Population aging in Brazil from a municipal demographic perspective

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Abstract

Objective: To understand population aging in Brazil from a municipal demographic perspective, highlighting regional inequalities and differences across population-size strata. *Method:* An aggregate, observational, cross-sectional study was conducted using data from the 2022 Census. The study setting comprised all 5,570 municipalities across the five regions of Brazil. Data were collected on the percentage of older adults, aging index (AI), longevity index (LI), old-age dependency ratio (OADR), labor force replacement index (LFRI), median age, and aging predictability index (API). The composite indicator was constructed using principal component analysis (PCA). *Results:* In the PCA, Bartlett's test was significant ($p < 0.001$), the KMO value was 0.70, and the determinant was 0.02. Communalities ranged from 0.935 to 0.995, and the first and second extracted factors explained 70.04% and 25.56% of the variance, respectively. The first factor showed positive loadings for median age (0.977), LFRI (0.962), and OADR (0.944). In the second factor, only LI showed a positive loading (0.996). *Conclusion:* Municipalities in the state of Rio Grande do Sul and in the South Region, as well as small municipalities, showed the greatest degree of population aging. However, with regard to population longevity, municipalities in the states of Paraíba, Rio Grande do Norte, and Ceará, those in the Northeast Region of Brazil, and those with 10,001–20,000 inhabitants stood out. These findings highlight the contribution of this study by indicating that public policies addressing the care needs of populations with greater longevity should prioritize these municipalities.

Keywords: Demography. Aging. Brazil.

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INTRODUCTION

Population aging has become one of the major social transformations of the 21st century[1]. Characterized by the inversion of the age pyramid and increased longevity, the number and proportion of older adults worldwide have increased substantially, requiring new socioeconomic arrangements at the global level[2–5].

It is estimated that by 2030, older adults will account for 12% of the population, representing approximately 1.4 billion people aged 60 years or older worldwide[3]. This context underscores the importance of developing effective public policies that extend beyond the formal recognition of fundamental rights in legislation and translate into practical measures that support the inclusion, protection, and full citizenship of older adults. In other words, this entails creating and maintaining spaces that encourage their social participation, promote autonomy and independence, and provide opportunities to improve their quality of life and ability to perform daily activities.

Brazil currently has an estimated 32.9 million older adults, representing 15.8% of the country's total population[4]. Data indicate a higher concentration of older adults in the South and Southeast Regions than in the North and Northeast Regions, with an annual growth rate of 3%, exceeding that observed in developed countries[5–9]. This scenario is influenced by multiple factors, such as declining fertility rates and increasing life expectancy, which together have been irreversibly changing the age structure of both Brazil and the world[10,11].

From a demographic perspective, understanding this phenomenon in society is essential, since it is intrinsically linked to structural challenges that shape the country's social and economic dynamics. It should be emphasized that population aging in Brazil is marked by profound socio-spatial and historical inequalities[8,12–15]. Therefore, a deeper reflection on the role of older adults in society is necessary to foster an environment conducive to their inclusion and autonomy[16,17].

Although Brazil has made progress in implementing measures to mitigate the challenges and explore the opportunities associated with population aging, regional inequalities persist[2,7]. Thus, the aging process is not uniform, since states and municipalities with better socioeconomic indicators tend to experience aging under conditions associated with better quality of life and may achieve greater longevity[2,5–7]. In this regard, analysis at the municipal level is essential because Brazil's different regions and population-size strata have distinct characteristics that directly affect sociodemographic dynamics and the well-being of the populations living in these territories[18,19].

An analysis of population aging, however, is not limited to identifying problems; it also provides an opportunity to rethink models of coexistence, solidarity, and care. This perspective can guide public policies that value and integrate older adults, promoting a future in which people of all ages coexist harmoniously and productively[20]. The recognition and integration of older adults into society, while respecting their contributions and ensuring their well-being, should be at the core of public policies[21,22].

In this context, assessing population aging in specific territories requires considering indicators that provide a broader perspective on the demographic transition. Information on population aging is generally based solely on median age, the percentage of older adults, and the aging index, which are typically analyzed in isolation[4,11,13,19,23]. Other aspects, such as population longevity, old-age dependency, labor force replacement, and the predictability of population aging, are often overlooked.

Therefore, the present study aimed to investigate population aging in Brazil from a municipal demographic perspective. To this end, demographic indicators related to aging were used, making it possible to examine regional inequalities and differences according to the population size of these municipalities.

METHODS

An aggregate, observational, cross-sectional study was conducted using secondary data from the 2022 Census on the older population, defined as individuals aged 60 years or older. The study setting comprised all 5,570 Brazilian municipalities across the country's five regions.

Seven measures related to population aging were considered as study variables and are defined in Chart 1.

Chart 1. Description of the measures related to population aging analyzed in the study. Brazil, 2026.

Measures related to population aging	Description	Calculation formula
Percentage of older adults*	Percentage of individuals aged 60 years or older in the total population residing in a given geographic area in the year considered.	(Number of individuals aged 60 years or older / total population) × 100
Aging index (AI)*	Number of individuals aged 60 years or older per 100 individuals younger than 15 years in the population residing in a given geographic area in the year considered.	(Number of individuals aged 60 years or older / number of individuals aged 0–14 years) × 100
Longevity index (LI)*	Number of individuals aged 80 years or older relative to the population aged 60 years or older residing in a given geographic area in the year considered.	(Number of individuals aged 80 years or older / number of individuals aged 60 years or older) × 100
Old-age dependency ratio (OADR)*	Number of individuals aged 60 years or older relative to the population aged 15–59 years residing in a given geographic area in the year considered.	(Number of individuals aged 60 years or older / number of individuals aged 15–59 years) × 100
Labor force replacement index (LFRI)*	Number of individuals aged 55–59 years relative to the population aged 15–19 years (young people who will enter the labor market) in a given geographic area in the year considered.	(Number of individuals aged 55–59 years / number of individuals aged 15–19 years) × 100
Median age of the population	Age that divides the population into two equal halves and represents the central value of the age distribution in a given geographic area in the year considered.	The ages of all residents are ordered, and the median corresponds to the central value of the distribution.
Aging predictability index (API)	Number of individuals aged 50–59 years relative to the population younger than 50 years in a given geographic area in the year considered.	(Number of individuals aged 50–59 years / number of individuals younger than 50 years) × 100

Source: Prepared by the authors based on IBGE (Brazilian Institute of Geography and Statistics) demographic indicators.

In addition to the aforementioned measures, the following variables were also analyzed to characterize population aging: federative units (the 26 states and the Federal District), regions of the country (North, Northeast, Southeast, Central-West, and South), and municipal population size (up to 5,000; 5,001–10,000; 10,001–20,000; 20,001–50,000; 50,001–100,000; 100,001–500,000; and more than 500,000 inhabitants). Because the Federal District comprises only one municipality, it was excluded from the analysis used to calculate aggregate measures by federative unit.

All demographic measures were assessed for statistical correlations in order to identify strong correlations among them (multicollinearity). Variables with Pearson's correlation coefficients (r) above 0.90 were evaluated according to their theoretical relevance to population aging, and only one was retained for analysis. Accordingly, AI, percentage of

older adults, and API were excluded from the analysis because they showed correlation coefficients above 0.95 with the other variables and were therefore considered to measure the same construct related to population aging as the variables retained for analysis, which were better distributed across the 5,570 municipalities. Statistical analysis of the retained variables was performed using principal component analysis (PCA), an interdependence technique that identifies dimensions or components based on correlations among variables. Thus, four variables were retained (median age, OADR, LI, and LFRI) and subjected to PCA, a technique used to synthesize these correlated demographic measures and identify latent dimensions of population aging at the municipal level.

For the PCA, the assumptions regarding the suitability of the correlation matrix for application of the technique were assessed, and all criteria for meeting these assumptions were satisfied. These included measures of overall sampling adequacy, namely Bartlett's test of sphericity, the Kaiser–Meyer–Olkin (KMO) measure, and the determinant, as well as individual assessment of the anti-image matrix to determine the adequacy of each variable separately. Once the applicability of the technique had been confirmed, PCA was performed, with variables presenting communalities of 0.50 or higher considered acceptable. The number of extracted factors or components was determined according to the Kaiser criterion, which indicates the amount of total variance explained by each factor. Varimax rotation was used to facilitate factor interpretation.

USE OF ARTIFICIAL INTELLIGENCE

Scientific and bibliographic support tools were used during manuscript preparation exclusively for literature searching, organization, and systematization, as well as for reviewing reference formatting. NotebookLM, the web-based version available at notebooklm.google.com and provided by Google, was used to organize and manage bibliographic references; stage of use: reference organization and formatting. SciSpace, the web-based version available at scispace.com and provided by SciSpace, was used to search, screen, and verify scientific articles, as well as to support bibliographic verification; stage of use: literature review and reference checking. Consensus, the web-based version available at consensus.app and provided by Consensus, was used to search for scientific articles and identify evidence relevant to the topic; stage of use: literature review supporting the Discussion. Zotero, available as web-based and desktop versions at zotero.org and provided by the Corporation for Digital Scholarship, was also used to store, organize, manage, and verify bibliographic references; stage of use: reference organization and formatting. The authors assume full responsibility for the content, interpretation of the findings, selection of references, and final version of the manuscript.

DATA AVAILABILITY

The complete dataset supporting the results of this study is publicly available from IBGE[4] and can be accessed at https://censo2022.ibge.gov.br.

RESULTS

The demographic characteristics related to population aging in the Brazilian states, based on aggregate data from their respective municipalities, are presented in Table 1. Because the Federal District comprises only one municipality, it is not included in the Table.

Regarding the demographic variables presented in Table 1, the state of Rio Grande do Sul stands out, as its municipalities have the highest levels of population aging in the country. According to the coefficient of variation, the aging index showed the greatest variability across municipalities in Rio Grande do Sul, with a coefficient of variation of approximately 33%. With regard to longevity in Brazilian municipalities, three states in the Northeast Region stand out: Paraíba, Rio Grande do Norte, and Ceará, which have the highest percentages of individuals aged 80 years or older relative to the total older population.

Regarding regions and municipal population sizes, the demographic variables are presented in Table 2.

Table 1. Mean and standard deviation of demographic variables across municipalities, by Brazilian state. Brazil, 2026.

States	% of older adults (Mean ± standard deviation)	Median age (Mean ± standard deviation)	AI* (Mean ± standard deviation)	LI** (Mean ± standard deviation)	OADR*** (Mean ± standard deviation)	LFRI**** (Mean ± standard deviation)	API***** (Mean ± standard deviation)
Acre	8.82 ± 2.40	25.14 ± 3.87	31.10 ± 11.76	13.50 ± 2.54	14.34 ± 3.56	36.41 ± 13.68	9.67 ± 2.81
Alagoas	13.23 ± 1.71	30.69 ± 1.82	55.68 ± 10.44	14.07 ± 2.08	21.12 ± 2.96	56.49 ± 7.78	13.77 ± 1.40
Amapá	8.01 ± 1.00	24.38 ±1.75	24.38 ±1.75	11.40 ± 1.96	13.16 ± 1.69	36.40 ± 5.63	9.60 ± 1.14
Amazonas	8.10 ± 1.65	23.58 ± 2.65	26.18 ± 7.81	13.51 ± 2.63	13.48 ± 2.57	31.93 ± 9.27	8.63 ± 1.96
Bahia	16.50 ± 2.81	34.48 ± 2.45	81.72 ± 20.88	17.22 ± 2.37	26.36 ± 5.03	70.19 ± 12.34	16.01 ± 2.18
Ceará	15.83 ± 2.70	33.32 ± 2.23	76.35 ±18.37	18.01 ± 1.80	25.23 ± 4.87	71.72 ± 11.92	15.43 ± 2.14
Espírito Santo	17.82 ± 2.66	36.59 ± 2.23	94.66 ± 21.98	14.75 ± 1.85	28.41 ± 4.77	93.08 ± 16.23	18.48 ± 2.48
Goiás	17.59 ± 4.25	37.13 ± 3.87	95.62 ± 33.41	13.21 ± 1.94	28.07 ± 7.66	98.18 ± 29.02	20.05 ± 4.74
Maranhão	12.49 ± 2.05	29.02 ± 2.60	49.88 ±11.89	15.65 ± 1.77	20.18 ± 3.46	46.39 ± 9.52	11.85 ± 1.82
Mato Grosso	13.37 ± 4.15	32.91 ± 3.84	60.31 ± 25.27	11.80 ± 2.70	21.30 ± 7.35	76.32 ± 22.43	15.92 ± 3.92
Mato Grosso do Sul	14.66 ± 3.04	33.18 ± 3.38	66.32 ± 19.99	13.50 ± 2.05	23.54 ± 5.29	78.75 ± 19.06	16.28 ± 3.15
Minas Gerais	19.54 ± 3.41	37.52 ± 3.15	110.76 ± 30.85	15.46 ± 2.52	31.57 ± 6.39	97.04 ± 22.68	19.76 ± 3.45
Pará	10.41 ± 2.43	28.13 ± 3.03	41.13 ±13.65	12.89 ± 2.12	16.48 ± 3.90	44.10 ± 11.37	11.19 ± 2.20
Paraíba	16.73 ± 2.46	34.27 ± 2.30	81.06 ± 18.80	18.36 ± 2.29	26.98 ± 4.40	72.54 ± 12.48	16.07 ± 1.98
Paraná	18.57 ± 3.08	36.81 ± 2.73	97.43 ± 23.80	13.55 ± 2.08	30.12 ± 5.77	102.20 ± 19.91	20.32 ± 3.10
Pernambuco	14.65 ± 2.14	32.50 ± 2.16	67.25 ± 14.07	16.00 ± 2.40	23.23 ± 3.75	64.71 ± 12.91	14.64 ± 1.86
Piauí	16.47 ± 2.63	34.15 ± 2.83	80.28 ± 20.60	16.43 ± 1.91	26.44 ± 4.66	69.32 ± 14.61	15.88 ± 2.67
Rio de Janeiro	18.94 ± 2.67	37.47 ± 2.01	104.26 ± 22.16	13.57 ± 1.85	30.36 ± 4.96	101.30 ± 14.51	19.76 ± 2.00
Rio Grande do Norte	16.08 ± 2.67	34.32 ± 2.43	82.28 ± 21.71	18.02 ± 2.23	25.26 ± 4.58	75.72 ± 16.26	16.52 ± 2.56
Rio Grande do Sul	23.75 ± 4.58	40.86 ± 3.89	148.92 ± 48.76	14.23 ± 2.24	40.28 ± 9.76	131.43 ± 31.90	23.76 ± 4.52
Rondônia	14.23 ± 2.63	33.96 ± 2.71	66.99 ± 17.51	11.95 ± 1.67	22.29 ± 4.47	78.36 ± 15.14	16.96 ± 2.70
Roraima	8.28 ± 2.02	23.40 ± 4.22	25.82 ± 9.28	10.96 ± 2.44	14.29 ± 2.96	38.19 ± 10.88	9.39 ± 2.29
Santa Catarina	18.44 ± 3.69	36.76 ± 2.96	100.15 ± 27.78	12.57 ± 1.88	29.69 ± 7.09	107.76 ± 23.03	19.95 ± 3.49
São Paulo	19.00 ± 3.70	37.45 ± 2.85	107.91 ± 31.30	13.92 ± 2.06	30.50 ± 7.23	100.42 ± 20.10	19.32 ± 3.15
Sergipe	13.61 ± 2.02	32.15 ± 2.11	62.10 ± 14.34	15.30 ± 1.89	21.30 ± 3.31	64.15 ± 9.80	15.01 ± 1.67
Tocantins	14.91 ± 2.49	32.65 ± 3.17	64.49 ± 15.42	14.69 ± 2.11	24.34 ± 4.45	65.57 ± 15.64	15.30 ± 2.83

*Aging index; **Longevity index; ***Old-age dependency ratio; ****Labor force replacement index; and *****Aging predictability index. **Source:** Prepared by the authors.

Table 2. Mean and standard deviation of the demographic variables analyzed across municipalities in the different regions and according to population size. Brazil, 2026.

Demographic variables	% of older adults (Mean ± standard deviation)	Median age (Mean ± standard deviation)	AI* (Mean ± standard deviation)	LI** (Mean ± standard deviation)	OADR*** (Mean ± standard deviation)	LFRI**** (Mean ± standard deviation)	API***** (Mean ± standard deviation)
Regions of Brazil							
North	11.69 ± 3.59	29.13 ± 4.79	47.74 ± 20.97	13.31 ± 2.42	18.87 ± 5.86	52.17 ± 20.19	12.59 ± 3.78
Northeast	15.44 ± 2.89	33.10 ± 3.01	73.32 ± 21.43	16.84 ± 2.44	24.65 ± 4.98	66.57 ± 15.17	15.18 ± 2.55
Southeast	19.22 ± 3.48	37.45 ± 2.95	108.55 ± 30.44	14.73 ± 2.41	30.94 ± 6.64	98.40 ± 21.14	19.53 ± 3.25
South	20.70 ± 4.69	38.49 ± 3.87	119.61 ± 44.61	13.60 ± 2.20	34.26 ± 9.46	115.80 ± 29.47	21.67 ± 4.23
Central-West	15.81 ± 4.46	35.19 ± 4.29	79.97 ± 33.49	12.84 ± 2.31	25.25 ± 7.82	88.25 ± 27.64	18.16 ± 4.70
Population-size categories							
Up to 5,000 inhabitants	20.67 ± 4.72	38.44 ± 4.31	118.27 ± 46.36	15.10 ± 2.78	34.35 ± 9.23	107.40 ± 35.16	21.24 ± 4.90
5,001–10,000 inhabitants	18.06 ± 4.07	35.89 ± 4.01	95.90 ± 34.73	15.16 ± 2.81	29.28 ± 7.33	89.05 ± 27.92	18.43 ± 4.05
10,001–20,000 inhabitants	16.53 ± 3.94	34.22 ± 4.20	83.56 ± 31.24	15.31 ± 2.87	26.58 ± 6.78	78.92 ± 25.66	16.72 ± 3.80
20,001–50,000 inhabitants	15.39 ± 3.77	33.49 ± 4.11	76.50 ± 29.07	14.68 ± 2.65	24.41 ± 6.25	75.58 ± 24.80	15.90 ± 3.63
50,001–100,000 inhabitants	14.86 ± 3.66	33.58 ± 3.74	74.97 ± 27.20	13.99 ± 2.29	23.24 ± 6.07	77.00 ± 23.13	15.70 ± 3.33
100,001–500,000 inhabitants	14.72 ± 3.65	34.24 ± 3.19	76.90 ± 27.36	12.85 ± 2.11	22.68 ± 6.09	81.48 ± 21.03	16.09 ± 2.94
More than 500,000 inhabitants	15.90 ± 2.65	35.46 ± 1.89	88.49 ± 22.19	13.59 ± 1.67	24.26 ± 4.47	89.55 ± 14.20	17.12 ± 1.79

*Aging index; **Longevity index; ***Old-age dependency ratio; ****Labor force replacement index; and *****Aging predictability index. **Source:** Prepared by the authors.

Regarding the demographic variables presented in Table 2, the South Region of Brazil stands out, as its municipalities have the highest levels of population aging in the country. According to the coefficient of variation, the aging index was the measure that showed the greatest variability among municipalities in the South Region, with a coefficient of variation of approximately 37%. With regard to longevity in Brazilian municipalities, those in the Northeast Region stand out, with an average of nearly 17 individuals aged 80 years or older per 100 older adults in municipalities in this region.

Regarding the population-size categories of Brazilian municipalities, those with up to 5,000 inhabitants showed the highest levels of population aging. However, with respect to longevity, municipalities with populations between 10,001 and 20,000 inhabitants had the highest proportion of individuals aged 80 years or older. For nearly all measures analyzed, values decreased as municipal population size increased. These values increased again in the larger population-size categories, particularly among municipalities with more than 500,000 inhabitants, although they did not exceed the values observed for municipalities with smaller populations.

The high correlations among the demographic measures for the 5,570 Brazilian municipalities supported the application of principal component analysis. Bartlett's test of sphericity was significant ($p < 0.001$), the KMO measure was 0.70, and the determinant was 0.02. The first and second extracted factors explained 70.04% and 25.56% of the variance, respectively, for a cumulative explained variance of 95.60%. The first factor showed positive loadings for median age (0.977), the labor force replacement index (0.962), and the old-age dependency ratio (0.944). In the second factor, only the longevity index showed a positive loading (0.996). Based on the meaning of these variables in the demographic interpretation of population aging and on the factor loadings of the retained variables, the first factor was designated "aging and dependency," whereas the second factor was designated "longevity."

The distribution of factor scores for the first factor by state, region, and population-size category is shown in Figure 1 (a, b, and c), whereas the distribution for the second factor is shown in Figure 2 (a and b).

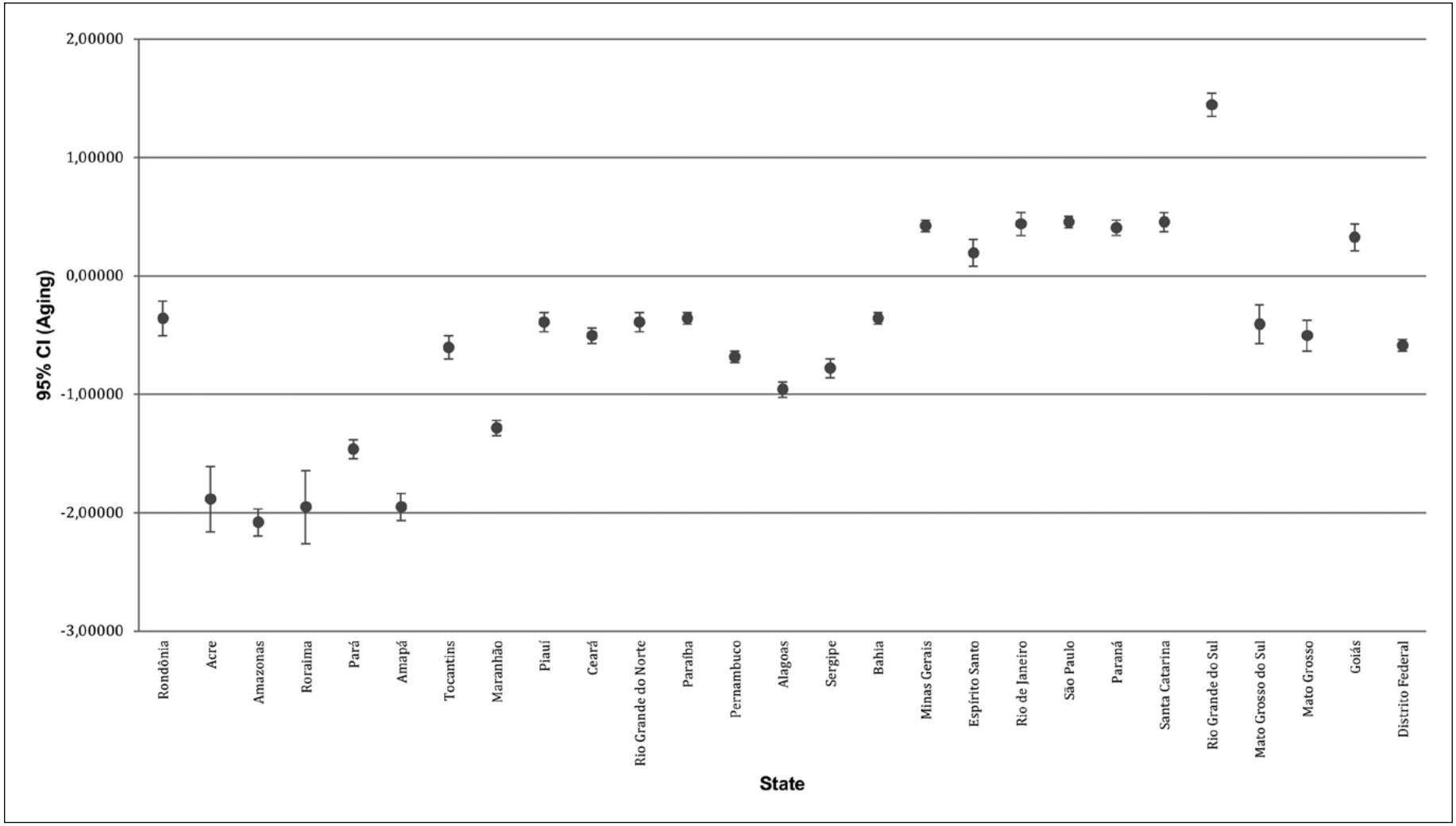


Figure 1(a). Sociodemographic characteristics of first-factor scores by state. Brazil, 2026. **Source:** Prepared by the authors.

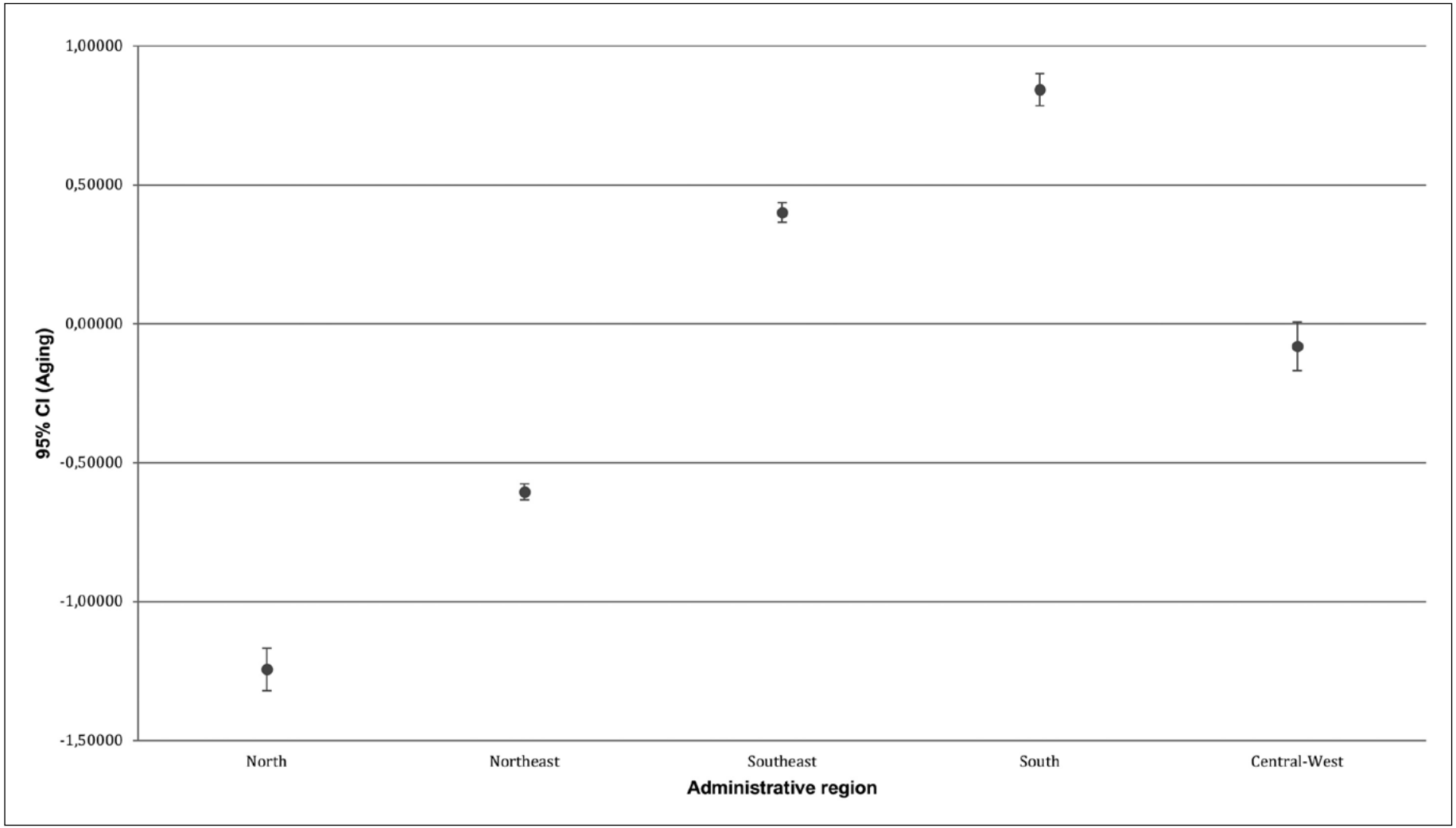


Figure 1(b). Sociodemographic characteristics of first-factor scores by region. Brazil, 2026. **Source:** Prepared by the authors.

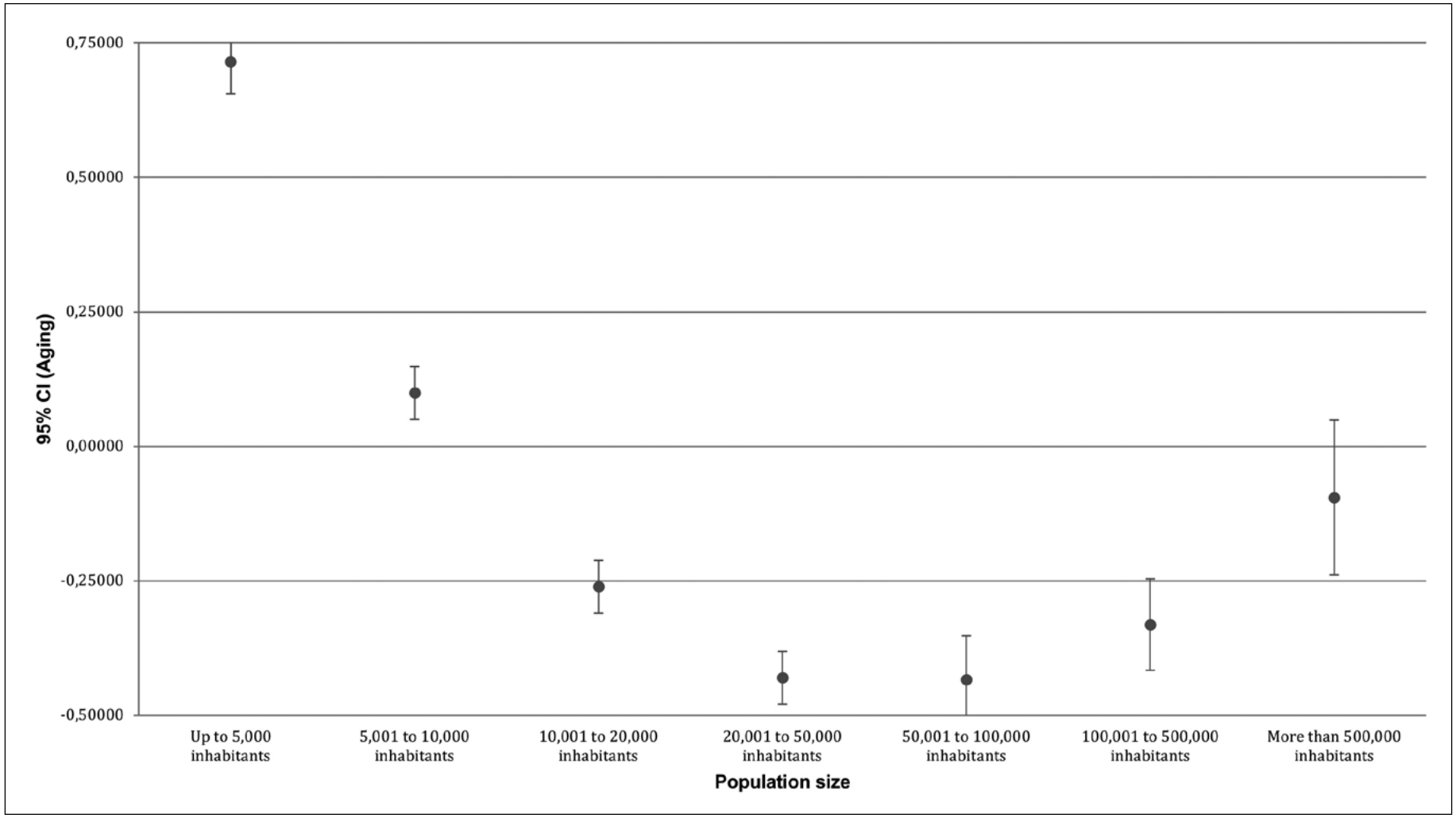


Figure 1(c). Sociodemographic characteristics of first-factor scores by population-size category. Brazil, 2026. **Source:** Prepared by the authors.

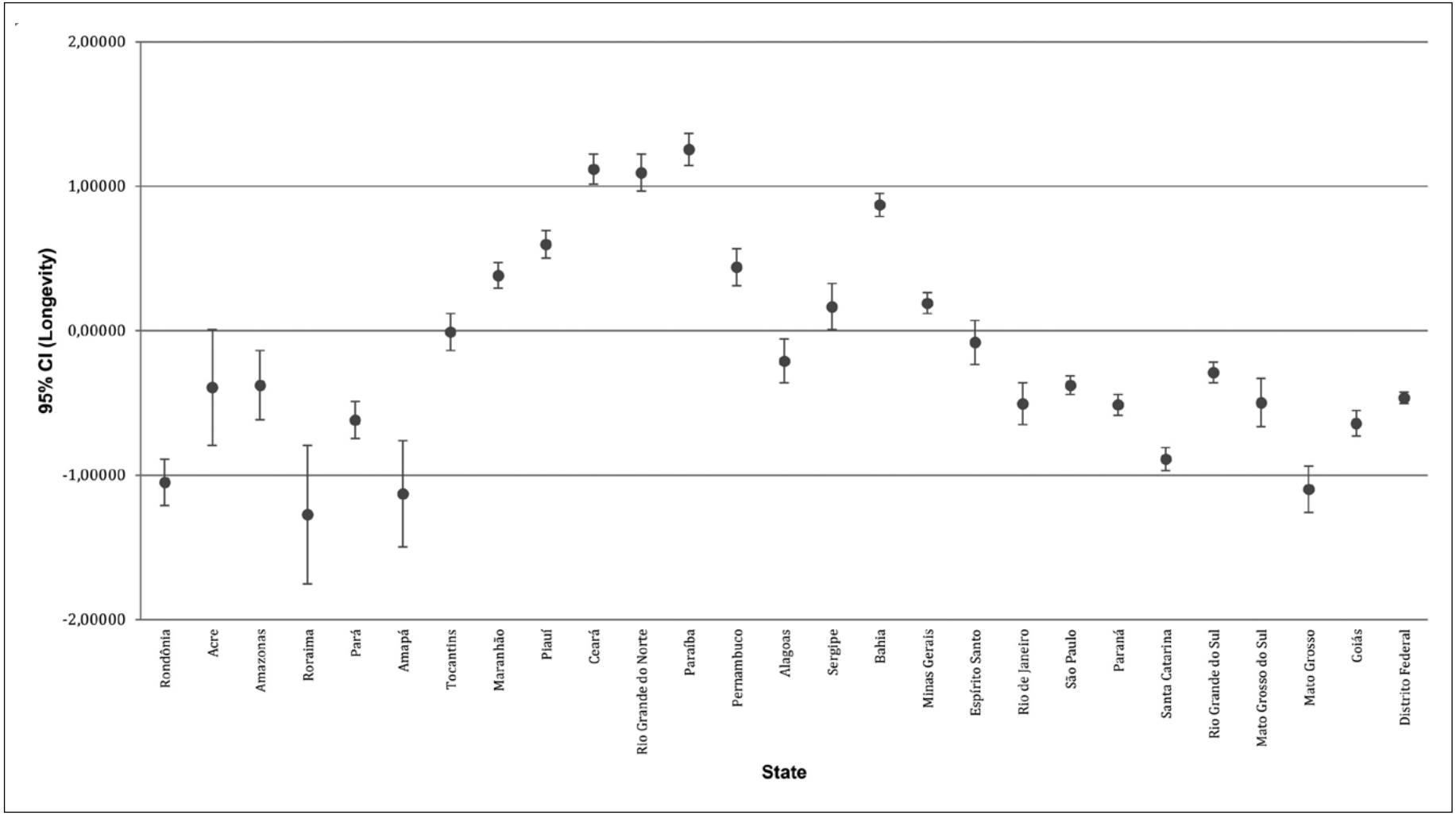


Figure 2(a). Sociodemographic characteristics of second-factor scores by state. Brazil, 2026. **Source:** Prepared by the authors.

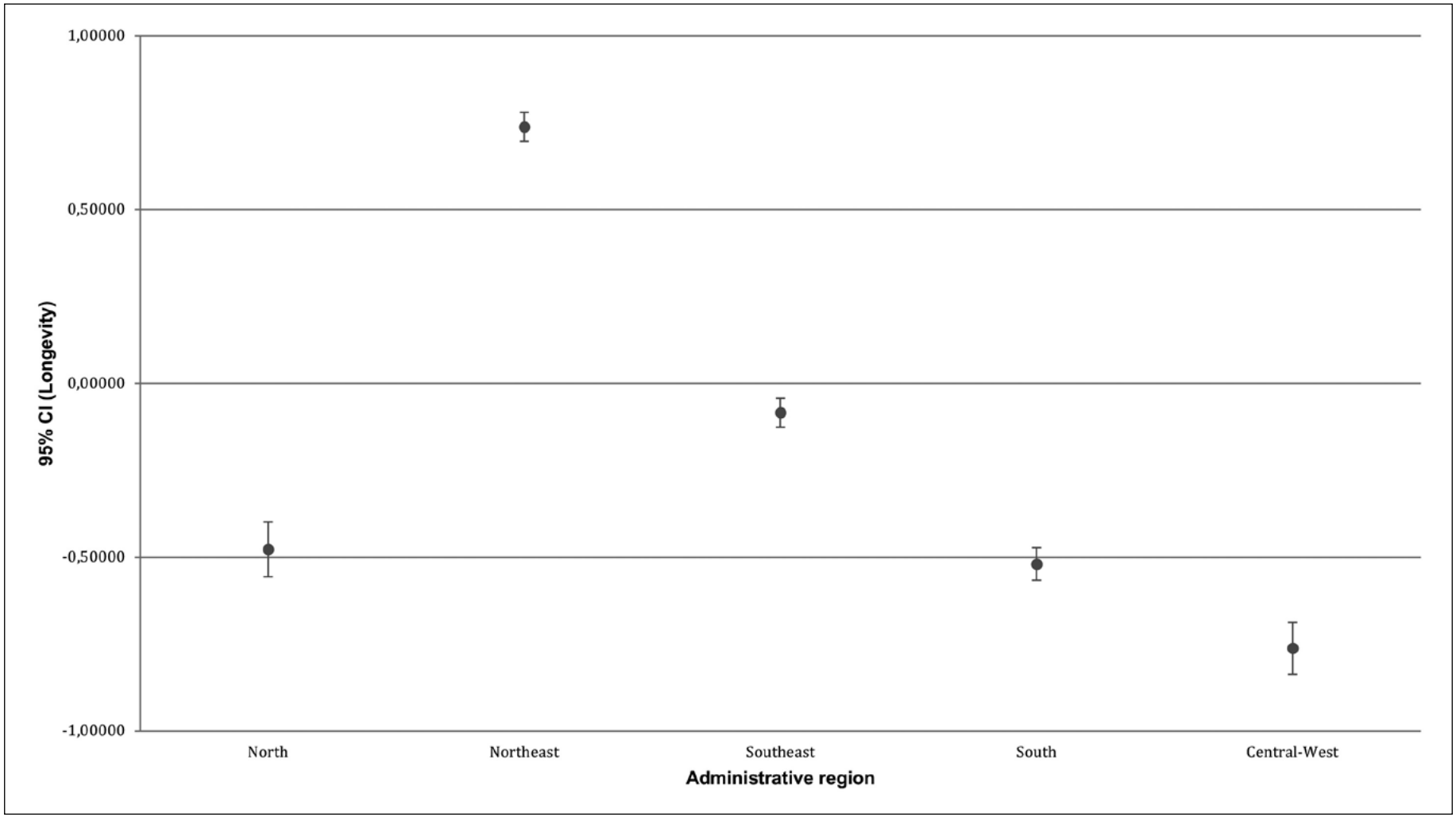


Figure 2(b). Sociodemographic characteristics of second-factor scores by region. Brazil, 2026. **Source:** Prepared by the authors.

The PCA results and corresponding composite indicators identified Rio Grande do Sul, the South Region, and municipalities with up to 5,000 inhabitants as having the highest levels of population aging. With regard to longevity, the PCA results confirmed the findings observed in the descriptive analysis of the demographic measures. Paraíba, Rio Grande do Norte, and Ceará were the states whose municipalities showed the greatest longevity, followed by the Northeast Region as a whole and municipalities with populations between 10,001 and 20,000 inhabitants.

DISCUSSION

Population aging in Brazil is a phenomenon documented by the 2022 Census. This study analyzed 2022 Census data on population aging from a municipal perspective, with results aggregated by state, region, and population-size category. Principal component analysis, particularly the first factor, "aging and dependency," characterized by higher values for median age, the labor force replacement index, and the old-age dependency ratio, confirmed that municipalities in the state of Rio Grande do Sul, those in the South Region of Brazil, and municipalities with up to 5,000 inhabitants have the highest levels of population aging.

However, with regard to population longevity, as assessed from the perspective of the second factor obtained through principal component analysis, municipalities in the states of Paraíba, Rio Grande do Norte, and Ceará, those in the Northeast Region of Brazil, and those with populations between 10,001 and 20,000 inhabitants stand out. This finding represents a novel contribution of the study, derived from the municipal-level perspective and the use of principal component analysis.

The South Region of Brazil, particularly the state of Rio Grande do Sul, has a demographic profile characterized by pronounced population aging, accounting for 17% of Brazil's older population[24]. The ten Brazilian municipalities with the oldest age structures are concentrated in this state, which has historically been recognized as one of the pioneers of the fertility transition. This pattern reflects the convergence of demographic and socioeconomic factors, such as the persistent decline in fertility rates, increased life expectancy, and, above all, substantial migration of younger populations to urban centers in search of new opportunities[4,12]. The impact is particularly pronounced in municipalities with populations of up to 5,000 inhabitants, where birth rates are declining, since migratory flows reduce the number of individuals of reproductive age, thereby accelerating relative population aging[6]. As a result, the age pyramid shows a narrowing base and an expanding upper portion, characterizing an advanced stage of the demographic transition and posing substantial challenges for public policies, particularly in the areas of health, social security, and social assistance[3,10,14].

With regard to health care, the most important challenges arising from population aging, particularly in territories where this process is more advanced, are related to changes in the epidemiological profile, characterized by an increase in multimorbidity (two or more chronic conditions), which contributes to disability, higher costs, and a greater need for continuous and multidisciplinary care[25,26]. Another important issue is the need to restructure the model of care within the Brazilian Unified Health System (Sistema Único de Saúde [SUS]), which remains largely focused on acute conditions and maternal and child health, with limited emphasis on prevention, rehabilitation, and maintenance of functional capacity among older adults[27]. Additional challenges include insufficient organization of primary care for dependent older adults, a shortage of professionals trained in aging-related care, and fragmentation of care[25,27,28].

For social security, the challenges lie in the substantial increase in the old-age dependency ratio, which threatens the fiscal sustainability of the social security system[26,29]. In addition, there is a pressing need to reconcile a high level of protection for older adults with intergenerational balance, given the burden placed on younger workers[29]. With regard to social assistance, the increasing number of older adults who are poor, dependent, and lack family support will require a formal long-term care network encompassing home-, community-, and

institution-based care, which remains in its early stages of development[27,30], despite the approval of the National Care Policy under Law No. 15,069. The persistence of inequalities, ageism, and violence against older adults, together with the limited coverage and slow implementation of the Older Persons Statute and the lack of revision of the National Policy for Older Persons, including its updated terminology, poses a major challenge to social and human rights policies[30,31].

With regard to longevity among older adults, the sociodemographic dynamics of the states in Northeast Brazil reveal an ongoing process of population aging in municipalities with populations between 10,001 and 20,000 inhabitants, particularly in the states of Paraíba, Rio Grande do Norte, and Ceará, which show higher longevity indices[24,32,33]. According to the literature, these states have undergone an accelerated demographic transition in recent years, characterized by declining fertility and mortality rates as a result of expanded public health policies, improved basic sanitation conditions, and strengthened primary health care. These changes have contributed to better quality of life and greater longevity in these regions[24,32,33]. In addition, another important factor is the substantial migration of younger populations to large urban centers in search of opportunities, which has proportionally increased the share of older adults in these regions and may help explain the longevity indicators observed. At the same time, sociocultural and behavioral factors, such as stronger community networks, slower-paced lifestyles, and lower exposure to stressful urban environments, contribute to better quality of life and greater longevity in this population[33,34].

Conversely, the consequences of this scenario include increasing pressure on local health and social assistance systems, a relative reduction in the working-age population, and the need to reorient municipal public policies toward promoting healthy aging, social inclusion, and socioeconomic sustainability in response to the rapid progression of population aging in the region[33,32]. This underscores the need to reduce the programmatic and institutional vulnerability present in these territories, characterized by the absence of public policies[35].

In this context, principal component analysis yielded two factors that may contribute to the development of municipal public policies more specifically targeted toward older adults, as they represent an advance over the conventional approach of analyzing individual indicators in isolation. These factors make it possible to estimate the need for caregivers, home care services, and the organization of municipal care networks for older adults.

Some study limitations should be acknowledged to facilitate interpretation of its external validity. The use of aggregate data, although appropriate for municipal-level analyses, precludes individual-level analyses. Another important limitation is the cross-sectional design, which provides a snapshot of the demographic situation based on census data. Although such data are appropriate for the analyses performed, they do not capture the continuous process of population aging.

CONCLUSION

The study revealed that municipalities in the state of Rio Grande do Sul, those in the South Region, and municipalities with up to 5,000 inhabitants have the highest levels of population aging. However, with regard to population longevity, municipalities in the states of Paraíba, Rio Grande do Norte, and Ceará, those in the Northeast Region of Brazil, and those with populations between 10,001 and 20,000 inhabitants stand out. The distinction between population aging and longevity at the municipal level reinforces the need for territorially targeted public policies capable of addressing different stages of the demographic transition and specific demands related to care, social protection, and intergenerational planning.

AUTHORSHIP

- Claylton Silva Antunes: participated in writing the original draft, reviewing, and editing the manuscript.
- Higor Gabriel Andrade Sarmento: participated in the organization and formatting of the references, as well as in writing, reviewing, and editing the manuscript.

- Kenio Costa de Lima: was responsible for project administration and participated in conceptualization, methodology, formal analysis, data interpretation, supervision, validation, writing, and critical review of the manuscript. All authors approved the final submitted version and take responsibility for all aspects of the work.

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