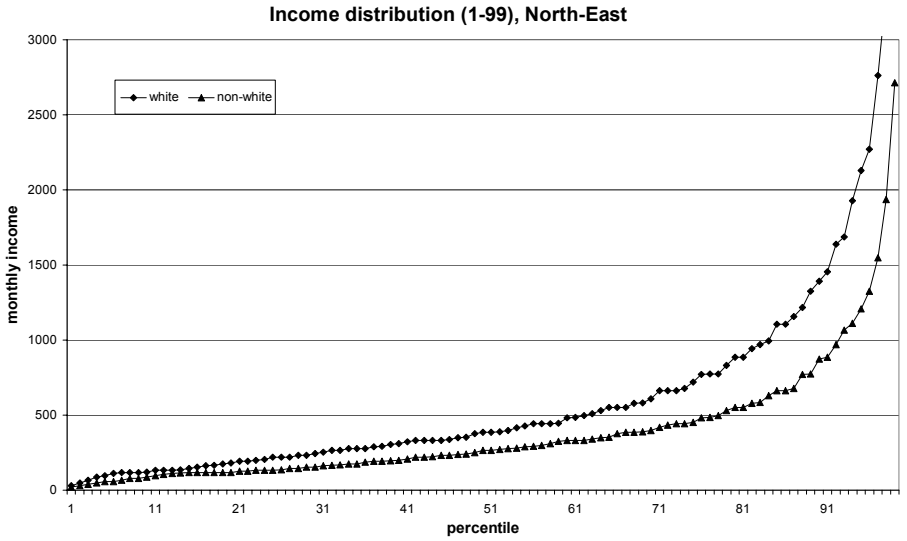
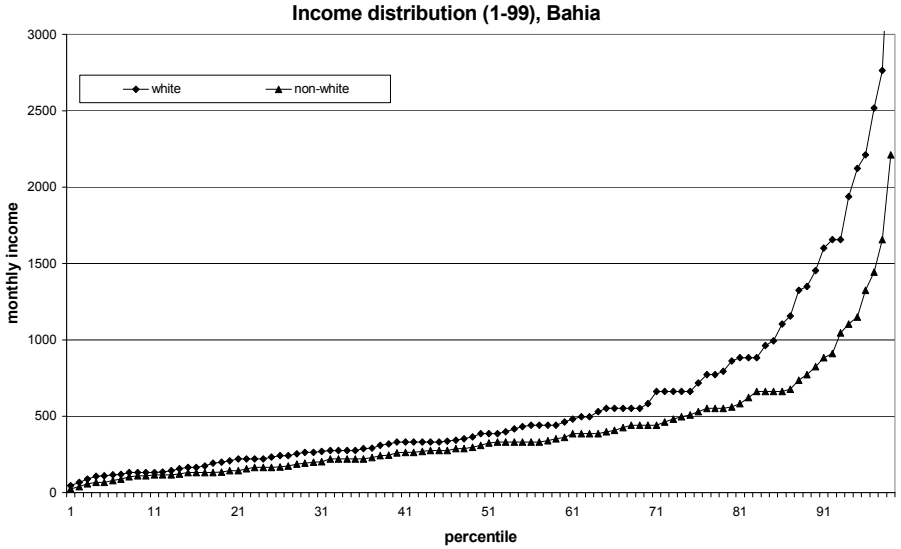
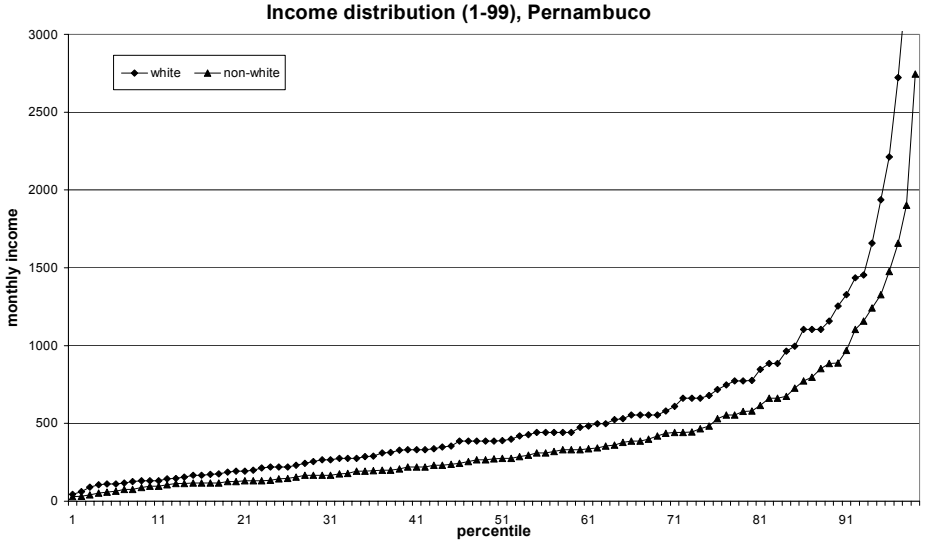


Figure 10A. Income distribution, race/ethnicity groups









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