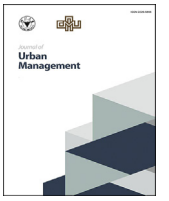
Journal of Urban Management 13 (2024) 319–331

HOSTED BY

Contents lists available at ScienceDirect

Journal of Urban Management

journal homepage: www.elsevier.com/locate/jum



Research Article

Cityphilia and cityphobia: A multi-scalar search for city love in Flanders

Karima Kourtit [a,b,c,*], Bart Neuts [d], Peter Nijkamp [a,b,c], Marie H. Wahlström [e]

[a] Open University, Heerlen, the Netherlands
[b] Alexandru Ioan Cuza University, Iasi, Romania
[c] University of Rijeka, Rijeka, Croatia
[d] KU Leuven, Leuven, Belgium
[e] KTH, Stockholm, Sweden

ARTICLE INFO

Keywords:
Well-being
Happiness
City love
Social cohesion
Central place systems
Inter-urban attractiveness

ABSTRACT

Cities, towns, and rural areas form a complex spatial system influenced by governance, economic factors, and the perceptions of their residents. This paper introduces the concepts of 'cityphilia' and 'cityphobia' as metaphors for the spatial attraction and repulsion forces that shape local quality of life. It aims to create and validate an operational framework for understanding citizens' appreciation and attachment to their living environment, often referred to as 'city love.' This framework considers two key components, 'body' and 'soul,' encompassing both physical and social aspects. Building upon Charles Tiebout's work on the competitive attractiveness of cities and aligning with contemporary research on the geography of happiness, a conceptual model is developed and applied to identify and assess the components of city love using various indicators. These indicators encompass local attractiveness, local public expenditures, and inter-urban interdependencies. The model is empirically tested in the context of Flanders, Belgium, a region comprising 300 distinct municipalities, both urban and rural. A Beta regression model is employed, which incorporates spatial dependencies to examine multi-scalar effects on residential satisfaction. The results affirm the soundness of the 'city love' framework and emphasize the significance of central place systems in providing tangible and intangible well-being services to citizens within a hierarchical spatial structure. These findings carry notable implications for urban policy and management, shedding light on how local attractiveness and interdependence shape the well-being of residents in diverse urban and rural settings.

1. Setting the scene

According to the United Nations (UN) in 2007, we find ourselves in the 'urban century,' where over half of the world's population calls urban areas home. These compelling statistics have ignited a surge of research on urbanization and urban policy, particularly in the context of sustainability and rurality (for further insights, see Albouy & Kim, 2022, Elmquist et al., in 2019, Heynen in 2013, and Kourtit in 2019). While the trend points towards larger and more numerous cities, it's important to note that the appeal of urban living is not universal. Despite residing in the 'urban century,' individuals worldwide share a complex relationship with their cities, characterized by a blend of affection and aversion, often referred to as 'cityphilia' and 'cityphobia' (for more on this, see Blanco-Romero et al., in 2019,

* Corresponding author. University of Rijeka, Rijeka, Croatia.
E-mail address: k_kourtit@hotmail.com (K. Kourtit).

https://doi.org/10.1016/j.jum.2024.04.004
Received 13 November 2023; Received in revised form 13 March 2024; Accepted 26 April 2024
Available online 22 May 2024

Bannister & Fyfe, 2001; England & Simon, 2010). This tension between love and fear towards cities can be traced back to Tiebout's theory from 1956, which emphasizes the role of local public goods and individual preferences in shaping cities' populations. Cities, with their efficient provision of diverse amenities, tend to attract residents who value such offerings highly. Consequently, despite concerns about urban livability and socioeconomic disparities, the 'urban way of life' (as introduced by Wirth in 1938) remains cherished by many (as exemplified by Glaeser in 2011, Florida in 2017; Kourtit et al., in 2022). In today's society, marked by swift mobility and extensive physical and virtual connectivity, the enjoyment of public goods has become less dependent on one's immediate living environment. Hence, there's a compelling need to reconsider the fundamental role of cities within a broader spatial network, focusing on sustainability and quality of life (as explored by Baum-Snow & Pavan, 2013, Lee and Kim in 2019, Morris in 2019, Carlsen & Leknes, 2022; Reggiani et al., in 2022).

Urban history teaches us that cities are not passive products of human aspirations and mobility; they are designed to foster prosperity and well-being for their residents, while also serving the needs of neighboring regions. According to Neal in 2012 and Neal and Rozenblat in 2021, cities are intricate multi-scalar networks interconnected with other cities and rural areas. In essence, cities can be described as 'cities as systems within systems of cities,' a concept first proposed by Berry in 1964. People play a central role in urban systems, as confirmed by recent microcosmic studies on cities (such as Willis & Nold, 2022; Kourtit et al., in 2022). Citizens are adaptable and carve out their niches of happiness within urban communities, social neighborhoods, or virtual and real networks. They have limited options to alter their living environment, primarily through democratic elections, active citizen participation, or the drastic decision to relocate, often referred to as 'voting by feet,' as articulated by Tiebout (1956).

In the realm of spatial economics, we witness a complex and ever-evolving mosaic of diverse settlements, ranging from small hamlets to sprawling metropolitan areas. Structural changes in spatial systems typically occur at a gradual pace. Variations in local well-being conditions may trigger resident mobility, as highlighted by Lai in 2018. It's worth noting that individuals and businesses factor in the amenities available in neighboring areas when making location choices (as detailed in Albouy et al., in 2021). These amenities can span from daily necessities to luxury goods and specialized services. Christaller's central place theory, developed in 1926, often serves as an organizational principle for comprehending hierarchically structured spatial settlements and service systems, whether in a static context (as discussed by Berry in 1964) or a dynamic, even fractal context (as explored by Banaszak in 2023). The central place model asserts that in an equilibrium hexagonal configuration, there is no urgent need for structural relocations, as goods and services are usually accessible at reasonable distances, taking into account frictional costs, based on demand frequency and intensity. This finding has been substantiated by numerous empirical studies worldwide.

An important question arises regarding the applicability of this principle to public services provided by governments, such as education, medical care, or urban green spaces. In this context, Tiebout's seminal work (1956) on the optimal delivery of public goods assumes great significance. Essentially, Tiebout's theory posits that when there is a substantial disparity between the bundle of local public goods offered in a jurisdiction and an individual's perception of the quality of those goods, that individual might opt to move to a more favorable spatial jurisdiction to enhance their utility. This decision hinges on whether the value for money concerning goods or services in a given location is unsatisfactory, meaning that local taxes don't align with the volume and quality of local public services available. Thus, this individual assessment of value for money can lead to socio-economic sorting in different spatial jurisdictions due to competitive dynamics in the supply of local public goods. Moving to another location offers higher personal utility to the individual, aligning better with their preferences. However, it's important to recognize that the 'foot voting' mechanism is based on a set of restrictive assumptions, including (see also Bewley, 1981; Spencer & Walsh, 2008).

- A movement decision is heavily influenced by the availability of local public goods and doesn't account for the Christallerian framework of hierarchically provided amenities in geographical space, taking into consideration distance frictions.
- The analysis overlooks the basket of complementary private goods, offered at different prices and in different locations, which also influence locational perceptions and choices.
- In the Tieboutian world, the supply of local public goods occurs through a bundle of amenities that may not necessarily be individualized and located in immediate proximity. A resident's decision to relocate isn't solely determined by undifferentiated public goods but also by their access to the specific local public goods they desire.
- The 'foot voting' mechanism neglects significant tensions and shortages in local housing markets, which can impede free mobility. 'Captive residents' may be forced to accept a lower level of well-being or happiness without the ability to improve their position on the well-being scale.
- The (relative) share of the tax burden for local public goods doesn't consider the impact of total household expenditures on the entire array of public and private goods, not to mention unpriced goods like urban ambiance, parks, or nature. Additionally, in many countries, local taxes are minimal or almost negligible, making their impact likely insignificant.

In a free-market spatial economy, the need for desired local goods supply may prompt geographic movements. However, in many countries, differences in the availability of local public amenities don't immediately trigger significant spatial dynamics due to constraints in housing and labor markets, and the 'satisficing' behavior of citizens as discussed by Simon (1957). This behavior results from bounded rationality, leading to inertia in response. Dissatisfaction with local amenities can lead to reduced subjective well-being. Given these considerations, it's worthwhile to explore a new conceptual framework based on recent developments in local well-being or happiness research. The core proposition would be that individuals, when reasonably content with their local living environment, may lack immediate motivation to relocate, except for reasons related to employment, education, or aging. The extent of satisfaction with local goods or services may vary, and citizens' dissatisfaction with local amenities must be assessed through empirical contentment or happiness research.

The present study departs from the generic 'places4people' (P4P) paradigm and assumes that cities and towns act as elevators for individual and social well-being or happiness. Our research aims to identify the determinants of residents' well-being based on the novel concept of *'city love*.' Consequently, an analysis of well-being perceptions in cities, towns, and rural areas, as well as their spatial interconnections, is essential. In our empirical research, we'll break down the core concept of *'city love*' into its '*body*' elements, representing the tangible built environment, and its '*soul*' elements, encompassing the services related to perceived urban identity, ambiance, social cohesion, social capital, and bonding variables. We will test this conceptualization using statistical and survey data collected from 300 Flemish municipalities in Belgium, which includes urban, rural, and peri-urban areas. We will explore the relevance of local '*body*' and '*soul*' indicators on individual satisfaction through a multivariate cross-sectional analysis employing Beta regression techniques. The empirical findings will shed light on the significance of local livelihoods and assess the heterogeneity and spatial interdependencies among different places, thus contributing to a deeper understanding of the 'cityphilia' – 'cityphobia' dichotomy.

The paper's structure is as follows: following this introductory section, we will establish the conceptual foundation for our research in Section 2. The methodological framework will be presented in Section 3. Details regarding the database and operational model specification will be provided in Section 4. Section 5 will be dedicated to presenting and interpreting the results of the statistical-econometric analysis. Finally, the concluding section will offer a retrospective and prospective view of this emerging research field in urban science.

2. Cityphilia and cityphobia: A matter of urban well-being

Recent social science research has witnessed a growing interest in factors related to well-being, encompassing dimensions like happiness, satisfaction, liveability, contentment, and eudaimonia (as discussed by Burger et al., in 2020; Hoogerbrugge et al., in 2021). This surge in interest initially stemmed from concerns about environmental quality, as evidenced by metrics such as green GDP and 'beyond GDP' indicators, which served as evidence-based complements to traditional welfare indicators like per capita income (explored by Kalimeris et al., 2019). Over the past years, this trend has evolved into quantitative well-being and happiness research within the social sciences, notably in sociology, psychology, economics, and geography (for comprehensive overviews, see Osth et al., in 2020, Wahlstrom et al., in 2020; Kourtit et al., in 2020; 2022). The central premise here is that organizations, whether at the national, municipal, or corporate level, offer a diverse array of goods and services, both tangible and intangible, that significantly influence the well-being of their constituents. This, naturally, raises a multitude of questions: What are the determinants of well-being? How can well-being be effectively measured? And what role does the larger spatial context play in shaping well-being?

In recent years, well-being and happiness research has gained prominence within the field of human geography and regional science across numerous countries (as evidenced by Aroca in 2017; Morrison & Weckroth, 2018). In urban science literature, there is often a clear distinction made between urban and rural areas, highlighting a dichotomy between these two settings (as suggested by Batabyal et al., in 2021). However, the actual spatial landscape is significantly more diverse. Urban areas in many countries resemble a vibrant, multi-faceted patchwork quilt with an astonishing level of heterogeneity. Streets, neighborhoods, districts, city centers, suburbs, edge cities, peri-urban settlements, new towns, peri-rural areas, rural towns, and villages each offer a rich variety of locational conditions that affect people's well-being.

The core of our research inquiry can be traced back to the renowned urbanist Kevin Lynch, in 1960, who posed the question many years ago: 'What is a good city?' More recently, Steven Lehmann, in 2019 similarly inquired, 'What is a good place to live?' Our research now centers on the question: 'What are the attributes of a city, town, or municipality that endear it to its residents, fostering their attachment to their surroundings?' In tackling this question, we must acknowledge that 'cityphilia' and 'cityphobia' represent two opposing forces that shape the complex, love-hate relationship citizens have with their multifaceted and diverse urban living environments. These push-pull dynamics arise from differences in attractiveness and the values placed on competing places, spanning from rural towns to urban agglomerations and networks (as detailed in Rozenblat and Neal in 2021, Nakano & Washizu, 2021; Li et al., in 2022). The existence of this dichotomous 'hate-love' phenomenon among residents can be attributed to the mixed push-pull factors concerning various settlements within an urban system. The living environment, often experienced at the neighborhood level, encompasses tangible objects, man-made artifacts, intangible perceptions or images, as well as social capital bonds and connections (as described by Putnam in 1995; Westlund in 2006).

To explore and understand the constituents of well-being within this multi-scalar complex system of settlement patterns, our study will leverage the concept of 'city love.' This recently developed concept can be defined as the place-based appreciation, satisfaction, or attachment that citizens have toward their place of residence, in relation to overall quality of life, liveability, and social support systems (as exemplified in Osth et al., in 2020). It has been utilized in recent studies, including those conducted in Sweden and the Netherlands, to identify the critical factors that contribute to residents' satisfaction with their daily urban living environments and, in turn, promote conditions conducive to spatial resilience. Here, we provide a concise overview of the literature to frame our research.

3. Methodological framing of the ‘city love’ concept

The assessment of well-being, including concepts such as happiness, life satisfaction, and quality of life, has undergone rapid development in the social sciences in recent years. It all began with Griffin's pioneering work in 1986, and since then, numerous endeavors have been made to quantify well-being across different societal scales, with significant contributions by Kahneman et al., in 1999, Seligman in 2002, and others. Veenhoven, in 2000, a prominent figure in happiness research, played a pivotal role in creating operational and quantifiable models for well-being. Economics also made notable contributions in this arena, starting with Easterlin's seminal work in 1974 and evolving into more recent and innovative happiness studies by Frey & Stutzer, 2002, Layard in 2005, Glaeser in 2011, Ballas in 2013, Weiman et al., in 2015; Blanchflower in 2021. In urban geography, interesting research emerged from Florida

et al., in 2013, Hoogerbrugge et al., in 2021, Mouratidis in 2019, Lenzi & Perucca, 2016, Delmelle & Thill, 2014, Botterman et al., in 2011; Morrison in 2021. Moreover, Kourtit et al., in 2020; 2021, Osth et al., in 2020, and Wahlstrom et al., in 2020 have made significant conceptual and operational contributions, signifying the growing importance of happiness research.

Numerous methodological approaches for assessing well-being and happiness exist. Seligman in 2002 categorized them into three major classes: hedonism theory (focusing on subjective pleasure feelings), desire theory (related to life satisfaction states), and objective list theory (concerned with the accomplishment of personal goals), which he encapsulated into the concept of authentic happiness. Subsequent years have seen numerous studies that have expanded upon this categorization.

Kalmijs in 2015 systematically classified various measurement methods, including survey studies or interviews (such as the World Values Survey or the Eurobarometer), index numbers for comparative statistical distribution studies at individual or collective levels, self-reporting measurements, expert rating approaches, and more. Oishi et al., in 2013 provided a comprehensive overview of well-being and happiness indicators across different countries. There is now a plethora of well-being (or related) indicators, such as the Human Development Index (HDI), the Happy Planet Index (HPI), the Better Life Index (BLI), the Gross National Happiness Index (GNH), and the Measure of Economic Welfare (MSEW). However, most of these measures adopt a macro perspective and are less suitable for assessing well-being or happiness at the neighborhood, city, or town level. The concept of city love narrows the focus to local well-being indicators, considering them as the primary determinants of citizens' attachment or appreciation for their city, livelihood, or neighborhood. In essence, city love is a multidimensional construct with various components (see also Akimowicz, Weeden, & Gibson, 2022; Nijkamp, 2008; Okulicz-Kozaryna & Valente, 2021; Yigitcanlar et al., 2015).

The primary challenge of this study is to conduct an evidence-based, quantitative analysis of place-based well-being and happiness by exploring and estimating the relationship between measurable indicators of urban sustainability and liveability on the one hand, and residents' feelings of appreciation and contentment, encapsulated in the concept of city love, on the other. This also positions the current study within the research tradition of neighborhood satisfaction and place attachment in a competitive urban amenities environment (see also Gramlich and Rubinfeld, 1983). As mentioned earlier, the city love concept can be deconstructed into 'body' and 'soul' indicators. The 'body' includes physical and functional urban amenities (e.g., the built environment and infrastructure), while the 'soul' relates to cultural, lifestyle, historical, or social dimensions of city life. City love is also intertwined with local 'social capital,' encompassing social bonds, community networks, and trust. Residents' appreciation for their neighborhood, city, or municipality will also be influenced by individual socio-psychological aspects, such as personal well-being. This leads to the hypothesis we aim to test in our study: *City love, as a quantitative measure of citizens' attachment to urban attractiveness, is shaped by both the 'body' and the 'soul' of the city in relation to its surrounding spatial system*. This hypothesis, inspired by Tiebout's work (1956), seeks to quantify the competitive advantages among localities in terms of the well-being they offer to citizens.

Operationalizing this conceptual framework requires the use of both subjective survey-based and objective data to capture both the '*body*' and the '*soul*' aspects of city love. Fig. 1 outlines the operationalization of this conceptual model. City love is assessed through residents' perceived pride and satisfaction with their municipality. The '*body*' is evaluated through quantitative data on local economic conditions, commercial and public services, and transport infrastructure, while the '*soul*' is assessed through measurable perceptions related to culture and recreational facilities, trust in public authorities, networking, safety, and aesthetics. Social capital is estimated through perceptions of residents' social contacts and networks (see Fig. 1).

Fig. 1 illustrates that individual citizens may value access to different amenities differently depending on the type of amenity. For example, social capital and safety may be more crucial within the municipality of residence, whereas cultural and recreational facilities (e.g., shops) might also be accessible in nearby municipalities. Additionally, commuting to work in a nearby municipality might be desirable, but it is also important to be able to walk or bike safely in the municipality of residence. In other words, the absence of a particular amenity in the municipality of residence can potentially be compensated for if that amenity is available in a nearby location. This distinction is depicted through the white or colored segments in Fig. 1, whether within or outside the place of residence. A filled segment indicates the greater importance of the amenity at a specific geographical level, while an unfilled segment suggests that the amenity is considered of lesser importance at the concerned level (see also Jokela et al., 2015; Kahana et al., 2003).

The operationalization depicted in Fig. 1 forms the basis for the empirical application in Sections 4 and 5. The region of Flanders in Belgium serves as an intriguing test case for our research due to its diversity in urban size classes and services. In this study, Flemish municipalities are chosen as the spatial base for analyzing city love, utilizing a combination of various local data sources (refer to Section

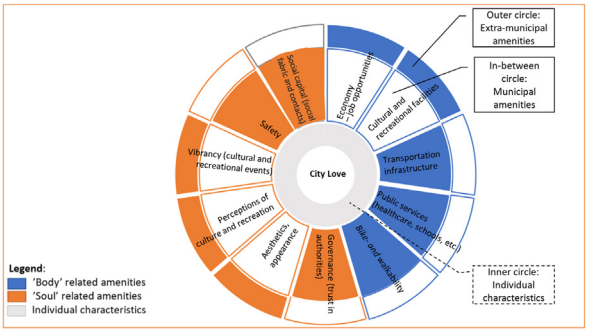


Fig. 1. Operationalization of the 'city love' conceptual model, based on available data sources.

4 for a detailed description of the available data). Section 5 will explore localized and non-localized shopping facilities and recreational (cultural and other) services to test the hypothesis that certain amenities can be located outside the municipality without negatively impacting local city love. This examination will be conducted in the subsequent sections of the study.

4. Research methodology

Our study offers a comparative cross-sectional analysis of 300 Flemish municipalities in Belgium. Flanders constitutes the northern region of Belgium, covering an area of 13,522 square kilometers. With a total population of 6.65 million in 2021 and an average population density of 488 inhabitants per square kilometer, particularly concentrated around the *'Flemish diamond'* formed by the cities of Ghent, Antwerp, Leuven, and Brussels, the region boasts a relatively high population density, although it lacks very large cities. The average population size across the 300 municipalities is 22,143 residents (Statistiek Vlaanderen, 2022). Flanders is characterized by its 'ribbon morphology,' with residential corridors often developed along main roads and corridors. A trend in rural or peri-urban living outside of city centers, coupled with commuting for work or study, to 13 center cities – plus Brussels Capital Region – which have a relatively high number of inhabitants compared to their surrounding areas and serve as central hubs for employment, healthcare, education, culture, and leisure, can be observed. Due to the relatively small size of each municipality and the short distances between them, many urban amenities are easily accessible.

Data were sourced from two main channels: official socio-economic and environmental statistical data from the Federal Bureau for Statistics (Statbel), the National Bank of Belgium (NBB), and the Flemish Bureau for Statistics (Statistiek Vlaanderen). Additionally, a set of indicators was derived from the 2020 Municipality-City Monitor of the Home Affairs Agency of the Flemish Government, which collected 139,470 valid responses (36.9% response rate), representative per municipality for age and gender (Agentschap Binnenlands Bestuur, 2022).

From these sources, we identified several variables to represent key aspects of the physical and functional amenities ('body') and the cultural, lifestyle, and social amenities ('soul') of each municipality. A number of indicators was selected to establish a significant urban-rural typology, as presented in Table 1, adopting the typology employed by the Department of Environment for spatial analysis of Flanders (Omgeving, 2021).

(a) Population data, encompassing both population size and density.
(b) Building rate and the volume of available green spaces.
(c) Activity rate, which includes commerce, companies, and net commuting rate.

These data, measured on different scales, were combined into a composite indicator using Min-Max normalization. An equally weighted average was subsequently calculated to ensure that each variable contributed equally to the relevant factor.

Subsequently, a more extensive array of variables was curated to encompass the constructs related to 'body' and 'soul,' as outlined in Table 2. The 'Economy' factor amalgamates data on commercial enterprises, VAT-liable companies (as detailed in Table 1), open job vacancies, and the entrepreneurship rate. Given the diversity in the scales of these constituent indicators, a Min-Max normalization method was applied once more to facilitate their meaningful integration. Several other factors emerged from the amalgamation of various indicators, including 'Transportation,' which gauges residential contentment with features like pedestrian walkways, cycling lanes, public transport, and parking facilities. 'Commuting' scrutinizes the percentage of residents with extended commutes (>1 h) or lengthy distances (>50 km). The 'Safety' factor evaluates the proportion of residents who occasionally feel unsafe or tend to avoid specific areas. The 'Social contacts' factor is an amalgamation of satisfaction levels regarding social interactions and the neighborhood's social fabric. 'Governance' encompasses public trust in both municipal authorities and the police force. Lastly, 'Aesthetics' delves into the cleanliness and overall condition of streets and squares. All of these factors rely on data measured on a similar standardized scale, specifically the percentage of respondents in agreement with the respective statements. Hence, there was no necessity for further scaling, and factor scores were computed as simple averages of the constituent items. In contrast, other modeling factors such as 'Shopping,' 'Recreation,' 'Sports facilities,' 'Poverty,' 'Housing,' and 'Healthcare' are each represented by single indicators.

The central construct of interest in this study is the satisfaction of residents with their respective towns or cities, commonly referred to as "city love." To capture this construct, three variables were employed: the percentage of individuals reporting satisfaction with their municipality (median = 78%, mean = 76%, s.d. = 7%), the percentage of individuals expressing enjoyment of living in their municipality (median = 92%, mean = 91%, s.d. = 4%), and the percentage of individuals indicating pride in their municipality (median =

Table 1
Indicators and descriptive data for urban-rural typology in Flanders (2020).

Variable	Factor	Measurement	Median	Mean (s.d.)
Population size	Urban typology	Absolute	15,066	22,216.48 (36,266.71)
Population density, people per km^2	Urban typology	People/km^2	413	570.75 (497.43)
Building rate as percentage of built land	Urban typology	Percentage	5%	6% (3%)
Number of commercial enterprises	Urban typology; economy	Per 1000 residents	15.75	16.69 (5.84)
Number of VAT-liable companies	Urban typology; economy	Absolute	1468	2065.78 (3259.03)
Green space in relation to total land area[a]	Urban typology	Percentage	82%	80% 9%)
Net commuting (difference between incoming and outgoing commute[a)]	Urban typology	Absolute	−1843	−518.21 (7419.48)

Note: [a] data on Green space and Net commuting relate to 2016 due to lack of more recent data.

Table 2
Indicators and descriptive data for body (B) and soul (S) constructs (2020).

Variable	Factor	Measurement	Median	Mean (s.d.)
Open vacancies per 100 non-working job seekers (B)	Economy	Per 100 job seekers	19.40	24.67 (17.79)
Rate of entrepreneurship per 100 residents (B)	Economy	Per 100 residents	11.30	11.84 (3.15)
Number of stores in the category clothes and fashion, free time, hotels, restaurants, bars, culture, recreation (B)	Shopping	Per 1000 residents	71.00	139.38 (319.57)
Recreational and cultural events (B)	Recreation	Per 1000 residents	234.18	436.00 (889.17)
Sports infrastructure (open air, sports halls, swimming pools) (B)	Sports facilities	Per 1000 residents	56.09	77.03 (96.40)
Residents satisfied with the state of pedestrian walkways (B)	Transportation infrastructure	Percentage	44%	45% 11%)
Residents satisfied with the state of cycling lanes (B)	Transportation infrastructure	Percentage	39%	39% (13%)
Residents agreeing that there are enough cycling lanes (B)	Transportation infrastructure	Percentage	41%	42% (14%)
Residents agreeing that it is safe to cycle (B)	Transportation infrastructure	Percentage	42%	43% (12%)
Residents agreeing that there is enough public transport (B)	Transportation infrastructure	Percentage	62%	61% (15%)
Residents agreeing that there is sufficient parking space (B)	Transportation infrastructure	Percentage	66%	65% (9%)
Residents having to travel for more than an hour to work/school (B)	Commute	Percentage	11%	12% (4%)
Residents having to travel for more than 50 km to work/school (B)	Commute	Percentage	9%	10% (5%)
Residents sometimes or often feeling unsafe in their municipality (S)	Safety	Percentage	23%	26% (11%)
Residents sometimes or often avoiding certain places in their municipality (S)	Safety	Percentage	18%	22% (12%)
People depending on living allowance (or equivalent measures) (S)	Poverty	Per 1000 residents	3.12	3.85 (2.87)
People satisfied with the contacts in their neighborhood (S)	Social contacts	Percentage	83%	82% (4%)
People considering that the neighborhood has a strong social fabric (S)	Social contacts	Percentage	52%	51% (6%)
People trusting their municipal government (S)	Governance	Percentage	33%	34% (9%)
People trusting the police (S)	Governance	Percentage	47%	47% (5%)
People agreeing that there is enough consultation of residents by the municipality (S)	Governance	Percentage	39%	39% (9%)
People satisfied with the state of the streets and squares (S)	Aesthetics	Percentage	57%	56% (11%)
People satisfied with the cleanliness of streets and pedestrian areas (S)	Aesthetics	Percentage	66%	66% (8%)
People satisfied with their house (B)	Housing	Percentage	91%	90% (3%)
People satisfied with the healthcare facilities (B)	Healthcare	Percentage	87%	86% (8%)

69%, mean = 69%, s.d. = 9%). To ensure an unbiased representation, an average score was computed, granting equal weight to each of these items.

From the data presented in Table 2 and the discussion on the dependent construct, it becomes evident that all survey-based data are in the form of proportions. As acknowledged by Douma and Weedon (2019), the statistical analysis of such data can be challenging. Proportions typically span the range between zero and one (in decimal enumeration), and their variance is often not constant across predictor values. These properties tend to deviate from the standard assumptions of normally distributed error terms and constant variance, complicating conventional analytical methods.

Various techniques have been proposed in the literature to address these challenges, depending on whether the proportions originate from counts or derive from continuous numbers. A common approach, especially when dealing with continuous proportions featuring two categories, is to apply data transformations such as the arcsine or logit transformation. Subsequently, a standard least squares regression model is utilized on the transformed variables (Warton & Hui, 2011). It is worth noting that Douma and Weedon (2019) and Kieschnick and McCullough (2003) recommend using ordinary least squares (OLS) techniques on the original, untransformed scale whenever feasible since transformations can introduce bias in the estimates, particularly when data approach values of 0 or 1.

An alternative approach specifically designed for proportional data bounded within the 0–1 interval is the Beta regression (Ferrari & Cribari-Neto, 2004). A Beta regression models the data generation process using a beta probability distribution for the dependent variable. The mean is linked to a set of regressors through a linear model with unknown coefficients and a specified link function. One key motivation for the Beta regression model is its flexibility, allowing the Beta density to take on a variety of shapes, including left-skewed, right-skewed, and uniform densities.

To assess the robustness of our findings, we will employ different econometric specifications. First, we will employ a standard ordinary least squares (OLS) regression model. Subsequently, we will explore an OLS model on logit-transformed data. Finally, we will utilize a Beta regression model. Additionally, we will expand the model to examine spatial correlation within a spatial dependence context. Analyzing at the municipal level poses challenges related to the uncertain geographic context problem. This is because focusing solely on the local urban or rural unit can overlook essential effects, as non-residential (extra-municipal) contexts like the work and recreational environment can significantly contribute to livability and urban/rural satisfaction (Sørensen, 2014).

5. Empirical results on city love in Flanders

5.1. Exploratory findings

To determine the factors influencing happiness in Flemish towns and cities within the context of an urban and rural dichotomy, we initially construct an urban-rural typology as presented in Table 1. Based on the data from Table 1, a composite indicator is created. The composite indicator has a minimum value of 0.006, a maximum of 0.286, a median of 0.011, and a mean of 0.0160 (standard deviation = 0.022). A cut-off point of 0.03 for the composite indicator is used to identify 'urban' municipalities. The cut-off point was chosen based on Jenks natural breaks optimization, which validated the underlying knowledge of the Flemish urban-rural landscape and found to overlap with the 13 officially recognized 'center cities' in Flanders, along with four additional municipalities: Zaventem, Machelen, Vilvoorde (all three within he extended urban belt of Brussels), and Ieper. The 'peri-urban' category includes municipalities with composite indicator scores between 0.011 and 0.03, totaling 145 municipalities. The final group comprises 137 municipalities scoring below 0.011 on the composite indicator and is designated as 'rural.' One municipality, Herstappe, was excluded from the dataset due to its small size (only 78 residents) and the absence of survey data, resulting in a total of 299 cities and towns. From the sample of Flemish towns and cities, we can identify significant differences in resident satisfaction, contingent on municipal characteristics. It is worth noting that citizens' general satisfaction (referred to as "city love") appears to be quite high across Flemish municipalities, with a mean of 0.787 (standard deviation = 0.067). The distribution of the dependent city love variable does not follow a normal distribution but exhibits a left-skewed nature, indicating that a majority of municipalities score towards the higher end of the 0–1 interval. In light of the discussion in the methodology section (Section 4), this raises questions about the suitability of a normal linear regression approach, which we will further analyze in Subsection 5.2.

5.2. Regression results for city love in Flanders

As mentioned earlier, we employ a standard Ordinary Least Squares (OLS) regression, OLS on log-transformed data, and a Beta regression to compare and examine potential significant differences. The results from these models, as displayed in Table 3, lead to similar conclusions. There are no significant differences in city love scores between rural, peri-urban, and urban municipalities. The R^2 statistic is very low, signifying weak explanatory power for the spatial typology concerning city love.

First, we explore the differences between urban, peri-urban, and rural municipalities based on elements considered vital for the constituents of city love. Table 4 provides a straightforward comparison of descriptive data for the factors outlined in our methodological overview. Urban areas exhibit significantly higher scores in terms of shopping and recreational opportunities. Conversely, urban and peri-urban areas show higher percentages of relative poverty and greater safety concerns. Peri-urban and rural areas also appear to offer more satisfactory social contacts (representing social capital) compared to their urban counterparts in Flanders. Other distinctions appear less pronounced at first glance.

At first glance, it seems that urban areas provide better and more tangible facilities and benefits, while rural areas boast strong social networks and are perceived as safer with fewer issues related to poverty. However, despite Table 3 failing to find a significant difference in city love, the clear disparities in construct scores based on typology, as seen in Table 4, could indicate that urban, peri-urban, and rural municipalities attract populations with distinct preferences and expectations.

Next, we analyze to what extent each of these municipal elements serves as an explanatory variable for the more general concept of 'city love.' This analysis is conducted for the entire sample, given the limited number of urban municipalities (see Table 5). To accomplish this, the dependent variable of municipal satisfaction (city love) is regressed against a variety of 'body' and 'soul' indicators. After conducting an initial test for potential multicollinearity, we decided to omit 'Neighborhood aesthetics' and 'Sports infrastructure' from the model. All three tested models reveal the same significant explanatory variables for city love.

On the functional level of facilities, satisfaction with the transportation infrastructure, which combines elements related to cycling, walking, public transport, and parking, plays a crucial role in residents' satisfaction with their municipality. Additionally, the presence of a diverse range of (recreational) shopping opportunities and the organization of (cultural) events seem to positively impact satisfaction. Factors related to the 'soul' are also influential. Perceived safety within the environment is a significant driver of residents' quality of life. When residents feel unsafe or believe certain areas should be avoided, their overall satisfaction is significantly compromised. On the other hand, a strong social fabric within the neighborhood and meaningful social contacts emerge as crucial factors contributing to city love. Lastly, governance, which includes trust in municipal authorities and the police, as well as effective citizen representation and

Table 3
Results of Beta regression on city love by typology.

Variable	Standard OLS (1)		Transformed OLS (2)		Beta model (3)	
	Estimate (s.e.)	P-value	Estimate (s.e.)	P-value	Estimate (s.e.)	P-value
Constant	0.786*** (0.006)	<0.001	−0.246*** (0.007)	<0.001	1.298*** (0.031)	<0.001
Typology: Rural	0.006 (0.008)	0.489	0.008 (0.011)	0.445	0.026 (0.045)	0.558
Typology: Urban	−0.026 (0.017)	0.135	−0.035 (0.023)	0.124	−0.123 (0.094)	0.190
	Adjusted R^2 = 0.005		Adjusted R^2 = 0.006		Pseudo R^2 = 0.008	
	Log-lik = 386.8 (4 D.F.)		Log-lik = 299.0 (4 D.F.)		Log-lik = 402.6 (4 D.F.)	

Note: Pseudo R^2 = 0.023, *** ≤0.001, ** ≤0.01, * ≤0.05, ° ≤0.1.

Table 4
Descriptive data for body and soul constructs by typology (2020).

	Urban		Peri-urban		Rural	
Factor	Median	Mean (s.d.)	Median	Mean (s.d.)	Median	Mean (s.d.)
Economy	0.117	0.125 (0.038)	0.123	0.135 (0.053)	0.103	0.108 (0.033)
Shopping	2.14	2.05 (0.306)	1.64	1.70 (0.433)	1.40	1.39 (0.286)
Recreation	7.73	7.47 (1.060)	5.80	5.71 (0.861)	5.08	4.93 (0.857)
Transportation infrastructure	0.530	0.527 (0.063)	0.498	0.503 (0.084)	0.457	0.475 (0.089)
Sports infrastructure	5.60	5.40 (0.916)	4.27	4.20 (0.606)	3.72	3.65 (0.635)
Commuting	0.105	0.106 (0.032)	0.100	0.111 (0.039)	0.105	0.105 (0.038)
Governance	0.397	0.365 (0.054)	0.403	0.403 (0.062)	0.390	0.401 (0.072)
Healthcare	0.91	0.876 (0.076)	0.89	0.877 (0.061)	0.85	0.832 (0.090)
Housing	0.86	0.858 (0.028)	0.90	0.900 (0.026)	0.91	0.907 (0.024)
Neighborhood aesthetics	0.635	0.623 (0.067)	0.625	0.613 (0.092)	0.610	0.604 (0.092)
Poverty	11.00	11.40 (4.77)	3.64	3.96 (2.20)	2.56	2.80 (1.43)
Perceived lack of safety	0.450	0.443 (0.111)	0.230	0.261 (0.117)	0.185	0.199 (0.075)
Social contacts	0.575	0.587 (0.053)	0.670	0.661 (0.051)	0.685	0.684 (0.044)

Table 5
Regression models for influential variables of city love.

Variable	Standard OLS (1)		Transformed OLS (2)		Beta model (3)	
	Estimate (s.e.)	P-value	Estimate (s.e.)	P-value	Estimate (s.e.)	P-value
Constant	0.163*** (0.081)	<0.001	−1.073*** (0.140)	<0.001	−2.179*** (0.563)	<0.001
Economy	−0.006 (0.071)	0.930	0.009 (0.097)	0.923	0.218 (0.418)	0.602
Shopping	0.019* (0.009)	0.029	0.026* (0.012)	0.031	0.109* (0.050)	0.030
Recreation	0.009** (0.003)	0.002	0.012** (0.004)	0.001	0.049** (0.016)	0.002
Transportation	0.107*** (0.030)	<0.001	0.138*** (0.041)	<0.001	0.665*** (0.173)	<0.001
Commuting	0.012 (0.059)	0.846	0.006 (0.082)	0.946	0.237 (0.340)	0.486
Governance	0.366*** (0.041)	<0.001	0.454*** (0.057)	<0.001	2.450*** (0.243)	<0.001
Healthcare	0.054° (0.026)	0.088	0.066 (0.044)	0.134	0.333° (0.181)	0.066
Housing	0.133 (0.120)	0.268	0.210 (0.165)	0.205	0.444 (0.670)	0.508
Poverty	0.000 (0.001)	0.996	−0.000 (0.002)	0.972	−0.002 (0.006)	0.700
Perceived lack of safety	−0.184*** (0.033)	<0.001	−0.265*** (0.045)	<0.001	−0.937*** (0.173)	<0.001
Social contacts	0.333*** (0.069)	<0.001	0.430*** (0.094)	<0.001	1.890*** (0.388)	<0.001
	Adjusted $R^2 = 0.707$		Adjusted $R^2 = 0.692$		Pseudo-$R^2 = 0.733$	
	Log-lik = 574.4 (13 D.F)		Log-lik = 478.8 (13 D.F.)		Log-lik = 598.7 (13 D.F.)	

Note: *** ≤0.001, ** ≤0.01, * ≤0.05, ° ≤0.1.

consultation, enhances overall satisfaction with the city or town.

In light of the observation that various factors related to public goods affect city love (i.e., 'Recreation,' 'Transportation,' 'Governance'), one might expect a Tieboutian pattern of "voting by feet." This pattern would entail municipalities with lower city love scores exhibiting more negative net migration patterns. However, the analysis did not reveal a significant correlation (correlation value = 0.017, p-value = 0.774) between city love and net migration. One potential explanation for the absence of such a pattern could be the regional embeddedness, where facilities lacking or considered unsatisfactory within the residents' own municipality are readily available in nearby municipalities. This is particularly relevant within the Flemish context, where distances are relatively short, and transportation networks for cars, trains, and buses are extensive. Therefore, further analysis with spatial dependence modeling to account for this regional perspective might be of interest.

5.3. Spatial dependence modelling for city love in Flanders

While our previous analysis has revealed strong and logical relationships that validate our city love hypothesis, it has so far confined the determinants of city love to factors existing within the administrative boundaries of municipalities. Nevertheless, for many municipalities in Flanders, especially those classified as rural and peri-urban, there exists a spatial interdependence with other towns and cities for various work-related and leisure activities. Hence, it is plausible that the proximity of such facilities in neighboring areas can positively influence residents' satisfaction with their own towns or cities. To explore spatial dependence within the dataset, we conducted the Moran I test on the residuals of the Standard OLS results. However, before performing this test, we needed to establish an appropriate spatial weight matrix. In line with Tobler's First Law of Geography, which posits that "everything is related to everything else, but nearer things are more related than distant things" (1970), the conventional methods involve employing contiguity rook or queen criteria or creating a distance-based neighbors-set. These methods generally assume relationships based on physical proximity. However, in the geographic context of Flanders, municipalities are often influenced more by their proximity to functional 'centre cities' that form a central place configuration, rather than direct adjacency to their neighbors. This phenomenon was observed in the Resident Survey, where respondents who occasionally engaged in activities like shopping, cultural events, or sports in other municipalities were

explicitly asked to specify the names of these towns or cities. Consequently, we have knowledge of the spatial reliance between Flemish municipalities for certain activities and designed an alternative spatial weight matrix that was not necessarily defined by shared boundaries.

We first calculated Moran's I as a measure of global spatial autocorrelation for both a traditional spatial weight matrix based on the queen criterion and a spatial weight matrix based on known spatial reliance for recreational (leisure) activities. In both scenarios, using the first-order queen criterion as the neighbor indicator (observed Moran I = −0.041, p-value = 0.300), and employing the alternative spatial weight matrix (observed Moran I = 0.013, p-value = 0.769), the Moran I results were statistically non-significant. However, using the Getis-Ord (G) statistic as an alternative to explore local spatial autocorrelation to identify local clusters of high or low 'city love' hotspots/coldspots, we could identify 30 out of 299 municipalities where the standardized variance score of the local Moran's I had a p-value <0.05. Mapping the p-values of the Z-scores out in Fig. 2, we can see a pattern of spatial depence near the main urban axes between Antwerp and Brussels, around Bruges and Ghent, and near a few other 'central cities'. It might there proof relevant to incorporate certain spatial relationships into our proposed model.

Both classic Lagrange Multiplier lag test (LMLag = 0.977, p-value = 0.755) and Lagrange Multiplier error test (LMErr = 1.821, p-value = 0.177) were non-significant, indicating that neither the spatial lag model, nor the spatial error model are preferred. Furthermore, our theory already postulated an expected spatial spillover from external explanatory variables (i.e., amenities with extra-local functionality) to the local dependent variable, which supports the use of a spatial cross-regressive model (SLX model). In this approach, the dependent variable 'city love' is not only affected by values the exogeneous variables take in the same region but also by the values they can take in neighboring regions. We limited the model to include spatial exogenous effects of 'Shopping,' which was measured by the number of stores in various categories, including clothes, fashion, free time, hotels, restaurants, bars, culture, and recreation, and 'Recreation,' quantified by the number of recreational and cultural events in these areas. These variables were chosen since they are the most likely facilities being consumed in other spatial units.

In order to explore intermunicipal relationships and their influence on city love, we constructed two N x N matrices, where N represents the number of municipalities, to depict the connections between these municipalities. The cell values were weighted based on the percentage of local residents who identified a particular city as their primary destination for shopping or recreation. These matrices were then multiplied by a vector representing the relative availability of facilities in these receiving destinations.

Table 6 illustrates the relationships identified in this expanded spatial dependence model. Remarkably, all the previously defined factors influencing city/town satisfaction continue to hold. Furthermore, an additional extralocal variable has surfaced, indicating that the shopping facilities available in the most frequently visited extralocal area have a positive impact on municipal city love. These results imply that a lack of local shopping facilities may, to some extent, be mitigated by the availability of shopping opportunities in nearby functional areas.

Interestingly, the level of local events within the municipality appears to enhance city love, while events and related recreational activities in other neighboring cities/towns seem to diminish residents' satisfaction with the local municipality. This observation suggests a situation where a vibrant cultural and recreational scene in another area heightens residents' awareness of a perceived deficit in such activities within their own living environment. This could potentially involve the "feet-voting" mechanism, which may also be at play in this context.

5.4. A central place interpretation

While the expansion of our model to include spatial factors, including urban spillovers, hasn't significantly altered the overall model strength, adopting a Christallerian central place interpretation provides valuable insights. This interpretation underscores the importance of considering multi-scalar effects in constructing and estimating city love, as well as taking into account potential cross-border municipal influences. In Figs. 3 and 4, we focus on the role of 'shopping' as a key extralocal activity to simplify our analysis, mapping out the spatial interdependencies for shopping across municipalities. Similar maps could have been created to illustrate the regional dependencies of event participation.

Starting with the 'urban' municipalities, it is evident that 14 out of the 17 urban municipalities provide extralocal shopping opportunities to a significant number of smaller surrounding towns. Additionally, Fig. 3 now includes the Brussels Capital Region (although it falls outside Flanders) as it exerts a substantial influence on the surrounding Flemish municipalities. Besides examining the number of extralocal regions served by an urban center, it's also informative to consider the relative population size. This can be achieved by multiplying the population of the respective municipalities with the weight factor, accounting for the percentage of

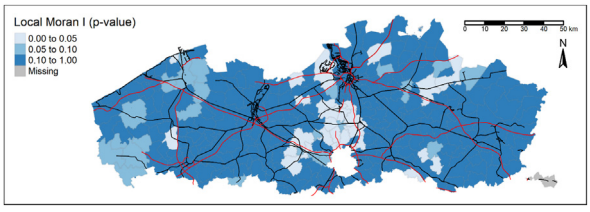


Fig. 2. Spatial pattern of residuals of the Standard OLS (railways in black, highways in red). (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

Table 6
Spatially extended regression models on influential variables of city love.

Variable	Standard OLS (1)		Transformed OLS (2)		Beta model (3)	
	Estimate (s.e.)	P-value	Estimate (s.e.)	P-value	Estimate (s.e.)	P-value
Constant	0.158*** (0.106)	<0.001	−1.083*** (0.145)	<0.001	−2.204*** (0.593)	<0.001
Economy	−0.031 (0.074)	0.672	−0.047 (0.102)	0.641	−0.033 (0.439)	0.940
Shopping	0.022* (0.009)	0.019	0.030* (0.013)	0.018	0.127* (0.053)	0.017
Recreation	0.009** (0.003)	0.002	0.012** (0.003)	0.001	0.048** (0.016)	0.002
Transportation	0.115*** (0.030)	<0.001	0.149*** (0.041)	<0.001	0.710*** (0.172)	<0.001
Commuting	0.030 (0.059)	0.615	0.033 (0.081)	0.685	0.328 (0.341)	0.336
Governance	0.352*** (0.041)	<0.001	0.434*** (0.056)	<0.001	2.370*** (0.241)	<0.001
Healthcare	0.070* (0.032)	0.028	0.089* (0.044)	0.043	0.419* (0.181)	0.020
Housing	0.132** (0.119)	0.268	0.209 (0.163)	0.201	0.424 (0.666)	0.524
Poverty	−0.000 (0.001)	0.863	−0.000 (0.002)	0.826	−0.003 (0.006)	0.561
Perceived lack of safety	−0.199*** (0.032)	<0.001	−0.286*** (0.045)	<0.001	−1.011*** (0.178)	<0.001
Social contacts	0.342*** (0.072)	<0.001	0.446*** (0.099)	<0.001	1.960*** (0.410)	<0.001
Shopping (other)	0.006* (0.002)	0.024	0.008* (0.003)	0.015	0.030* (0.013)	0.029
Recreation (other)	−0.004** (0.001)	0.002	−0.006** (0.002)	0.001	−0.021** (0.007)	0.004
	Adjusted $R^2 = 0.716$		Adjusted $R^2 = 0.702$		Pseudo-$R^2 = 0.740$	
	Log-lik = 580.0 (15 D.F)		Log-lik = 484.9 (15 D.F.)		Log-lik = 603.6 (15 D.F.)	

Note: *** ≤0.001, ** ≤0.01, * ≤0.05, ° ≤0.1.

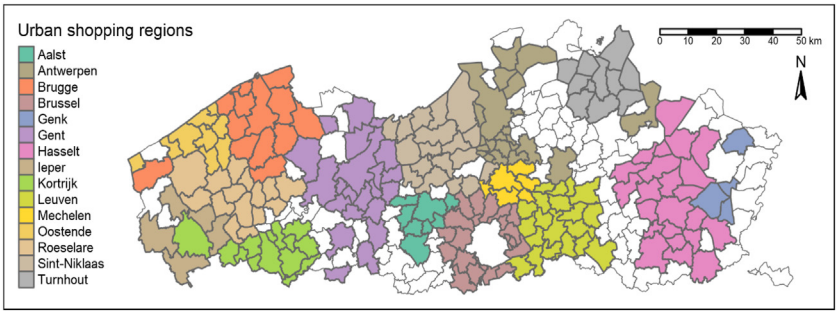


Fig. 3. Regional dependencies on urban centers in Flanders.

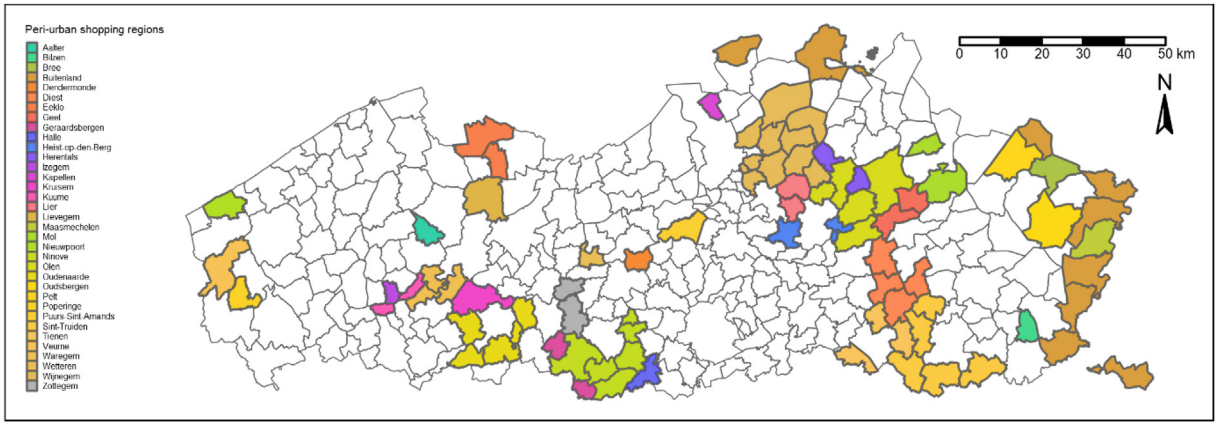


Fig. 4. Regional dependencies on peri-urban municipalities.

residents engaging in shopping activities in these urban centers. In total, these 15 urban areas cater to 4,708,780 Flemish residents (including those from the Brussels Capital Region). Given the total population of 6,629,143 in the Flemish Region and 1,218,255 in the Brussels Capital Region in 2020, approximately 60.0% of these residents depend to some extent on these 15 cities for their shopping needs.

Brussels stands out as the leader in this ranking (as the largest central place), serving a total population of 1,463,209. This includes 1,218,255 residents within the Brussels Capital Region and an additional 244,954 from neighboring municipalities. Antwerp follows closely with a catchment area covering 709,718 residents, while Ghent accommodates 467,764 residents. Rounding out the top five are

Sint-Niklaas (318,085) and Hasselt (301,617). In contrast, the urban areas with the smallest regional scope are Genk and Ieper, catering to 80,884 and 21,025 residents, respectively. On average, these urban centers cover 313,919 people.

While the above-mentioned 15 urban regions serve the majority of Flemish municipalities, several secondary peri-urban municipalities also provide support to one or more surrounding communities. Although, in most instances, these catchment areas are relatively small, averaging around 14,731 residents, exceptions can be observed. For instance, Wijnegem, home to 'Wijnegem Shop Eat Enjoy' (formerly 'Wijnegem Shopping Center'), a large shopping complex with 250 stores, serves 114,882 local and extralocal residents. Other exceptions include Olen (44,174), Ninove (31,185), and Sint-Truiden (19,364). Collectively, 34 peri-urban areas accommodate an additional 500,841 residents, equivalent to 6.4% of the combined population of the Flemish and Brussels Capital Region. An interesting observation is the presence of an international border effect, where nine municipalities indicate that their primary external shopping destination is located across the border, primarily in the Netherlands or France. Although this phenomenon is relatively limited in scope, it signifies that a total of 59,468 residents rely on international cross-border regions. It seems plausible to conclude that city love is, to varying degrees, also influenced by the offerings in nearby, larger functional municipalities, affirming the presence of a central place dimension within the city love concept. In cases where differences become insurmountable, residents may, within financial constraints, opt for a 'voting by feet' approach.

In Figs. 3 and 4, which identify 50 shopping regions (comprising 15 urban, 34 peri-urban, and 1 'foreign' region) across the Flemish region, further emphasize the multi-scalar relevance in our research concerning city/town satisfaction. The 300 municipalities investigated in Flanders appear to converge, at least in terms of shopping, into 50 larger interdependent regions. This underscores that the spatial pattern of city love in Flanders is co-determined by the central place constellation of centers and municipalities, in which both body and soul elements play pivotal roles.

6. Conclusion

This study on 'cityphilia' and 'cityphobia,' offering a unique contribution to regional and urban science, has underscored the significance of conceptualizing urban well-being as a pivotal determinant of citizens' spatial perceptions, specifically their mental maps of their place of residence. In line with contemporary quantitative well-being and happiness research in social and human geography, this paper has introduced and defined the concept of 'city love' as a quantifiable expression of residents' affection and attachment to their place of residence. The study tested the hypothesis that 'city love' is influenced by both the tangible facets of urban life ('body') and the intangible aspects of the city ('soul').

Utilizing extensive data for 300 Flemish municipalities, encompassing both objective statistical survey data and subjective (perceived) satisfaction survey data, the study has successfully validated its core proposition. This conclusion corroborates prior research on 'city love' concepts conducted for Swedish and Dutch cities. The concept of 'city love' offers a promising avenue for a comprehensive understanding of the determinants of urban well-being perceptions among citizens, not only at the municipal level but also at the neighborhood level, as demonstrated in studies like Kourtit et al. (2022).

In the spirit of central place theory, it is evident that positive inter-municipal spillovers can, to a certain extent, contribute to greater 'city love.' This extension broadens the range of services available to residents of our urban regions, moving beyond the confines of a single isolated municipality. Thus, 'city love' may have implications for a broader catchment area than the specific municipality, depending on the amenities accessible to residents in a given region. In cases of more significant disparities, the phenomenon of 'feet-voting,' akin to Tiebout (1956), may arise, although the context of the Flemish urban landscape suggests this is less likely, as demonstrated by the examination of local public expenditures. Flanders constitutes a closely connected network where most public amenities are accessible within relatively short distances. These findings underscore the importance of a multi-scalar research approach, necessitating the examination of various, interconnected geographical layers in an interdependent network configuration. Given the interrelated nature of urban landscapes, both geographically and temporally (influenced by factors such as digital technology, new transportation systems, pandemics, and evolving leisure activities), it is likely that new urban fields may emerge in the future. Perceptions of 'cityphilia' and 'cityphobia' regarding cities can prompt both centripetal and centrifugal urban-rural movements, as witnessed during the recent pandemic period. This life cycle perspective on city dynamics in the context of changing space-time trajectories of city love may be further explored in the realm of Lefebvre's (2004) geographical 'rhythm' theory, offering promising avenues for innovative urban geography research.

It is worth noting that this research has certain limitations, especially regarding spatially interdependent hierarchies and multi-scalar dynamics. In this study, spatial analysis of regional dependencies was exclusively performed for shopping as a leisure activity, as well as cultural and recreational events. Multicollinearity issues rendered sports facilities unaccounted for in the analysis. These three leisure-related activities were the focus due to data constraints. Although data on patterns of regional dependence was available for shopping, recreation, and sports participation, comprehensive information on inter-municipal commuting patterns is currently lacking. While data on the quantity of incoming or outgoing commuters is available, data on the specific origin or destination municipalities is absent. Integrating work- or study-related dependencies into the analysis would be valuable, potentially affecting the spatial-economic dimension, which was not a significant explanatory factor for municipal love in Flanders in our results. Furthermore, considering factors such as commuting patterns and migration typologies of regions could provide further insights into cityphilia-cityphobia dichotomies in city love. Another noteworthy limitation is the utilization of 2020 data for the analysis of city love. During 2020, Flanders underwent varying degrees of lockdown due to the Covid-19 pandemic. This exceptional situation may have influenced the strength and direction of certain indicators. Unfortunately, the 2017 resident survey, a previous source of data, lacked key modeling variables, precluding comparisons with earlier historical data. The forthcoming version of the Flemish resident survey holds potential for validating the results. This research has demonstrated that the novel concept of 'city love' may serve as a fundamental anchor for examining

the well-being of citizens within a multi-scalar urban system.

In closing, our study reiterates that Tiebout's conceptualization of the competitive appeal of cities continues to be a fertile source of scientific inspiration, despite differing socioeconomic and jurisdictional constellations yielding distinct inter-urban patterns. These findings hold significant implications for urban policy and management. In an interdependent system of municipalities or cities, where various levels of goods or services are available (along with varying access to such goods or services), two outcomes may emerge: first, based on cost judgments, including spatial movement costs, citizens may rationally choose to stay or leave; second, if residents opt to remain, their well-being level, symbolized by 'city love,' would visibly reflect this decision. Urban governance is thus tasked with optimizing the provision of public services, not only in terms of quantity or quality, but also in terms of location and accessibility. The urban field of Flanders serves as a compelling example, illustrating that the collective of Flemish municipalities forms an interdependent network, enhancing the overall attractiveness of the urban system. Residents of the cities are integral parts of a larger space-economy. Achieving a balance between 'cityphilia' and 'cityphobia' creates equilibrium, influencing the well-being of citizens and fostering vibrant, sustainable urban communities.

Declaration of competing interest

No.

Acknowledgements

Peter Nijkamp and Karima Kourtit acknowledge the grant from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004627. They also acknowledge the grant from the Romanian Ministry of Research, Innovation and Digitisation, CNCS - UEFISCDI, project number PN–III–P4-PCCE-2021-1878, within PNCDI III, project – Institutions, Digitalisation and Regional Development in the EU.

References

Agentschap Binnenlands Bestuur. (2022). Gemeente-stadsmonitor. *Burgerbevraging*. Available at: https://gemeente-stadsmonitor.vlaanderen.be/index.php/burgerbevraging.

Akimowicz, M., Weeden, S. A., & Gibson, R. (2022). Searching for a conceptual Nexus? A critical analysis of community, place, and Territorial approaches to rural development. *The Annals of Regional Science*. https://doi.org/10.1007/s00168-022-01125-x

Albouy, D., Cho, H., & Shappo, M. (2021). Immigration and the Pursuit of amenities. *Journal of Regional Science, 61*(1), 5–29.

Albouy, D., & Kim, H. (2022). The value of rural and urban infrastructure. *Economic Development Quarterly, 36*(3), 177–192.

Aroca, P. (2017). The heterogeneous level of life quality across Chilean regions. *Habitat International, 68*, 84–98.

Ballas, D. (2013). What makes a 'Happy city. *Cities, 32*(1), S39–S50. https://doi.org/10.1016/j.cities.2013.04.009

Banaszak, M., Gornisiewicz, K., Nijkamp, P., & Ratajczak, W. (2023). Fractal dimension complex of grativational fractals in central place theory. *Scientific Reports, 13*(2343). https://doi.org/10.1038/s41598-023-2834-y

Bannister, J., & Fyfe, N. (2001). Introduction: Fear and the city. *Urban Studies, 38*(5–6), 807–813.

Batabyal, A., Higano, Y., & Nijkamp, P. (Eds.). (2021). *Urban-rural dichotomies and spatial development in Asia*. Tokyo: Springer.

Baum-Snow, N., & Pavan, R. (2013). Inequality and city size. *The Review of Economics and Statistics, 95*(5), 1535–1548.

Berry, B. J. L. (1964). Cities as systems within systems of cities. *Papers - Regional Science Association, 13*, 146–165.

Bewley, T. F. (1981). A Critique of Tiebout's theory of local public expenditures. *Econometrica, 49*(3), 713–722.

Blanchflower, D. (2021). Is happiness U-shaped Everywhere? *Journal of Population Economics, 34*, 575–624.

Blanco-Romero, A., Blazquez-Salom, M., Morell, M., & Fletcher, R. (2019). Not Tourism-Phobia, but urban-Philia. *Boletin de la Asociation de Geografos Espanoles*. https://doi.org/10.21138/bage.2834

Botterman, S., Hooghe, M., & Reeskens, T. (2011). "One size Fits all". An empirical study into the multi-dimensionality of social cohesion indicators in Belgian local communities. *Urban Studies*. https://doi.org/10.1177/0042098010397397

Burger, M. J., Morrison, P. S., Hendriks, M., & Hoogerbrugge, M. M. (2020). Urban–rural happiness Differentials across the world. In J. F. Helliwell, R. Layard, J. Sachs, & J. De Neve (Eds.), *World happiness Report 2020* (pp. 66–93). Sustainable Development Solutions Network.

Carlsen, F., & Leknes, S. (2022). The paradox of the Unhappy, growing city: Reconciling evidence. *Cities, 126*, Article 103648. https://doi.org/10.1016/j.cities.2022.103648

Delmelle, E. C., & Thill, J. C. (2014). Neighbourhood quality of life dynamics and the great Recession: The case of Charlotte, North Carolina. *Environment & Planning A, 46*, 876–884.

Douma, J. C., & Weedon, J. T. (2019). Analysing continuous proportions in Ecology and Evolution: A Practical introduction to beta and Dirichlet regression. *Methods in Ecology and Evolution, 10*, 1412–1430. https://doi.org/10.1111/2041-210X.13234

Easterlin, R. (1974). Does economic growth improve the human Lot? Some empirical evidence, Essays in Honor of Moses Abramovitz. *Nations and Households in Economic Growth*, 89–125. https://doi.org/10.1016/B978-0-12-205050-3.50008-7

Elmquist, T., Andersson, E., Franzeskaki, N., McPhearson, T., Olsson, P., Gaffney, O., Takeuchi, K., & Folke, C. (2019). Sustainability and resilience for transformation in the urban century. *Nature Sustainability, 21*, 267–273.

England, M. R., & Simon, S. (2010). Scary cities: Urban Geographies of fear, difference and Belonging. *Social & Cultural Geography, 11*(3), 201–207.

Ferrari, S., & Cribari-Neto, F. (2004). Beta regression for Modelling rates and proportions. *Journal of Applied Statistics, 31*(7), 799–815. https://doi.org/10.1080/0266476042000214501

Florida, R. (2017). The new urban Crisis: How our cities are Increasing Inequality. *Deepening Segregation, and failing the Middle Class – and what We can Do about it*. New York: Basic Books.

Florida, R., Mellander, C., & Rentfrow, P. J. (2013). The happiness of cities. *Regional Studies, 47*(4), 613–627. https://doi.org/10.1080/00343404.2011.589830

Frey, B., & Stutzer, A. (2002). *Happiness and economics*. Princeton: Princeton University Press.

Glaeser, E. (2011). *Triumph of the city: How our greatest Invention Makes us richer, Smarter, greener, Healthier, and happier*. New York: Penguin Press.

Gramlich, E. M., & Rubinfeld, D. L. (1983). Micro estimates of public Spending demand Functions and tests of the Tiebout and median-Voter Hypotheses. *Journal of Political Economy, 90*(3), 536–560.

Griffin, J. (1986). *Well-being: Its meaning, measurement, and moral importance*. Oxford: Clarendon.

Heynen, N. (2013). Urban Political Ecology I: The urban century. *Progress in Human Geography, 28*(4), 598–604.

Hoogerbrugge, N. M., Burger, M. J., & Van Oord, F. G. (2021). Spatial structure and subjective well-being in North-West Europe. *Regional Studies*.

Jokela, M., Bleidorn, W., Lamb, M. E., Gosling, S. D., & Rentfrow, P. J. (2015). Geographically varying Associations between Personality and life satisfaction in the London metropolitan area. *Proc Natl Acad Sci U S A, 112*(3), 725–730. https://doi.org/10.1073/pnas.1415800112
Kahana, E., Lovegreen, L., Kahana, B., & Kahana, M. (2003). Person, environment, and Person-environment Fit as influences on residential satisfaction of Elders. *Environment and Behavior, 35*(3), 434–453.
Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (1999). *Well-being: The foundations of hedonic psychology*. New York: Russell Sage.
Kalimeris, P., Bithas, K., Richardson, C., & Nijkamp, P. (2019). Hidden Linkages between Resources and economy: A 'beyond GDP' approach. *Ecological Economics, 169*(March 2020), Article 106508. https://doi.org/10.1016/j.ecolecon.2019.106508
Kalmijs, W. (2015). *Methods for measurement of happiness*. World Database of Happiness. https://worlddatabaseofhappiness-archive.eur.nl/hap_quer/introtext_measures3.pdf.
Kieschnick, R., & McCullough, B. D. (2003). Regression analysis of Variates observed on (0, 1): Percentages, proportions and Fractions. *Statistical Modelling, 3*(3), 193–213. https://doi.org/10.1191/1471082X03st053oa
Kourtit, K. (2019). *The new urban world*. Shaker: Aachen.
Kourtit, K., Neuts, B., Nijkamp, P., & Wahlström, M. H. (2020). A structural Equation model for place-based city love: An application to Swedish cities. *International Regional Science Review, 44*(3–4), 432–465. https://doi.org/10.1177/0160017620979638
Kourtit, K., Neuts, B., Nijkamp, P., & Wahlstrom, M. H. (2021b). A structural Equation model for place-based city love. *International Regional Science Review, 44*(3–4), 432–465. https://doi.org/10.1177/0160017620979638
Kourtit, K., Nijkamp, P., & Haas, T. (2021a). In Z. P. Neal, & C. Rosenblat (Eds.), *The city of opportunity: Designing Cities4People, Handbook of Cities and networks* (pp. 273–292). Cheltenham: Edward Elgar.
Kourtit, K., Nijkamp, P., Türk, U., & Wahlstrom, M. H. (2022c). City love and Neighbourhood resilience in the urban fabric: A microcosmic Urbanometric analysis of Rotterdam. *Journal of Urban Management, 11*(2), 226–236. https://doi.org/10.1016/j.jum.2022.04.004
Kourtit, K., Nijkamp, P., Turk, U., & Wahlstrom, M. H. (2022a). City love and place quality assessment of liveable and loveable Neighbourhoods in Rotterdam. *Land Use Policy, 119*, Article 106109. https://doi.org/10.1016/j.landusepol.2022.106109
Lai, S.-K. (2018). *Planning within complex urban systems*. London: Routledge.
Layard, R. (2005). *Happiness: Lesson from a new science*. London: Penguin.
Lee, H., Kim, H. (2019). Regional Preferences for the Living Environment and Mobility of Researchers and General Workers: The Case of Korea, The Annals of Regional Science, 62, 169–186, https://doi.org/10.1007/s00168-018-0892-3.
Lefebvre, H. (2004). Rhythmanalysis: Space, time and Everyday life. *Continuum* (London).
Lehmann, S. (2019). *Urban Regeneration*. London: Palgrave/MacMillan.
Lenzi, C., & Perucca, G. (2016). Life satisfaction in Romanian cities on the road from Post-Communism Transition to EU accession. *The Region, 3*(2), 1–12.
Li, J., Dang, A., & Song, Y. (2022). Defining the ideal public space: A perspective from the Publicness. *Journal of Urban Management, 11*(4), 479–487. https://doi.org/10.1016/j.jum.2022.08.005
Lynch, K. A. (1960). *The image of the city*. Cambridge, Mass: MIT Press.
Morris, A. (2019). Do cities or suburbs offer higher quality of life? Intrametropolitan location, activity patterns, access, and subjective well-being. *Cities, 89*, 228–242. https://doi.org/10.1016/j.cities.2019.02.012
Morrison, P. S. (2021). What happiness in which cities. *Sustainability, 13*, Article 11290. https://doi.org/10.3390/su132011290
Morrison, P. S., & Weckroth, M. (2018). Human values subjective well-being and the metropolitan region. *Regional Studies, 52*(3), 325–337.
Mouratidis, K. (2019). Compact city, urban Sprawl, and subjective well-being. *Cities, 92*, 261–272. https://doi.org/10.1016/j.cities.2019.04.013
Nakano, S., & Washizu, A. (2021). Will smart cities enhance the social capital of residents? The importance of smart neighborhood management. *Cities, 115*, Article 103244. https://doi.org/10.1016/j.cities.2021.103244
Neal, Z. P. (2012). *The connected city*. New York: Routledge.
Neal, Z. P., & Rozenblat, C. (Eds.). (2021). *Handbook of cities and networks*. Cheltenham: Edward Elgar.
Nijkamp, P. (2008). XXQ factors for sustainable urban development: A systems economics view *Romanian Journal of regional science. 2*(1), 325–342.
Oishi, S., Graham, J., Kesebir, S., & Costa Gelinda, J. (2013). Concepts of happiness across time and cultures. *Personality and Social Psychology Bulletin, 39*(5), 559–577.
Okulicz-Kozaryna, A., & Valente, R. (2021). Urban Unhappiness is common. *Cities, 118*, Article 103368. https://doi.org/10.1016/j.cities.2021.103368
Omgeving, D. (2021). Ruimterapport 2021. *Een Ruimtelijke Analyse van Vlaanderen. Vlaamse Overheid: Brussels*.
Osth, J., Kourtit, K., & Nijkamp, P. (2020). My home is My Castle. *International Journal of Information Management, 58*. https://doi.org/10.1016/j/ijnfomgt.2020.102213
Putnam, R. (1995). Bowling Alone: America's Declining social capital. *Journal of Democracy, 6*(1), 65–78.
Reggiani, A., Schintler, L. A., Czamanski, D., & Patuelli, R. (Eds.). (2022). *Entropy, Complexity and spatial dynamics*. Cheltenham: Edward Elgar.
Sørensen, J. F. L. (2014). Rural-urban differences in life satisfaction: Evidence from the European union. *Regional Studies, 48*(9), 1451–1466. https://doi.org/10.1080/00343404.2012.7531.42
Seligman, M. E. P. (2002). *Authentic happiness*. New York: Free Press.
Simon, H. A. (1957). *Models of man: Social and rational*. New York: Wiley.
Spencer, B. H., & Walsh, R. P. (2008). Do people Vote with their feet. *The American Economic Review, 98*(3), 843–863.
Statistiek Vlaanderen. (2020). Population: Size and growth. Available at: https://www.vlaanderen.be/en/statistics-flanders/population/population-size-and-growth.
Tiebout, C. M. (1956). A pure theory of local expenditures. *Journal of Political Economy, 64*(5), 416–424. http://www.jstor.org/stable/1826343.
Tobler, W. (1970). A computer Movie Simulating urban growth in the Detroit region. *Economic Geography, 46*, 234–240.
UN (United Nations). (2007). *State of world population*. New York: UN.
Veenhoven, R. (2000). *Condition of happiness*. Dordrecht: Reidel.
Wahlstrom, M. H., Kourtit, K., & Nijkamp, P. (2020). Planning Cities4People – a body and soul analysis of urban Neighbourhoods. *Public Management Review, 22*(5), 687–700. https://doi.org/10.1080/14719037.2020.1718190
Warton, D. I., & Hui, F. K. C. (2011). The arcsine is Asinine: The analysis of proportions in Ecology. *Ecology, 92*(1), 3–10. https://doi.org/10.1890/10-0340.1
Weiman, J., Knabe, A., & Schob, R. (2015). *Measuring happiness*. Cambridge, Ma: MIT Press.
Westlund, H. (2006). *Social capital in the knowledge economy. Theory and Empirics*. Springer-Verlag Berlin Heidelberg.
Willis, K. S., & Nold, C. (2022). Sense and the city: An Emotion Data Framework for smart city governance. *Journal of Urban Management, 11*(2), 142–152. https://doi.org/10.1016/j.jum.2022.05.009
Wirth, L. (1938). Urbanisation as a way of life. *American Journal of Sociology, 44*, 3–24.
Yigitcanlar, T., Dur, T., & Dizdaroglu, D. (2015). Towards prosperous sustainable cities: A Multiscalar urban sustainability assessment approach. *Habitat International, 45*, 36–46.