

The North-South divide: real wages in Brazil during the early 20th century

Thales A. Zamberlan Pereira¹

Universidade Franciscana – UFN

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Abstract

What was the size of Brazil's regional inequality in living standards during the first decades of the 20th century? This paper presents municipal and state information for wages and prices to build a real wage index for skilled and unskilled workers between 1912 and 1940. Difference in nominal wages and costs of living were large across regions, but real wage differentials were still smaller than those estimated by earlier studies. Williamson (1999) argued that the Southeast-Northeast wage gap in Brazil was 7.2 times during the 1930s, but new evidence shows that wages were in fact 1.6 times higher in the Southeast. Moreover, annual data for São Paulo and Pernambuco suggests that real wages stagnated between 1923 and 1940.

¹ I appreciate the help from Svante and Evelyn Prado with this project.

Introduction

Brazilian history in the 20th century is marked by the “Northeast-Southern syndrome,” i.e., the persistent difference in living standards between these regions of the country.² More than five decades ago, Jeffrey Williamson presented evidence that Brazil had the highest degree of regional inequality in a sample of 24 countries in the 1950s.³ For the early 20th century, the literature argues that regional divergence increased due to the coffee economy and industrialization in southern states, while states in the Northeast stagnated due to crisis in the cotton and sugar economies.⁴ Evidence shows that there was a slight convergence in income per capita among states beginning in the 1950s – mainly due to migration from the Northeast to the Southeast – but substantial economic and social inequalities persisted during the following decades.⁵

Despite these arguments, there is still limited quantitative information about regional differences in living standards in Brazil before 1940. Many studies about wages and working conditions are for industrial workers in Rio de Janeiro and São Paulo, who were not representative of the labor market at the time. Industrial workers represented only 3.9 percent of the total working force, and less than 1 percent of the total population.⁶ To contribute to this debate, this paper presents municipal and state information for nominal

² Thomas William Merrick and Douglas H. Graham, *Population and Economic Development in Brazil, 1800 to the Present* (Baltimore: Johns Hopkins University Press, 1979), 133; Werner Baer, “Regional Inequality and Economic Growth in Brazil,” *Economic Development and Cultural Change* 12, no. 3 (1964): 268–85.

³ Jeffrey G. Williamson, “Regional Inequality and the Process of National Development: A Description of the Patterns,” *Economic Development and Cultural Change* 13, no. 4, Part 2 (July 1, 1965): 14, <https://doi.org/10.1086/450136>.

⁴ Merrick and Graham, *Population and Economic Development in Brazil, 1800 to the Present*, 133; Nathaniel H. Leff, “Economic Development and Regional Inequality: Origins of the Brazilian Case,” *The Quarterly Journal of Economics* 86, no. 2 (1972): 243–62, <https://doi.org/10.2307/1880562>.

⁵ Douglas H. Graham, “Divergent and Convergent Regional Economic Growth and Internal Migration in Brazil: 1940-1960,” *Economic Development and Cultural Change* 18, no. 3 (April 1, 1970): 367, <https://doi.org/10.1086/450438>; Ricardo Paes de Barros, Rosane Silva Pinto de Mendonça, and James Alan Shope, “Regional Disparities in Education within Brazil: The Role of Quality of Education,” *IPEA, Texto Para Discussão (TD)* 311, August 1993, 9; Leonardo Monteiro Monasterio, “Brazilian Spatial Dynamics in the Long Term (1872–2000): ‘path Dependency’ or ‘reversal of Fortune’?,” *Journal of Geographical Systems* 12, no. 1 (March 1, 2010): 51–67, <https://doi.org/10.1007/s10109-009-0094-8>.

⁶ Albert Fishlow, “Origens E Consequências Da Substituições de Importações No Brasil,” in *Formação Econômica Do Brasil*, ed. Flávio Rabelo Versiani and José Roberto Mendonça de Barros (São Paulo: Saraiva, 1978), 23.

wages and prices to build a series of real wage indices for skilled and unskilled workers between 1912 and 1940. Real wages are a more appropriate indicator for living standards due to limitations of GDP and income per capita as a measure of wellbeing in countries with substantial economic inequality.⁷

Previous work by Jeffrey Williamson argues that real wages in Brazil were approximately 3.7 times higher in the Southeast than the Northeast in 1920 and 7.2 times during the 1930s.⁸ This paper shows that Williamson overestimated regional divergence, and wages in the Southeast were on average 1.63 higher than in the Northeast – still a substantial difference but not so different from regional differences in other countries.⁹ Williamson's higher wage gap results from the comparison between different categories of workers – skilled workers (carpenters, bricklayers, and porters) in Rio de Janeiro and agricultural workers in Pernambuco – and an improper adjustment of the cost of living between regions.¹⁰ One of the contributions of this paper, therefore, is to build an appropriate consumption basket to measure purchasing power for equivalent categories of workers.

Food prices are crucial to understand wage disparities in Brazil because average workers spent most of their income on food. Moreover, concern over the dispersion of prices in large countries is important when price differentials are responsible for a significant variation in nominal incomes.¹¹ This was the case in Brazil, especially during the first two

⁷ Angus Deaton, *The Great Escape: Health, Wealth, and the Origins of Inequality* (Princeton: Princeton University Press, 2013), chap. 5; Robert C. Allen, "Absolute Poverty: When Necessity Displaces Desire," *American Economic Review* 107, no. 12 (December 2017): 3690–3721, <https://doi.org/10.1257/aer.20161080>.

⁸ Jeffrey G. Williamson, "Real Wages, Inequality and Globalization in Latin America before 1940," *Revista de Historia Económica - Journal of Iberian and Latin American Economic History* 17, no. S1 (March 1999): 119, <https://doi.org/10.1017/S0212610900002287>.

⁹ Robert A. Margo, "The North-South Wage Gap, Before and After the Civil War," Working Paper (National Bureau of Economic Research, February 2002), <https://doi.org/10.3386/w8778>; Chen-Han Chen, "Regional Differences in Costs and Productivity in the American Cotton Manufacturing Industry, 1880–1910," *The Quarterly Journal of Economics* 55, no. 4 (August 1, 1941): 544, <https://doi.org/10.2307/1884117>.

¹⁰ Jeffrey G. Williamson, "The Evolution of Global Labor Markets since 1830: Background Evidence and Hypotheses," *Explorations in Economic History* 32, no. 2 (April 1, 1995): 141–96, <https://doi.org/10.1006/exeh.1995.1006>; Eulália Maria Lahmeyer Lobo, *Historia do Rio de Janeiro*, vol. 1, 2 vols. (Rio de Janeiro: Instituto Brasileiro de Mercado de Capitais, 1978).

¹¹ Holger Breinlich, Gianmarco I. P. Ottaviano, and Jonathan R. W. Temple, "Chapter 4 - Regional Growth and Regional Decline," in *Handbook of Economic Growth*, ed. Philippe Aghion and Steven N. Durlauf, vol. 2,

decades of 20th century. This paper shows that considering spatial variation in food prices can change substantially the income difference between the richest and poorest Brazilian regions.¹² Limited flow of goods, capital, and labor, especially due to high transport costs, created sizable differences in costs of living that make comparisons between nominal wages in Brazil of little use. For example, food prices in Rio Grande do Norte were on average 42% higher than in Santa Catarina – more than 3,000 km away – during the 1910s.

Higher food prices and lower nominal wages not only increased regional differences, but also had long lasting impacts on living standards through the effects of insufficient nutrition. In some regions of the Northeast workers spent on food only 40% of the recommended diet.¹³ These results are in line with the fact that malnutrition in Brazil, especially in the Northeast, persisted throughout the 20th century: projects from international agencies to subsidize basic foodstuffs in poor Brazilian regions were still prominent during the 1970s and 1980s.¹⁴ Poorer diets in the Northeast were also an effect of differences in geographic conditions: prolonged draughts made life much more unstable than the in Southeast.¹⁵

The next section presents the sources for this study and a discussion about food baskets to compare regions in Brazil. Information from 753 municipalities in 12 different states show that regional price differences were wide during the 1910s. The last section presents estimates for real wages, accounting for regional differences in food and housing prices, between 1912 and 1940. Evidence suggests that real wages remained stagnant between the mid-1920s and 1940.

Handbook of Economic Growth (Amsterdam: Elsevier, 2014), 689, <https://doi.org/10.1016/B978-0-444-53540-5.00004-5>.

¹² Angus Deaton and Olivier Dupriez, “Spatial Price Differences within Large Countries” (Princeton, July 2011).

¹³ There were also qualitative differences in diets between regions. Food baskets for southern states had more calories from meat consumption than in northern states. See *Salário Mínimo* (Rio de Janeiro: Ministério do Trabalho, Indústria e Comércio (MTIC), 1940), 79.

¹⁴ Josenilda Barreto de Moura, “Avaliação do programa de alimentação do trabalhador, no Estado de Pernambuco, Brasil,” *Revista de Saúde Pública* 20 (April 1986): 115–28, <https://doi.org/10.1590/S0034-89101986000200002>; Philip Musgrove, “Fighting Malnutrition. An Evaluation of Brazilian Food and Nutrition Programs,” World Bank Discussion Papers (Washington, D.C.: World Bank, August 1989).

¹⁵ Paulo de Brito Guerra, *A Civilização da Seca. O Nordeste é uma história mal contada* (Fortaleza: Ministério do Interior - Departamento Nacional de Obras contra as Secas, 1981), 26.

Data and food prices

A key factor that limits the use of wage data to compare regional living standards is that official statistics about the labor market began to be systematically collected in Brazil only during the 1960s.¹⁶ Therefore, to estimate wages in Brazil for the early 20th century I mainly use data from questionnaires on the conditions of agriculture in Brazil between 1910 and 1913, the census from 1920, and two other sources from the 1930s: a government study for the implementation of the new minimum wage law, and an industrial census. These are complementary sources because they have common categories of workers that enable comparisons across time. Moreover, all information is for daily wages, since even during the 1930s a large share of the population didn't receive their income in monthly installments, which represented a small share of total payments even in manufacture jobs.¹⁷

The first source, the questionnaires on the conditions of agriculture, were municipal surveys done by the ministry of agriculture between 1910 and 1913. To better understand Brazil's economic and social conditions, the agricultural inspectors collected information on health conditions, wages, food prices, transportation, local interest rates, among others. The government supposedly took these surveys in all Brazilian states, but digital sources are available only for 12 states, totaling 753 municipalities.¹⁸ Regarding the quality of the data collected, the limitations that inspectors faced were publicly recognized and, at the beginning of all questionnaires, the service's director stated that "the first information, of course, will have the defects of all beginnings, but they will therefore be the most powerful cause of corrections in these works, elaborated, as far as possible, with the truth of what is ours."¹⁹ Nonetheless, the aggregation of the questionnaires' data, along with the comparison from other sources, shows that there is no clear bias in the information between different regions of Brazil.

¹⁶ IBGE, *Estatísticas Do Século XX* (Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística, 2006), 250.

¹⁷ "Tipos de Salário Na Indústria," *Conjuntura Econômica*, 1949, IBRE - Instituto Brasileiro de Economia.

¹⁸ The available documents are for Alagoas, Ceará, Espírito Santo, Minas Gerais, Pará, Paraná, Paraíba, Rio de Janeiro, Rio Grande do Norte, Santa Catarina, São Paulo, and Sergipe,

¹⁹ Ministério da Agricultura Brasil Indústria e comércio, *Questionários Sobre as Condições Da Agricultura Dos Municípios Do Estado Do Paraná* (Rio de Janeiro: Typ. do Serviço de Estatística, 1913), VI.

The second source is the wage census from 1920, carried along the general population census, which have information on industrial and “rural” (non-industrial) daily wages. Industrial wages are divided between 13 sectors, comprising 341 categories.²⁰ Since different states had different industrial sectors, the averages presented in the following tables are weighted by the number of workers recorded in each category. Different from rural wages, industrial wages are not recorded for different municipalities, and the census only presents data at the state level. However, this does not present a significant problem because industries in 1920 were concentrated around few urban areas.²¹ For non-industrial wages, information is recorded for 748 municipalities in 20 different states and is divided between 10 categories, including low skilled work – such as “workers who used the hoe” – and skilled work, such as carpenters and blacksmiths. Ceará, Maranhão, Mato Grosso, and Pará were not included in the analysis because the census has information for a small number of municipalities (see Table A3 in the appendix).

For wages in 1937, the source is a census conducted by the “Institute of Retirement and Pensions of Industrialists” using practically the same industrial sector division as the 1920 census.²² A second important source from the 1930s is a study made by the federal government for the implementation of the minimum wage in Brazil, which presents information about expenditures patterns for different states and estimates for caloric consumption. The minimum wage report presented estimates for food consumption based on an “average normal ration, for the working mass in diverse activities for the whole territory.”²³ The average food basket presented by the government offered 3,500 calories, which was high even for developed countries at the time – the average food supply for Britain and France was around 3,000 calories per capita.²⁴ For Brazil, surveys for São Paulo from Horace Davis and Samuel Lowrie show that workers had a daily intake of 2,500

²⁰ The sectors are: textile; leathers and furs; wood; metallurgy; ceramics; chemical; food; clothing; furniture; constructing; transport; power transmission; science, arts, and luxury goods.

²¹ For textiles, see Secretaria do Estado dos Negócios da Agricultura Indústria e Comércio São Paulo, *Atlas Econômico Do Estado de São Paulo*, Parte II, N.º 4 (São Paulo: Governo do Estado de São Paulo, 1940).

²² IBGE, *Anuário Estatístico Do Brasil* (Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística, 1938), 341.

²³ *Salário Mínimo*, 80.

²⁴ Robert William Fogel, *The Escape from Hunger and Premature Death, 1700-2100: Europe, America, and the Third World* (Cambridge University Press, 2004), 9.

calories.²⁵ For the rest of the country, however, food consumption was much lower. For Recife household surveys show that the average caloric intake was only 1,645 calories in 1932.²⁶ The food basket for Brazil, therefore, was the ideal living condition for workers, not the reality they faced. The higher caloric intake from the minimum wage report, however, is still the recommended amount today for the average men involved in heavy activity, which would be most industrial and rural jobs in the 1930s.²⁷

To measure food expenditures for different regions, Table 1 presents the average food basket for Brazil using the respective calories presented in the government rations for 1937. The only difference between the food basket presented in Table 1 and the minimum wage report's estimates are the absence of bread, butter, and vegetables because their prices were not available in many municipalities (especially in the Northeast) in the agricultural surveys from 1912. To substitute for the lack of bread prices, which was an important part of the average diet, as a proxy I multiply by three the price of cassava flour (this price ratio is based on price information from the 1930s). Without butter and vegetables, the food basket supplied 2,839 calories per capita, almost the same amount as the average food consumption in Britain and France at the time. Moreover, Table 1 also presents an alternative food basket for the city of São Paulo – which offers a higher quality diet – that it's used to compare changes in food prices for the city of São Paulo and Recife in Figure 1.

²⁵ Both surveys are described by John Wells, "Industrial Accumulation and Living Standards in the Long-run : The São Paulo Industrial Working Class, 1930–75, Part II," *The Journal of Development Studies* 19, no. 3 (April 1, 1983): 315, <https://doi.org/10.1080/00220388308421866>.

²⁶ Josué de Castro, *As condições de vida das classes operarias no Recife: estudo economico de sua alimentação* (Rio de Janeiro: Departamento de Estatística e Publicidade, Ministerio do Trabalho, Industria e Comercio, 1935).

²⁷ Lisa C. Smith and Ali Subandoro, *Measuring Food Security Using Household Expenditure Surveys* (Washington, D.C.: International Food Policy Research Institute, 2007), 65.

Table 1: Food baskets in Brazil

	Brazil		City of São Paulo	
	Grams	Calories	Grams	Calories
Meat	150	218.2	268	389.9
Milk	200	131.0		
Beans	150	483.9	110	354.9
Corn (BR) / Rice (SP)	120	432.0	136	489.6
Flour (cassava)	100	341.6		
Bread	200	599.2	428	1,282.3
Sugar	100	405.9	52	211.1
Bacon / Lard	25	227.5	28	254.8
Potato			64	49.3
Total		2839.3		3031.8

Sources: Salário Mínimo (1940), Cardim (1936, p.22)

Using the São Paulo's basket presented above, Figure 1 compares the official food price index for the city of Rio de Janeiro with food prices for São Paulo and Recife. Despite some differences in the mid-1920s, price trends are similar, with increasing prices between 1912 and 1924, and again after 1934.²⁸ The abrupt halt in price increases after 1924 came with changes in monetary policy, which promoted a sharp decrease in money supply.²⁹ Moreover, the sudden decrease in prices after 1929 was a direct result of the economic crisis of the *Caixa de Estabilização*, which again reduced money supply and caused rural workers, especially in coffee areas, to accept wage reductions up to 40 percent.³⁰ Prices resumed the upward trend after the beginning of fiduciary currency in 1933. Despite the similarity in trends across states, during the late 1930s prices in the city of Rio de Janeiro presented a different pattern from the rest of the country, which could create bias in estimating regional real wages with the same price index. Between 1935 and 1938, food prices in the city of Rio de Janeiro increased 22 percent, while decreasing 5.9 percent in

²⁸ Prices were increasing so fast during World War I that in 1917 the government of Rio Grande do Sul was trying to halt shipment of foodstuff to keep food prices down and the governor forced employers in the capital to raise wages. See Joseph LeRoy Love, *Rio Grande Do Sul and Brazilian Regionalism, 1882-1930* (Stanford: Stanford University Press, 1971), 125.

²⁹ Carlos Manuel Peláez and Wilson Suzigan, *História monetária do Brasil* (Brasília: Editora Universidade de Brasília, 1981), 185.

³⁰ Antônio Delfim Netto, *O Problema do Café no Brasil, 1ª* (São Paulo: UNESP, 2009), 119.

the Northeast, and 8.2 percent in the South.³¹ Therefore, wages from 1937 use prices from state capitals and cannot be directly compared with the regional distribution in prices from 1912 and 1920.

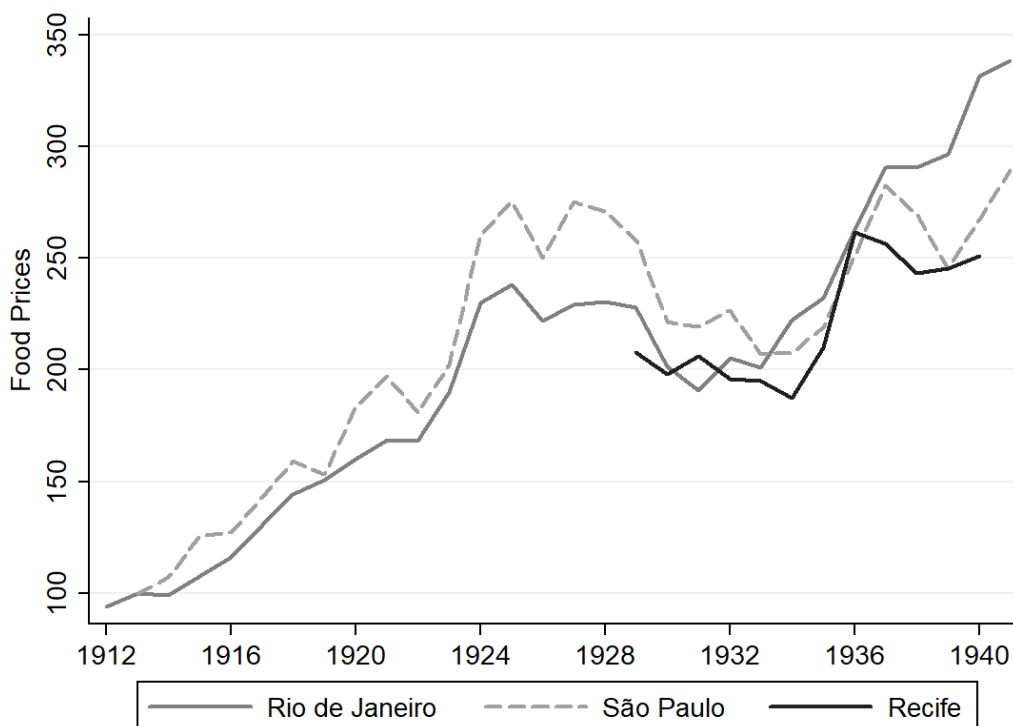


Figure 1: Food prices in Rio de Janeiro, São Paulo, and Recife (1912-1941) 1912 = 100

Sources: BRASIL. Ministerio do Trabalho, Industria e Comércio. Serviço de Estatística da Previdência do Trabalho. Levantamento do custo de vida no Brasil, 1946. P. 95-8. Mario Cardim. Ensaio de Analyse de Factores Economicos e Financeiros do Estado de São Paulo e do Brasil, 1936. P.22. PERNAMBUCO, Departamento Estadual de Estatística, *Anuario Estatístico de Pernambuco 1937-1938* (Recife: Imprensa Oficial, 1940), 223.

The information for food prices presented above is only for three urban regions, and it's not sufficient to account for all the potential variability in prices across the country, especially in rural areas.³² Table 2, therefore, presents data for the food items in the “Brazilian basket” from Table 1 to build averages for several states. All price and wage indices for states are weighted by municipal population, which captures better the

³¹ Ministério do Trabalho BRASIL Indústria e Comércio., *Levantamento Do Custo de Vida No Brasil*, vol. 1937–1945 (Serviço de Estatística da Previdência e Trabalho, 1946), 31–51.

³² Deaton and Dupriez, “Spatial Price Differences within Large Countries.”

conditions of a random individual within a given region.³³ Since there is no price information for municipalities in the 1920 census, the food basket for that year are the prices from 1912 adjusted for inflation using the Rio de Janeiro's price index. Moreover, prices for Bahia, Pernambuco, and Rio Grande do Sul, from which the agriculture questionnaires are not available, are average prices from nearby states. For 1937, food prices are from state capitals, but Table 2 also presents a basket using prices from 1912 adjusted for inflation for comparison. Therefore, food costs are not directly comparable between 1920 and 1937, because food prices in capitals were on average higher than in rural areas.

Table 2: Cost of food basket with 2,839 calories

States	1912	1920	1937 (1912)	1937 (capital)	1838/39 (capital)	1838/39 (interior)
North						
PA	738.8	1182.2	2282.2	1260.0	1495.0	1673.2
Northeast						
SE	339.5	543.4	1048.9	1066.0	1418.5	1220.1
CE	359.6	575.4	1110.7	1454.0	1309.5	1424.1
PB	345.3	552.5	1066.6	1617.0	1376.0	1534.3
RN	404.6	647.5	1250.0	1589.0	1600.5	1476.0
PE	352.0	563.2	1087.2	1530.0	1625.3	1587.0
AL	351.0	561.7	1084.4	1679.0	1512.2	1241.6
BA	345.2	552.4	1066.4	1214.0	1443.0	1364.2
Southeast						
RJ	343.0	548.8	1059.5	1238.0	1552.5	1452.3
ES	347.8	556.6	1074.4	1130.0	1483.8	1296.2
SP	412.1	659.4	1273.0	1463.0	1488.3	1465.8
MG	338.4	541.6	1045.5	1091.0	1329.0	1584.5
South						
PR	426.1	681.9	1316.3	1282.0	1409.8	1456.5
SC	283.9	454.3	877.1	1208.0	1564.8	1385.2
RS	355.0	568.1	1096.7	1271.0	1457.8	1307.1

Sources: see text. Data for 1938-39 are from Anuário Estatístico do Brasil (1940)

Table 2 shows that not considering different price levels in states can create significant biases. The difference between Rio Grande do Norte, which had the most

³³ Branko Milanovic, "Half a World: Regional Inequality in Five Great Federations," *Journal of the Asia Pacific Economy* 10, no. 4 (January 1, 2005): 408-45, <https://doi.org/10.1080/13547860500291562>; Williamson, "Regional Inequality and the Process of National Development."

expensive basket in the Northeast, and Santa Catarina, was 42% circa 1912. These differences, however, decreased during the late 1930s. Moreover, it is noticeable that higher wages in Pará during the rubber boom were partly offset by prices that were twice as large as the rest of Brazil. Records shows that rubber tappers who worked in the Amazon forest were even in a worse situation, having food costs six higher than in Rio de Janeiro.³⁴

In addition to food prices, another important regional difference in real incomes came with expenditures in food consumption relative to other essential goods. From the documents presented in this paper, the earliest source with information about relative shares of household spending for different states is a survey of the Statistical Service of Social Security and Labor, presented in the minimum wage report.³⁵ Table 3 shows that the average in food spending for households in Brazil was 66.5% in the 1930s. Levels of food consumption presented in Table 3 are state averages, and in capitals food spending was relatively lower while with housing it was higher. In the city of São Paulo, one the richest in the country, additional household surveys show that food expenditures were approximately 50% of total income during the 1930s.³⁶

To know the relative expenditure on food is important because the share of income spend on food is an indicator of economic vulnerability. By today's standards, households spending more than 75% of their income on food are considered very vulnerable. In the early 2000s, only some countries in sub-Saharan Africa such as Rwanda and Burundi had such a high percentage of their households with such food insecurity.³⁷ However, many African countries in the early 2000s spent between 60% and 75% of their income on food, which is also considered a medium form of food insecurity. Evidence for European countries for the 19th century also shows that food accounted between 50 and 75 of expenditures of laboring families.³⁸ Therefore, the high share of food expenditures is expected because

³⁴ Documentos parlamentares Brasil, *Política econômica : defesa da borracha, 1906-1914* (Rio de Janeiro: Typ. do Jornal do Commercio, de Rodrigues & C., 1915), 425.

³⁵ *Salário Mínimo*, 253.

³⁶ Wells, "Industrial Accumulation and Living Standards in the Long-run," April 1, 1983, 306.

³⁷ Smith and Subandoro, *Measuring Food Security Using Household Expenditure Surveys*, 76.

³⁸ Fogel, *The Escape from Hunger and Premature Death, 1700-2100*, 8.

Brazil had lower income per capita during the 1930s than most African countries today.³⁹ Moreover, Brazil had lower agricultural productivity than most countries today, which resulted in higher food prices.

Table 3: Household expenditures for low skilled labor in 1937

	Food (%)	Housing (%)	Food Expenditures	Price of "Brazil" food basket	Share of BR food basket
Southeast					
Rio de Janeiro	59.60	14.18	1,242	1,474	0.84
Espírito Santo	63.51	11.21	1,366	1,451	0.94
São Paulo	60.05	18.27	1,700	1,690	1.01
Minas Gerais	58.12	13.40	935	1389	0.67
Average	59.37	15.50	1,406	1,554	0.90
South					
Rio Grande do Sul	68.86	14.91	1,598	1,489	1.07
Sta. Catarina	64.96	8.95	1,024	1,323	0.77
Paraná	61.24	10.30	1,461	1,347	1.08
Average	66.48	12.75	1,498	1,429	1.05
Northeast					
Bahia	73.38	11.62	995	1,489	0.67
Sergipe	74.37	7.04	985	1,435	0.69
Alagoas	85.74	7.10	1,132	1,740	0.65
Pernambuco	77.91	11.06	902	1,687	0.53
Paraíba	83.58	9.51	1006	1,738	0.58
Rio Grande do Norte	70.76	8.86	822	1,853	0.44
Ceará	67.85	9.25	693	1,754	0.40
Piauí	68.85	14.69	1053	1,731	0.61
Maranhão	76.70	8.02	845	1,524	0.55
Average	75.17	10.21	922	1,646	0.56
North					
Amazonas	75.95	8.43	1,190	1,527	0.78
Pará	73.12	7.65	909	1,509	0.60
Average	74.01	7.90	1,005	1,515	0.66
Center-West					
Mato Grosso	48.95	13.83	950	1,768	0.54
Goiás	55.52	10.14	1086	1,423	0.76

³⁹ Jutta Bolt et al., "Rebasing 'Maddison': New Income Comparisons and the Shape of Long-Run Economic Development," Maddison Project, 2018.

Average	53.65	11.19	1,014	1,606	0.63
Brazil	66.55	12.76	1,180	1,563	0.75

Source: Salário Mínimo (1940) p.125-248

Using food prices for state capitals, Table 3 also present the cost of the “Brazil” food basket from Table 1 in 1937. The difference between actual expenditures in food and the cost of a proper diet shows the different levels of malnutrition in Brazil. Most notable is that in the Northeast households spent only 56% of the ideal food basket – a very low daily food energy consumption per capita – which is consistent with dietary studies for the Northeast at the time.⁴⁰ This result also reinforces the fact that household surveys on food consumption for the city of São Paulo, such as those from Horace B. Davis and Samuel Lowrie, were far from representative for other regions of the country.⁴¹

Other sources confirm the Northeast’s dire malnutrition condition due to low wages. Information for sugar cane plants in Pernambuco during the late 1930s shows that rural workers had to work a minimum of 6 days a week to buy the following goods: black beans, flour, beef jerky, sugar, coffee, tobacco, brandy (*aguardente*), and soap.⁴² Workers spent 75% of their wages to buy beans, flour, beef jerky, and sugar for two adults and four children. The available daily caloric supply from this basket (5,354) was clearly insufficient to sustain a family of six, and poor workers would need other sources of calories, such as family owned crops. Low incomes also obliged as many family members as possible to be in the workforce, including children. During the late 1930s, surveys for the city of São Paulo showed that, on average, 42% of family members were in the workforce – therefore, the percentage was probably higher in the Northeast.⁴³

⁴⁰ Francisco de Assis Guedes de Vasconcelos, “Tendências Históricas Dos Estudos Dietéticos No Brasil,” *História, Ciências, Saúde-Manguinhos* 14, no. 1 (March 2007): 205, <https://doi.org/10.1590/S0104-59702007000100010>.

⁴¹ Wells, “Industrial Accumulation and Living Standards in the Long-run,” April 1, 1983, 316.

⁴² Gileno Dé Carli, *Aspectos Açucareiros de Pernambuco* (Rio de Janeiro: Instituto do Açúcar e do Alcool, 1940), 20.

⁴³ John Wells, “Industrial Accumulation and Living Standards in the Long-run: The São Paulo Industrial Working Class, 1930–75, Part I,” *The Journal of Development Studies* 19, no. 2 (January 1, 1983): 162, <https://doi.org/10.1080/00220388308421855>.

In Pernambuco, even the foreman, the highest paying worker at a sugar cane *Usina*, did not have a high amount of energy available from his diet. Foremen received wages 4.8 higher than field workers and spent around 55% of their wage in food. Despite consuming a more complex diet (with fresh meat, cod fish, and bread), which would supply 11,036 calories for two adults and six children, food expenditures were equivalent to less than 1,400 calories per capita. These results, unfortunately, are expected, since infant mortality in the Northeast during the 1940s was 45% higher than the Brazilian average and stunting still affected one fifth of children in the region during the 1990s.⁴⁴

Net nutrition i.e., the amount of nutrition available after allowing for nutrition lost to disease, was another important source of regional inequality.⁴⁵ During the early 20th century, parts of the Northeast had a high incidence of diseases and mortality was much higher than the Brazilian average.⁴⁶ The focus of government investments to improve sanitation in cities of the Southeast increased disparities in living standards between regions even more. Therefore, diseases and a poorer diet resulted in a lower amount of energy available, which affected worker productivity and their possibilities to gain better wages. Censors from the federal government collecting information about sugar cane production in Pernambuco during the late 1930s were staggered by the condition of field workers and questioned how it was possible for them to “work so much and eat so little.”⁴⁷

Regional wages in Brazil

Living conditions for non-industrial workers are essential to understand regional divergence in Brazil. Rural wages, however, were not necessarily equivalent to worker's income during the early 20th century since there were a number of employment contracts

⁴⁴ Carlos Augusto Monteiro, “The Decline in Child Malnutrition in Brazil,” *Cadernos de Saúde Pública* 25, no. 5 (May 2009): 950–950, <https://doi.org/10.1590/S0102-311X2009000500001>; Thomas W. Merrick, “Interregional Differences in Fertility in Brazil, 1950–1970,” *Demography* 11, no. 3 (August 1, 1974): 425, <https://doi.org/10.2307/2060436>.

⁴⁵ Deaton, *The Great Escape*, 94.

⁴⁶ Arthur Neiva and Belisario Penna, “Viajem Científica Pelo Norte Da Bahia, Sudoeste de Pernambuco, Sul Do Piauí E de Norte a Sul de Goiaz,” *Memórias Do Instituto Oswald Cruz*, 1916.

⁴⁷ Carli, *Aspectos Açucareiros de Pernambuco*, 20.

that included non-monetary provisions, such as *colonato*, *meação*, and *parceria*.⁴⁸ Even in states in the Southeast, like Minas Gerais, salaried labor in agricultural and pastoral production increased only during the 1930s.⁴⁹ Moreover, employment contracts that aimed at a specific task (*empreitada*) were also common, creating potential instability in worker's income. For example, wages of rural workers in some municipalities of Rio Grande do Norte increased five times in periods of harvests.⁵⁰ Nonetheless, both the questionnaires from 1912 and the 1920 census have data for wages with and without food provisions (*a seco*), which can reduce potential biases. The existence of wage data for more than 700 municipalities in 1912 and 1920 also increase confidence in regional comparisons, i.e. non-monetary provisions would not be systematically higher in regions with lower nominal wages, creating a bias in the wage gap between states.

Accounting for differences in food prices, Figure 2 shows how many food baskets unskilled rural workers could afford with their daily wages around 1912.⁵¹ When municipalities did not have price information for all foodstuffs (see Appendix), I use information from nearby regions using the closest distance between municipal headquarters to choose from multiple border areas. I also select regions that had their census taken at approximate dates so as not to create price distortions. The figure presents a clear north-south divide in Brazil, with the northern region of Minas Gerais, part of the Brazilian semiarid, having similar food consumption capacity as the Northeast. In addition, as argued before, it seems that even during the rubber boom wages were not particularly high: average wages in Pará were 45% higher than in the Northeast, but they were still below Brazil's average.⁵²

⁴⁸ Thomas H. Holloway, *Immigrants on the Land: Coffee and Society in São Paulo, 1886-1934* (Chapel Hill: The University Of North Carolina Press, 1980), 87.

⁴⁹ John D. Wirth, *Minas Gerais in the Brazilian Federation, 1889-1937* (Stanford: Stanford University Press, 1977), 37.

⁵⁰ Ministério da Agricultura Brasil Indústria e commercio, *Questionarios Sobre as Condições Da Agricultura Dos Municipios Do Estado Do Rio Grande Do Norte* (Rio de Janeiro: Typ. do Serviço de Estatística, 1913), 3.

⁵¹ The division between wages uses the Jenks natural breaks classification method, which minimizes each class' average deviation from the class mean and maximizes each class' deviation from the means of the other groups.

⁵² 87% of the surveys in Pará's municipalities were in 1910, i.e., still during the heyday of the rubber boom.

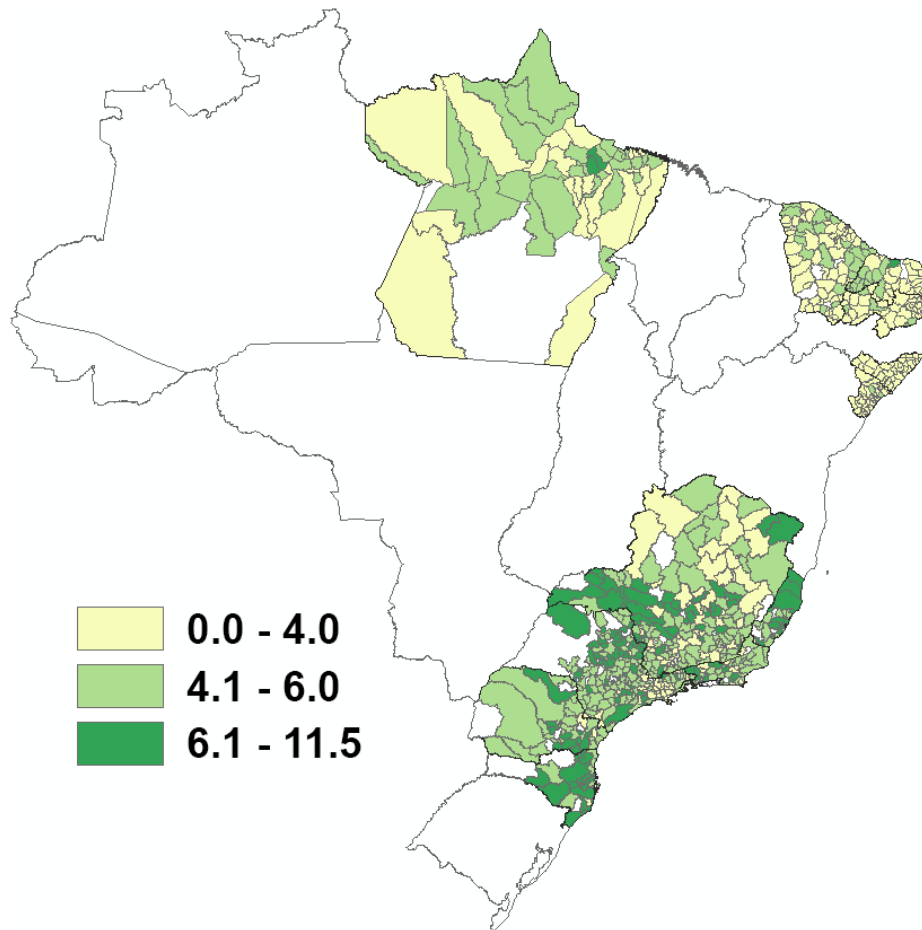


Figure 2: Nominal wages for rural workers divided by food costs of the “Brazil” basket, c.1912

Sources: see text

After the construction of welfare ratios for municipalities presented in Figure 2, Table 4 shows state averages weighted by population. As argued before, wages from 1937 are adjusted by retail prices from capitals and are not directly comparable with the data from 1920.⁵³ Nonetheless, labor categories are the same: skilled labor is the wage average for carpenters, blacksmiths, and masons. Unskilled labor is the lowest wage recorded for agricultural workers. It should be noted that industrial wages were not necessarily lower than for skilled labor because carpenters and blacksmiths did not have a steady source of income and could had fewer working days during the year.

⁵³ IBGE, *Anuário Estatístico Do Brasil*, 331.

Table 4: Wages relative to ideal food basket

	Rural	Rural	Carpenter	Carpenter	Skilled	Skilled	Indust.	Indust.
	1912	1920	1912	1920	1920	1937	1920	1937
Southeast								
RJ	5.2	6.3	14.4	12.8	13.1	9.2	9.2	5.8
ES	6.1	6.0	14.6	12.1	13.1	8.8	7.5	5.0
SP	5.7	6.0	14.0	11.9	11.8	7.8	9.0	6.1
MG	4.8	5.0	13.7	11.5	11.9	8.4	7.2	5.6
Average	5.2	5.5	13.9	11.8	12.1	8.3	8.1	5.8
South								
RS		7.3		12.0	14.2	9.5	10.7	6.9
SC	7.5	7.7	19.8	14.1	14.4	8.4	10.6	6.1
PR	6.4	7.5	12.7	11.5	11.8	10.5	8.9	6.4
Average	6.6	7.2	16.1	12.3	13.8	9.5	10.3	6.6
Northeast								
BA		3.7		8.9	9.4	6.4	5.9	3.5
SE	3.3	4.0	7.8	8.4	9.4	7.4	5.0	3.1
AL	2.5	3.3	8.5	8.8	9.5	4.4	5.5	2.6
PE		3.8		9.6	10.0	5.0	6.9	3.1
PB	2.8	3.7	9.2	8.2	9.9	5.7	6.3	2.6
RN	3.4	3.0	9.1	8.5	8.6	6.9	3.4	3.0
CE	3.6		9.5					
Average	3.1	3.6	9.0	8.9	9.6	5.9	6.0	3.1
North								
PA	4.5		12.6				4.6	3.9
Brazil	4.8	5.1	12.9	10.9	11.4	7.8	7.7	5.1

Sources: see text.

The evidence in Table 4 shows that the wage gap between the Northeast and the Southeast is much lower than the previous work from Williamson suggested. Moreover, low food prices in Minas Gerais also explain why previous research by Douglas Graham incorrectly estimated that the state had lower average incomes than Pernambuco in 1940.⁵⁴ As argued before, however, these estimations overstate the actual purchasing power of workers and the regional wage divergence because it only considers food expenditures and ignores other expenses such as housing and clothing.

⁵⁴ Graham, "Divergent and Convergent Regional Economic Growth and Internal Migration in Brazil," 372.

According to the minimum wage report used previously, rent in the Southeast was on average 2.9 times higher than in the Northeast and 1.2 times higher than in the South. Table 5 presents wages for skilled and industrial workers in 1937 adjusting for differences in food costs and rent. Accounting for these differences in living costs, wages, especially for industrial workers, are much more homogenous for states within the same region. However, the low relative expenditure of rents when compared to food expenses doesn't change significantly the ranking of states in terms of income. The most notable change is that, adjusting for costs of living, wages for skilled workers in Santa Catarina were higher than in Rio de Janeiro.

Table 5: Real wages for skilled and industrial workers in 1937

Southeast	Skilled	Industrial workers	Difference with rent
RJ	7.3	4.6	-0.21
ES	7.8	4.5	-0.11
SP	6.0	4.7	-0.24
MG	7.0	4.7	-0.17
Average	6.7	4.7	-0.20
South			
RS	7.5	5.5	-0.20
SC	7.5	5.5	-0.11
PR	9.1	5.6	-0.13
Average	7.9	5.5	-0.17
Northeast			
BA	5.8	3.2	-0.09
SE	7.0	2.9	-0.06
AL	4.2	2.5	-0.04
PE	4.7	2.9	-0.07
PB	5.4	2.5	-0.05
RN	6.5	2.8	-0.06
Average	5.4	2.9	-0.07
Brazil	6.5	4.3	-0.17

Sources: see text.

Another interesting result that appears with the above comparisons is the apparent decline in wages between 1920 and the late 1930s. However, since food prices between 1920 and 1937 are not directly comparable, other sources are necessary to analyze the

trend in real wages during those decades. Previous work from Robert Levine argues that real wages fell in Pernambuco during the late 1920s and 1930s, and Molly Ball's research shows that industrial wages in São Paulo were stagnant during the 1920s.⁵⁵ Moreover, according to government reports, real wages in Pernambuco's sugar plants were also declining during the 1930s. The reason given was that the government fixed prices in sugar cane plants in 1933 and did not adjust it for several years.⁵⁶ Meanwhile sugar prices (*tipo usina*) in Recife increased 19% between 1933 and 1938.⁵⁷

To understand the trend in wages before 1940, Figure 3 presents time series information for different jobs in São Paulo and Recife. Real wages are adjusted by the São Paulo food basket (from Table 1) and rental prices, except for unskilled labor in Pernambuco, which is adjusted only by the São Paulo food basket. Like previous studies, Figure 3 also shows that wages in São Paulo were stagnant after the mid-1920s, while in Pernambuco they did not grow during the 1930s. Using a similar source for Bahia, real wages for skilled workers reduced 24% and for unskilled workers 16% between 1934 and 1938.⁵⁸ It should be noted that previous research also show that instability of purchasing power for industrial wages persisted during the 1940s and 1950s.⁵⁹

⁵⁵ Robert M. Levine, *Pernambuco in the Brazilian Federation, 1889-1937* (Stanford University Press, 1978), 25; Molly Catherine Ball, "Inequality in São Paulo's Old Republic: A Wage Perspective, 1891-1930" (University of California, Los Angeles, 2013), 83; For Rio de Janeiro, see Eulália Maria Lahmeyer Lobo, *História do Rio de Janeiro*, vol. 2 (Rio de Janeiro: Instituto Brasileiro de Mercado de Capitais, 1978), 866.

⁵⁶ Carli, *Aspectos Açucareiros de Pernambuco*, 21.

⁵⁷ Departamento Estadual de Estatística Pernambuco, *Anuário Estatístico de Pernambuco 1937-1938* (Recife: Imprensa Oficial, 1940), 217.

⁵⁸ Departamento Estadual de Estatística Baía, *Sinopse Estatística do Estado da Baía 1936* (Salvador: Livraria e Papelaria Brasileira, 1936), 68; Departamento Estadual de Estatística Baía, *Sinopse Estatística do Estado da Baía 1939/1940* (Rio de Janeiro: Serviço Gráfico do I.B.G.E., 1942), 99.

⁵⁹ Wells, "Industrial Accumulation and Living Standards in the Long-run," April 1, 1983, 298; Renato Perim Colistete, "Salários, Produtividade E Lucros Na Indústria Brasileira, 1945-1978," *Brazilian Journal of Political Economy* 29, no. 4 (December 2009): 389, <https://doi.org/10.1590/S0101-31572009000400005>.

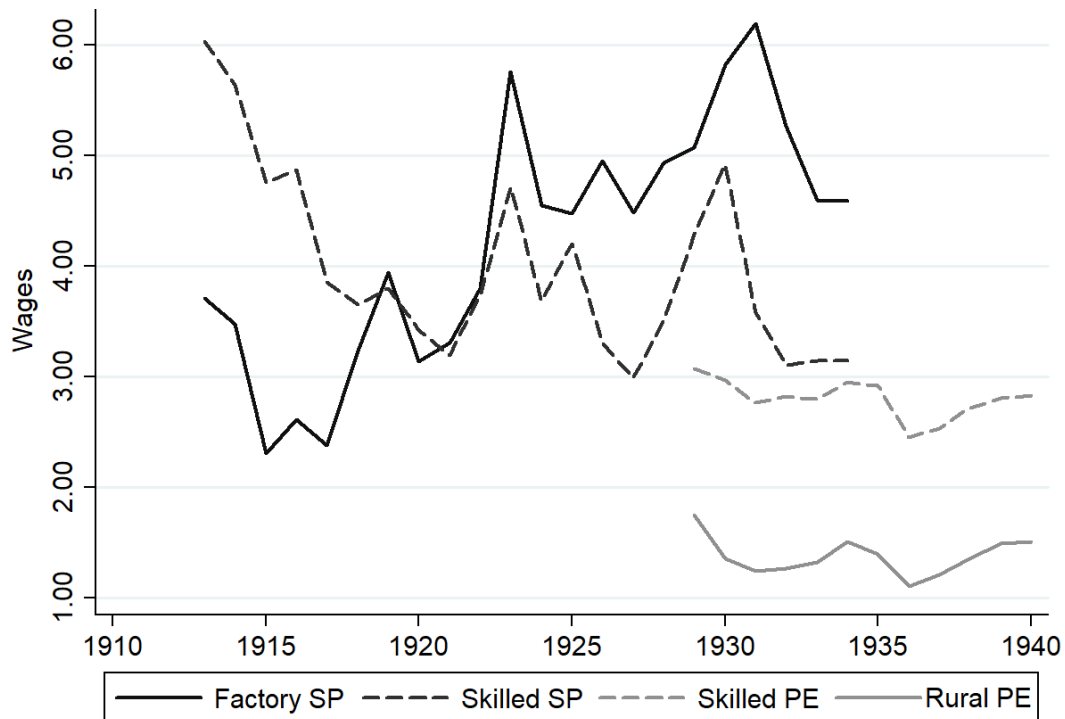


Figure 3: Wages for São Paulo and coastal cities of Pernambuco, 1912-1940
Sources: (Skilled = blacksmiths, carpenters, and masons)

The stagnation of wages after the 1920s is surprising given that income per capita increased in Brazil during the 1930s.⁶⁰ In São Paulo, statistics for aggregate industrial production (total value of production, number of factories, and number of workers) were already higher in 1934 than in 1928, one year before the international crisis. Nonetheless, wages in factories only increased in a continuous way after World War I. Michael Huberman argues that low wages during the war increased labor unrest, resulting in new labor laws that were beneficial to industrial workers.⁶¹

More wage data for specific sectors will be needed to better understand the conditions of workers during the 1930s. Nonetheless, to circumvent this limitation, Figure

⁶⁰ Cláudio R. Contador and Cláudio L. Haddad, “Produto Real, Moeda E Preços: A Experiência Brasileira No Período 1861-1970,” *Revista Brasileira de Estatística* 36, no. 146 (July 1975): 412; About the increase in inequality during this period, see Pedro H. G. F. Souza, “A Desigualdade Vista Do Topo: A Concentração de Renda Entre Os Ricos No Brasil, 1926-2013” (Universidade de Brasília, 2016), 216.

⁶¹ Michael Huberman, *Odd Couple: International Trade and Labor Standards in History* (New Haven: Yale University Press, 2012), fig. 5.4; For the debate about the effects of World War I on Brazilian industry, see Michel Deliberali Marson, “A Industrialização Brasileira Antes de 1930: Uma Contribuição Sobre a Evolução Da Indústria de Máquinas E Equipamentos No Estado de São Paulo, 1900-1920,” *Estudos Econômicos (São Paulo)* 45, no. 4 (December 2015): 771, <https://doi.org/10.1590/0101-416145453mdm>.

4 presents data on the number of employees in the state of São Paulo. It shows the average number of skilled laborers, from a sample of 1,591 observations, for carpentries that had up to 10 employees between 1929 and 1937.⁶² These smaller carpentries employed 53% (6,101 people) of workers in the sample.⁶³ The reason for not using the entire sample is that larger companies appear irregularly in the industrial censuses, which can create bias in the averages. The pattern for larger firms that hired carpenters, however, is similar, with 1932 as the most acute period of the crisis and the beginning of recovery in 1933-34. Moreover, it is possible to follow 23 carpentries that appear in all census years between 1929 and 1937 and the result is similar: those carpentries began to increase the numbers of employees in 1934, but only in 1936 did those numbers surpass the 1929 level. This result is consistent with stagnant wages in São Paulo until 1934 (see Figure 3).

⁶² Observations: 1929 (150), 1930 (161), 1931 (161), 1932 (212), 1933 (209), 1934 (186), 1935 (235), 1936 (136), 1937 (141).

⁶³ Secretaria da Agricultura São Paulo Industria e Comercio do Estado de São Paulo, *Estatística Industrial Do Estado de São Paulo*, 10 vols. (São Paulo: Typ. Oficial, 1928).

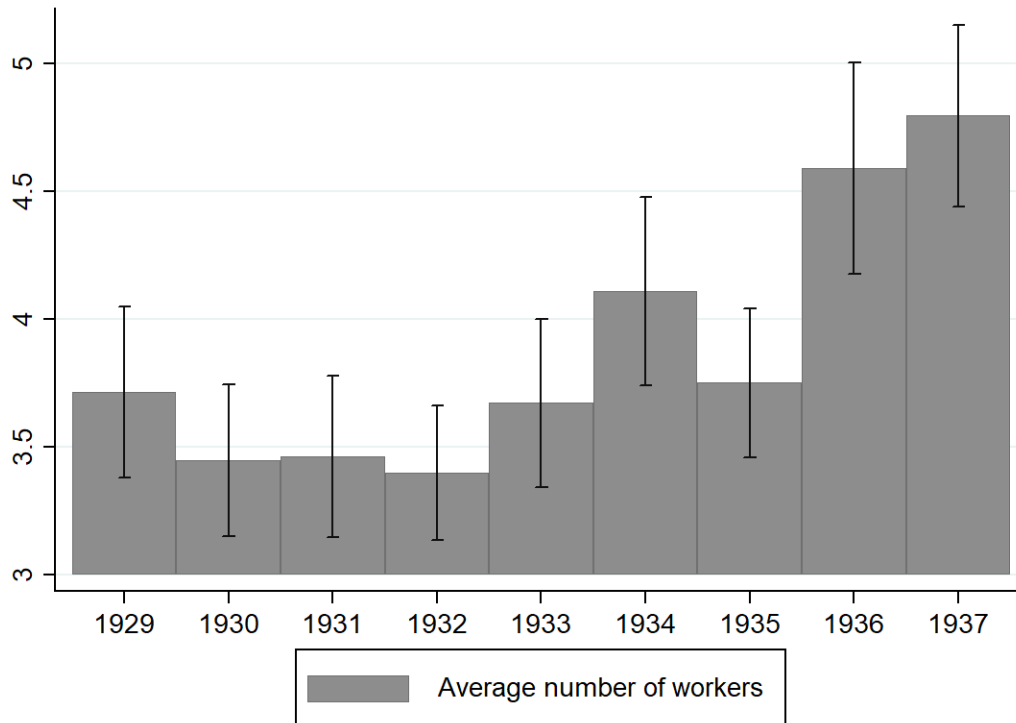


Figure 4: Average number of workers in small sized carpentries in São Paulo, 1929-1937
 Sources: Secretaria da Agricultura São Paulo Industria e Comercio do Estado de São Paulo, *Estatística Industrial Do Estado de São Paulo*. (São Paulo: Typ. Oficial, 1929-38).

Conclusions

This paper presents new evidence that real wages in the Southeast were approximately 61% higher than in the Northeast between 1912 and 1940. This is a much lower regional divergence than the one presented by Jeffrey Williamson, and the result holds for multiple categories of workers. However, the north-south divide in Brazil was still substantial, especially if one accounts for the higher wages in Rio Grande do Sul, Santa Catarina, and Paraná.

Even with higher wages in the southern regions, Brazil was still a poor country during the early 20th century, and only in some places workers could afford a proper diet. This paper showed that wages of unskilled men were not enough to support a family, which created incentives for other family members, especially children, to enter into the labor market.

An issue not addressed in this paper, but which is important to understand the regional divergence in Brazilian living standards is the actual availability of work in different states. The fact that many rural workers, especially in poorer regions, lacked steady incomes due to irregular work opportunities could potentially have increased divergence between regions due to differences in working days available. Moreover, since work was not a steady activity for the poorest population, other sources of income to complement wages were necessary.

Instability was a feature that marked the geographical division in economic opportunities in Brazil. The effects of climate, especially draughts in the semi-arid, had a clear regional impact in an economy with no technology to counteract these conditions. During periods of draughts the price of cereals (like corn) in the Northeast could increase several times, decreasing real wages by a significant amount.⁶⁴ The greater dependence of the northeast on agricultural activities exasperated this situation. In Pernambuco, while 21.4% of the total population worked in agriculture, only 3% worked in the industrial sector in 1920.⁶⁵ In other states in the Northeast, the share of the industrial sector was even lower.

Seeing the industrial sector as a modern sector in the early twentieth century makes more sense than this division nowadays because the productivity in agriculture and the service sector was very low. Industrial workers were the first to receive labor rights and were able to increase their income after World War I partly due to their increased political power. Despite this increase in wages, however, evidence presented in this paper confirms that real wages stagnated for several categories of workers between 1924 and 1940.

⁶⁴ Ministério da Agricultura Brasil Indústria e commercio, *Questionarios Sobre as Condições Da Agricultura Dos Municipios Do Estado Da Parahyba* (Rio de Janeiro: Typ. do Serviço de Estatística, 1913), 64.

⁶⁵ Directoria Geral de Estatística Pernambuco, *Anuario Estatístico de Pernambuco 1929* (Recife: Imprensa Oficial, 1930), 131.

APPENDIX

Table A1: Information from the questionnaires on the conditions of agriculture (1910-1913)

State	Number of municipalities	Prices missing
Alagoas	35	4.9%
Ceará	82	3.1%
Espirito Santo	27	6.3%
Minas Gerais	167	2.2%
Pará	53	25.0%
Paraíba	39	5.5%
Paraná	42	8.5%
Rio de Janeiro	46	6.5%
Rio Grande do Norte	34	15.9%
Santa Catarina	27	11.0%
São Paulo	167	2.5%
Sergipe	34	26.4%
Total / Average	753	7.0%

Sources: Ministério da Agricultura Brasil Indústria e commercio, *Questionarios Sobre as Condições Da Agricultura Dos Municipios De Diversos Estados* (Rio de Janeiro: Typ. do Serviço de Estatística, 1913).

Table A2: Sample for non-industrial wages in 1920

State	Number of municipalities	Municipal Sample Population	Total Population	Share
Amazonas	28	368,163	363,166	1
Santa Catarina	34	668,743	668,743	1
Sergipe	33	471,857	477,064	0.99
Espirito Santo	30	391,331	457,328	0.86
Paraná	41	564,157	685,711	0.82
Rio Grande do Sul	55	1,763,610	2,182,713	0.81
Rio Grande do Norte	31	425,793	537,135	0.79
São Paulo	151	3,581,129	4,592,188	0.78
Alagoas	27	753,618	978,748	0.77
Piauí	31	444,590	609,003	0.73
Paraíba	24	681,927	961,106	0.71
Pernambuco	38	1,271,961	2,154,835	0.59
Goiás	27	285,974	511,919	0.56
Bahia	77	1,859,968	3,334,465	0.56
Minas Gerais	77	2,892,167	5,888,174	0.49
Rio de Janeiro	11	540,839	1,159,371	0.47
Maranhão	15	244,175	874,337	0.28
Pará	13	103,182	983,507	0.10
Mato Grosso	2	12,267	246,612	0.05
Ceará	3	34,460	1,319,228	0.03
Total	748	17,359,911	28,985,353	0.60

Source: Brazil 1920 Census

Table A3: Non-industrial daily wages in 1920 and 1937 (réis)

Region	Skilled labor		Unskilled labor (1920)		
	1920	1937	Men	Women	Gender ratio
Southeast					
Rio de Janeiro	7198	11433	3454	2578	1.34
Esp. Santo	7268	9900	3345	2527	1.32
São Paulo	7812	11433	3944	2650	1.49
Minas Gerais	6445	9167	2698	1710	1.58
Average	7237		3394	2270	1.50
South					
R. G. do Sul	8058	12033	4127	3156	1.61
Sta. Catarina	6539	10133	3507	2633	1.33
Paraná	8051	13433	4607	3280	1.40
Average	7689		4071	3038	1.34
Northeast					
Bahia	5208	7800	2031	1309	1.55
Sergipe	5133	7933	2175	1260	1.73
Alagoas	5325	7400	1847	1178	1.57
Pernambuco	5648	7700	2014	1315	1.53
Paraíba	5455	9167	2025	1221	1.66
R.G. do Norte	5549	11033	1914	1190	1.61
Piauí	4603	7200	1806	1226	1.47
Average	5325		1989	1264	1.57
Other					
Amazonas	7413	10567	3342	2550	1.31
Goiás	8627	10167	3377	1609	2.10
Average	8127		3356	2233	1.50
Brazil	7382		3367	1886	1.80

Sources: 1920 Census, 1938 Brazilian Statistical Yearbook.

Table A4: Industrial daily wages in 1920 and 1937 (réis)

Location	Average 1920	Men 1920	Women 1920	Gender Wage ratio	Average 1937
Southeast					
Distrito Federal	6221	6893	4532	1.5	10827
Rio de Janeiro	4643	5223	3700	1.4	7167
Espírito Santo	3936	4477	2506	1.8	5628
São Paulo	5352	5944	4254	1.4	8922
Minas Gerais	3519	3875	2503	1.5	6110
South					
Rio Grande do Sul	5462	6044	3557	1.7	8793
Santa Catarina	4352	4784	3098	1.5	7403
Paraná	5475	5814	2969	2.0	8205
Northeast					
Bahia	2986	3728	2559	1.5	4218
Sergipe	2539	3078	2154	1.4	3318
Alagoas	2905	3142	2630	1.2	4329
Pernambuco	3674	4298	2544	1.7	4715
Paraíba	3273	3691	2267	1.6	
Rio G. do Norte	2046	2183			4764
Piauí	2411	2388			4707
Ceará	2138	2722	1215		4688
Maranhão	2801	3656	2165		4757
North and Center					
Amazonas	6471	6471	6539	1.0	6889
Pará	4967	5566	3084	1.8	4914
Goiás	5912	5572	3500	1.6	

Sources: 1920 Census, 1938 Brazilian Statistical Yearbook.