ANALYSIS OF INCOME INEQUALITY BETWEEN URBAN AND RURAL AREAS IN NORTHEAST BRAZIL

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Map of IFAD in Brazil

PROJETO VIVA O SEMIÁRIDO (PVSA)
- Financiamento FIDA: US$ 20 milhões
- Financiamento governamental: 10,1 milhões
- Famílias beneficiadas: 22 mil
- Jovens: 3.832 (alcance)/ 5.400 (meta)

PROJETO PAULO FREIRE (PPF)
- Financiamento FIDA:: US$ 40 milhões
- Financiamento Governamental:: US$ 40 milhões
- Famílias: 60 mil
- Jovens: 16.052

PROJETO DE DESENVOLVIMENTO SUSTENTÁVEL DO CARIRI, SERIDÓ E CURIMATAÚ (PROCASE)
- Financiamento FIDA: 25 milhões
- Financiamento Governamental:: US$ 15,5 milhões
- Famílias: 22 mil
- Famílias chefiadas por jovens: 1.570

PROJETO DOM TÁVORA (PDT)
- Financiamento FIDA US$ 16 milhões
- Financiamento governamental: 12,6 milhões
- Famílias beneficiadas: 12 mil
- Famílias chefiadas por jovens: 1.545 (alcance)

PROJETO PRÓ SEMIÁRIDO (PSA)
- Financiamento FIDA: US$ 45 milhões
- Financiamento Governamental: US$ 50 milhões
- Famílias beneficiadas: 61.963
- Jovens: 17.990

PROJETO DOM HÉLDER CÂMARA (PDHC) II
- Financiamento FIDA:: US$ 125,3 milhões
- Financiamento governamental: US$ 42 milhões
- Famílias: 74 mil
- Jovens: 39 mil

IFAD's performance in Brazil with Semear Internacional Program

The International Fund for Agricultural Development (IFAD) is a financial agency of the United Nations (UN) that, in partnership with state and federal governments, enters into loan and grant agreements to support rural development. In Brazil, IFAD's main investment focus is the semi-arid region, where it performs actions aimed at promoting productive projects to generate agricultural income, cooperatives, associations and access to markets. With promotion of nutritional food security and reduction of poverty in rural areas among its pillars, IFAD encourages the strengthening of activities whose priority audiences are women, young people and traditional communities.

IFAD has already provided an amount of approximately US$ 300 million for the implementation of 13 projects in Brazil. Six projects are in execution in 2020, with direct benefit to 250,000 families. Five of them are in partnership with state governments, through bilateral agreements: Paraíba (Procase Project – Sustainable Development of Cariri, Seridó and Curimataú), Bahia (Pró-Semiárido Project), Sergipe (Dom Távora Project), Piauí (Viva o Semiárido Project), and Ceará (Paulo Freire Project). In partnership with the federal government, the Dom Hélder Câmara Project (PDHC) covers 11 states: Pernambuco, Ceará, Rio Grande do Norte, Alagoas, Bahia, Piauí, Paraíba, Sergipe, Maranhão, Minas Gerais, and Espírito Santo.

In parallel with the projects, IFAD seeks to carry out actions that go beyond productive development in the communities served, encouraging access to information through donation programs, such as the Semear Internacional Programme (PSI), whose operationalization is supported by the Inter-American Institute for Cooperation on Agriculture (IICA). Operating in Brazil, PSI has the following axes: Knowledge Management; Monitoring & Evaluation; Communication; Policy Dialogues; and South-South and Triangular Cooperation. PSI works with the six projects supported by IFAD in Brazil, strengthening their capacities by carrying out activities that stimulate knowledge. The objective is to facilitate access to contextualized knowledge and innovations for coping with the semi-arid region.

Among the PSI's activities, there are exchange programs; training; workshops and seminars with technicians and project beneficiaries; technical training for public managers; institutional

articulations; support for gender equality; support for the collection of socioeconomic data and methodization of results; book publications, and production of journalistic and communicational content in print and digital formats. In this way, the program has been making a significant contribution to the systematization and dissemination of good rural practices in IFAD's projects, both nationally and internationally.

Operation of each PSI's action component:

KNOWLEDGE MANAGEMENT
Training, exchange programs, thematic meetings and seminars are the main activities developed to strengthen knowledge and the knowledge exchange between projects, involving technician and beneficiaries. The most addressed themes are: access to markets, agroecology, gender, gastronomy, and goat farming. Many of these events result in publications that, in print and/or digital format, contribute to the enhancement and increased visibility of these good practices and successful experiences.

MONITORING & EVALUATION
Periodic training courses for technicians from these areas are carried out, with promotion of meetings in working groups and the involvement of professionals from other institutions. All IFAD's projects in Brazil use an integrated management system called Data.Fida, a great product developed by Semear Internacional for this component, which contributes to improving quality and accuracy of the information collected and processed by the projects.

COMMUNICATION
A component that permeates all others, Semear Internacional's Communication uses several channels, such as the portal and social networks, to make knowledge and information reach the most different audiences. Publications (books, booklets, manuals and studies), a collection of videos and photos and the database of good practices already listed can be found on the website, as well as texts created weekly and disseminated among IFAD's projects A recent product in this area is the Prêmio Semear Internacional de Jornalismo, award in its first edition that honors the best news reports in Brazil on good rural practices.

SOUTH-SOUTH AND TRIANGULAR COOPERATION AND POLICY DIALOGUES
The objective of South-South and Triangular Cooperation is to foster new knowledge and networks through the internationalization of its actions. Through exchange programs, training and seminars involving countries in Latin America and Africa, topics of common interest in family farming are addressed, identifying techniques and practices that can help rural workers in their daily lives. In addition, PSI seeks to facilitate the dialogue on public policies, with a view to supporting spaces aimed at the debate between civil society, governments, academia, and partners.

Learn more about PSI's actions; visit the virtual library and access the events held to join the network for the dissemination of good rural practices in the semi-arid region, accessing www.portalsemear.org.br.

Foreword

Social and income inequality is one of the most serious issues faced by developing countries. Trends such as increasing differences between rich and poor people are increasingly frightening and create a sense of urgency that pressures authorities from various spheres to seek alternative and innovative solutions as compared to the paroxysm of current times It is also evident that within the spheres of inequality there are more or less vulnerable groups and subgroups that face this problem from diverse perspectives and confrontations. The semi-arid of Brazilian Northeast is among the most affected regions by this social fact, and the difference among specific sectors within this region, evidenced by social and geographic cutouts is remarkable.

The International Fund for Agricultural Development (IFAD) has proposed, through the Semear International Program executed by the Inter-American Institute for Cooperation on Agriculture (IICA), to prepare a study aimed at contributing to understand the inequalities between urban and rural regions in the northeast of Brazil, in order to apprehend intersectional or invisible issues at first. The study follows an attempt to shed light on an primary issue for effectively addressing inequality: the need to understand the problem in as deep and segmented a manner as possible.

In this work we aimed at analyzing the current level of income inequality between the urban and rural regions of Northeastern Brazil, in order to understand the fac-

tors that explain these differences. As a source of data, the Federal University of Bahia (UFBA) team, responsible for the technical execution of the study, used official bases from local and federal governments, ensuring great diversity of explanatory variables on individuals living in various locations in the Brazilian territory, a fundamental condition for the correct understanding of the issues exposed here.

The extensive literature review prepared by the team indicated the use of measurement tools that allowed the calculation of the main components that explain the inequality between the regions evaluated: the rural and urban areas of the Brazilian Northeast. We took care in selecting this set of methods in order not to risk showing inequalities arising from individual and/or localized differences, but to compose the analysis in such a way as to identify general and common issues for the populations evaluated. We believe that the sample we selected is adequate for comparisons and conclusions. The results we found suggest the fundamental relevance of public policies focused on the improvement of the productive structure of rural regions, with greater protagonism to those that aimed at to contributing to increase the formalization of workers one of the points identified as causing the greatest difference between income flows.

Enjoy your reading!

GILDEMAR SENA 2000

1.Introduction

Income inequality remains a challenge to be overcome world-wide (UN, 2020) and manifests itself in different ways, such as regional inequality, personal income within the same region as well as in rural and urban regions. Especially in poorer countries, inequality and under-utilization of the workforce increase disparities related to the lack of opportunities for young people and create a vicious circle of poverty. In Brazil, the 2000s were marked by policies to stimulate demand that boosted consumption, especially among the poorest families, both in rural areas and in urban centers (ROCHA, 2013). Thus, there was an increase in the income of the population in the Northeast of the country. However, income distribution policies have not yet been formalized to permanently guarantee a basic income to the most vulnerable families.

Regarding rural and city inequality, the OECD highlights a series of paradigms to overpass rural poverty (OECD, 2006). The creation of public policies aimed at overcoming challenges in the field permeates issues related to the socioeconomic and cultural disparities of each region. We can mention the emigra-

tion from rural areas, population aging, low levels of human capital (OLIVEIRA and SILVEIRA NETO, 2016) and consequently, low labor productivity associated with poor agricultural areas, which are unable to incorporate technological advances in production. Other factors, such as the lack of public services and infrastructure, also contribute to the maintenance of rural poverty. Such paradigms are still perpetuated over rural populations, requiring consistent strategies in order to surpass them.

Rodríguez-Pose and Hardy (2015) also list challenges that are still striking in rural regions: i) difficulty of competitive insertion in the context of globalization; ii) climate change and sustainable production, objects of growing discussion since the beginning of the 21st century; iii) government decentralization to respond more efficiently to demands of local communities. In addition to these factors, the generation of jobs and income in rural areas is marked by the persistence of precarious conditions. It is essential to invest in rural areas, both materially and culturally, to preserve social traditions, promote sustainable development, reduce regional inequalities, generate jobs and thus transform the socioeconomic reality of populations.

Measuring degrees of inequality, poverty and socioeconomic segregation constitutes current challenges for the applied sciences, as they permeate areas of political, social and cultural conflicts that deepen violence and issues related to health, access to water, housing, and sanitation, among others (WILKIN-SON, 2006). Thus, in this work we aimed at analyzing the current level of income inequality between the urban and rural regions of the Brazilian Northeast and understanding the factors that explain the differences in inequality. To achieve this goal, we used the Brazilian Demographic Censuses of 1991, 2000 and 2010 and, mainly, the Continuous National Household Sample Survey (Continuous PNAD) for the years 2012, 2015 and 2019. These databases allowed us to use a wide variety of explanatory variables on resident individuals in several Brazilian territory locations.

To measure income inequality between regions we used the Oaxaca-Blinder decomposition, which allows us to compute inequality and calculate the main components that explain inequality between regions. More specifically, the Oaxaca-Blinder

decomposition allowed us to verify whether the inequality is explained by the difference in characteristics of individuals in different regions or whether it is explained by the fact that individuals have similar characteristics, but the returns to these characteristics present different magnitudes.

2.Literature review

In the field of regional economics, studies such as those of Akita (2003), Elbers et al. (2003), Trendle (2005), Tarozzi and Deaton (2009), Reardon and Bischoff (2011), Miranti (2015) used statistical and spatial methods to estimate income inequalities, poverty, demographic changes, the Gini coefficient, the composition of the labor market, educational issues, racial segregation, etc. The work of Lima and Silveira-Neto (2016) also stands out, reinforcing the importance of investments in human and physical capital to reduce regional inequalities in Brazil. The literature converges in the sense that policies aimed at reducing regional inequalities, income and greater social welfare are beneficial to the whole.

Recent studies by Bailey, Loveman and Muniz (2013), Reis (2014), Marques and Saraiva (2017), Vale and France (2017), Barbosa and Cookson (2019), Gillam and Charles (2019) sought to discuss, among other factors, issues related to inequality in Brazil according to the development model chosen by the State and social and economic issues from the perspective of unequal income distribution, transportation structure, impact of racism on black population earnings, regional heterogeneity, effects of inequality on health, etc. According to the authors, there was a relative improvement in the quality of life of the Brazilian population in both urban and rural areas, as measured by the Gini coefficient and increase in the HDI. However, rural population and populations in peripheral urban areas are still neglected by public power.

In relation to rural areas in Brazil, from the creation of cash transfer programs[1] (mainly at the end of the 1990s) and the real increase in the minimum wage rate from 2004, improvements were observed in the field of rural socioeconomic development. Silveira Neto and Azzoni (2011, 2012) showed how cash transfer programs, for indirectly and more intensely benefiting the poorest and rural regions of the country, also had a spatial character. These programs were responsible for reducing regional income inequality between 1995 and 2006. Still according to the authors, the Family Grant and the Continuous Cash Benefit (BPC) programs were responsible for 24% of the reduction in regional inequalities in the period.

Other policies aimed at stimulating the productivity of family agriculture, especially in the North and Northeast regions, deserve mention. In 1996, the National Program to Strengthen Family Agriculture (PRONAF) was created and in 2002, the National Plan for Sustainable Rural Development (PNDRS) was introduced. Its objectives were to stimulate and diversify local agricultural markets, including through the creation of non-agricultural jobs through the implementation of cooperatives and other services.

Thus, the need to know the rural characteristics of northeastern Brazil stands out as a fundamental step for strengthening of local culture and the improvement of human and social capital existing in the region. Productive integration is also important in the development process and can help create employment and income generation strategies in the region. The political coordination and governance of public and private agents should converge in order to focus on economic and socio-cultural aspects to promote investments in sustainable actions for families and the preservation of the environment.

Besides the paradigms presented, income inequality and rural poverty accentuate difficulties related to access to water, one of the essential human rights to life, which can directly impact the health of individuals (ROCHA and SOARES, 2015). Historical differences related to access to water, housing and sanitation also explain conditions of socioeconomic inequalities related to the income level of urban and rural populations, as well as may address issues of unequal regional development in Brazil (ALEIXO et al., 2019). Thus, inequality can also be understood as a standard of living associated to elements that hinder population groups to access basic goods such as water, housing, sanitation, health, food, among others (PHANSALKAR, 2007).

Regarding income, the lack of public policies aimed at guaranteeing the income of the poorest rural populations is still a current challenge. There are structural deficiencies in the countryside caused by the regional development model regarding access to land for family production. In this sense, the income of the countryside is compromised being concentrated mainly in the lati-

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[1] Discussions about income transfer programs in Brazil began in 1975 with the proposal of the Negative Income Tax (NIT). However, only after the Brazilian re-democratization and the elaboration of the 1988 Federal Constitution was the Continuous Cash Benefit (BPC) guaranteed, according to the Organic Law of Social Assistance (LOAS) (Law No. 8,742/1993). Other programs were designed as the Minimum Income Guarantee Program (PGRM) - Law number. 80/91 and the creation of cash transfer programs with social conditionings linked to the National Minimum Income Program (PNRM), such as the School Grant, Feed Grant, Bottled Gas Grant. All these were unified through the Single Registry of the Brazilian Federal Government (CadÚnico) and with the provisional measure number 132/2003 the Family Grant Program was created (Law number 10,836).

fundia that hold mechanized production, mostly with production for export. Moreover, the migration of young people to urban areas affects the level of employment in the countryside and causes family agriculture to turn to self-consumption, with no possibilities of cultivation for trade and, therefore, poor development of production networks.

Silveira et al. (2016) point out as relevant recent changes in rural dynamics: (i) the reduction of agricultural wage labor due to technological increases in production; (ii) young people and women more apart from rural activities; (iii) among the workers who obtain work in the field, there is more expressive formalization of more expressive work in recent years; (iv) the increase in production for self-consumption. These changes in the rural dynamic introduce new perspectives for the growth of the small agricultural sector. Thus, better living conditions, work and professional qualification for the permanence of the populations in the countryside are necessary to alleviate the needs and inequalities in the rural environment.

Other factors, such as climate change, soil degradation, rise in average temperature and other extreme weather and risk events, also directly impact social issues and may increase inequalities and poverty (UN, 2020). These challenges need to be addressed by public policy managers. Among the main channels of impact, we highlight (i) livelihoods and ecological degradation of essential natural resources such as water; (ii) health and mortality due to lack of food for the most vulnerable populations, extreme temperatures that aggravate cardiovascular and respiratory diseases, etc.; (iii) low household agricultural production with consequent increases in food prices; (iv) risks related to underutilization of la-

bor and low productivity. Therefore, given the growing challenges related to climate change, directing policies to remain in the countryside in a dignified manner is essential for the quality of life of rural populations.

The OECD (2006) and Ambrosio-Albalá and Bastiaensen (2010) have highlighted the difficulties of rural areas taking into account the diversity presented by each. Most rural areas, mainly in Latin America and the Caribbean, East Asia and Africa presented common characteristics regarding the problems of migration from rural areas, especially the flow of young people, the aging population, the decline in activities related to agriculture and the fall in labor productivity.

Finally, the rural labor market continues to be marked by an unskilled labor force, with workers who have little formal education or specialized training. In rural areas and large urban peripheries there are also the highest incidences of child labor (ILO, 2008, IBGE, 2015). Thus, job and income generation and the reduction of socioeconomic inequalities in rural areas remain challenges for public policies that reduce poverty. This reinforces the importance of better understanding rural and urban disparities, as well as generating alternatives capable of overcoming them.
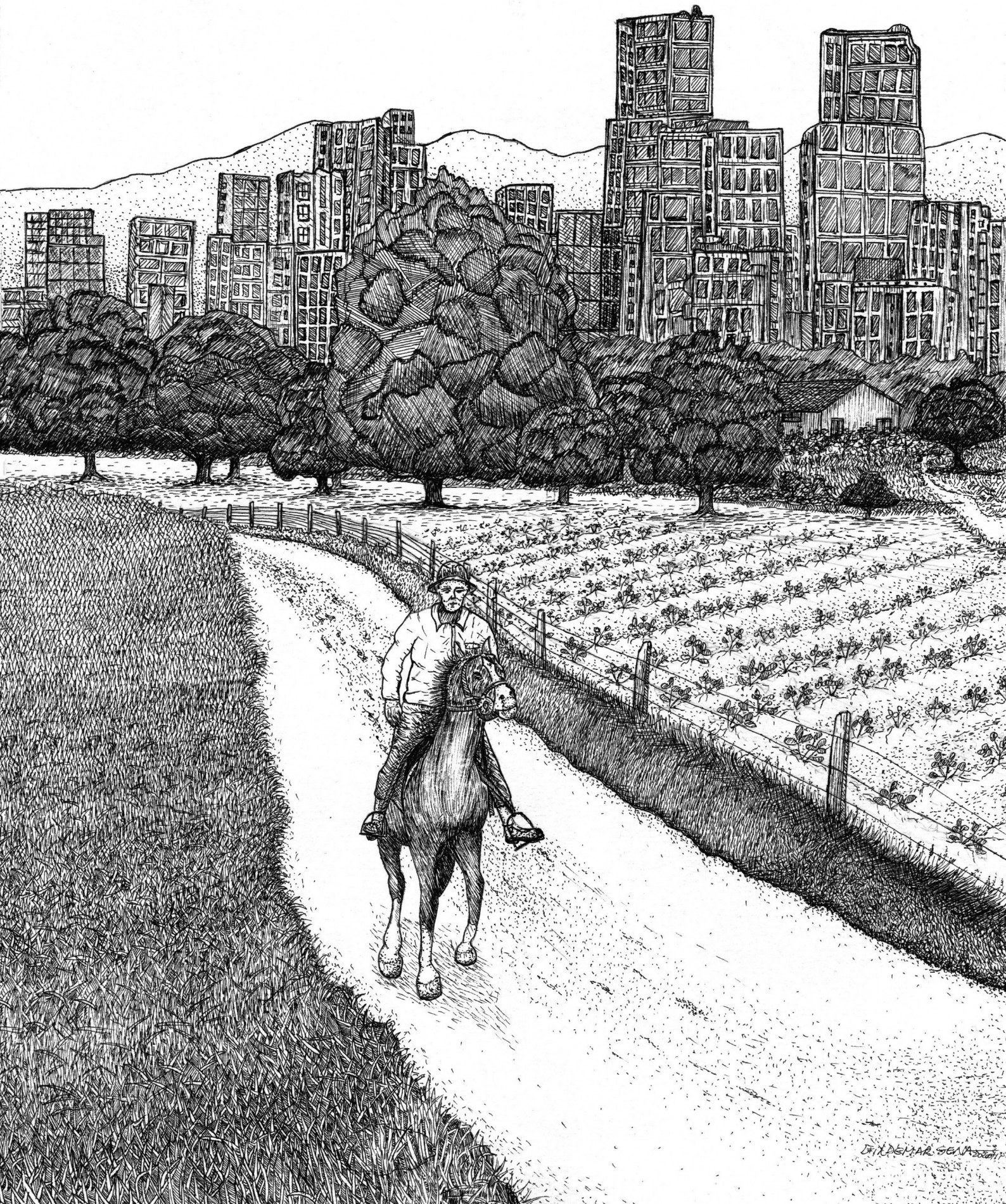
3.Methodology

3.1.DATABASE

In this study we used two databases: the Demographic Censuses of the years 1991, 2000 and 2010, to analyze the evolution of incomes between the regions and to verify the evolution of the differences in the characteristics of the populations over time. We used the Census of 1991, because it is from that period on, after the military dictatorship and with a new constitution that Brazil started to present relative stability, with economic bases for the introduction of a new currency and monetary stability.

We also used the Continuous PNAD, which brings periodic information on the labor market, demographic characteristics and education in quarterly periods and the medium and long term evolution of the variables of interest. We also produce annual results on relevant themes for the study of the socioeconomic development of Brazil. The research was initiated, throughout the country in January 2012, by the Brazilian Institute of Geography and Statistics (IBGE), aiming to replace the surveys on the labor market obtained from the Monthly Employment Survey (SME) and the National Household Sample Survey (PNAD), adding the advantages of both (IBGE, 2020).

Continuous PNAD has specific periodicity for each set of indicators. The national indicators related to the labor force, obtained by quarterly moving averages, are published monthly only at the geographic level of the country. Each quarter, indicators related to the labor force are released for all geographic levels of the survey:

Brazil; Large Regions; Units of the Federation; 20 metropolitan regions that contain municipalities in the capitals; Integrated Region of Development (RIDE). The annual disclosure aggregates the set of indicators related to the other permanent supplementary topics of the survey and complementary indicators related to the workforce, for the same geographic levels as the quarterly disclosure (IBGE, 2020).

For the analysis of income inequality between rural and urban area workers we use the individual micro data of Continuous PNAD quarterly. For the construction of Continuous PNAD, we established a probabilistic sample of households in order to guarantee the representativeness of the results at the defined geographic levels. The construction of the quarterly samples is done through five monthly visits, during five consecutive quarters, in each household selected to take part in the survey. Thus, a household is visited for the second time three months after the first visit, for the third time three months after the second visit, and so on, until the five visits for each household are made. At each quarter are interviewed around 211 thousand households, in around 16 thousand census sectors, which compound the representative sample of the research (IBGE, 2020). The main advantage of Continuous PNAD is to allow following the indicators of the complete labor market, including formal and informal workers. Its disadvantage is that it does not present information at the municipal level, since the survey is only representative at the municipal level for state capitals.

For the analysis of the income differential between rural and urban workers in the Northeast region, the individual micro-database, built from Continuous PNAD quarterly, includes occupied workers, of working age (14 years or older) and with income from work in the 4th quarter of each year (2012-2019). However, since occupied workers can be a positively selected group in the labor market in relation to other workers (unemployed and inactive), the econometric model will include, as an explanatory variable, a sample selection measure, to control the differences between the two groups and explain the income differential. For occupied workers we collect information related to the worker's characteristics (income from work, hours worked, age, education, gender, race and experience), employment (sector of activity, occupation and formalization indicator) and location (rural or urban and metropolitan region). All analyses should use the microdata sample expansion, i.e., the sample weight of each individual was used to calculate the average statistics as a function of the number of individuals that are represented from each base observation.

To discount the existing price variation over the considered analysis periods, nominal labor income was deflated from the Continuous PNAD income deflators, which use the IBGE Broad Consumer Price Index (IPCA). We adopted the price level in force in the second quarter of 2020 for updating nominal incomes. A complete description of the variables used for the analysis of the rural and urban income differential based on Continuous PNAD is available in Table A1 of the Appendix.

3.2. DECOMPOSITION OF RURAL-URBAN INCOME INEQUALITY

In order to verify if there are significant wage differences between urban and rural regions, the Oaxaca-Blinder method was chosen. This method allows us to evaluate if there is a difference between the average wages of people between two localities. In addition, using this method, it is possible to estimate whether wage differences are due to the difference between individuals (endowment or composition effect) or whether they are due to the difference in returns to these attributes (return effect or wage structure) (OAXACA, 1973; BLINDER, 1973; FIRPO, FORTIN, LEMIEUX, 2010).

The first step in the analysis is to estimate the income equation for each group, urban and rural. We chose the equation proposed by Mincer (1974), also known as the salary function of human capital as the most appropriate theoretical reference. Through it young people and women furthest from rural activities it is possible to estimate the value given by the market to certain productive attributes such as education and experience, in addition to certain individual characteristics such as gender, color, etc. The equation for estimating income is the following:

$$Ln\ w = \hat{\alpha} + X\beta + \hat{u}$$

in which Ln w is the natural logarithm of the worker's wage; α is the intercept; β is the vector of parameters to be estimated; X is the vector of productive and non-productive attributes important for determining the worker's income; $\hat{u}$ is the stochastic error term. The estimation process of this equation for later use in the decomposition Oaxaca-Blinder is the Ordinary Minimum Squares (MQO).

More specifically, the objective of this work is to estimate wages, inequality, and the effects of various variables to explain this inequality. We use the following set of variables[2] to estimate the model:

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[2] Details in the Appendix

$$Ln\ Wage_{hour} = \beta_0 + \beta_1\ elementary + \beta_2\ high\ school + \beta_3\ higher\ education$$
$$+ \beta_4\ formalized + \beta_5\ Experience + \beta_6\ Black + \sum_{(i=1)}^{n}{}^{n}\gamma_i\ sectors + \sum_{(i=1)}^{n} \delta_i\ occupations + \hat{u}$$

The part of the wage differential, which is explained by the model, is related to the differences in the productive characteristics of individuals in each region. The unexplained component, on the other hand, represents the effects given to the same characteristics, for workers located in different regions, i.e., the return to characteristics. For example, does the difference in income between urban and rural occur because people have different levels of education or because people with the same educational level have different returns to education between these two localities?

Although the application of this technique is more common in studies on gender and race discrimination in the labor market (FIRPO, FORTIN AND LEMIEUX, 2010), it is possible to employ this method to study differences between groups located in different regions. The research is done by an analysis of the average characteristics of each party, group or region to be studied (JANN, 2008). For example, Silveira Neto and Menezes (2008) and Oliveira and Silveira Neto (2016) apply this method to study differences in income between the Southeast and Northeast regions. The authors conclude that a large part of the income differential between these regions is explained both by differences in the level of schooling (endowment effect) and differences in the return to schooling (return effect).

In order to carry out the decomposition, it was necessary to estimate the Mincerean equation for the two Urban and Rural separately, as follows:

$$Ln\ w_{URB} = \hat{\alpha}_{URB} + \sum \hat{\beta}_{URB}\ X_{i\ URB} + \hat{u}_{URB}$$

$$Ln\ w_{RUR} = \alpha_{RUR} + \hat{\beta}_{RUR}\ X_{i\ RUR} + \hat{\hat{u}}_{RUR}$$

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[2] Detalhadas no apêndice.

Where *Ln* w is the natural logarithm of the worker's wage; X_i is the matrix of productive and non-productive attributes at the mid-point of each region that are significant in determining labor incôme; u is the term of the error which, by hypothesis, has an average equal to zero, normal distribution and constant variance.

Subtracting one equation from the other we are left with:

$$(Ln\ w_{URB} - Ln\ w_{RUR}) = (\hat{a}_{URB} - \hat{a}_{RUR}) + (\hat{\beta}_{URB}\ X_{i\ URB} - \hat{\beta}_{RUR}\ X_{i\ RUR})$$

We insert a counterfactual term:

$$(Ln\ w_{URB} - Ln\ w_{RUR}) = (\hat{a}_{URB} - \hat{a}_{RUR}) + (\hat{\beta}_{URB}\ X_{i\ URB} - \hat{\beta}_{RUR}\ X_{i\ URB}) + (\hat{\beta}_{RUR}\ X_{i\ URB}) - \hat{\beta}_{RUR}\ X_{iRUR})$$

And we rearrange this equation to arrive at:

$$E\ (Ln\ w_{URB} - Ln\ w_{RUR}) = (\hat{a}_{URB} - \hat{a}_{RUR}) + X_{i\ URB}\ \Delta\hat{\beta} - \hat{\beta}_{RUR}\ \Delta X_i$$

In which,
$$\Delta\hat{\beta} = \hat{\beta}_{URB} - \hat{\beta}_{RUR}$$
$$\Delta X_i = X_{i\ URB} - X_{i\ RUR}$$

The first term reflects the difference in the intercept of regressions and the second is the difference in returns of attributes between rural and urban. Together these first two terms reflect the regional effect, i.e., the differential in income earned in each region, regardless of the attributes of the workers. The third term of this equation is the average difference in the number of productive and non-productive attributes in the two regions. It is important to note that the probability of entering the labor market is different between men and women, as well as between people living in urban and rural areas. To correct this selection problem in the labor market, we conducted the Heckman.
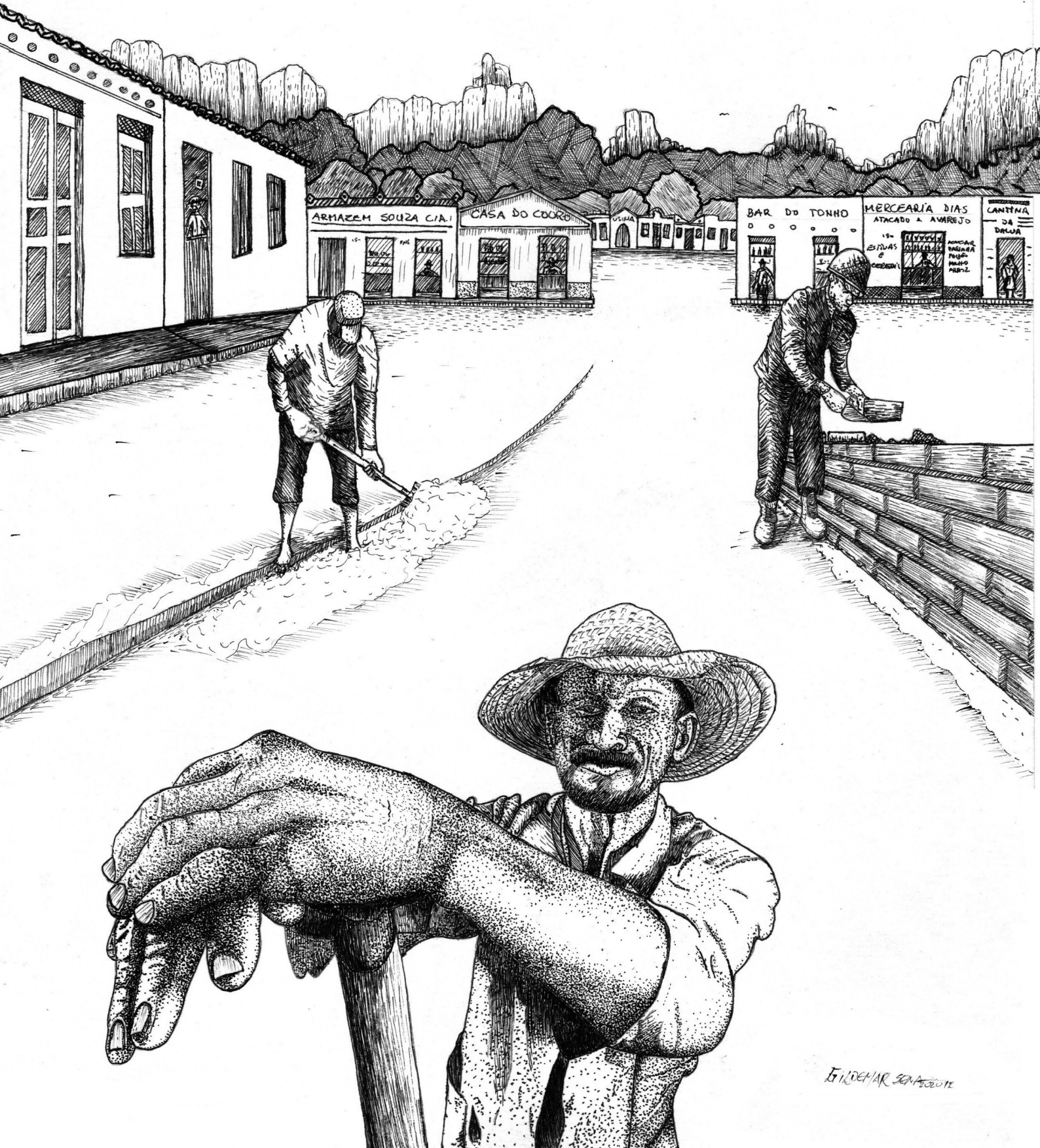
4.Structure and evolution of urban rural inequality in time

In Table 1 we present the evolution of several characteristics between urban and rural regions in Brazil from1991 to 2010. First, it is possible to observe that the average income from the main work has increased by 41.5% in the rural area and 22% in the urban area. The total actual income, which includes income from other sources such as social programs, increased 61.36% in the rural area and 44.2% in the urban area. The total income is lower than the income from work, as it includes people who do not receive income from work. However, in 2010 the actual income from the main work in the rural area was only 48.5% of the income in the rural area, while the total actual income was only 39.3%.

Another important factor is the evolution of the education level of the population: in 1991 about 61.3% of the population in the rural area was illiterate and in 2010 only 24%. In urban areas these figures are 32% and 12%, respectively. On the other hand, while in 2010 only 7.89% of the rural population had secondary education and 0.70% had higher education, these percentages in the urban area were 20.7% and 4.3% respectively. These changes may reflect several educational policies carried out over time, such as the Todos pela Alfabetização (All for Literacy) program and others of technical and professional educational programs. However, it seems that these policies were not enough to reduce the strong educational disparity between the regions.

TABLE 1. CHARACTERISTICS OF THE RESIDENTS OF RURAL OR URBAN REGIONS IN THE NORTHEAST REGION IN THE 1991, 2000 AND 2010 BRAZILIAN CENSUSES

Variables	Rural			Urban		
	1991	2000	2010	1991	2000	2010
Actual income from main work (Brazilian Real - R$)	294.2	316.6	416.3	702.5	823.1	857.4
Total actual income (R$)	132.2	128.45	213.0	375.54	484.0	541.6
Actual family income (R$)	518.0	536.15	719.54	1320.2	1573.2	1621.3
Age (average)	26.56	23.57	28.06	28.10	26.80	29.91
Literate (%)	38.67	75.45	76.63	68.12	88.00	87.88
Born in the municipality that lives (%)	83.00	83.21	80.41	63.52	67.41	67.81
Elementary school (%)	1.68	4.83	12.38	8.41	12.98	15.63
High School (%)	1.14	2.28	7.89	8.75	13.57	20.67
Higher education (%)	0.13	0.16	0.73	2.14	2.81	4.34
Women (%)	48.79	49.38	48.58	52.69	52.56	52.13
Black and brown (%)	76.68	68.71	73.11	71.38	63.81	67.92
Married (%)	38.28	33.89	41.32	38.14	37.24	41.00

Source: Brazilian censuses from 1970 to 2010.

Figure 1 presents the distribution of income in the rural and urban labor market in the Northeast. It indicates that urban workers have, on average, higher incomes than rural workers (the graph is more to the right for urban workers). In addition, we observe that the incomes of urban workers have a slightly more symmetrical distribution around their average.

FIGURE 1. DISTRIBUTION OF RURAL AND URBAN REAL INCOME: 2012-2019
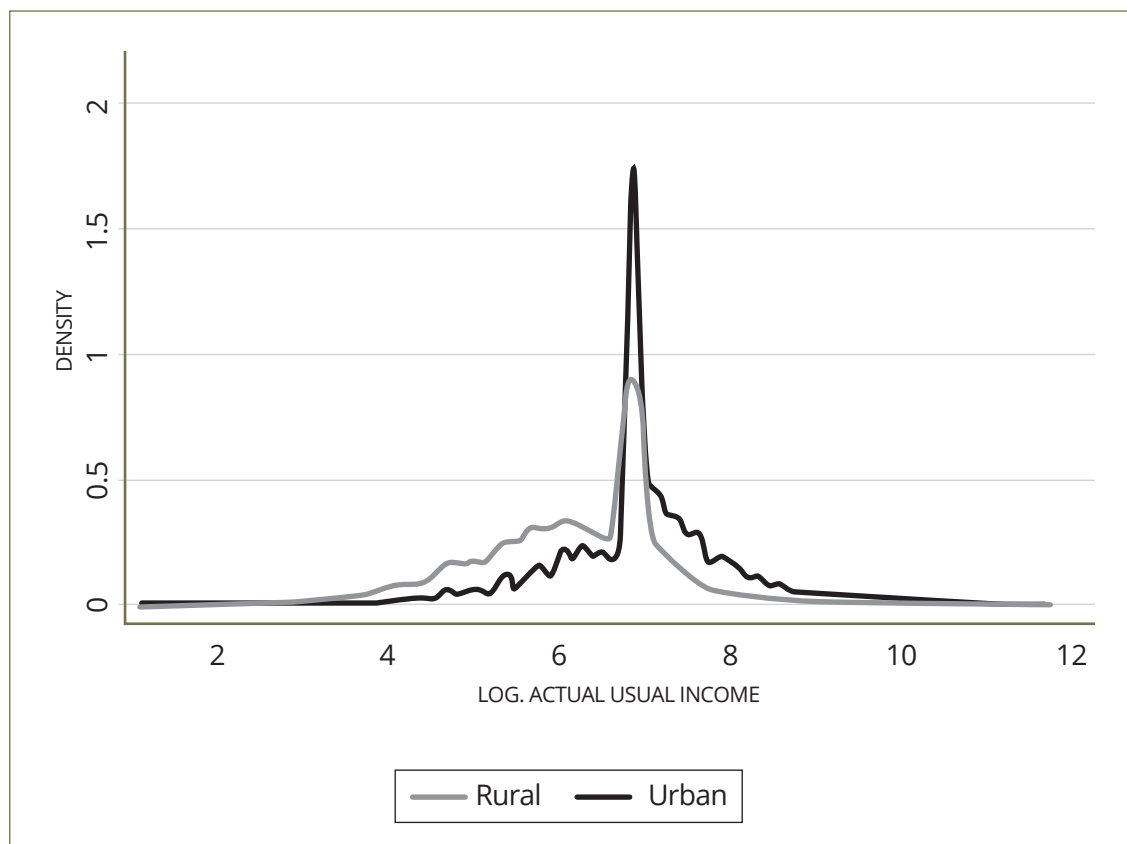
Source: Continuous PNAD. (4th quarter 2012 – 4th quarter 2019).

Figures 2 and 3 present the evolution of the actual usual income of rural and urban workers in the Northeast, from 2012 to 2019, in relation to the formal and informal labor market. Figure 2 presents this evolution to the average actual income in the rural area and, in general, we observe that the average income of the formal sector is always higher than the informal one. The upward trend between the years 2014 and 2015, which may be related to the economic crisis that marked this period, is interrupted. Subsequently, there was a recovery in the income of the formal sector. However, in the informal sector, there has been a stagnation in the average income since 2015. Thus, the average total income in the rural area has not yet returned to the level observed in 2014.

FIGURE 2. EVOLUTION OF ACTUAL RURAL INCOME: 2012-2019
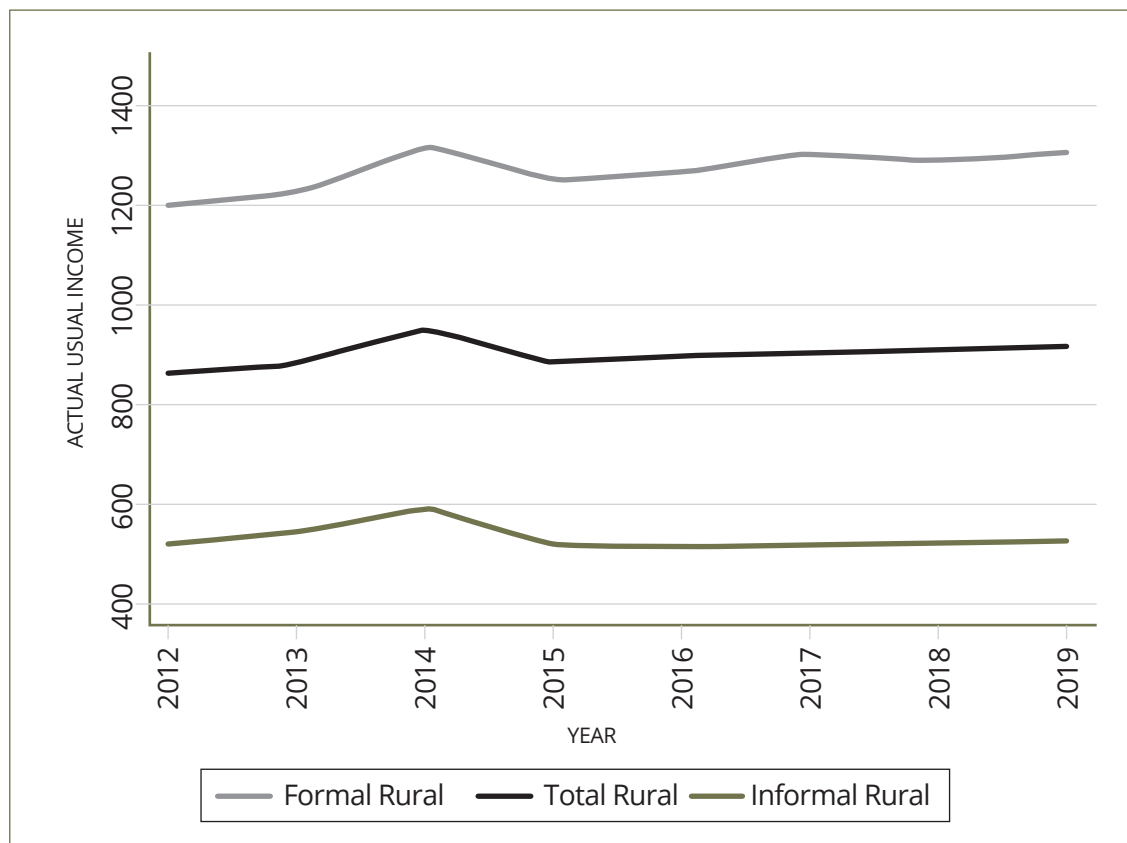
Source: Continuous PNAD. (4th quarter 2012 – 4th quarter 2019).

Figure 3 shows the evolution of actual income in the urban area, and we notice that, in the same way, the average income of the formal sector is higher than the informal one and there was a fall in the total average income between 2014 and 2015. After 2015, we observe a resumption, with an increase in the average income of the formal sector, but not in the informal one. Even so, the resumption influenced the total average income in the analyzed period. It is worth reminding that incomes in the urban area are, on average, higher than in the rural area, for formal and informal workers.

FIGURE 3. EVOLUTION OF URBAN ACTUAL INCOME: 2012-2019
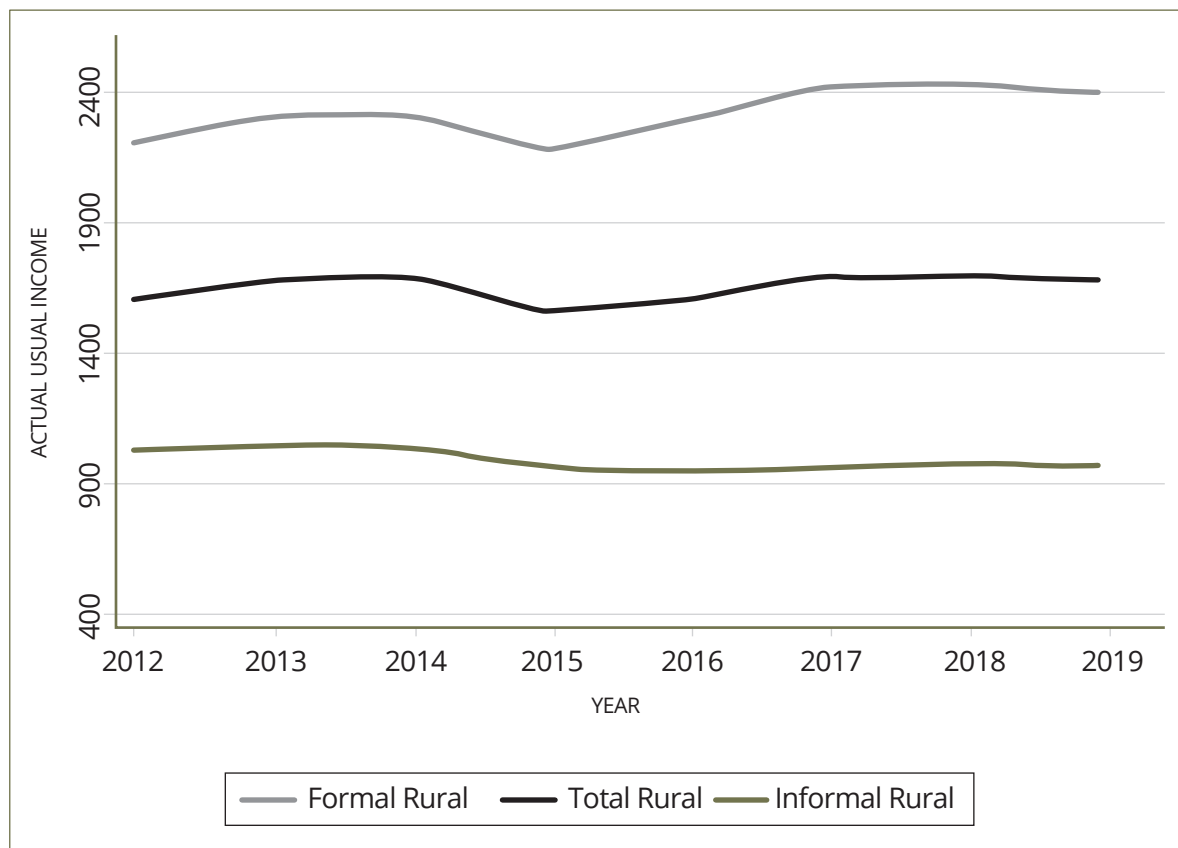
Source: Continuous PNAD. (4th quarter 2012 – 4th quarter 2019).

Table 1 presents descriptive statistics of the rural and urban labor markets in the Northeast region from 2012 to 2019, based on the Continuous PNAD. We observe that there was an increase in the share of urban workers between 2012 and 2019, from 79.8% to 82.1%. The actual remuneration of the main job, the weekly working hours and the proportion of workers with one year or more of employment experience are higher for urban than for rural workers. However, the average income usually received grew for rural workers between 2012 and 2019, and fell for urban workers. Regarding schooling in rural areas, we noticed that the proportion of people with high schooling grew eight percent, while the proportion of people with higher education nearly doubled in the same period.

TABLE 2. CHARACTERISTICS OF RURAL AND URBAN JOBS

Variable	Rural		Urbano		Rural - Agropecuária	
	4º trim. 2012	4º trim. 2019	4º trim, 2012	4º trim. 2019	4º trim, 2012	4º trim, 2019
Workers (%)	20,19	17,90	79,81	82,10	47,7	42,8
Average actual usual income (in Brazilian Real - R$)	697,1	744,4	1.603,2	1.527,6	507	516,3
Average weekly hours worked	35,2	33,9	39,3	37,2	35	33,2
Average age	37,0	38,2	36,9	38,8	40	40,2
Elementary school (%)	7,9	7,6	9,5	6,9	6,4	7,1
High School (%)	15,0	23,0	32,5	33,6	5,1	11,4
Higher education (%)	2,4	4,6	12,5	16,4	0,3	0,5
Women (%)	29,9	30,4	43,3	42,4	14,6	11,9
Experience of 1 year or more (%)	71,6	69,2	75,0	75,6	76,2	71,6
Formal (%)	26,2	27,9	54,0	49,8	11,9	14,4
Black and brown (%)	79,9	80,0	73,6	75,5	82,4	81,8
Agriculture (%)	47,7	42,8	5,3	11,1	-	-
Industry (%)	8,0	8,0	11,6	9,5	-	-
Construction (%)	8,8	7,9	10,2	7,8	-	-
Trade (%)	10,0	11,0	22,6	20,6	-	-
Services (%)	20,5	27,3	41,8	44,7	-	-
Public Administration (%)	5,0	3,0	8,5	6,2	-	-
Directors and managers (%)	1,8	0,9	5,0	2,6	0,9	0,3
Professionals of science and intellectuals (%)	4,2	3,7	9,4	10,0	0,0	0,1
Technicians and mid-level professionals (%)	2,8	2,6	7,3	6,5	0,5	0,1
Administrative support (%)	1,8	2,4	8,0	7,3	0,1	0,1
Services and sellers of trades and marketplaces (%)	10,7	15,9	22,1	26,0	0,4	0,7
Skilled agricultural workers (%)	20,6	25,7	2,5	6,8	43,1	59,5
Construction. mechanical arts and others (%)	9,4	10,9	13,3	12,8	0,4	1,6
Plant and machinery operators and assemblers (%)	5,8	6,4	8,9	7,4	1,0	1,4
Elementary occupations (%)	42,7	31,4	22,3	19,8	53,6	36,1
Armed forces, police and military firefighters (%)	0,1	0,1	0,6	0,9	-	-
Metropolitan Region (%)	8,4	7,7	48,6	41,1	3,2	3,9

Source: Continuous PNAD.

The proportion of women in the labor market remained stable in the period analyzed in both rural and urban environments, maintaining an average of approximately 12 percentage points higher for the proportion of women workers in urban areas than in rural areas. Black and brown people are the majority in the urban and rural labor markets in the Northeast, but their proportion is even higher in the rural area. As expected, the urban area concentrates most formal jobs; however, the proportion of formalized people grew in the rural area in the period analyzed, while it dropped in the urban area. Most of the jobs in the rural area are concentrated in the agricultural sector, but over the last decade this proportion has fallen while the trade and services sector increased. In the urban environment, the service sector continues concentrating almost half of jobs, and this proportion increased in the period under review. Finally, it is worth noting that there is a fall in the share of rural and urban workers living in metropolitan regions.

In the last two columns of this table we added information only from individuals in the agricultural sector in the rural area. We observed that these individuals have both lower income and the educational level, with higher percentage of workers in elementary occupations. We also noticed a strong decrease in their formalization in relation to the entire rural sector. This result suggests that even with the advances of the last years, the workers of the agricultural sector in rural areas have less qualification than the others, which implies less income from work[3].

We also present in Tables 3 and 4 the descriptive statistics per unit of the federation. Table 3 presents the statistics only for the rural and Table 4 for the urban area. In general, the results are quite similar to those observed in the Northeast region as a whole, and the rural areas of all the poorer states present greater participation on the agricultural sector, with low formalization of workers.

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[3] These data should be viewed with caution, as the representativeness of Continuous PNAD is calculated at the state, region, metropolitan, rural and urban levels. Therefore, it is not possible to obtain many conclusions for the sample agricultural sector - rural.

TABLE 3. ESTIMATED HOURLY WAGES, INEQUALITY, COMPOSITION EFFECT AND WAGE STRUCTURE EFFECT

Variable	MA	PI	CE	RN	PB	PE	AL	SE	BA
Workers (%)	13,2	8,4	17	5,1	6,5	10,9	4,1	4,5	30,3
Average actual usual income (in Brazilian Real - R$)	728	649	656	899	837	738	926	720	763
Average weekly hours worked	33	30	33	34	36	35	36	34	34
Average age	38	40	38	38	38	37	38	38	39
Elementary school (%)	9,1	7,0	10,2	8,7	5,7	6,9	6,1	6,3	6,4
High School (%)	24,8	18,2	25,5	22,7	21,6	23,1	20,8	19,1	23,2
Higher education (%)	5,7	5,0	5,2	5,6	5,5	4,4	7,5	3,2	3,3
Women (%)	32,9	32,0	31,8	28,0	29,3	28,0	30,8	32,5	29,3
Experience of 1 year or more (%)	70,6	57,1	67,4	62,8	78,7	69,7	62,7	71,2	72,5
Formal (%)	24,5	23,2	24,9	37,1	33,0	26,4	42,1	25,7	28,8
Black and brown (%)	85,8	85,7	78,7	73,2	72,6	74,1	74,5	83,8	81,8
Agriculture (%)	42,5	39,4	38,0	33,0	38,7	44,0	37,9	44,3	49,1
Industry (%)	5,4	6,7	10,5	5,8	10,8	11,5	5,4	9,7	6,6
Construction (%)	8,5	9,7	8,0	12,0	8,6	6,6	7,9	6,3	7,0
Trade (%)	11,3	13,1	11,8	11,2	12,1	9,2	12,0	10,5	10,1
Services (%)	28,9	29,0	30,0	34,3	26,9	24,7	31,9	26,5	24,1
Public Administration (%)	3,3	2,1	1,8	3,8	2,9	3,9	4,9	2,5	3,2
Directors and managers (%)	0,8	0,9	1,0	1,4	1,1	1,1	0,7	0,2	0,6
Professionals of science and intellectuals (%)	5,9	3,5	3,7	3,7	2,9	3,7	6,1	2,6	2,8
Technicians and mid-level professionals (%)	3,1	1,9	3,2	3,3	3,0	2,4	4,5	1,6	2,0
Administrative support (%)	2,0	2,8	2,1	4,2	3,1	1,9	2,3	1,6	2,5
Services and sellers of trades and marketplaces (%)	17,8	19,2	16,6	16,9	16,0	13,5	19,8	18,0	13,7
Skilled agricultural workers (%)	22,6	22,8	22,0	18,5	23,3	28,8	17,1	21,4	32,4
Construction. mechanical arts and others (%)	11,0	12,1	12,5	12,6	12,8	10,1	7,7	12,5	9,5
Plant and machinery operators and assemblers (%)	5,5	4,3	5,2	5,9	8,2	10,4	7,4	7,3	5,9
Elementary occupations (%)	31,2	32,3	33,7	33,2	29,4	28,1	34,2	34,7	30,3
Armed forces, police and military firefighters (%)	0,1	0,3	0,0	0,1	0,2	0,1	0,2	0,1	0,1
Metropolitan Region (%)	8,7	15,9	11,2	22,9	11,7	4,8	1,4	2,5	2,4

Source: Continuous PNAD.

TABLE 4. CHARACTERISTICS OF URBAN JOBS BY FEDERATION UNIT:

Variável	MA	PI	CE	RN	PB	PE	AL	SE	BA
Trabalhadores (%)	10,2	5,1	17,5	6,5	6,9	18,3	5,0	4,4	26,2
Rendimento real médio habitual (em R$)	1.456,9	1.485	1.769	1.995	1.704	1.746,3	1.565	1.672,2	1.708
Horas trabalhadas semanais médias	37,0	36	39	37	38	38,7	38	37,6	38
Idade média	38,3	39	39	39	39	38,9	38	38,1	39
Ensino fundamental (%)	7,7	6,5	8,1	5,5	6,2	7,0	6,4	6,3	6,1
Ensino médio (%)	38,3	31,6	34,8	31,6	32,5	37,4	32,4	34,2	38,7
Ensino superior (%)	16,6	21,5	18,9	23,3	20,9	19,5	19,2	18,9	17,6
Mulheres (%)	43,6	45,3	45,7	44,5	42,9	44,5	43,5	45,8	46,2
Experiência 1 ano ou mais (%)	76,1	71,3	75,6	76,4	79,5	79,9	76,4	77,7	76,7
Formal (%)	44,5	50,6	53,2	59,9	55,2	56,3	57,2	56,0	56,8
Pretos e pardos (%)	79,8	81,5	71,2	61,4	67,4	67,6	73,3	80,4	82,3
Agropecuária (%)	5,3	3,9	3,1	4,3	4,9	3,2	5,4	5,0	4,9
Indústria (%)	6,4	7,2	13,1	8,7	9,5	11,5	6,3	8,5	9,7
Construção (%)	10,3	8,1	7,3	6,4	8,1	7,1	7,7	8,5	7,7
Comércio (%)	25,5	23,1	23,1	22,0	21,8	22,7	23,8	21,4	21,5
Serviços (%)	45,5	50,2	47,6	50,1	47,3	48,1	48,6	49,5	49,9
Administração Pública (%)	7,0	7,6	5,7	8,5	8,3	7,3	8,2	7,1	6,3
Diretores e gerentes (%)	2,2	2,9	3,8	3,8	2,8	3,7	2,0	3,2	2,1
Profissionais das ciências/intelectuais (%)	10,6	12,7	10,7	12,9	12,4	11,2	12,1	11,0	11,1
Técnicos/profissionais de nível médio (%)	6,7	6,5	6,9	7,9	7,5	7,7	6,9	7,0	7,9
Apoio administrativo (%)	7,8	9,0	8,3	7,8	7,7	8,5	8,4	8,6	8,5
Serviços e vendedores dos comércios (%)	28,7	28,4	29,2	29,1	26,1	27,5	29,6	27,9	27,7
Trabalhador qualificado/agropecuária (%)	3,3	2,9	2,0	2,5	2,9	2,3	1,7	2,8	3,4
Construção, artes mecânicas e outros (%)	14,5	12,7	13,7	11,6	12,8	12,6	11,8	13,1	13,6
Operadores de máquinas/montadores (%)	6,7	6,4	7,5	6,5	7,3	9,4	7,1	6,7	7,6
Ocupações elementares (%)	18,8	17,5	16,9	16,5	19,3	15,6	19,7	18,7	17,2
Forças armadas, policiais e bombeiros (%)	0,8	1,1	0,9	1,4	1,1	1,5	0,6	0,8	0,9
Região metropolitana (%)	36,2	44,2	59,3	54,7	41,4	52,6	56,9	55,3	41,1

Source: Continuous PNAD.
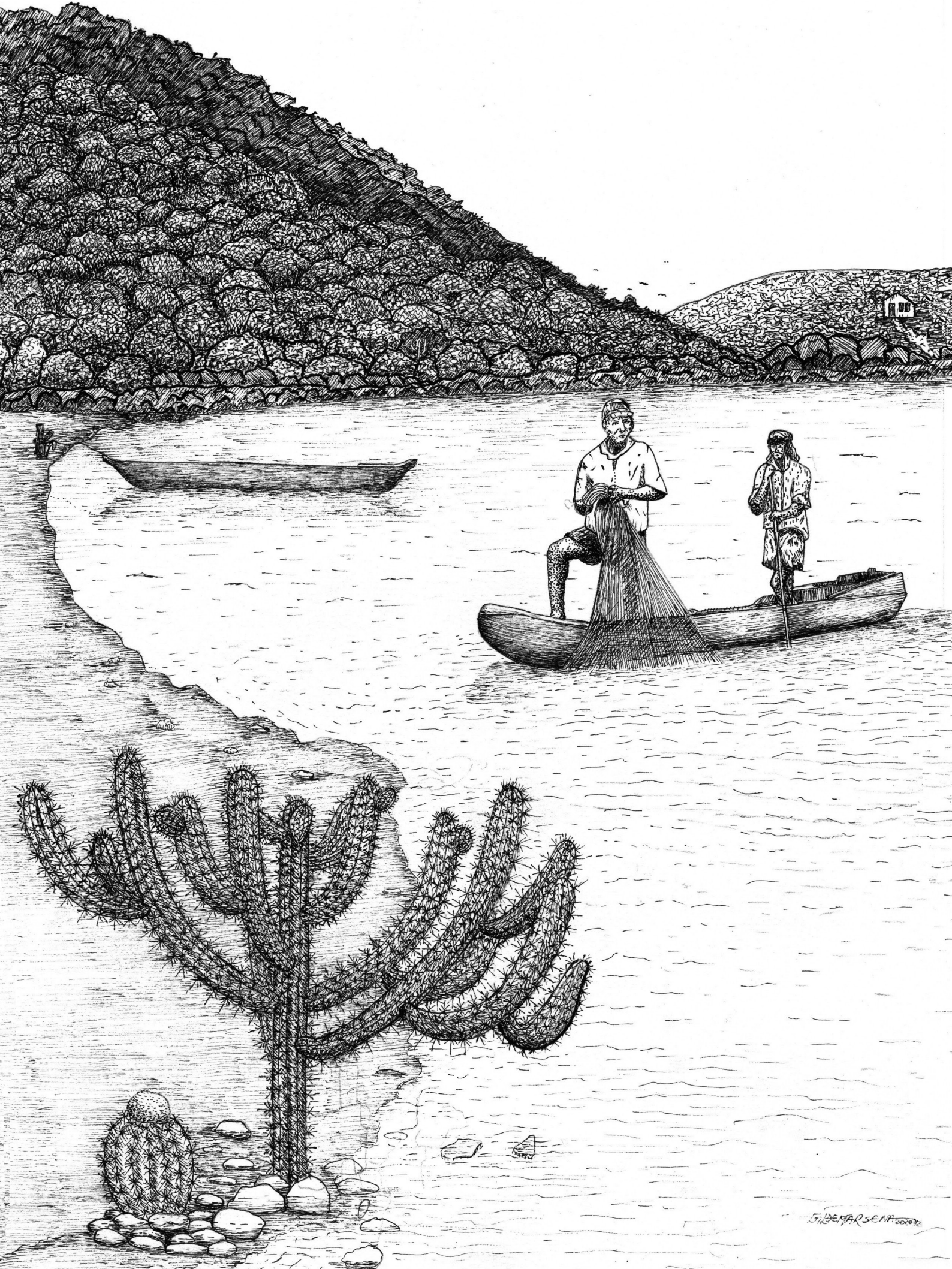
5.Analysis of results

In this section we present the analysis of the estimated parameters of Oaxaca-Blinder decomposition using data from Continuous PNAD. The estimated results of Table 5 suggest that income inequality between urban and rural regions in Brazil is still quite high. In 2019, for example, the income gap, measured by the logarithm of the hourly wage, was 0.672 for men and 0.560 for women. This means that, on average, men receive almost twice as much in the urban area as in the rural area, while women in the urban area receive 1.75 of the income in the rural area.

When analyzing the contribution of the composition and wage structure effects to explain inequality, we observe that both are positive. This means that workers in urban areas have, on average, both better productive characteristics and higher returns from productive characteristics. In 2019, for example, the difference between productive characteristics explains about 82% of the inequality of men's income and 78% of the inequality of women's income . This result suggests that the reduction of income inequality between rural and urban areas in Brazil still depends on the improvement of human capital and the productive structure of rural regions.

We then analyze the contribution of each variable explaining the regression model to explain the composition and wage structure effects, which show the inequality. As for the composition effect, the first factor that calls attention is that, despite schooling, for high school and college there are positive values. This means that urban areas have workers with a better level of schooling and also a higher return from schooling. In other words, a worker with the same level of schooling in the urban area receives a higher salary. However, the components of schooling are not so high. The main explanatory variables for this component are: type of occupation, formal job ownership, and sector of activity. Thus, the explanation of the income disparity between regions seems to be more explained by the characteristics of the productive structure than by human capital.

This result is quite related to the evidence in the Brazilian literature. Brazilian rural regions are characterized by diversification in their productive structure, which limits the types of occupations that workers can achieve and the sectors of economic activity in these regions. These situations in rural areas are due to factors such as lack of transportation infrastructure, distance from the main consumer markets, unfavorable climate and supply of low-skilled workers, which makes it difficult to attract companies. In addition, informality is a historical and persistent factor in Brazilian rural areas, even with several policies adopted over time to facilitate the formalization of firms and workers.

As for the contribution of variables to the wage structure effect, we observe that while the types of sector and occupation have positive contributions, i.e., they increase inequality, being formalized has a negative contribution. For men the contribution of these groups was 0.215 and 0.066, respectively, and for women it was 0.094 and 0.080, respectively. This is a very important result, since it means that by comparing two individuals with the same productive characteristics, working in similar trades, formalization provides higher income in rural areas than in urban areas. The contribution of being formal was 1.121 for men and 0.131 for women. This result is further evidence of the importance of technical assistance policies that help rural workers formalize or seek formal jobs.

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[4] Esse percentual é obtido dividindo o valor de cada efeito sobre o valor da desigualdade. Por exemplo, em 2019 a contribuição do efeito composição para 2019 foi obtida como (0549*100/0.672) para homens e (0.439*100/0.560) para mulheres.

Moreover, when we analyze the contribution of the agricultural sector to inequality, two distinct situations are verified. First, the agricultural sector has positive values in the composition effect. For men, this effect was 0.136 in 2012 and reduced to 0.063 in 2019. For women such values are 0.096 and 0.058, respectively. This means that the productive characteristics of male and female workers in the agricultural sector confer higher income to those in urban areas than in rural areas. On the other hand, the contribution of agriculture to the wage structure effect is zero, which means that two individuals with equal productive characteristics have the same wage return for working in the agriculture sector.

FIGURE 4. CONTRIBUTION OF THE COMPOSITION AND WAGE STRUCTURE EFFECTS TO THE INEQUALITY BETWEEN RURAL AND URBAN
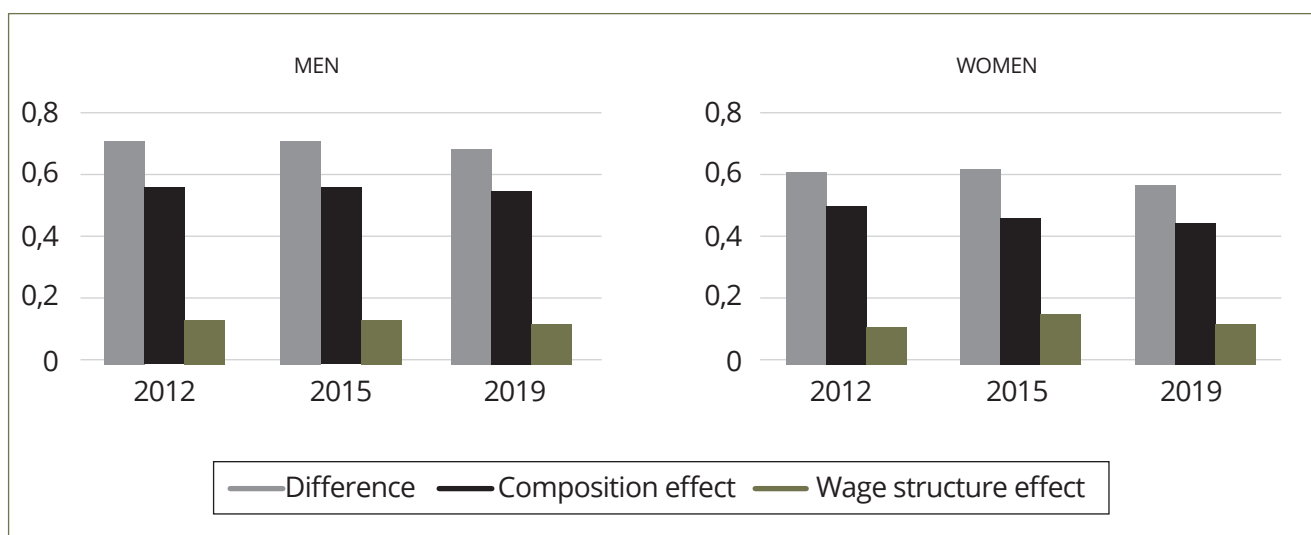
Source: Continuous PNAD.

TABLE 5. ESTIMATED HOURLY WAGES, INEQUALITY, COMPOSITION EFFECT AND WAGE STRUCTURE EFFECT

	MAN			WOMAN		
	2012	2015	2019	2012	2015	2019
Urban Wage	1.922***	1.959***	1.963***	1.836***	1.888***	1.919***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Rural Wage	1.230***	1.265***	1.291***	1.233***	1.278***	1.360***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Difference	0.692***	0.694***	0.672***	0.604***	0.609***	0.560***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
	0.558***	0.565***	0.549***	0.496***	0.460***	0.439***
Efeito Composição	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
	0.002***	0.001***	-0.000	-0.000***	-0.001***	-0.002***
Elementary School	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	0.021***	0.025***	0.013***	0.013***	0.025***	0.004***
High School	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	0.034***	0.044***	0.028***	0.033***	0.057***	0.023***
Higher Education	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
	0.005***	0.004***	0.002***	0.001***	0.006***	0.000**
Black	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	0.130***	0.150***	0.121***	0.131***	0.143***	0.131***
Formal	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	0.136***	0.043***	0.063***	0.096***	0.089***	0.058***
Agriculture	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
	-0.003***	-0.002***	-0.004***	-0.003***	0.002***	0.002***
Industry	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	0.003***	0.008***	0.001***	-0.001***	0.001***	0.001***
Construction	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	-0.010***	-0.005***	-0.006***	-0.000	0.010***	0.009***
Trade	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	-0.012***	0.009***	0.002***	-0.005***	0.026***	0.013***
Service	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	0.003***	0.006***	0.008***	-0.001***	0.010***	0.011***
Public Administration	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	-0.000***	-0.000	0.000***	-0.000***	0.000	-0.000***
Poorly defined activities	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	0.155***	0.200***	0.215***	0.085***	0.029***	0.080***
Occupation	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
	-0.003***	-0.000	0.001***	0.003***	0.001***	0.007***
Experience	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	0.098***	0.083***	0.102***	0.144***	0.062***	0.101***
Other	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
	0.135***	0.128***	0.123***	0.108***	0.149***	0.121***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)

▶

	MAN			WOMAN		
	2012	2015	2019	2012	2015	2019
Wage Structure Effect	-0.002***	-0.001***	0.000**	-0.003***	-0.006***	-0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Elementary School	-0.003***	-0.030***	-0.003***	-0.008***	-0.075***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
High School	0.023***	0.002***	0.036***	0.054***	0.001	0.086***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Negro	-0.007***	-0.022***	-0.043***	-0.060***	-0.014***	-0.075***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Formal	-0.101***	-0.126***	-0.065***	-0.150***	-0.161***	-0.140***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agropecuária	0.011***	-0.007***	0.003***	-0.001***	0.000***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Indústria	0.017***	0.003***	0.012***	0.023***	0.018***	0.007***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Construção	0.014***	-0.011***	0.004***	0.001***	-0.000**	-0.000***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Comércio	0.023***	0.001**	0.014***	-0.017***	-0.009***	-0.005***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Serviço	0.027***	-0.027***	-0.004***	-0.028***	-0.092***	-0.059***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.002)
Adm. Pública	0.015***	0.011***	0.008***	-0.006***	-0.005***	0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Atividades mal definidas	-0.000***	0.000***	-0.000***	-0.000***	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ocupação	-0.014***	-0.014***	0.035***	-0.043***	0.017***	-0.015***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Experiência	0.130***	-0.480***	-0.014	0.101***	-0.720***	0.525***
	(0.011)	(0.010)	(0.010)	(0.016)	(0.015)	(0.016)
Outras	-0.241***	-0.519***	-0.207***	-0.041***	-0.577***	0.267***
	(0.006)	(0.006)	(0.006)	(0.012)	(0.011)	(0.010)
Observações	39.539	40.836	35.725	25.1	26.113	24.433

Note: Standard errors in parentheses, Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In Table 6 we analyzed the regional inequality by state of the Northeast region in 2019. The first evidence in the table is that income inequality between urban and rural regions in the Brazilian Northeast (0.672) as a whole is lower only than that observed in the states of Ceará (0.780), Piauí (0.724), Pernambuco (0.703) and practically identical to that observed in the state of Bahia. In all these states, as in the entire Northeastern region, the difference in productive characteristics explains the largest portion of income inequality, especially

the difference in the level of formalization, the types of occupations and the qualification of individuals in the agricultural sector. We also find in this table that three of the four states with the lowest level of inequality present more formalized workers in the rural area and lower percentage of workers in agriculture in the rural area, as presented in Table 3. These states are: Rio Grande do Norte, Paraíba and Alagoas.

TABLE 6. ESTIMATED HOURLY WAGES, INEQUALITY, COMPOSITION AND WAGE STRUCTURE EFFECT BY STATE IN THE NORTHEAST REGION, FOR MEN ONLY

	MAN (DISAGGREGATED SECTORS - 2019)								
	MA	PI	CE	RN	PB	PE	AL	SE	BA
Urban Wage	1.841***	1.943***	1.953***	2.097***	1.918***	1.984***	1.953***	1.946***	1.992***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Rural Wage	1.199***	1.219***	1.172***	1.464***	1.431***	1.281***	1.468***	1.418***	1.315***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Difference	0.642***	0.724***	0.780***	0.633***	0.487***	0.703***	0.485***	0.529***	0.677***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.001)
Composition Effect	0.529***	0.607***	0.602***	0.357***	0.413***	0.609***	0.258***	0.507***	0.553***
	(0.002)	(0.003)	(0.002)	(0.004)	(0.003)	(0.003)	(0.004)	(0.006)	(0.003)
Elementary School	-0.001***	0.002***	-0.002***	0.001***	0.002***	0.001***	0.000	0.002***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
High School	0.027***	0.031***	0.005***	0.013***	0.024***	0.008***	0.014***	0.054***	0.005***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Higher Education	0.029***	0.029***	0.001	0.011***	0.062***	0.048***	0.017***	0.147***	0.034***
	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)	(0.001)	(0.005)	(0.001)
Black	0.006***	0.006***	0.003***	-0.003***	-0.001***	0.001***	0.000	0.001***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Formal	0.115***	0.126***	0.135***	0.091***	0.071***	0.116***	0.070***	0.087***	0.112***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Agriculture	0.048***	0.084***	0.062***	0.067***	0.025***	0.062***	0.024***	0.041***	0.053***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Industry	0.001***	-0.003***	-0.003***	-0.005***	-0.002***	-0.002***	0.001***	-0.004***	-0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Construction	0.006***	0.001***	0.001***	-0.004***	0.002***	-0.003***	-0.005***	0.004***	0.004***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Trade	-0.004***	0.011***	-0.006***	0.011***	-0.004***	0.013***	0.003***	-0.023***	-0.012***
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Service	0.004***	-0.007***	0.001**	0.017***	0.007***	0.013***	0.005***	-0.009***	0.017***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Public Administration	0.010***	0.015***	0.011***	0.016***	0.005***	0.011***	0.010***	0.009***	0.009***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

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	MAN (DISAGGREGATED SECTORS - 2019)								
	MA	PI	CE	RN	PB	PE	AL	SE	BA
Poorly defined activities	0.000***	0.000	-0.000***	0.000	-0.000***	-0.000***	0.000	-0.000*	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Occupation	0.223***	0.271***	0.260***	0.133***	0.181***	0.179***	0.150***	0.169***	0.192***
	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.001)
Experience	-0.001*	0.008***	0.001***	0.020***	-0.000	-0.004***	0.013***	0.017***	-0.004***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
Other	0.066***	0.032***	0.133***	-0.013***	0.041***	0.165***	-0.043***	0.013**	0.148***
	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.005)	(0.005)	(0.002)
Wage Structure Effect	0.113***	0.116***	0.178***	0.276***	0.074***	0.094***	0.228***	0.021***	0.124***
	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.005)	(0.006)	(0.003)
Elementary School	-0.009***	-0.006***	-0.006***	0.013***	-0.011***	-0.001*	-0.003***	-0.004***	0.005***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
High School	-0.060***	-0.051***	0.021***	-0.003*	-0.004**	0.006***	-0.014***	-0.045***	0.004***
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.001)
Higher Education	0.003**	0.037***	0.070***	0.115***	0.004*	0.010***	0.037***	-0.079***	0.027***
	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.002)	(0.002)	(0.005)	(0.001)
Black	-0.012***	0.113***	-0.074***	-0.032***	-0.028***	-0.094***	-0.071***	-0.074***	-0.069***
	(0.004)	(0.005)	(0.002)	(0.003)	(0.003)	(0.002)	(0.004)	(0.005)	(0.002)
Formal	-0.075***	-0.092***	-0.106***	0.012***	-0.005**	-0.017***	-0.099***	-0.020***	-0.045***
	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.001)
Agriculture	-0.007***	0.009***	-0.002***	0.002***	-0.011***	0.008***	0.003***	0.004***	-0.007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Industry	0.001	0.008***	-0.001**	0.004***	0.012***	0.021***	-0.009***	0.013***	-0.000
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)
Construction	-0.025***	-0.027***	-0.005***	0.004***	-0.007***	0.019***	0.033***	-0.006***	-0.013***
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Trade	0.004***	-0.046***	0.015***	-0.015***	0.016***	-0.006***	-0.018***	0.010***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Service	-0.022***	-0.011***	-0.006***	-0.052***	-0.007***	-0.009***	-0.030***	-0.025***	-0.069***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)
Public Administration	-0.003***	0.001	0.000	0.005***	0.024***	0.010***	-0.004***	0.011***	-0.008***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Poorly defined activities	0.000***	0.000	0.000***	0.000	-0.000***	-0.001***	0.000	-0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Occupation	0.022***	0.032***	0.026***	-0.005**	-0.017***	0.010***	0.035***	-0.117***	-0.096***
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.005)	(0.003)
Experience	-0.703***	-0.577***	0.283***	-0.296***	-0.488***	0.524***	-0.674***	-1.451***	0.491***
	(0.034)	(0.039)	(0.026)	(0.042)	(0.034)	(0.029)	(0.044)	(0.045)	(0.019)
Other	-0.739***	-0.362***	-0.091***	-0.130***	-0.386***	0.059***	-0.594***	-0.912***	0.018*
	(0.019)	(0.022)	(0.014)	(0.022)	(0.019)	(0.016)	(0.024)	(0.026)	(0.011)

In table 7 we present the same results for women. The evidence is quite similar, with two differences. The first is that the level of inequality between rural and urban areas is much lower. The second is that the differences between productive characteristics, expressed by the composition effect, play an even more relevant role in explaining the disparities between the regions.

TABLE 7. ESTIMATED HOURLY WAGES, INEQUALITY, COMPOSITION AND WAGE STRUCTURE EFFECT BY STATE IN THE NORTHEAST REGION, FOR WOMEN ONL

	WOMAN (DISAGGREGATED SECTORS - 2019)								
	MA	PI	CE	RN	PB	PE	AL	SE	BA
Urban Wage	1.847***	1.876***	1.908***	2.065***	1.932***	1.963***	1.953***	1.909***	1.891***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Rural Wage	1.277***	1.330***	1.233***	1.596***	1.437***	1.368***	1.632***	1.292***	1.401***
	(0.003)	(0.003)	(0.002)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.002)
Difference	0.569***	0.545***	0.675***	0.468***	0.494***	0.595***	0.321***	0.617***	0.490***
	(0.003)	(0.003)	(0.002)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.002)
Composition Effect	0.486***	0.319***	0.516***	0.301***	0.364***	0.412***	0.402***	0.624***	0.423***
	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)	(0.006)	(0.020)	(0.009)	(0.004)
Elementary School	-0.002***	-0.007***	-0.001***	-0.012***	0.000	-0.003***	0.007***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
High School	0.011***	0.005***	0.002***	0.010***	-0.000	0.009***	0.003***	0.002***	0.003***
	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Higher Education	0.023***	0.089***	-0.014***	0.100***	0.020***	0.068***	0.016***	0.049***	0.026***
	(0.001)	(0.003)	(0.001)	(0.003)	(0.003)	(0.002)	(0.002)	(0.004)	(0.001)
Black	0.003***	0.007***	-0.003***	0.013***	0.001***	-0.003***	-0.000**	0.000	0.001***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Formal	0.081***	0.119***	0.147***	0.088***	0.095***	0.158***	0.061***	0.176***	0.115***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.003)	(0.001)
Agriculture	0.189***	0.030***	0.014***	0.001	-0.018***	-0.031***	0.024***	0.015***	0.064***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Industry	0.000***	0.016***	0.012***	-0.007***	-0.003***	0.013***	0.008***	0.020***	0.000***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Construction	0.003***	-0.000***	-0.001***	-0.000	-0.004***	-0.005***	0.001***	0.002***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Trade	0.019***	-0.001***	0.014***	0.003***	0.011***	0.035***	0.021***	-0.003***	-0.006***
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Service	0.016***	0.030***	0.000	-0.002***	0.020***	0.024***	0.000	0.007***	-0.013***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Public Administration	0.010***	0.020***	0.018***	0.006***	0.018***	0.007***	0.003***	-0.000	0.002***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)

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	MA	PI	CE	RN	PB	PE	AL	SE	BA
WOMAN (DISAGGREGATED SECTORS - 2019)									
Poorly defined activities	0.000	0.000	-0.000***	0.000	0.000	0.000***	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Occupation	0.030***	0.065***	0.076***	0.116***	0.147***	0.073***	0.082***	0.157***	0.153***
	(0.001)	(0.002)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.001)
Experience	0.003***	0.006***	-0.011***	0.003***	0.007***	0.011***	0.014***	0.001	0.018***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Other	0.100***	-0.060***	0.263***	-0.018***	0.071***	0.056***	0.161***	0.200***	0.061***
	(0.004)	(0.006)	(0.005)	(0.005)	(0.005)	(0.007)	(0.020)	(0.011)	(0.005)
Wage Structure Effect	0.084***	0.226***	0.159***	0.168***	0.130***	0.183***	-0.081***	-0.008	0.067***
	(0.003)	(0.005)	(0.004)	(0.004)	(0.005)	(0.006)	(0.020)	(0.009)	(0.004)
Elementary School	-0.003***	-0.007***	-0.003***	-0.014***	0.003***	-0.011***	-0.014***	0.006***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
High School	0.022***	0.036***	0.004*	-0.056***	-0.013***	0.020***	-0.013***	0.023***	0.010***
	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.004)	(0.004)	(0.002)
Ens. Superior	0.059***	-0.019***	0.163***	-0.068***	0.062***	0.039***	0.088***	0.055***	0.074***
	(0.003)	(0.005)	(0.003)	(0.005)	(0.005)	(0.003)	(0.005)	(0.006)	(0.002)
Negro	-0.090***	-0.042***	-0.086***	0.055***	0.027***	-0.129***	-0.087***	-0.096***	-0.142***
	(0.004)	(0.005)	(0.003)	(0.003)	(0.004)	(0.003)	(0.005)	(0.008)	(0.003)
Formal	-0.045***	-0.077***	-0.191***	-0.091***	-0.048***	-0.191***	-0.137***	-0.108***	-0.093***
	(0.002)	(0.003)	(0.002)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.002)
Agropecuária	0.011***	-0.000	0.001***	-0.003***	-0.009***	-0.001***	-0.005***	-0.003***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Indústria	-0.001	0.002**	0.039***	0.010***	0.014***	0.014***	-0.019***	0.003***	0.011***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Construção	-0.003***	0.001***	0.002***	-0.000	0.008***	0.007***	0.001***	-0.002***	-0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Comércio	-0.009***	-0.063***	-0.041***	0.015***	0.055***	-0.057***	0.026***	-0.003	0.065***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.001)
Serviço	-0.135***	-0.336***	-0.120***	0.073***	0.092***	-0.158***	0.245***	0.002	0.200***
	(0.003)	(0.005)	(0.003)	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.003)
Adm. Pública	-0.003***	-0.023***	-0.008***	0.027***	0.025***	-0.001	0.032***	0.035***	0.012***
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Atividades mal definidas	0.000	0.000	-0.000***	0.000	0.000	-0.000***	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ocupação	-0.064***	0.001	0.057***	-0.056***	-0.209***	-0.131***	-0.071***	-0.171***	0.028***
	(0.004)	(0.005)	(0.003)	(0.006)	(0.006)	(0.004)	(0.007)	(0.015)	(0.003)
Experiência	0.431***	0.037	1.754***	0.386***	0.229***	0.133***	-0.833***	-0.117*	0.122***
	(0.040)	(0.056)	(0.041)	(0.058)	(0.057)	(0.043)	(0.075)	(0.068)	(0.029)
Outras	0.110***	-0.214***	0.981***	-0.497***	-0.342***	-0.327***	-0.074	-0.172***	0.256***
	(0.027)	(0.038)	(0.027)	(0.036)	(0.036)	(0.033)	(0.051)	(0.047)	(0.019)

Conclusions

In this work we aimed at analyzing income inequality between urban and rural regions in the Brazilian Northeast, in IFAD's field of action. To achieve this objective, we analyzed descriptive statistics of these populations using the 1991, 2000 and 2010 Brazilian Demographic Census and the 2012, 2014 and 2019 Continuous PNAD. Finally, we proceeded to decompose the average income using the Oaxaca-Blinder methodology. The results suggested that, on average, men in the urban area receive almost twice the income of those in the rural area, while women in the urban area receive 1.75 times what they receive in the rural area.

The main results of the decomposition indicate that income inequality is explained by differences in both the productive characteristics of individuals and the difference in return for productive characteristics. However, the first factor is more relevant, with greater weight on the difference in productive structure (occupations and sectors) and on the degree of formalization of workers. As for formalization, the results suggest that people formalize less in rural areas, but when we compare two people with the same characteristics, the return of being formalized is higher in rural areas. These results suggest that public policies focusing on improving the productive structure of rural regions, and particularly those contributing to increase the formalization of workers are fundamental to reducing inequality between rural and urban areas in the Northeast of Brazil.

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Appendix

CHART 1. DESCRIPTION OF THE VARIABLES EXTRACTED FROM THE CONTINUOUS PNAD

Variable	Code	Description	Period
Actual usual income	VD4016	Usual monthly income of the main work in actual values of the 2nd quarter of 2020 (PNAD Contínua deflator)	4th quarter 2012 to 4th quarter 2019
Actual usual income from all jobs	VD4019	Usual monthly income of the main work in actual values of the 2nd quarter of 2020 (PNAD Contínua deflator)	4th quarter 2012 to 4th quarter 2019
Actual effective income	VD4017	Usual monthly income of the main work in actual values of the 2nd quarter of 2020 (PNAD Contínua deflator)	4th quarter 2012 to 4th quarter 2019
Actual effective income from all jobs	VD4020	Usual monthly income of the main work in actual values of the 2nd quarter of 2020 (PNAD Contínua deflator)	4th quarter 2012 to 4th quarter 2019
Weekly hours usually worked	V4039	Number of weekly hours usually worked at the main job	4th quarter 2012 to 4th quarter 2019
Weekly hours usually worked on all jobs	VD4031	Number of weekly hours usually worked in all jobs	4th quarter 2012 to 4th quarter 2019
Weekly hours effectively worked on all jobs	VD4035	Number of weekly hours effectively worked in all jobs	4th quarter 2012 to 4th quarter 2019
Experience	V4040	Proportion of workers with one year or more at the same job	4th quarter 2012 to 4th quarter 2019
Formais (social security contributors)	VD4012	Proportion of workers who contribute to the social security	4th quarter 2012 to 4th quarter 2019
Formais (By position in the occupation and job category)	VD4009, V4019 e V4046	Proportion of formal workers by position in the occupation and employment category: Private sector employee with signed social security card Domestic worker with signed social security card Public sector employee with signed social security card Military and incorporation server Employer with National Registry of Legal Entities (NRLE) Entrepreneur with NRLE	4th quarter 2015 to 4th quarter 2019

▶

Variable	Code	Description	Period
Informal (By position in the occupation and job category)	VD4009, V4019 e V4046	Proportion of informal workers by position in the occupation and employment category: • Private sector employee without a signed social security card • Domestic worker without signed social security card • Civil servant without signed social security card • Employer without NRLE • Self-account without NRLE • Auxiliary family worker	4th quarter 2015 to 4th quarter 2019
Sectors of activity	VD4010	Proportion of workers by sector of activity: • Farming; • Industry; • Construction; • Commerce; • Services; • Public Administration.	4th quarter 2012 to 4th quarter 2019
Occupational groups	VD4011	Proportion of workers by occupational groups: • Directors and managers; • Professionals of science and intellectuals; • Technicians and mid-level professionals; • Administrative support workers; • Service workers, vendors and markets; • Qualified agricultural, forestry, hunting and fishing workers; • Skilled workers, construction workers and craftsmen, mechanical arts and other trades; • Plant and machinery operators and assemblers; • Elementary occupations; • Members of the armed forces, police and military firefighters.	4th quarter 2012 to 4th quarter 2019
Level of Education	VD3004 e VD3001	Proportion of workers by level of education: • Elementary; • High school; • Higher education.	4th quarter 2012 to 4th quarter 2019
Gender	V2007	Proportion of workers by gender: • Man • Woman.	4th quarter 2012 to 4th quarter 2019
Race	V2010	Proportion of workers: • Black or brown;	4th quarter 2012 to 4th quarter 2019
Age	V2009	Mean age of workers	4th quarter 2012 to 4th quarter 2019
Metropolitan Region	RM_RIDE	Proportion of workers living in the Metropolitan Region	4th quarter 2012 to 4th quarter 2019
Territory	V1022	Proportion of workers by territory: • Rural; • Urban.	4th quarter 2012 to 4th quarter 2019
Head	V2005	Proportion of individuals whose condition at home is that of head of the family	4th quarter 2012 to 4th quarter 2019
Spouse	V2005	Proportion of individuals whose condition at home is that of spouse	4th quarter 2012 to 4th quarter 2019
Children	VD2002	Proportion of individuals whose condition at home is that of child or stepchild	4th quarter 2012 to 4th quarter 2019

Source: PNAD Contínua (from the 4th quarter of 2012 to the 4th quarter of 2019).

List of abbreviations and acronyms

BPC	Continuous Cash Benefit
IFAD	International Fund for Agricultural Development
IBGE	Brazilian Institute of Geography and Statistics
HDI	Human Development Index
IPCA	Broad Consumer Price Index
MQO	Ordinary Minimum Square Method
OECD	Organization for Economic Cooperation and Development
UN	United Nations Organization
PME	Monthly Employment Survey
PNAD	National Household Sample Survey
Continuous PNAD	Continuous National Household Sample Survey
PNDRS	National Plan for Sustainable Rural Development
PRONAF	National Program to Strengthen Family Agriculture
RIDE	Integrated Region of Development
UFBA	Federal University of Bahia

List of illustrations

CHART

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