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Do We Live Where It Is Pleasant? Correlates of Perceived Pleasantness with Socioeconomic Variables

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Abstract: Living in urban areas is the wish of many people. However, with population growth in those areas, quality of life has become a concerning element for achieving sustainable cities. Because quality of life is influenced by the built environment, the state of the latter is a fundamental issue for public policies. This research expands on previous research on the perceived pleasantness of built environments by presenting a large-scale case study of the urban layout pleasantness in the central area of Belo Horizonte, Brazil, a typical global south city, and correlating pleasantness scores with socioeconomic factors to understand whether people do in fact live where the urban layout is more pleasant and how pleasantness and socioeconomic factors relate and contribute to one's choice of living location. A comparison with the city of Coimbra, Portugal, representative of the global north, was also carried out. The findings showed that pleasantness tended to correlate negatively with urban density and positively with income. Possible explanations for these results and their generality are advanced.

Keywords: urban environment; urban pleasantness; socioeconomic factors; global south; global north

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1. Introduction

For the past decades, social movements have led people to cities. Cities provide more social interaction opportunities, better accessibility to day-to-day facilities such as schools, healthcare services, entertainment, cultural, and commercial sites, parks, and restaurants, among others, and also broader job opportunities [1–5]. However, with population growth in urban areas, quality of life has become a concerning and crucial element in achieving higher levels of sustainability in cities [6–9]. Therefore, the significance of the built environment is vital for public policies as it impacts the quality of life [10,11]. In general, the urban landscape does not always resemble what people think of as a pleasant physical environment [12]. Thus, to wage against the creation of unpleasant and unsustainable physical environments, the built environment and public policies have a crucial role in improving the quality of life and creating more sustainable and pleasant cities.

However, changes to the built environment and public policies must be adapted to the realities of the cities and societies in question, i.e., to their local context [13]. The current knowledge about transport and spatial planning is primarily shaped by research conducted and based in the global north, whereas cities of the global south face deeper challenges [14]. In this respect, research that can help understand the differences between the northern and southern global hemispheres is essential, given the immense geographic regions these concepts encompass. Broadly referring to Latin America, Asia, Africa, and Oceania regions, the global south refers to low-income, politically or culturally marginalized regions, where many live in overcrowded informal settlements [15,16], commonly contrasting with most regions on the global north. Cities in the global south encounter the same challenges as those in the global north, such as climate change, gentrification, and growing inequality [17–20], but also additional ones, such as large informal settlements, higher levels of pollution, food and water scarcity, human rights violations, violence and crime, migration and refugee flow, extremely high population density, and uncontrollable urban growth [17,21–25]. In the rush to build created by reterritorialization, i.e., restructuring a place or territory that has experienced deterritorialization [26], entangled discourses and intricate politics, and different actors and institutions, result in a patchwork city with various capacities and affordances [26]. Thus, the repercussions on the pleasantness of the physical environment end up being overlooked or not even considered in this conflicted process of urban growth.

The human perception of urban pleasantness is an important subject in spatial planning, environmental psychology, and architecture [12,27–40], and has been an active research topic in recent decades [41–43]. Generally, the built environment is important for improving well-being and achieving a higher quality of life and sustainable future development [10]. Moreover, factors such as green areas, pollution, and accessibility, directly impact property value [27,44–53]. Population density has a controversial impact on environmental quality, with studies identifying a negative effect [54,55], while others found no connection [56]. On the other hand, the quality of life in slums is lower than in other urban settlements [57,58]. Measuring the perceived pleasantness of the urban environment by resorting to physical elements alone (e.g., geometric and land use, as in [12]) leaves aside socioeconomic factors that affect the quality of life, making it important to investigate whether and how the former elements correlate with the latter factors and how this interaction impacts one's choice of living location. This research presents a first step towards identifying those correlations. In other words, this article provides a tentative answer to the question: "People enjoy a certain type of physical urban environment, but is that the environment they actually live in, and how does it correlate to socioeconomic factors?"

Literature Review

The research question, which can be rephrased as "Do we live where it is pleasant?", with pleasantness understood as an enjoyable physical environment, has not received much attention from quantitative studies, mainly because quantitative definitions of physical pleasantness are limited. Qualitative studies include [35,36], the first of which thoroughly discusses city image and form and has been a landmark reference in urban planning. The second studied the relation between perceptions of architectural complexity and geometric shapes. With respect to quantitative definitions, some progress was made since [59]. Several studies concentrate on one specific landscape element, e.g., walking path geometry [27] (having found that people tend to prefer curvy paths), oppressiveness due to building height [40], skyline impression [60], visual quality of urban water landscapes [61,62], and building exteriors [63]. Combined approaches include mostly landscape aesthetics indicators, e.g., [29], who developed beauty indexes and also distinguished landscape type; the morphologic scenic beauty estimation model of [64]; an aesthetic assessment approach [65]; and modelling of the aesthetics of urban–rural fringes [66]. Models that use geometric and land-use elements include [12] who used field data to obtain a pleasantness indicator, the street quality indexes of [37,67,68], the path model of neighborhood satisfaction of [69], and the walkability analysis of [70].

Because quantitative definitions of physical pleasantness are scarce, very few studies could be found in the literature that directly relate, quantitatively, physical pleasantness with socioeconomic variables. One example is [7], which estimated urban vibrancy from landscape elements. Qualitative studies are also few and mostly refer to physical pleasantness as just one of the factors in choosing a living location. Overall, it is known that people tend to live in urban locations with good accessibility to facilities [38,71–73] and matching social environment [38,74]. However, those locations do not always coincide with a pleasant physical environment, a factor that was confirmed in [74] (p. 104) to also be important in household location preference. By being able to define quantitatively what a "pleasant physical environment" is, it becomes possible to understand, also quantitatively, whether or not people actually live in pleasant physical environments and how socioeconomic factors ultimately affect their choice of household location. This article aims to achieve that understanding, thus filling the corresponding literature gap. Below and throughout this article, the word "pleasantness" is understood as the physical pleasantness of the urban layout.

This article builds on the research developed by Sousa et al. [12], which estimated the impact of land use and geometric elements on the citizen's perception of the pleasantness of urban layouts using an Ordinal Regression Cumulative Link Mixed Model (CLMM). The methodology was created to benchmark and compare the pleasantness of different neighborhoods within a city or between different cities and as a decision tool for neighborhood regeneration or city expansion programs [12]. This research applied the CLMM model to the center-south region of Belo Horizonte, Brazil, a typical global south city, and Coimbra, Portugal, a representative city of the global north. The results from the CLMM model were then correlated with different socioeconomic factors, namely the average income, population density, the existence of favelas (a Portuguese umbrella term for slum/ghetto), land value, and density of urban facilities, to respond to the research question. A comparison between the two cities was also made.

To the best of the authors' knowledge, this is the first time that socioeconomic factors were correlated with quantitative measures of the pleasantness of an urban physical environment. The case study provides important urban design and socioeconomic results that can help local authorities better plan their urban environments by improving pleasantness and, consequently, the overall quality of life.

2. Materials and Methods

2.1. Study Areas

2.1.1. The Global South Case Study: The Center-South Region of Belo Horizonte

Belo Horizonte was founded in 1897 as a symbol of modernity, mixing art nouveau and modern architecture. The project organized the area into urban, suburban, and rural zones. Aarão Reis and Francisco Bicalho sought inspiration in Washington, D.C., creating a city with modern lines, wide streets, and modern buildings in concrete.

The city has nine regions, the center-south region being one. This region is shown in Figure 1 below and is administratively divided into 47 neighborhoods, of which 19 are favelas (blue in the figure). The initial 1897 project was limited by Contorno Avenue, the red line in the figure.

The project would meet the needs of 30,000 inhabitants and reach a maximum of 200,000 in the 21st century, a somewhat exaggerated view from the planning team [75]. However, in 2022, Belo Horizonte had over 2.5 million inhabitants distributed over 331 km^2, corresponding to a population density of 7167 inhabitants/km^2 [76].

Being such a large zone, it was impossible to survey the whole city. Therefore, the case study was limited to the original project and its surroundings, i.e., the center-south region. This region concentrates most of the historical, architectural, and cultural heritage in Belo Horizonte. Currently, the center-south region comprises 47 neighborhoods (10% of the total in Belo Horizonte), where 283,776 inhabitants (14% of the total) live in 107,565 households. Of these, 19 neighborhoods (40%) are considered favelas. The characteristics of this region are verticality, the concentration of economic activities, and a high standard of occupation. The center-south region has political, administrative, social, cultural, and economic functions with buildings and constructions of different architectural styles. Henceforth, this region is designated as 'Belo Horizonte' for brevity.

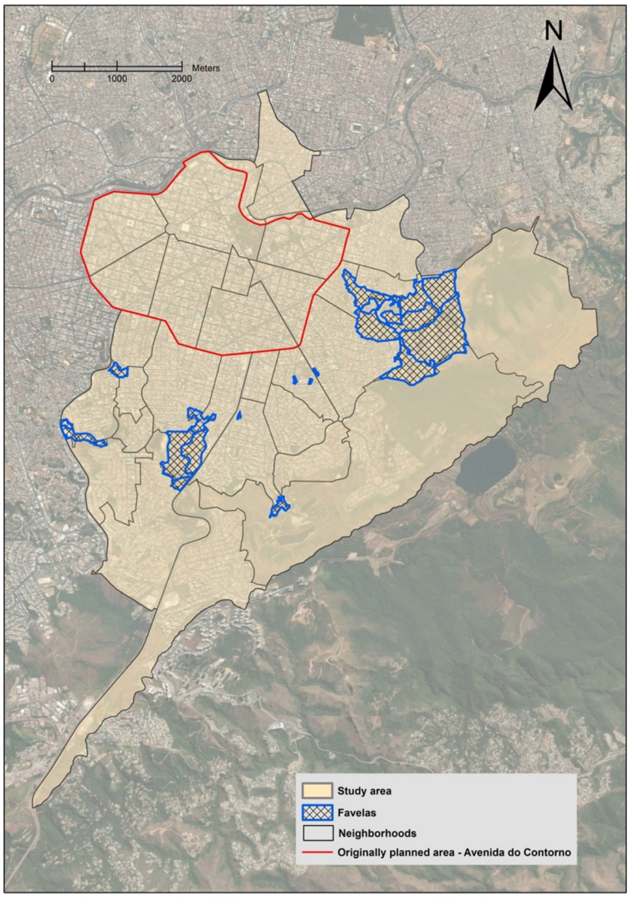


Figure 1. Belo Horizonte: study area, Contorno Avenue, and location of favelas.

2.1.2. A Note on Favelas

As previously mentioned, cities in the global south face most of the challenges faced by cities in the global north and more. Additional challenges include the formation of large informal settlements, which in the Brazilian case take the form of favelas with uncontrollable urban growth, resulting in narrow streets, no building standards or government control on construction, dense occupation, low income, and a lack of basic sanitation and social services. The center-south of Belo Horizonte has 19 favelas, which occupy 8% of its area. Favelas are related to low average pleasantness due to their urbanistic characteristics, mostly narrow streets. The research team surveyed 193 residents from Belo Horizonte, asking which urbanistic elements would be, in their opinion, in the most need of an improvement in the favela-type urban environments of Figure 2 (this figure was shown to the participants).

(**a**) Situation 1 (**b**) Situation 2 (**c**) Situation 3

Figure 2. (**a**–**c**) Situations considered in the survey with residents of Belo Horizonte.

The results revealed that street width came out on top, with 34% responding this element, followed by building distance (22%), public green areas (18%), number of floors (14%), and private green area (12%). The original, worldwide CLMM calibration of [12] puts a stronger dislike on the number of floors (see Section 2.4). However, as Belo Horizonte inhabitants are more exposed to favelas-type urban development, with narrower street widths and no building distance, these two elements presented themselves as main concerns, hinting at a local effect on the CLMM regression coefficients.

The rush to build leads to lower pleasantness scores and consequently shifts the perception of the pleasantness of their inhabitants, as hinted at by the survey on the population. In fact, pleasantness is not a concern in urban developments like favelas. As indicated by the CLMM, a lower number of floors leads to a more pleasant environment (physically speaking). Still, while the number of floors is typically low in favelas, this is not due to municipal plans or clear orientations but rather to extreme poverty and a lack of living conditions and construction techniques that enable vertical construction. Given the densification and compactification of favelas, one can argue that, if given the ability and tools, favelas would quickly grow vertically to accommodate a growing impoverished population, making that environment even more unpleasant than it is now.

2.1.3. The Global North Case Study: Coimbra

Located in the center region of Portugal, Coimbra is a mid-sized city, currently home to 104,643 inhabitants [77]. The city grew mostly unrestrictedly due to a long history of occupation by different cultures, ideals, and needs, ultimately culminating in a situation of urban sprawl, with single-use areas and low-density buildings surrounding the center, in an assortment of urban landscapes typical of European city layouts. Figure 3 shows the study area of Coimbra, whose center (red in the figure) has the highest density of buildings and population.

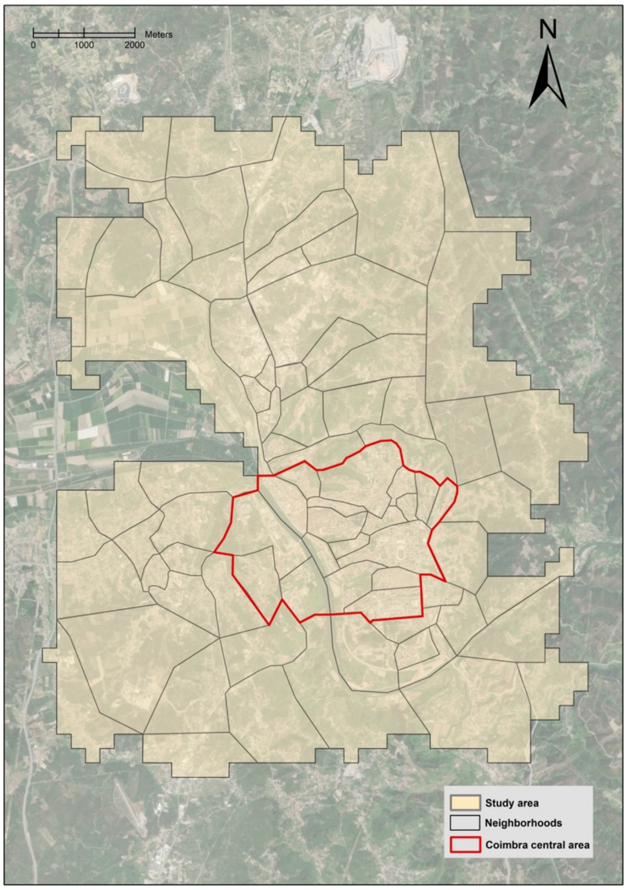


Figure 3. Coimbra: study area.

2.2. Parametrization

The CLMM model of [12] can be used to obtain pleasantness perception scores on a 1–5 Likert scale. Applying the model requires obtaining field data concerning five geometric and land use elements for each study unit (usually mesh squares), namely green area percentage, street width, average number of floors, distance between buildings, and existence of green private areas. The field data measurements were obtained and converted to ordinal categorical values following Table 1, from which the statistical model could be run.

Table 1. Geometric and land use elements evaluated. Adapted from [12].

Variable	Definition	Measurement Unit	Scale	Level
Green area	The publicly available green areas in the study unit	Percentage (%)	0–5 6–25 26–60 >61	None Small Medium High
Street width	Average street width, including cycle lanes, parking space and sidewalks	Meters (m)	0–8 9–18 >19	Narrow Wide Very wide
Number of floors	Average floor number of all buildings in the study unit	Integer	1–2 3–5 6–11 12–37 >38	House Short Medium Tall Skyscraper
Building distance	Average building side setbacks	Meters (m)	0 1–14 >15	Compact Spaced Sprawled
Green private area	Average private green area	Square meters (m^2)	0–10 >11	Not relevant Backyard

Concerning socioeconomic variables, Table 2 shows the five considered: average income, population density, favela (slum) presence, land value, and urban facility density. The absence of income data for Coimbra is related to privacy issues of census data, which came into effect following legislation in 2018 [78]. Likewise, there is no neighborhood in Coimbra with the same characteristics of a favela. Finally, land value data for favelas is not available due to nonexistence of official transactions; thus, the values are not computed by municipalities and are not available in public databases. Land value refers to the price per m^2 of parcel area.

Table 2. Socioeconomic variables analyzed.

Socioeconomic Variables	Units	Observations	Source
Average monthly income	BRL (R$)	Belo Horizonte only	Census [76]
Population density	Residents per km^2		Census [76,77]
Favela (slum) presence	Binary: 1/0-yes/no	Belo Horizonte only	Census [76]
Land value	Belo Horizonte: BRL * per m^2 Coimbra: EUR ** per m^2	No data for favelas	Belo Horizonte [79] Coimbra: previous projects
Urban facilities density	Facilities per km^2		Previous projects [80]

* BRL 1 = USD 0.19; ** EUR 1 = USD 1.06 (27 February 2023).

2.3. Study Design

Belo Horizonte and Coimbra were selected as representatives of the global south and global north, respectively. Their study areas were divided into study units, for which pleasantness scores were obtained by applying the methodology of [12]. This was executed by dividing the study area onto a square mesh of 400 m diagonals (282 × 282 m sides), the study unit (index: i), collecting the geometric and land use information for each square via Google Earth imagery, transforming it according to Table 1, and calculating scores using the CLMM model. For Coimbra, those pleasantness scores were already available from [12]. Averaging of mesh scores per neighborhood (see Figures 1 and 3) was then carried out, as prescribed by the methodology. Concerning the socioeconomic variables, these were obtained from the sources indicated in Table 2.

2.4. Statistical Analysis

The CLMM model has logit link function, unstructured thresholds, and includes a mixed effect related to rater bias. It is formally described by:

$$\begin{gathered}\operatorname{logit}[P(Y_i \leq j)] = \theta_j - \sum_k \beta_k X_{ki} - u_i, \ \ \operatorname{logit} p = \ln\left(\frac{p}{1-p}\right), \ \ i = 1, \ldots, N, \\ j = 1, \ldots, J-1, \ \ k = 1, \ldots, K\end{gathered} \tag{1}$$

where:

i, j, k: indices for, respectively, the study unit, ordinal pleasantness ranks ($J = 5$), and explanatory variables ($K = 5$).

$P(Y_i \leq j)$: cumulative probability of the i-th rating falling in the j-th rank of Y.

θ_j: threshold coefficients for Y.

β_k: regression coefficients.

X_{ki}: value of k in study unit i.

u_i: random effect of the judge rating study unit i, $u \backsim N(0, \sigma)$.

Table 3 shows the regression coefficients obtained from the worldwide survey for a base scenario of high green area, narrow streets, a house-like number of floors, compact building setbacks, and the existence of a backyard. The regression coefficients show that people tend to prefer urban environments with abundant green areas, wide streets, house-like buildings, short building distance, and dwellings with private green areas. For more details on the model and how it was designed and calibrated, see [12].

Table 3. CLMM regression coefficients and threshold coefficients.

Element	Level	Coefficient
Green area	medium	−0.3790
Green area	small	−0.9644
Green area	none	−0.9157
Street width	wide	0.1737
Street width	very wide	0.8216
Number of floors	short	−0.7367
Number of floors	medium	−0.8435
Number of floors	tall	−0.9499
Number of floors	skyscraper	−1.3469
Building distance	spaced	−0.2226
Building distance	sprawled	−0.2695
Green private area	none	−0.6741
Threshold coefficient	1 | 2	−3.0603
Threshold coefficient	2 | 3	−1.6770
Threshold coefficient	3 | 4	−0.3823
Threshold coefficient	4 | 5	1.1441

The pleasantness score of a new study unit i is estimated by $\bar{r}_i = \sum_{j=1}^{5}(p_{ij} \cdot j)$, with p_{ij} the probability of i being perceived as belonging to category j, considering a judgement bias of zero (the p_{ij} can be obtained from Equation (1) after β_k and θ_j are known). Note that $\bar{r}_i$ can be interpreted as the expectation value of the rank of i, a quantity that has a higher resolution than other pleasantness estimates such as the most likely score (i.e., the j for which p_{ij} is the highest). The transformation of ordinal ratings to numeric ranks assumes equally spaced intervals between those ratings, an acceptable practice unless the real spacing is very non-linear [81–84].

After obtaining pleasantness scores for the study units, average values for each neighborhood were derived, as socioeconomic variables were unavailable at the study unit scale.

Finally, Spearman correlations were derived to find the connection between neighborhood pleasantness scores and socioeconomic variables. Correlations enable one to ascertain the degree of association between the variables, thus providing quantitative evidence on how the two relate. Spearman correlations were chosen over Pearson ones because the data are not normally distributed. A principal component analysis of the socioeconomic variables was also carried out, and correlations of pleasantness scores with the two main components were derived.

Note that a regression analysis does not make sense here because (physical) pleasantness is built off geometric and land use elements, not socioeconomic variables. Hence, despite the attractiveness of such an analysis, applying it here would be inconsistent. Correlations, on the other hand, are acceptable because they do not imply causation.

Model and statistical calculations were carried out using the R software and its packages ordinal for the CLMM and FactoMineR for the PCA.

Figure 4 below shows a workflow of the methodology, including the data used in each step and the output achieved.

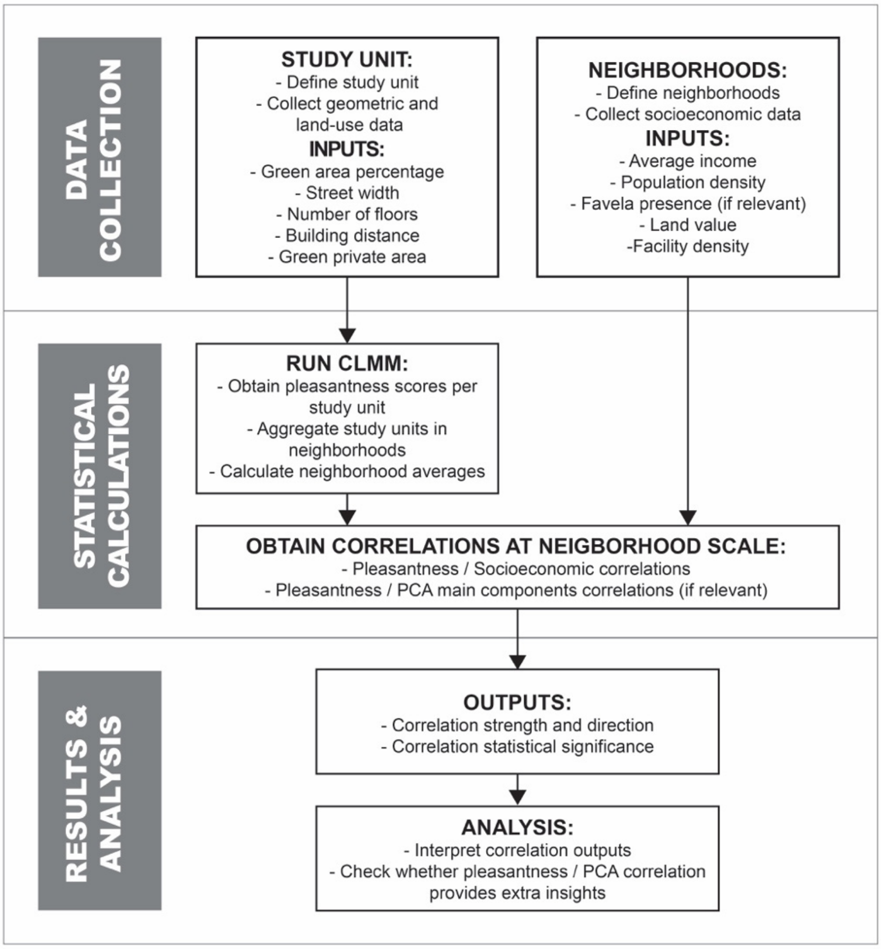


Figure 4. Methodology workflow.

3. Results

3.1. Pleasantness Scores and Socioeconomic Variables for Belo Horizonte

Figure 5 maps the pleasantness scores in the center-south region of Belo Horizonte, and Table 4 provides descriptive statistics per neighborhood.

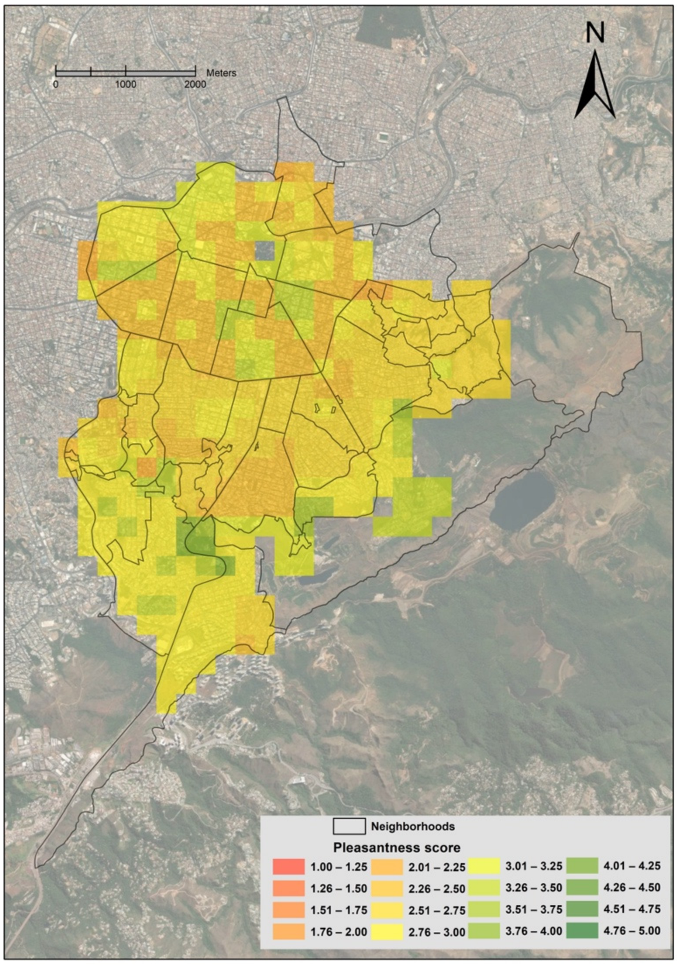


Figure 5. Pleasantness scores of Belo Horizonte.

Table 4. Descriptive statistics of the pleasantness scores of Belo Horizonte.

Pleasantness Score (1–5)	Belo Horizonte Center-South
Count	47 neighborhoods (364 mesh squares)
Minimum	2.46
Average	2.71
Average per inhabitant	2.70 *
Maximum	3.31
Standard deviation	0.18

* Weighted by neighborhood population.

The average pleasantness was just below the mean value of 3 out of 5, both per neighborhood and weighted by population, indicating moderate dissatisfaction with the current urban layout. The 47 neighborhood pleasantness values were used to calculate the correlations with socioeconomic variables.

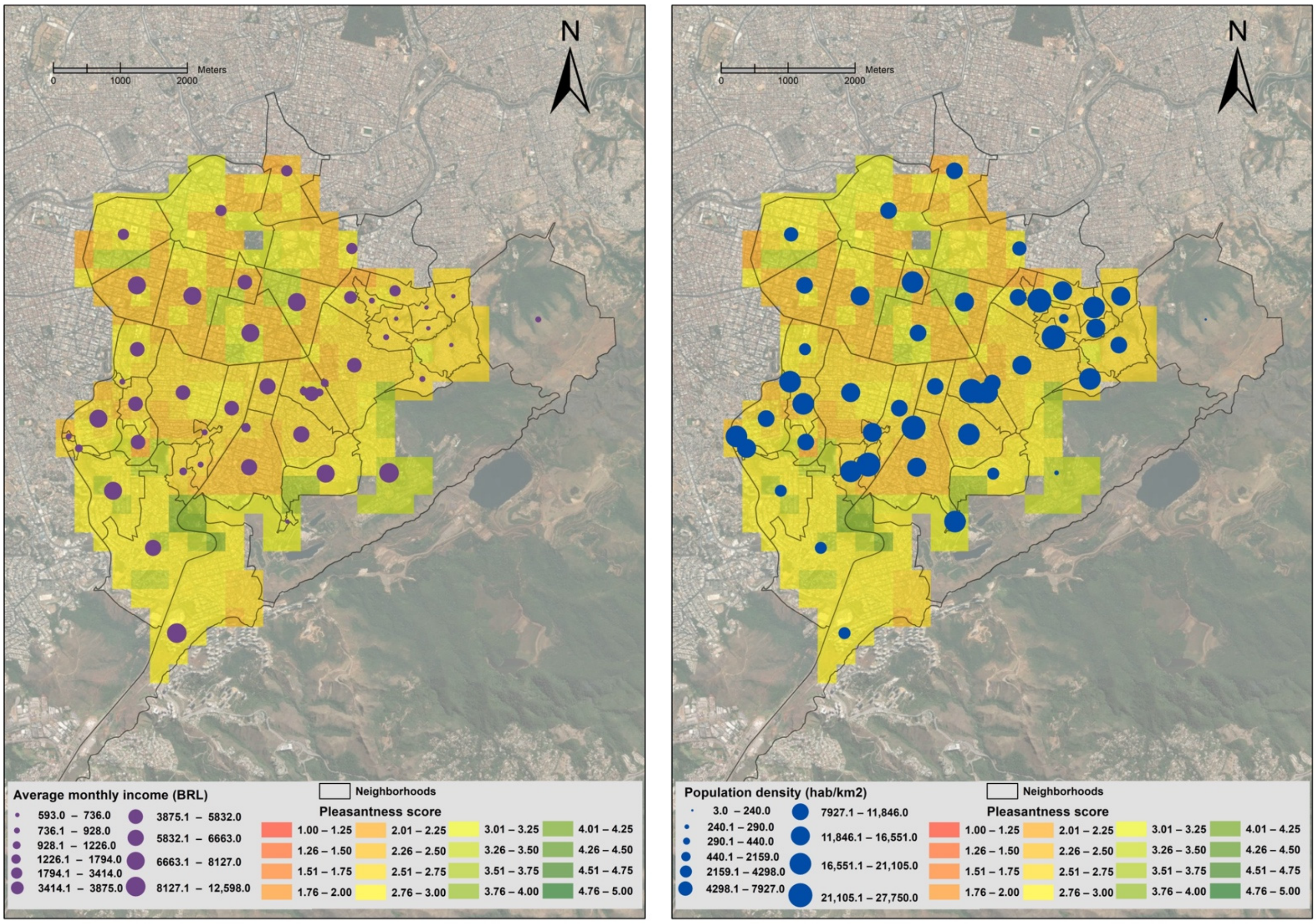
Since the original project of Belo Horizonte was an urban structure like a Garden City, many green areas are a natural feature of the region, which contribute positively to the pleasantness of the studied area. Another characteristic that contributes positively to the pleasantness is related to the subdivisions that were destined for middle and upper middle classes during the planning phase. Since most of the new residents came from the rural interior of Minas Gerais State, they valued private and open spaces. Accordingly, the center-south region was built with many large houses, with enough distance from the neighbors and the public road for gardens and balconies. Additionally, since the city was planned to be modern, the design of the street prioritized the symbol of development at that time: the automobile, leading to wide streets in the original part, inside Contorno Avenue. However, beyond the boundaries of Contorno Avenue, the streets are narrow and oppose the primary design of the city. In addition to the width of the streets, another aspect that negatively contributes to pleasantness is the height of the buildings, many of these with more than 10 floors in the center-south region.

Table 5 shows descriptive statistics for socioeconomic variables in Belo Horizonte, per neighborhood, and Figures 6 and 7 the geographic distribution of these variables, except for the favelas, which appear in Figure 1.

Table 5. Descriptive statistics for socioeconomic variables of Belo Horizonte.

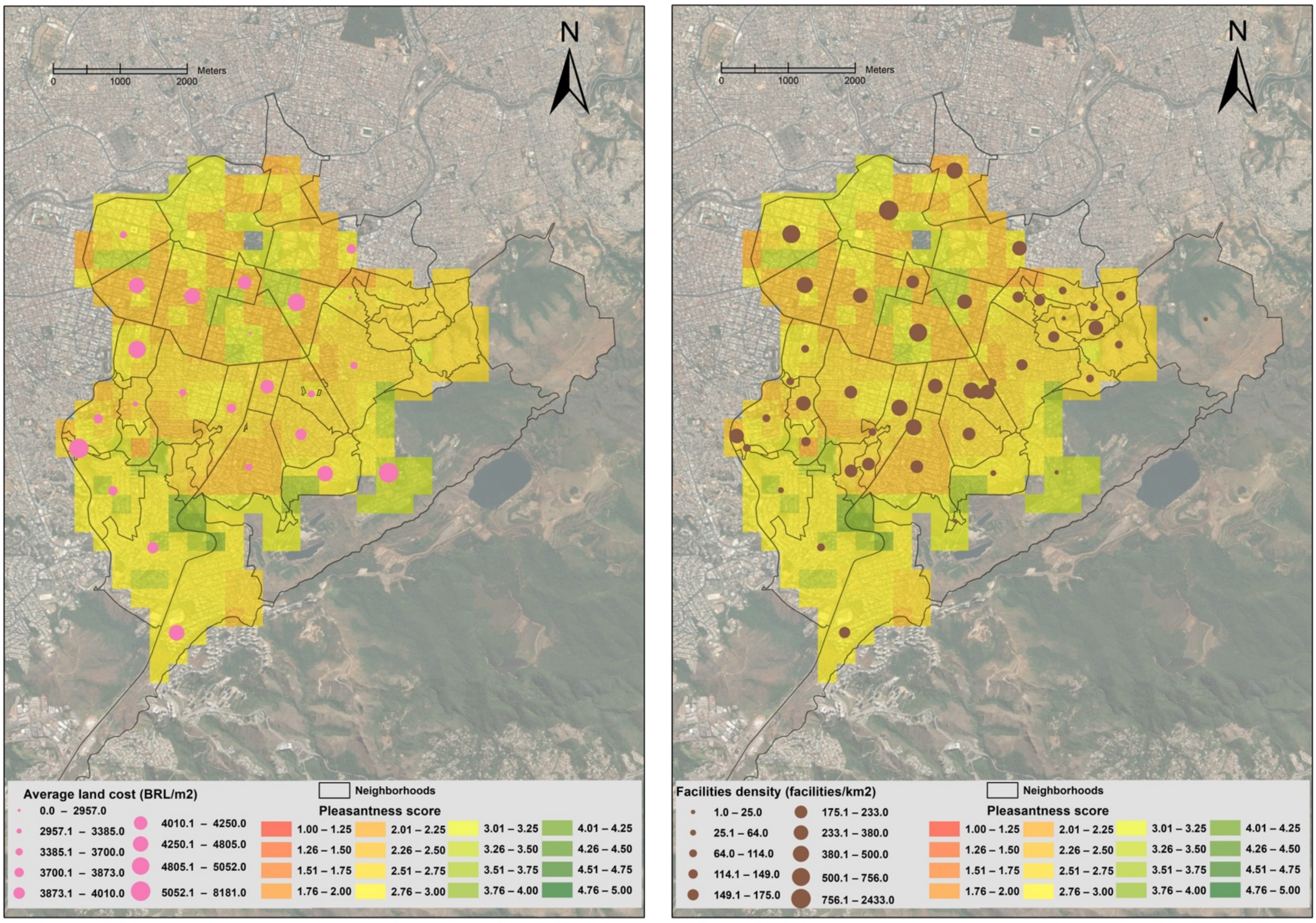
Socioeconomic Variable	Average Monthly Income	Population Density	Favela	Land Value *	Facility Density
Minimum	593.5	3.4	0	2421	0.3
Average	3940.2	12,798.1	0.404 (19/47)	4206	266.3
Maximum	12,598.3	27,750.0	1	8818	2433.7
Std. deviation	3096.8	7089.1	N/A	1312.5	364.4

* BRL/m^2, restricted to existing data (26 out of 47 neighborhoods).



(**a**) (**b**)

Figure 6. Socioeconomic variables: (**a**) average monthly income; (**b**) population density.



(**a**) (b)

Figure 7. Socioeconomic variables: (**a**) land value; (**b**) facility density.

Of the 20 neighborhoods with an income lower than the average, 19 are favelas. Favelas also tend to concentrate people: all neighborhoods (seven in total) with more than 20,000 inhabitants/km^2 were favelas. The average density for favelas was 16,852 inhabitants/km^2, while for other neighborhoods it was 9304 inhabitants/km^2. Baleia, the southeasternmost neighborhood, was a big farm in the past with a botanic garden. Currently, 30% of this neighborhood is a green park, thus providing higher values of pleasantness for this zone.

Concerning urban facilities, the center-south region includes the city's downtown area, which has a high concentration of facilities (2433.7/km^2), as shown in Figure 7. On the other hand, favelas had some of the lowest concentrations of commercial establishments.

3.2. Correlations between Variables in Belo Horizonte

Table 6 shows the Spearman correlation values between pleasantness scores and socioeconomic factors per neighborhood.

Table 6. Spearman correlations between pleasantness and socioeconomic variables: Belo Horizonte.

Pleasantness vs.	Average Income	Population Density	Favela Presence	Land Value	Facility Density
Correlation	25.6%	−33.4%	−25.4%	18.6%	−15.1%
p-value	0.083 *	0.022 **	0.085 *	0.361	0.312

* Significant at 10%; ** Significant at 5%.

Only three of the five socioeconomic variables were significantly correlated to pleasantness. Albeit significant correlations were only mild, they could be understood. First, higher-income citizens have more financial power to live where they desire, resulting in a higher likelihood of living in more pleasant environments. Second, higher population density is often achieved by taller buildings and narrower streets, leading to a negative correlation. Third, due to the above-mentioned urbanistic characteristics, favelas also have low pleasantness, leading to a negative correlation. Concerning land value, the positive correlation between pleasantness and land value may be justified by a higher demand for the most pleasant environments, but this effect was not strong enough to be statistically significant. Additionally, indeed, as will be seen, the trend was the opposite for Coimbra. The negative correlation of facility density is justified because the higher population density of compact and taller environments leads to increased demand for facilities, which the market ultimately provides. However, given the statistical non-significance of this correlation, this inference was not clear-cut.

By applying a principal component analysis to unit-scaled socioeconomic variables, it was possible to find combinations of these variables that correlate even better with pleasantness. In doing so, the variable 'favela presence' was excluded due to missing data. The correlations of the two principal components with pleasantness were, respectively, 41.7% (p-value = 0.035) and −58.8% (p-value = 0.022), which indeed represents an improvement. However, looking at the variable composition of the two principal components, they turned out to be 29/18/22/31% and 16/39/24/21% (by order of Table 6), combinations that are not straightforward to interpret, making it unclear why the correlation improved. This is also why the principal components are not presented in Table 6.

3.3. Pleasantness Scores and Socioeconomic Variables for Coimbra

To obtain the socioeconomic variables, the city was divided into neighborhoods of similar size to those of Belo Horizonte. Pleasantness scores for mesh squares were available from [12].

Figure 8 shows the neighborhoods and pleasantness scores, and statistics per neighborhood are summarized in Table 7. The pleasantness scores were lower in central neighborhoods, primarily due to the presence of tall residential buildings, narrow streets, and the lack of green spaces. As one moves away from the center, urban density decreases, and scores improved. However, the outskirts have poor accessibility, few facilities, and a limited supply of public transportation [85]. Despite not being a big metropole and due to its history and urban development, Coimbra comprises several urban forms and designs that scored differently in terms of the perceived pleasantness and is a typical global north city.

Table 7. Descriptive statistics of the pleasantness scores of Coimbra.

Pleasantness Score (1–5)	**Coimbra**
Count	82 neighborhoods (1224 mesh squares)
Minimum	2.32
Average	3.06
Average per inhabitant	3.07 *
Maximum	3.73
Standard deviation	0.33

* Weighted by neighborhood population.

Comparing with Table 4, it is seen that, in general, Coimbra had higher average scores than Belo Horizonte. Whether or not this conclusion can be generalized is discussed in the next section.

Figures 9 and 10 display the pleasantness and socioeconomic variables for Coimbra and Table 8 shows the descriptive statistics for these variables. As mentioned, Coimbra does not have favelas, and average income data is not publicly available. Additionally, land value data were not available for 2 of the 82 neighborhoods of Coimbra.

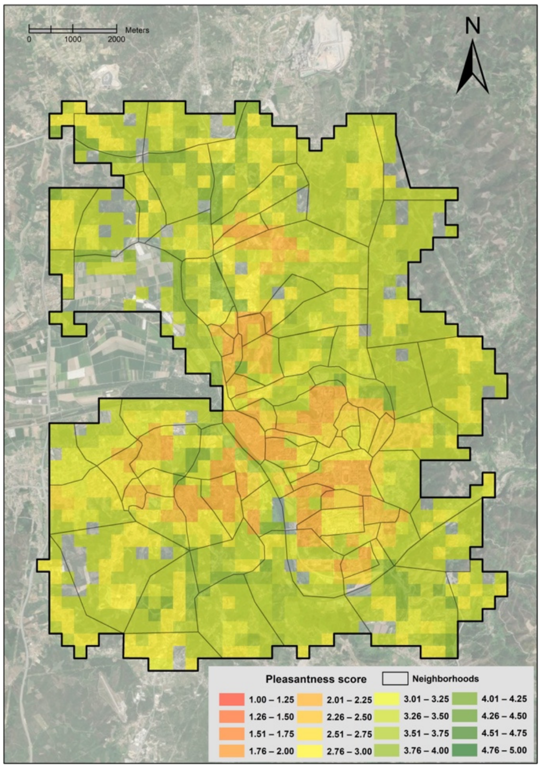
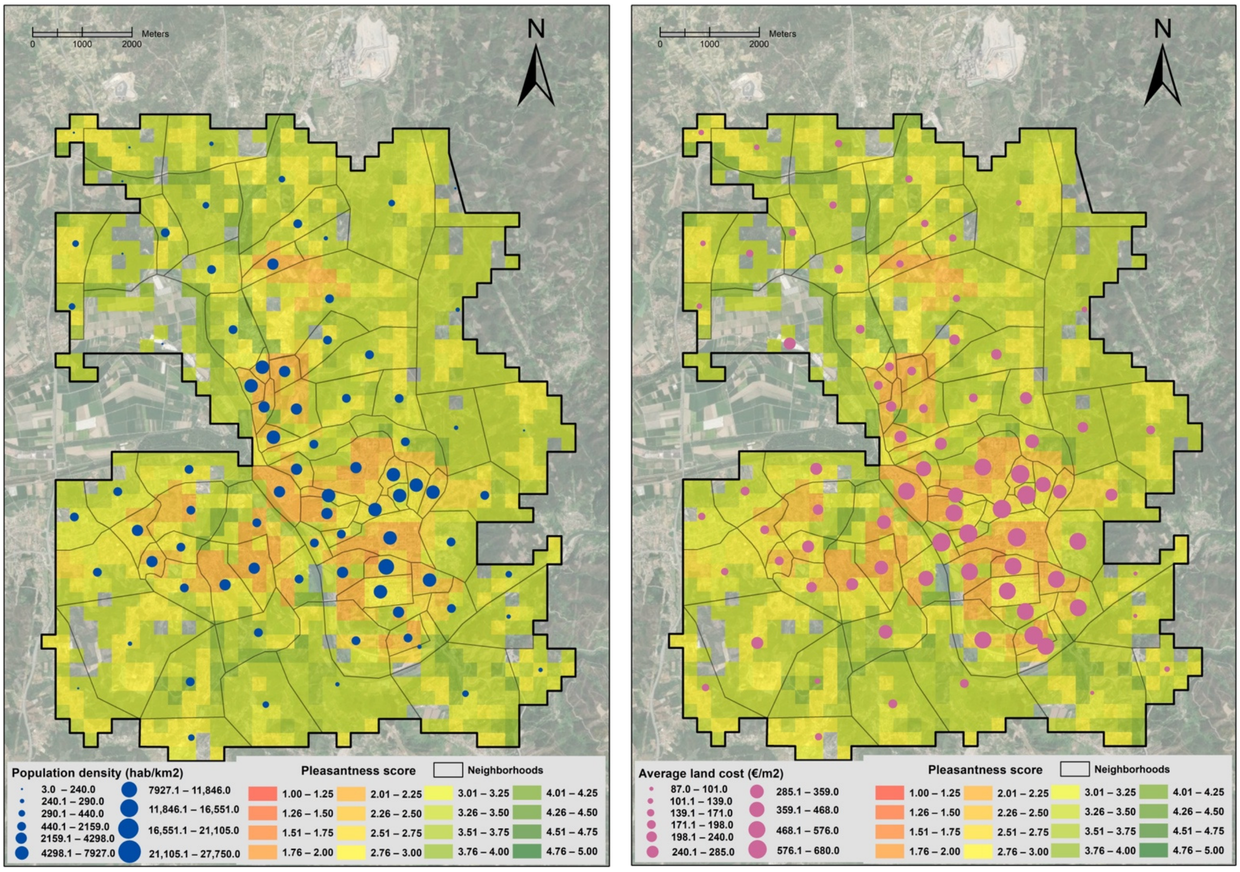


Figure 8. Pleasantness scores of Coimbra.



(**a**) (**b**)

Figure 9. Socioeconomic variables: (**a**) population density; (**b**) land value.

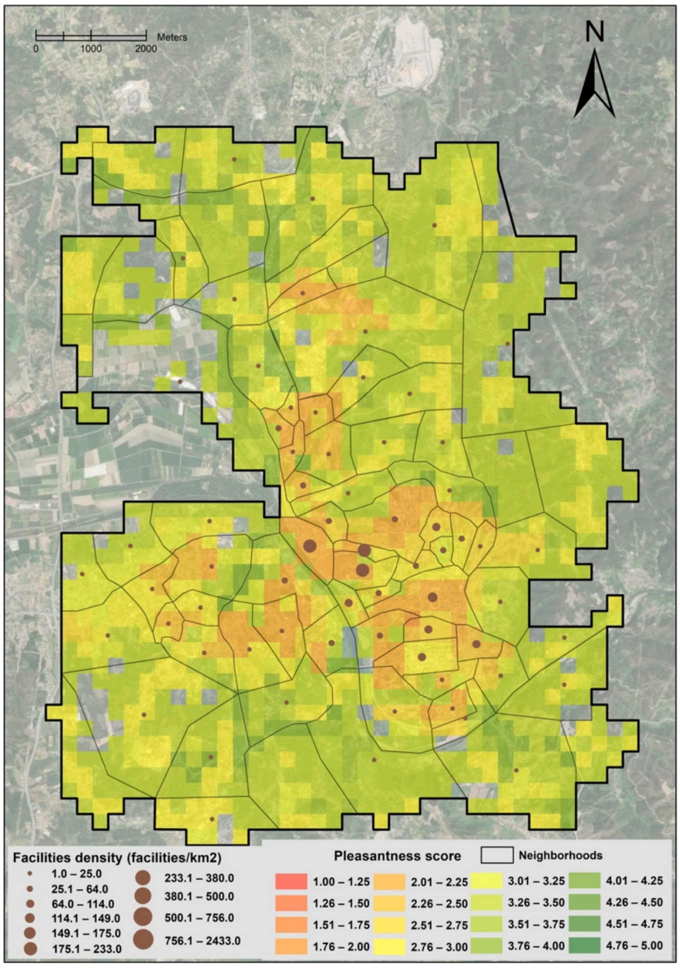


Figure 10. Socioeconomic variables: facility density.

Table 8. Descriptive statistics for socioeconomic variables of Coimbra.

Socioeconomic Variable	Population Density	Land Value *	Facility Density
Minimum	21.9	87.63	0
Average	1893.9	298.25	23.5
Maximum	10,162.6	680.87	225.9
Std. deviation	2058.0	173.13	45.1

* EUR/m^2, restricted to existing data (80/82 neighborhoods).

Figure 9 shows a graphical pattern of high population density in lower pleasantness areas that is clearer than for Belo Horizonte, and Figure 10 shows that a pattern of “high density in low pleasantness areas” also emerged for facility density.

Coimbra has a lower population density than Belo Horizonte, but more relative dispersion due to urban sprawl (coefficients of variation [cv] 55% for Belo Horizonte; 109% for Coimbra). A similar phenomenon was observed for facility density (cv: 137% vs. 192%, respectively), confirming the effect of sprawl.

3.4. Correlations between Variables: Coimbra

Variable correlations are given in Table 9. For this city, the correlations were not as mild as they were for Belo Horizonte; rather, they were quite conclusive and showed a clear pattern: the denser the environment, the less pleasant it is, confirming the suspicion in Belo Horizonte of a negative correlation between facility density and pleasantness. These findings are explored further in the next section.

Table 9. Spearman correlations between pleasantness and socioeconomic variables: Coimbra.

Pleasantness vs.	Population Density	Land Value	Facility Density
Correlation	−86.9%	−60,9%	−83.6%
p-value	0.00 *	0.00 *	0.00 *

* Significant at 1%.

A principal component analysis was not carried out for Coimbra, as the correlations were clear and only three variables existed.

4. Discussion: Comparison between the Global South and the Global North

Tables 10 and 11 summarize the results of the previous section and add statistical testing. As noted above, in general, the pleasantness scores of Coimbra were higher than those of Belo Horizonte.

Table 10. Statistical comparison of the pleasantness scores of Belo Horizonte and Coimbra.

Pleasantness Score (1–5)	Per Neighborhood	
	Average	Average per inhabitant
Belo Horizonte (BH)	2.71	2.70
Coimbra (Cbr)	3.06	3.07
Mann–Whitney test *p*-value (two-way)	0.00 *	N/A

* Significant at 1%.

Table 11. Recap of Spearman correlations between pleasantness and socioeconomic variables of Belo Horizonte and Coimbra.

Pleasantness vs.	Average Income	Population Density	Favela Presence	Land Value	Facility Density
Belo Horizonte	25.6% *	−33.4% **	−25.4% *	18.6%	−15.1%
Coimbra	N/A	−86.9% ***	N/A	−60.9% ***	−83.6% ***

* Significant at 10%; ** significant at 5%; *** significant at 1%.

The two-way Mann–Whitney test in Table 10 confirmed that Coimbra was the more pleasant city. Based on this, it would be tempting to claim that global north cities have better pleasantness scores than global south ones. However, that would be too bold of a claim since only two cities were compared, and only its center-south region was considered in one of them. No matter how representative those two cities may be, more comparisons between the global north and global south cities would be needed before any conclusive claims could be made. Such caution is not just common sense; the research in [86] also warns against undue generalizations.

Table 11 summarizes the correlations found between pleasantness scores and socioeconomic variables, which shed light on the characteristics of the inhabitants and their distribution pattern throughout the city.

The mild correlation between income and pleasantness, which was only possible to validate in Belo Horizonte, revealed that, given the choice, people tended to live in more pleasant urban environments.

The anti-correlation between population density and pleasantness, disclosed in Belo Horizonte and confirmed in Coimbra, showed that densification ultimately leads to compact environments that favor tall constructions, narrow roads, and few green spaces and are thus, less pleasant. However, given that such environments still contain many people living in them, it is inevitable to conclude that the amenities brought by density (e.g., accessibility, increased social interaction) compensate for the lack of pleasantness. Alternatively, one may also reason that poorer people are pushed towards dense environments, which is corroborated by the correlation between income and population density in Belo Horizonte, which was −45.5% (p-value = 0.001).

Facility density is a by-product of population density, as correlations between these two variables confirm: +30/82% for Belo Horizonte/Coimbra (p-values = 0.04/0.00); thus, its negative correlation with pleasantness was predicted, albeit for Belo Horizonte this conclusion was not as firm.

Finally, land value correlation with pleasantness had mixed tendencies. In Belo Horizonte, the two did not seem to correlate significantly, while in Coimbra a considerable and significant anti-correlation was found. A possible explanation for this might be as follows: pleasant environments attract wealthier people, potentially increasing the land value of those locations (positive correlation). Indeed, the presence of green spaces, a positive pleasantness proxy, increases property value [87,88]. However, denser, less pleasant neighborhoods also attract people due to better accessibility and social opportunities, increasing the land value of those locations as well (negative correlation). When both effects are added, they may either cancel out, and the correlation ends up losing any meaningful trend, as seems to be the case in Belo Horizonte, or they may be stronger in one direction, as in Coimbra, where accessibility and socialization seemingly carried more weight than the physical environment. More research is needed to determine whether this is a regional north/south issue, an overall tendency, or just an artifact of the data.

As with pleasantness scores, the north/south comparison of pleasantness/socioeconomic correlations is to be taken with a grain of salt, and in this case, mostly because this article only explored a single case of each kind, which is a limitation. More cities of the two kinds need to be examined before assertive conclusions can be drawn.

5. Conclusions

This article presented a correlational study between the perceived physical pleasantness of the built environment and socioeconomic variables in two cities, which served as representatives of the global north (Coimbra, Portugal) and global south (Belo Horizonte, Brazil). The study aimed to unravel whether people actually live where the urban environment is pleasant, in the physical sense, and how pleasantness and socioeconomic variables relate and contribute to one's choice of living location. To the best of the authors' knowledge, this research is one of the first attempts to try and achieve that objective with quantitative models. In addition, the differences between the global north and global south representatives were also investigated.

The results showed a mild positive correlation between pleasantness and income, although this was only possible to ascertain for Belo Horizonte (data protection issues prevented the same calculation for Coimbra). A negative correlation between pleasantness and density (of population and urban facilities) was also revealed, which was due to the more compact, and thus less pleasant, environments that inevitably entail higher concentrations of people and buildings. This result shows that factors other than physical pleasantness, e.g., accessibility or social interaction, come to play when selecting a place to live, confirming similar findings in the literature [38,71–74]. The correlations of land value with pleasantness were found to be non-significant in Belo Horizonte and negative in Coimbra, suggesting contrary effects of high income (positive) and urban density (negative) that are likely of local nature. Together with the result that pleasantness was statistically higher in Coimbra, this was the only difference between the global north and global south representatives.

However, if one wishes to volunteer a tentative answer to the research question "Do we live where it is pleasant?", with pleasantness understood as an enjoyable physical environment, that answer seems to be "Not really, unless you're wealthy". While this is not unexpected, the present research reinforces the prejudice that wealthier people have more options. Those people can afford more expensive houses and have private transportation, thus fewer accessibility problems. Therefore, they can live where they wish, in line with the findings by Refs. [89,90]. Other people may end up living in places other than their desired locations, which [91] also concluded.

With respect to urban planning, the CLMM model can help design more pleasant neighborhoods should a city expand beyond its current limits. However, the correlation of pleasantness with socioeconomic variables shows that the former, despite being a goal per se, may not necessarily attract flurries of residents, as they may prefer the advantages of living in denser urban environments. It may, however, attract wealthier people.

The main limitation of this study is that only two cities were examined. Generalization of the results would require more examples. Other limitations include scalability difficulties, e.g., obtaining geometric and land use elements for large urban areas or land value data for regions in the outskirts, and the fact that more accurate measurements of physical pleasantness may require extra elements (e.g., the conservation status of buildings). The rank transform and averaging of pleasantness scores may also have introduced some imprecisions, but the authors believe this is a minor trade-off for the added resolution of the results.

Future Work

For future work, it would be interesting to identify other factors that may be related, directly or indirectly, to pleasantness, such as the state of conservation of buildings and public roads, public cleanliness, and safety concerns, among other subjective factors. Likewise, the introduction of more socioeconomic variables can be useful. The relationship between land value and pleasantness is also worth exploring in more detail and with larger datasets, so that a trend can be identified, or lack thereof verified. Finally, the role of neighborhood size is also important to consider, as neighborhood aggregations could mask the effects of population density.

Urban pleasantness is an important element of city design and planning that can directly impact the urban quality of life and sustainability, making it indispensable to consider in today's urban environment development.

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References

1. Bruinsma, F.; Rietveld, P. The Accessibility of European Cities: Theoretical Framework and Comparison of Approaches. *Environ. Plan. Econ. Space* **1998**, *30*, 499–521. [CrossRef]
2. Cullen, J.B.; Levitt, S.D. Crime, Urban Flight, and the Consequences for Cities. *Rev. Econ. Stat.* **1999**, *81*, 159–169. [CrossRef]
3. Handy, S. *Accessibility vs. Mobility: Enhancing Strategies for Addressing Automobile Dependence in the U.S.*; University of California: Davis, CA, USA, 2002.
4. Jacobs, J. *The Death and Life of Great American Cities*; Random House: New York, NY, USA, 1961.
5. Talen, E. Sense of Community and Neighbourhood Form: An Assessment of the Social Doctrine of New Urbanism. *Urban Stud.* **1999**, *36*, 1361–1379. [CrossRef]
6. De Guimarães, J.C.F.; Severo, E.A.; Felix Júnior, L.A.; Da Costa, W.P.L.B.; Salmoria, F.T. Governance and Quality of Life in Smart Cities: Towards Sustainable Development Goals. *J. Clean. Prod.* **2020**, *253*, 119926. [CrossRef]

7. Meng, Y.; Xing, H. Exploring the Relationship between Landscape Characteristics and Urban Vibrancy: A Case Study Using Morphology and Review Data. *Cities* **2019**, *95*, 102389. [CrossRef]
8. Riffat, S.; Powell, R.; Aydin, D. Future Cities and Environmental Sustainability. *Future Cities Environ.* **2016**, *2*, 1. [CrossRef]
9. Nuvolati, G. Quality of Life in Cities: A Question of Mobility and Accessibility. In *Quality of Life and the Millennium Challenge: Advances in Quality-of-Life Studies, Theory and Research*; Møller, V., Huschka, D., Eds.; Springer Netherlands: Dordrecht, The Netherlands, 2009; pp. 177–191. ISBN 978-1-4020-8569-7.
10. Mouratidis, K. Urban Planning and Quality of Life: A Review of Pathways Linking the Built Environment to Subjective Well-Being. *Cities* **2021**, *115*, 103229. [CrossRef]
11. Mohit, M.A. Quality of Life in Natural and Built Environment—An Introductory Analysis. *Procedia-Soc. Behav. Sci.* **2013**, *101*, 33–43. [CrossRef]
12. Sousa, N.; Monteiro, J.; Natividade-Jesus, E.; Coutinho-Rodrigues, J. The Impact of Geometric and Land Use Elements on the Perceived Pleasantness of Urban Layouts. *Environ. Plan. B Urban Anal. City Sci.* **2022**, *50*, 740–756. [CrossRef]
13. Geneletti, D.; La Rosa, D.; Spyra, M.; Cortinovis, C. A Review of Approaches and Challenges for Sustainable Planning in Urban Peripheries. *Landsc. Urban Plan.* **2017**, *165*, 231–243. [CrossRef]
14. Nagendra, H.; Bai, X.; Brondizio, E.S.; Lwasa, S. The Urban South and the Predicament of Global Sustainability. *Nat. Sustain.* **2018**, *1*, 341–349. [CrossRef]
15. Dados, N.; Connell, R. The Global South. *Contexts* **2012**, *11*, 12–13. [CrossRef]
16. Mitlin, D.; Satterhwaite, D. *Urban Poverty in the Global South*; Routledge: London, UK, 2012.
17. Rigolon, A.; Browning, M.H.E.M.; Lee, K.; Shin, S. Access to Urban Green Space in Cities of the Global South: A Systematic Literature Review. *Urban Sci.* **2018**, *2*, 67. [CrossRef]
18. Shin, H.B.; Lees, L.; López-Morales, E. Introduction: Locating Gentrification in the Global East. *Urban Stud.* **2016**, *53*, 455–470. [CrossRef]
19. Redclift, M.; Sage, C. Global Environmental Change and Global Inequality: North/South Perspectives. *Int. Sociol.* **1998**, *13*, 499–516. [CrossRef]
20. United Nations Global Issues Overview. Available online: https://www.un.org/en/global-issues/ (accessed on 8 January 2022).
21. Shatkin, G. Global Cities of the South: Emerging Perspectives on Growth and Inequality. *Cities* **2007**, *24*, 1–15. [CrossRef]
22. Miraftab, F. Insurgent Planning: Situating Radical Planning in the Global South. *Plan. Theory* **2009**, *8*, 32–50. [CrossRef]
23. Dupont, V.; Jordhus-Lier, D.; Sutherland, C.; Braathen, E. *The Politics of Slums in the Global South: Urban Informality in Brazil, India, South Africa and Peru*; Routledge: New York, NY, USA, 2016.
24. Xiao, Z.; Wang, J.J.; Liu, Q. The Impacts of Final Delivery Solutions on E-Shopping Usage Behaviour. *Int. J. Retail Distrib. Manag.* **2018**, *46*, 2–20. [CrossRef]
25. Leichenko, R.M.; Solecki, W.D. Consumption, Inequity, and Environmental Justice: The Making of New Metropolitan Landscapes in Developing Countries. *Soc. Nat. Resour.* **2008**, *21*, 611–624. [CrossRef]
26. Simone, A. Cities of the Global South. *Annu. Rev. Sociol.* **2020**, *46*, 603–622. [CrossRef]
27. D'Acci, L. Aesthetical Cognitive Perceptions of Urban Street Form. Pedestrian Preferences towards Straight or Curvy Route Shapes. *J. Urban Des.* **2019**, *24*, 896–912. [CrossRef]
28. Yaran, A. Investigating the Aesthetic Impact of Tall Buildings on Urban Landscape. *J. Build. Perform.* **2016**, *7*, 1–8.
29. Calafiore, A. Measuring Beauty in Urban Settings. In Proceedings of the GISRUK 2020 Proceedings; London, 2020. Available online: https://www.semanticscholar.org/paper/Measuring-Beauty-in-Urban-Settings-Calafiore/c5a631d927797461bd663efacef08431032c0687 (accessed on 1 April 2023).
30. Sullivan, W.C. Perceptions of the Rural-Urban Fringe: Citizen Preferences for Natural and Developed Settings. *Landsc. Urban Plan.* **1994**, *29*, 85–101. [CrossRef]
31. Ball, K.; Bauman, A.; Leslie, E.; Owen, N. Perceived Environmental Aesthetics and Convenience and Company Are Associated with Walking for Exercise among Australian Adults. *Prev. Med.* **2001**, *33*, 434–440. [CrossRef]
32. Humpel, N.; Owen, N.; Iverson, D.; Leslie, E.; Bauman, A. Perceived Environment Attributes, Residential Location, and Walking for Particular Purposes. *Am. J. Prev. Med.* **2004**, *26*, 119–125. [CrossRef]
33. Hoffmann, I.; Jensen, N.; Cristescu, A. Decentralized Governance for Digital Platforms—Architecture Proposal for the Mobility Market to Enhance Data Privacy and Market Diversity. In Proceedings of the 2021 IEEE 18th Annual Consumer Communications & Networking Conference (CCNC), Las Vegas, NV, USA, 9–12 January 2021.
34. Zhang, A.; Li, W.; Wu, J.; Lin, J.; Chu, J.; Xia, C. How Can the Urban Landscape Affect Urban Vitality at the Street Block Level? A Case Study of 15 Metropolises in China. *Environ. Plan. B Urban Anal. City Sci.* **2021**, *48*, 1245–1262. [CrossRef]
35. Lynch, K. *The Image of the City*; The MIT Press: Cambridge, MA, USA, 1960.
36. Stamps, A.E. Complexity of Architectural Silhouettes: From Vague Impressions to Definite Design Features. *Percept. Mot. Skills* **1998**, *87*, 1407–1417. [CrossRef] [PubMed]
37. LI, S.; Ma, S.; Tong, D.; Jia, Z.; Li, P.; Long, Y. Associations between the Quality of Street Space and the Attributes of the Built Environment Using Large Volumes of Street View Pictures. *Environ. Plan. B Urban Anal. City Sci.* **2022**, *49*, 1197–1211. [CrossRef]
38. Lee, K.-Y. Factors Influencing Urban Livability in Seoul, Korea: Urban Environmental Satisfaction and Neighborhood Relations. *Soc. Sci.* **2021**, *10*, 138. [CrossRef]

39. Wang, Y.; Zlatanova, S.; Yan, J.; Huang, Z.; Cheng, Y. Exploring the Relationship between Spatial Morphology Characteristics and Scenic Beauty Preference of Landscape Open Space Unit by Using Point Cloud Data. *Environ. Plan. B Urban Anal. City Sci.* **2021**, *48*, 1822–1840. [CrossRef]
40. Asgarzadeh, M.; Lusk, A.; Koga, T.; Hirate, K. Measuring Oppressiveness of Streetscapes. *Landsc. Urban Plan.* **2012**, *107*, 1–11. [CrossRef]
41. Alexander, C.; Ishikawa, S.; Silverstein, M.; Jacobson, M.; Fiksdahl-King, I.; Angel, S. *A Pattern Language: Towns, Buildings, Construction*; Oxford University Press: New York, NY, USA, 1977.
42. Cullen, G. *The Concise Townscape*; Routledge: Oxfordshire, UK, 1961.
43. Jacobs, A. *Great Streets*; The MIT Press: Cambridge, MA, USA, 1995.
44. Kasraian, D.; Li, L.; Raghav, S.; Shalaby, A.; Miller, E.J. Regional Transport Accessibility and Residential Property Values: The Case Study of the Greater Toronto and Hamilton Area. *Case Stud. Transp. Policy* **2023**, *11*, 100932. [CrossRef]
45. Bencure, J.C.; Tripathi, N.K.; Miyazaki, H.; Ninsawat, S.; Kim, S.M. Factors Affecting Decision-Making in Land Valuation Process Using AHP: A Case in the Philippines. *Int. J. Hous. Mark. Anal.* **2021**, *15*, 188–202. [CrossRef]
46. Saputra, E.; Ariyanto, I.S.; Ghiffari, R.A.; Fahmi, M.S.I. Land Value in a Disaster-Prone Urbanized Coastal Area: A Case Study from Semarang City, Indonesia. *Land* **2021**, *10*, 1187. [CrossRef]
47. Bao, H.X.; Larsson, J.P.; Wong, V. Light at the End of the Tunnel:The Impacts of Expected Major Transport Improvements on Residential Property Prices. *Urban Stud.* **2021**, *58*, 2971–2990. [CrossRef]
48. Tontisirin, N.; Anantsuksomsri, S. Measuring Transit Accessibility Benefits and Their Implications on Land Value Capture: A Case Study of the Bangkok Metropolitan Region. *Ann. Reg. Sci.* **2021**, *67*, 415–449. [CrossRef]
49. Munshi, T. Accessibility, Infrastructure Provision and Residential Land Value: Modelling the Relation Using Geographic Weighted Regression in the City of Rajkot, India. *Sustainability* **2020**, *12*, 8615. [CrossRef]
50. BV, B.; MA, N.; PP, A.K. A Methodology for Identifying Critical Factors Influencing Land Value in Urban Areas: A Case Study of Kerala, India. *Prop. Manag.* **2020**, *38*, 665–681. [CrossRef]
51. Clapp, J.M.; Cohen, J.P.; Lindenthal, T. Are Estimates of Rapid Growth in Urban Land Values an Artifact of the Land Residual Model? *J. Real Estate Finance Econ.* **2023**, *66*, 373–421. [CrossRef]
52. Cho, S.; Choi, K.; Yi, Y. Proactive and Sustainable Transport Investment Strategies to Balance the Variance of Land Use and House Prices: A Korean Case. *Sustainability* **2022**, *14*, 14191. [CrossRef]
53. Kirdar, G.; Cagdas, G. A Decision Support Model to Evaluate Liveability in the Context of Urban Vibrancy. *Int. J. Archit. Comput.* **2022**, *20*, 528–552. [CrossRef]
54. Fassio, O.; Rollero, C.; De Piccoli, N. Health, Quality of Life and Population Density: A Preliminary Study on "Contextualized" Quality of Life. *Soc. Indic. Res.* **2013**, *110*, 479–488. [CrossRef]
55. Cramer, V.; Torgersen, S.; Kringlen, E. Quality of Life in a City: The Effect of Population Density. *Soc. Indic. Res.* **2004**, *69*, 103–116. [CrossRef]
56. Walton, D.; Murray, S.J.; Thomas, J.A. Relationships Between Population Density and the Perceived Quality of Neighbourhood. *Soc. Indic. Res.* **2008**, *89*, 405–420. [CrossRef]
57. Ray, B. Quality of Life in Selected Slums of Kolkata: A Step Forward in the Era of Pseudo-Urbanisation. *Local Environ.* **2017**, *22*, 365–387. [CrossRef]
58. Izutsu, T.; Tsutsumi, A.; Islam, A.M.d.; Kato, S.; Wakai, S.; Kurita, H. Mental Health, Quality of Life, and Nutritional Status of Adolescents in Dhaka, Bangladesh: Comparison between an Urban Slum and a Non-Slum Area. *Soc. Sci. Med.* **2006**, *63*, 1477–1488. [CrossRef]
59. Zube, E.H.; Sell, J.L.; Taylor, J.G. Landscape Perception: Research, Application and Theory. *Landsc. Plan.* **1982**, *9*, 1–33. [CrossRef]
60. Karimimoshaver, M.; Parsamanesh, M.; Aram, F.; Mosavi, A. The Impact of the City Skyline on Pleasantness; State of the Art and a Case Study. *Heliyon* **2021**, *7*, e07009. [CrossRef]
61. Li, X.; Li, L.; Wang, X.; Lin, Q.; Wu, D.; Dong, Y.; Han, S. Visual Quality Evaluation Model of an Urban River Landscape Based on Random Forest. *Ecol. Indic.* **2021**, *133*, 108381. [CrossRef]
62. Luo, J.; Zhao, T.; Cao, L.; Biljecki, F. Water View Imagery: Perception and Evaluation of Urban Waterscapes Worldwide. *Ecol. Indic.* **2022**, *145*, 109615. [CrossRef]
63. Nasar, J.L. Urban Design Aesthetics: The Evaluative Qualities of Building Exteriors. *Environ. Behav.* **1994**, *26*, 377–401. [CrossRef]
64. Wang, R.; Zhao, J.; Liu, Z. Consensus in Visual Preferences: The Effects of Aesthetic Quality and Landscape Types. *Urban For. Urban Green.* **2016**, *20*, 210–217. [CrossRef]
65. Zhang, N.; Zheng, X.; Wang, X. Assessment of Aesthetic Quality of Urban Landscapes by Integrating Objective and Subjective Factors: A Case Study for Riparian Landscapes. *Front. Ecol. Evol.* **2022**, *9*, 935. [CrossRef]
66. Sahraoui, Y.; Clauzel, C.; Foltête, J.-C. Spatial Modelling of Landscape Aesthetic Potential in Urban-Rural Fringes. *J. Environ. Manage.* **2016**, *181*, 623–636. [CrossRef]
67. Hu, F.; Liu, W.; Lu, J.; Song, C.; Meng, Y.; Wang, J.; Xing, H. Urban Function as a New Perspective for Adaptive Street Quality Assessment. *Sustainability* **2020**, *12*, 1296. [CrossRef]
68. Balasubramanian, S.; Irulappan, C.; Kitchley, J.L. Aesthetics of Urban Commercial Streets from the Perspective of Cognitive Memory and User Behavior in Urban Environments. *Front. Archit. Res.* **2022**, *11*, 949–962. [CrossRef]

69. Hur, M.; Nasar, J.L.; Chun, B. Neighborhood Satisfaction, Physical and Perceived Naturalness and Openness. *J. Environ. Psychol.* **2010**, *30*, 52–59. [CrossRef]
70. Park, S.-H.; Kim, J.-H.; Choi, Y.-M.; Seo, H.-L. Design Elements to Improve Pleasantness, Vitality, Safety, and Complexity of the Pedestrian Environment: Evidence from a Korean Neighbourhood Walkability Case Study. *Int. J. Urban Sci.* **2013**, *17*, 142–160. [CrossRef]
71. Nursoleh, N. Location Analysis of Interest in Buying Housing in South Tangerang City. *Akad. J. Mhs. Ekon. Bisnis* **2022**, *2*, 35–42. [CrossRef]
72. Soon, A.; Tan, C. An Analysis on Housing Affordability in Malaysian Housing Markets and the Home Buyers' Preference. *Int. J. Hous. Mark. Anal.* **2019**, *13*, 375–392. [CrossRef]
73. Källström, L.; Hultman, J. Place Satisfaction Revisited: Residents' Perceptions of "a Good Place to Live". *J. Place Manag. Dev.* **2018**, *12*, 274–290. [CrossRef]
74. Skifter Andersen, H. Explaining Preferences for Home Surroundings and Locations. *Urbani Izziv* **2011**, *22*, 100–114. [CrossRef]
75. Belo Horizonte Anexo IV—Síntese Da História de Belo Horizonte. Available online: https://prefeitura.pbh.gov.br/sites/default/files/estrutura-de-governo/politica-urbana/2018/planejamento-urbano/cca_anexo_iv_-_sintese_da_historia_de_bh.pdf (accessed on 8 January 2023).
76. IBGE | Censo. 2010. Available online: https://censo2010.ibge.gov.br/ (accessed on 22 February 2023).
77. INE 2011 Census. Available online: https://censos.ine.pt/xportal/xmain?xpid=CENSOS&xpgid=censos2011_apresentacao (accessed on 8 February 2023).
78. Secretaria-Geral Da Presidência Do Conselho de Ministros. Available online: https://www.sg.pcm.gov.pt/sobre-nos/regulamento-geral-de-prote%C3%A7%C3%A3o-de-dados.aspx (accessed on 23 February 2023).
79. BH Map—Visualizador. Available online: http://bhmap.pbh.gov.br/v2/mapa/idebhgeo#zoom=4&lat=7796893.0925&lon=609250.9075&baselayer=base (accessed on 22 February 2023).
80. Metro Mondego. Available online: https://www.metromondego.pt/pt/home (accessed on 19 February 2023).
81. de Winter, J.F.C.; Dodou, D. Five-Point Likert Items: T Test versus Mann-Whitney-Wilcoxon (*Addendum Added October 2012*). *Pract. Assess. Res. Eval.* **2019**, *15*, 11. [CrossRef]
82. Labovitz, S. Some Observations on Measurement and Statistics. *Soc. Forces* **1967**, *46*, 151–160. [CrossRef]
83. Sullivan, G.M.; Artino, A.R., Jr. Analyzing and Interpreting Data from Likert-Type Scales. *J. Grad. Med. Educ.* **2013**, *5*, 541–542. [CrossRef]
84. Traylor, M. Ordinal and Interval Scaling. *J. Mark. Res. Soc.* **1983**, *25*, 297–303.
85. Monteiro, J.; Sousa, N.; Natividade-Jesus, E.; Coutinho-Rodrigues, J. Benchmarking City Layouts—A Methodological Approach and an Accessibility Comparison between a Real City and the Garden City. *Sustainability* **2022**, *14*, 5029. [CrossRef]
86. Residential Location Preferences: New Perspective. *Transp. Res. Procedia* **2016**, *17*, 369–383. [CrossRef]
87. Luttik, J. The Value of Trees, Water and Open Space as Reflected by House Prices in the Netherlands. *Landsc. Urban Plan.* **2000**, *48*, 161–167. [CrossRef]
88. Zhang, L.; Cao, H.; Han, R. Residents' Preferences and Perceptions toward Green Open Spaces in an Urban Area. *Sustainability* **2021**, *13*, 1558. [CrossRef]
89. de Abreu e Silva, J.; Melo, P.C. Home Telework, Travel Behavior, and Land-Use Patterns: A Path Analysis of British Single-Worker Households. *J. Transp. Land Use* **2018**, *11*, 419–441. [CrossRef]
90. Mazanti, B. Choosing Residence, Community and Neighbours -Theorizing Families' Motives for Moving1. *Geogr. Ann. Ser. B Hum. Geogr.* **2007**, *89*, 53–68. [CrossRef]
91. Hasanzadeh, K.; Kyttä, M.; Brown, G. Beyond Housing Preferences: Urban Structure and Actualisation of Residential Area Preferences. *Urban Sci.* **2019**, *3*, 21. [CrossRef]