

From Segregation to Fragmentation: Mapping the Recent Global Literature

Víctor Picó-Gutiérrez ¹, Federico E. González-Ramírez ² and Luis A. Escudero-Gómez ^{3,*}

¹ Department of Geography, Faculty of Geography and History, Universitat de Barcelona, 08001 Barcelona, Spain; vpico12@ub.edu

² Department of Psychology, Sociology and Social Labor, University of Las Palmas de Gran Canaria, 35003 Las Palmas de Gran Canaria, Spain; federico.gonzalez@ulpgc.com

³ Department of Geography, Faculty of Philosophy and Letters, University of Balearic Islands, 07122 Palma, Spain

* Correspondence: luisalfonso.escudero@uib.cat

Abstract: Urban fragmentation is a phenomenon that characterizes inequalities and their physical reproduction in the geographical space of cities. (1) Background: This polysemic concept is currently on the rise, as cities become increasingly differentiated and disconnected in their internal dynamics. Research on this topic has increased in recent years, paralleling the growing urban complexity influenced by phenomena such as the 2008 crisis and the COVID-19 pandemic. (2) Methods: This study conducts a bibliometric analysis based on a filtered compilation of results extracted from the main indexed bibliographic databases in social sciences for subsequent computer-assisted processing. The objective is to provide a systematic overview of the structure of academic production and to identify its main descriptors. The analysis includes works published in globally indexed media on urban fragmentation, evaluating the progress of recent publications in this area. (3) Results: Findings show a growing and increasingly globalized production, particularly highlighting publications in Latin America, both in case studies and contributions from leading authors and sources with the highest concentration of publications. Thematically, the production leans towards the term fragmentation rather than the classic segregation, focusing on urban spaces and their specificities related to vulnerability and socio-spatial differentiation.



Academic Editor: Tigran Haas

Received: 11 December 2024

Revised: 11 March 2025

Accepted: 17 March 2025

Published: 26 March 2025

Citation: Picó-Gutiérrez, V.; González-Ramírez, F.E.; Escudero-Gómez, L.A. From Segregation to Fragmentation: Mapping the Recent Global Literature. *Urban Sci.* **2025**, *9*, 98. <https://doi.org/10.3390/urbansci9040098>

Copyright: © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Keywords: urban fragmentation; urban studies; bibliometrics; urban spaces; socio-spatial differentiation; urban processes

1. Introduction

Today's cities are characterized by being a stage for various forms of inequality, which are an expression of the society they contain. These inequalities are clearly manifested in urban spaces where, in addition to the internal contrast of the city, there are elements of differentiation between residents and visitors, all within the framework of cities that are increasingly global yet divided within themselves.

In this context, urban fragmentation emerges as a phenomenon observed in many cities around the world. This process is framed within an analytical category that studies the city and its processes, adapting its approach to the current situation. This term is polysemic and has received contributions over the last few decades from different academic currents, with its theoretical corpus still being unclear and overlapping with other concepts [1].

The burst of the housing bubble in 2008 triggered a severe economic recession that negatively impacted family wealth. The urban economy and real estate market stagnated,

resulting in difficulties in paying mortgages and rents, which increased foreclosures and legal actions for non-payment.

This period of dispossession, notable until 2015, occurred without significant measures to mitigate it. Policies focused on restricting public deficit and rescuing financial institutions. Economic recovery was centered on economic internationalization, causing labor precarization to increase competitiveness in exports and tourism. Policies were implemented to attract international investors, such as tax benefits and fewer bureaucratic barriers [2].

Although production recovered after the crisis, the macroeconomy improved at the expense of widespread wage devaluation, increased job precariousness, and rising urban poverty. The growth in housing prices and rents far exceeded the increase in per capita income, with this problem worsening with the recent COVID-19 crisis [3].

This development set the stage for the emergence and intensification of urban fragmentation processes, marked by the advancement of global neoliberalism and its effects on cities [4]. This process is related to globalization and manifests in both tangible and intangible ways, with aspects such as the physical and social compartmentalization of built space, the political and governance fragmentation of cities, and the diversification in the social structures that develop within the city [5]. These conditions, increasingly widespread around the globe, have led to a growing number of analyses of fragmentation cases, both conceptually and in case studies.

The reproduction of uneven development and capitalist social relations has led to social inequality that has become embedded in space [6]. The neoliberal turn initiated in the last two decades of the last century resulted in higher levels of social and socio-spatial inequality [7].

Today, the growing social polarization is the result of the weakening of the welfare state, the progressive precarization of work in today's world, and the advance of neoliberal ideology [8]. The Great Recession, triggered by the economic crisis of 2008, has further exacerbated economic inequalities and segregation within urban areas [9,10].

In recent years, a new pattern of segregation with urban fragmentation is emerging that explains the structure of the contemporary city, based on the multiplication of separate pieces with limited permeability on a small scale and structuring around large-scale nodes [11]. The existence of internal borders, the deployment of private security devices, and various forms of urban fragmentation, such as the absence of shared spaces, make it difficult or impossible for the more affluent and the poorer populations to interact [12]. In these areas, stigmatized neighborhoods known as 'no-go areas' are created that are left out of the city's relational dynamics [13].

Given this scenario of increasing inequality, identifying contributions from disciplines that contribute to urban fragmentation, both conceptually and in application, is key to uncovering the progress of research [14] and the configuration of scientific production. This analysis is the main purpose of research of this article, which is achieved by detecting reference articles, key authors, or results towards which the bulk of academic publications are directed.

The hypothesis is that urban fragmentation and the inequalities it entails are becoming an increasingly recurrent phenomenon in cities and are being studied with an increasingly global scope. Its growth and impact on society have sparked significant academic interest. The studies that have been conducted have been modifying their parameters and sketching certain paths towards the near future, which this review attempts to discern.

Building on the previous hypothesis, the aim of the following review is to describe and analyze, through a bibliometric study, the scientific production on urban fragmentation in recent years, identifying articles from scientific databases and conducting a systematic investigation of them. Given that the first mentioned crisis marks the beginning of this long process of increasing territorial imbalance in the city, 2008 has been chosen as the initial

year for compiling literature on urban fragmentation, due to its global reach and the impact it has had on this subject from then until the present, 2023, the final year of the search.

This paper is divided into the following different sections that structure its content: an initial introduction that presents and contextualizes the topic, in addition to the objectives and purpose of the work; a theoretical part that presents the classic theories on socioeconomic differentiation of the city, as well as the themes of segregation and urban fragmentation; a third section on sources and methodology used; the main part of the document where the results of the study are shown and the information obtained is detailed; and finally, a conclusion section, where the results of the research are interpreted, a discussion on forthcoming advances in the topic is provided, and the work is concluded.

2. Theoretical Background

2.1. *Social Inequality in the City*

Urban fragmentation is a concept considered polysemic and lacking a developed theoretical framework [1], thriving in disciplines such as geography in the analysis of the urban phenomenon in a context of informational capitalism post pandemic. It is understood to be linked to the term urban segregation, and there are two predominant conceptual definitions: urban fragmentation as a result of the break with the preceding form and structure of the city, through non-integrated renewal processes that provoke changes in the social division of space [15], or a new pattern of segregation with urban fragmentation, accentuated with physically impermeable boundaries that divide social groups [11].

This dual interpretation of a concept that gains validity in geographic analysis focuses on physical elements as promoters of social processes of social division. From urban sociology, from the origin of the discipline, and explicitly or inherently, multiple contributions to the concept of fragmentation linked to the urban phenomenon have been made, which must be recognized in its update as a category of analysis.

The concept of fragmentation is at the root of sociological reflection on the urban phenomenon, explicitly so, in a way that interprets social processes of fragmentation as not strictly physical but linked to spatial phenomena.

Walter Benjamin addressed in his Arcades Project [16], a study on the origins of bourgeois culture and modernity based on the analysis of the arcades in Paris transformed by Haussmann in the second half of the 19th century, a pedagogy of fragments developed through allegory, which allowed their resignification [17]. For Benjamin, this represented the reinvention of human experience in an increasingly fragmented urban life. Previously, Simmel [18] had already addressed fragmentary issues and their link to space for the analysis of modernity. According to him, the object of sociology should be the forms of interaction, constituted by the fortuitous fragments of social reality, with its fragmentary images being key to the totality of social reality [19].

The notion of fragmentation in Simmel is linked to a proposal for a theory of space, where the margin is placed at the center of sociological analysis, since the boundary is not a spatial fact with sociological effects but a sociological fact with a spatial form. The joint analysis of the fragmentary in Simmel and Benjamin, related to the city and modernity, led to subsequent developments until it became relevant again [20].

Thus, Simmel is at the origin of the human ecology of the Chicago School. His vision of a city in constant transformation, composed of heterogeneous and interdependent groups and individuals, oriented towards disorganization, whose only recourse was found in distancing, closely resembles Simmel's metropolitan society, in which he attempts to clarify the nature of the city from its parts, norms, and margins [21].

Reflection on fragmentation is inherent in Durkheim's social morphology, which underscores the need for individuals to connect morally to achieve dynamic density, and where

some correspondence with the Chicago proposal is noted, mediated by Halbwachs [22]. Fragmentation is also inherent in the establishment of the social environment as a psychosocial structure in Bronfenbrenner's ecological theory [23], and his allegorical Russian nesting dolls of serialized structures (microsystem, mesosystem, exosystem, macrosystem) [24]. The proposal for a science of social context, econometrics [25], seeks to rehabilitate the ecological model of Chicago in the 21st century, as Wacquant [13] points out.

Current researchers who address urban fragmentation are also clearly influenced by the critical approach of Lefebvre [26–28]. McFarlane [17], for example, bases his entire three-dimensional proposal for interpretation on it: attention to cases, to each material fragment; the transformation generated by material fragments on other fragments; and the relationship of material fragments with the whole, with the totality, of the urban process. Indeed, the French sociologist, for whom spatial fragments as products of capitalist urbanization are in tension with the possibility of becoming generative spaces of challenges or transformations of other fragmentation processes, has generated a line of work in the Anglo-Saxon academic literature dedicated to fragmentation [29–32].

Chétry [33], from a geographical perspective, acknowledges that the issue of fragmentation originates from the works of American sociology on the globalization of economic structures and their impact on the configuration of the world's major metropolises, the dual and polarized city proposed by Sassen [34] and Mollenkopf and Castells [35].

Wacquant's [13] challenge of reconstructing urban theory and research around the Bourdieusian trialectic of symbolic space, social space, and physical space, with *habitus* as the conceptual core of the process that leads from structure to social practice, and vice versa, includes the fragmentary analysis of the urban, given the relative autonomy and therefore inertia of each of the three spaces. Fragmentation is explicit in that this trialectic addresses territorial stigmatization as a paradigmatic expression of symbolic power in the city and class fragmentation, ethnic division, and the penalization of the neoliberal state. The fragmentation of wage labor is equally explicit in this work, crystallized in the precariat, and constitutive of the advanced marginality of the dual metropolis, which centers Wacquant's own analysis [36–38].

Research based on the neighborhood effect, as a generator of an enclosure and a social and spatial withdrawal of inhabitants incompatible with an integration process, is theorized with extensive literature [39–41], as noted in Geography by Cary and Fol [42]. Fragmentation is inherent to the three types of effects defined by Manski [43,44]: endogenous, correlated, and exogenous.

Fragmentation as a concept has been present in urban sociology from its inception and involves a conversation and overlap of analytical proposals that range from Simmel to Benjamin; from the human ecology of the Chicago School to Durkheim's social morphology; from Lefebvre's critical approach to Bourdieu's trialectics and the neighborhood effect. In this analytical continuum on fragmentation from urban sociology, explicitly or inherently, we note the articulation of two essential questions: what do we fragment and how do we fragment? The problematization of fragmentation from urban sociology provides a solid foundation for the current reconceptualization of urban fragmentation as a category of analysis in geography.

2.2. Urban Segregation and Fragmentation

As Musterd [7] points out regarding urban segregation, an appropriate and clear conceptualization is required. The line dividing the concepts of segregation and fragmentation may seem thin, and some authors refuse to make a choice, using both terms interchangeably [45]. However, they are two different concepts.

The notion of segregation was born in an early phase, at least with the Chicago School from the 1920s, and fragmentation emerged about a quarter of a century ago [42]. In 1988, Massey and Denton [46] published a key article to measure residential segregation where, although the

authors and technological advancements have allowed for improved indicators, the methodological foundations of their analysis are definitively established. With Bourdieu's trialectic theory of space (the symbolic, social, and physical spaces), Wacquant [13] has unraveled over decades the variations of urban segregation and analyzed all its possibilities and characteristics. His work, along with other key authors like Musterd [7,47], could be understood as the epistemological culmination of this theoretical concept. For this reason, Carrel et al. [45] suggest abandoning the old concept, segregation, and asking about the new one, fragmentation. The more recent term of fragmentation is interesting because it corresponds well with the heterogeneity of today's cities [8]. It allows a fresh look at the socio-spatial divisions of urban space [33].

Nevertheless, fragmentation is a complex phenomenon, as diverse causes can produce similar effects across different contexts. Thus, in Northern countries, emphasis is often placed on the influence of economic transformations on spatial organization. On the one hand, the shift to a post-Fordist economy—more flexible, less industrial, and characterized by smaller production units—produces significant spatial effects, notably by enhancing companies' ability to relocate. Furthermore, cities have implemented policies to become more appealing to businesses and their top executives, drawing on the leeway they gained through decentralization. [42].

Urban segregation describes the uneven distribution of different social groups within a city [7,48,49]. Urban fragmentation goes beyond segregation and relates social separation to spatial separation [50]. Thus, urban fragmentation would be a process of closing off territories that are spatially delimited and inhabited by socially homogeneous populations. While segregation refers more to a separation in the interdependence of geographic areas and their inhabitants, fragmentation refers, in its spatial dimension, to a situation of splintering—or even dispersion—of the urban fabric, marked by the absence of continuity and physical contiguity between different urban zones and a scant articulation among them. In its social dimension, it refers to a tendency of these different fragments to withdraw into themselves socially, culturally, politically, and/or identity-wise [51].

Fragmentation implies social fracture and secession, a barrier. Thus, the notion of fragmentation emphasizes the discontinuities of urban fabric. It refers to the idea of a loss of the organic unity of the city, in favor of small, juxtaposed units, but not necessarily interconnected [42]. The fragmented city is, therefore, a mix of disconnected and poorly articulated uses [8].

There is no linear or mechanical relationship between segregation and fragmentation. Fragmentation is a much less common notion than segregation [42]. It is a complex phenomenon, with a variety of causes that produce similar effects in different contexts. Navez-Bouchanine [49] subdivides fragmentation into four dimensions: (1) social, (2) urban form, (3) socio-spatial, and (4) administrative and political aspects of the urban territory. She describes it as a splintering, as an urban mosaic, and as fractal urban growth, multiplying the cuts and internal boundaries.

In conclusion, fragmentation compromises the very idea of the city as unity in diversity, while segregation does not eliminate the perception of the city as a geographically coherent entity and does not question the whole [52]. In fragmentation, the city has lost its organic unity, whereas segregation organized the division of a city conceived as a whole. Urban segregation trends continue to rise in large cities while simultaneously spreading to small- and medium-sized ones [48]. The neoliberal city model reinforces this trajectory unless the necessary political measures are adopted to foster greater spatial justice.

3. Materials and Methods

To achieve the set goals, bibliometric research has been conducted, which is a computer-assisted systematic review of existing scientific production in a specific field or subject [53]. This systematic review was carried out in accordance with the guidelines established in

The PRISMA 2020 statement paper, thereby ensuring a rigorous methodological process that enhances the transparency, reproducibility, and reliability of the review. In this case, it concerns urban fragmentation, extracting productions from the two most important bibliographic databases in the social sciences: Scopus and Web of Science. From the latter, the three main indices containing the most relevant productions have been selected: Science Citation Index Expanded (SCI-Expanded), Social Sciences Citation Index (SSCI), and the Emerging Sources Citation Index (ESCI), all included in the WOS Core Collection.

This review aims to identify the main trends in scientific production, the structure of production, and the most notable specificities thereof. The search was organized using the following search operator: TITLE-ABS-KEY (“urban fragmentation”), so as to identify occurrences of urban fragmentation in title, abstract, or keywords in all the languages covered by the search engine. This operation was repeated identically in both search engines, thus obtaining the first raw sample of information in two “.bib” format files.

To standardize the formats resulting from each database, RStudio software 4.3.2. was used, which allowed for the extraction of a single file to work on in “.xlsx” format, accepted in the analysis software used subsequently.

Once the initial search was formulated, with 395 records obtained, duplicate results were removed, reducing the amount to 185 across both databases, eliminating up to 210 results. Subsequently, the results were filtered by publication date. Publications covering the period from 2008, the start of the Great Recession and the time when the phenomenon of urban fragmentation began to multiply, up to the present (end of 2023) were selected. After this step, the total number of publications was reduced by 33, leaving 152 records.

The last step before analysis involves filtering the results by theme. When searching for scientific productions on urban fragmentation, publications related to habitat fragmentation or urban ecology may be erroneously obtained, and thus themes such as biodiversity, pollution, engineering, or environmental studies included. Therefore, the results were filtered by theme, eliminating 19 more. The database configured for analysis ended up with 133 scientific publications finally.

When conducting this study, it is necessary to consider the limitations that may arise from using these search engines [54], which sometimes may not capture all the complexity and depth of scientific production in a specific field, whether due to the formulation of search operators or the coverage of the databases in the journals they host, to name a few examples. This can lead to the omission of some documents related to the subject that fall outside the scope of these bibliographic repositories due to the indexing of journals or the nature of the works not collected, such as conference journals or some book chapters. Nonetheless, the sample is considered to be sufficiently significant.

The software used for the empirical analysis of this work is Biblioshiny, an application of the Bibliometrix package for Rstudio that allows for descriptive analysis of bibliographic databases [55], with the goal of interpreting a specific scientific production in the best possible way. Thus, by importing the previously filtered bibliographic base in “.xlsx” format, with comma separation, the bibliometric analysis was able to be conducted.

In the following diagram (see Figure 1), the phases of the process are summarized, from the initial insertion of the search operator in both databases to the final sample, illustrating each step in alignment with the bibliometric research method and the principles set out in The PRISMA 2020 statement.

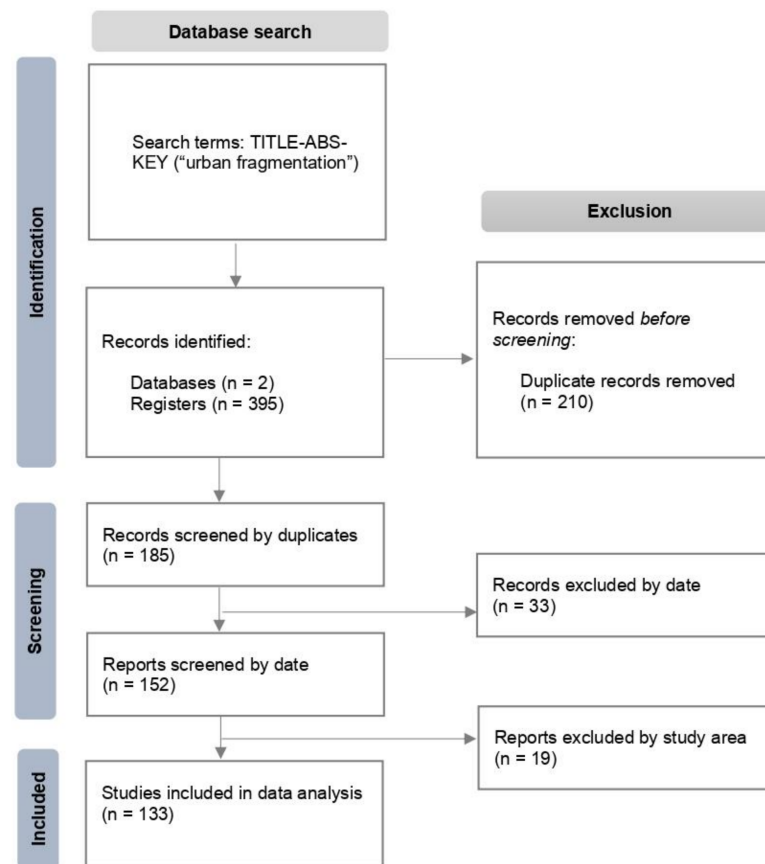


Figure 1. PRISMA flow diagram of the systematic review.

4. Results

After the search and screening process, 133 results from 78 sources were obtained, corresponding to the most relevant indexed scientific production on urban fragmentation from 2008 to the present (end of 2023) (Figure 2), authored by 232 different writers.

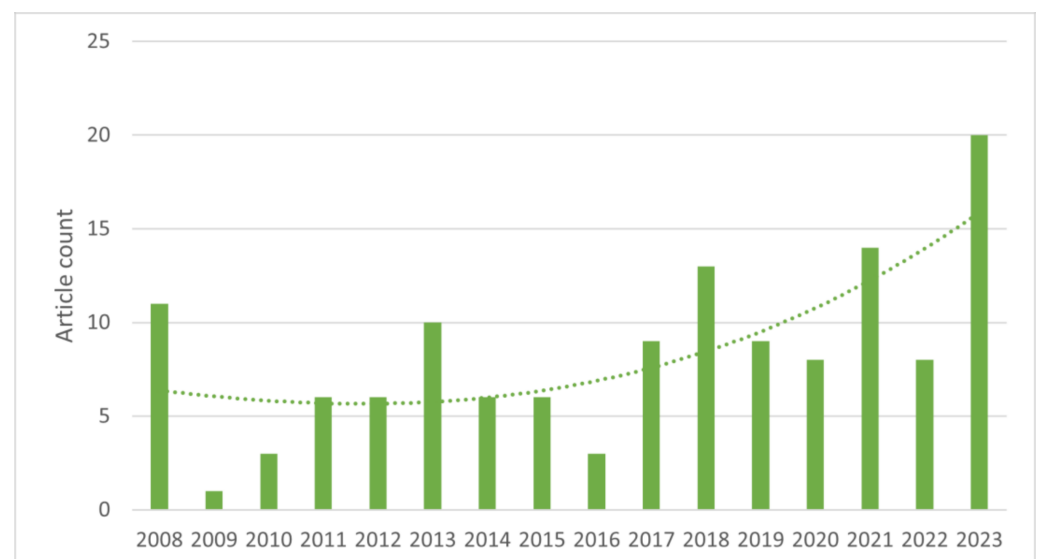


Figure 2. Evolution of annual scientific production on urban fragmentation (2008–2023).

Broadly speaking, it can be observed that global production has remained steady and even increased since 2008, the year the global financial crisis erupted and urban inequality increased, a main driver of case studies on fragmentation. After a peak in the year the

bubble burst, scientific production increased to reach its maximum in 2023 with about twenty indexed works, with the second highest value being in 2021 with 14. This fact points to fragmentation as a growing topic of debate gaining importance given the current context in cities around the world, increasingly recurring in global literature.

The production in this period is spread across four different continents, including Africa, Europe, Asia, and both North and South America. This points to a global diffusion of fragmentation issues and their study, as a term present in global science and relevant case studies distributed around the planet.

4.1. Themes

In terms of themes, the keywords and approaches taken show the multidisciplinary nature of the concept, but always centered on urban specificity and its processes. The following analysis includes the words included in the title, abstract, and keywords section of the extracted scientific production.

Thus, by extracting the most common words in titles, abstracts, and keywords, fragmentation stands out as the common thread of most research, which orbits around urban processes and their governance: planning, development, expansion, or delimitation of these areas. Additionally, terms that refer to new spatial patterns of fragmentation, such as gated communities, are reflected (Table 1).

Table 1. Most common keywords.

Keywords	Count
Fragmentation	19
Urban area	13
Urban development	11
Urban planning	11
Urbanization	10
Urban sprawl	8
Cities	7
Metropolitan area	7
Gated community	7
Social segregation	7

More broadly, in the word cloud shown below with a wider conceptual range (Figure 3), other aspects stand out in the scientific production on urban fragmentation, such as the analysis of cities and metropolitan areas, the emergence of classical views such as social exclusion or segregation, and secondary themes such as infrastructure, housing, public space, urban morphology, population, or mobility.

The word cloud (Figure 3) also highlights some of the most frequent study locations, showing where the urban fragmentation hotspots analyzed by scientific studies are: Argentina, Brazil, Chile, China, the United States, and Mexico are some of the prominent countries derived from the analyzed articles.

If the keywords are analyzed from an evolutionary perspective, fragmentation appears increasingly frequently in the extracted bibliography, being the term with the greatest rise from 2008 to 2023, considering the growing importance of this phenomenon and its analysis. The concept of fragmentation stands out above others that focus on the urban sphere, such as planning, development, or urban sprawl, in addition to the classic term segregation, which falls outside the keywords with the greatest evolution, represented in Figure 4.



Figure 3. Word cloud with the most repeated concepts in the search.

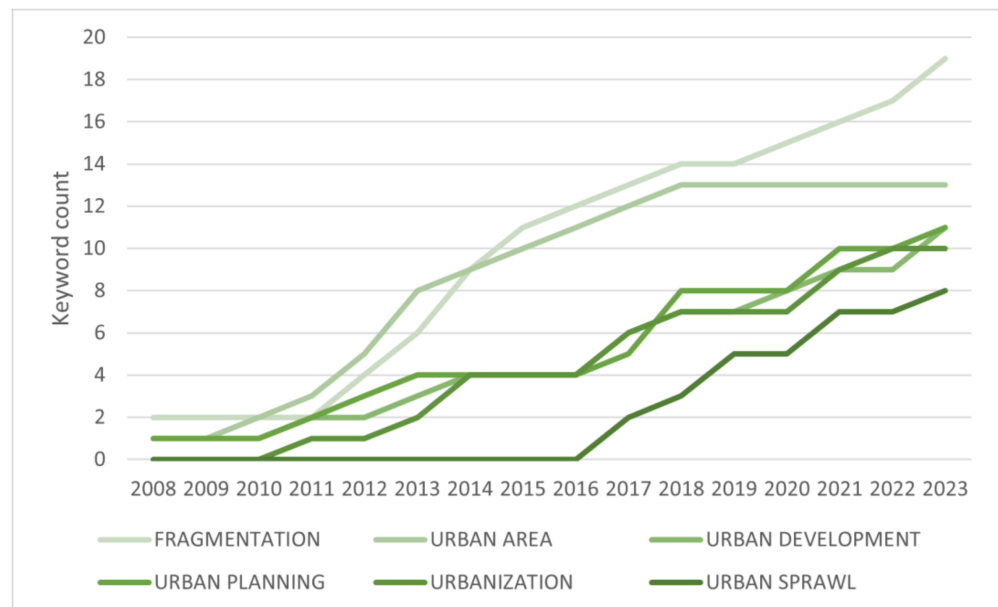


Figure 4. Evolution of the most repeated keywords in the search.

4.2. Affiliations and Origins

In the field of countries with the highest scientific contribution to urban fragmentation, there is a notable dominance of Latin and Western regions. In relation to this, another noteworthy aspect of the selected bibliography is the language of production of its articles. Considering the prominent standardization of English as the main language in most high-impact journals, the Latin and Southern European regions acquire significant weight, accounting for the production hub that this region represents. Of the total 133 results in the selected sample, there are 75 in English, 44 in Spanish, 8 in French, 4 in Portuguese, and 2 in Italian.

However, it is important to highlight the emerging growth of studies on urban fragmentation in Chinese academia. These studies are gaining relevance both in national scientific production and among Chinese authors writing from other countries or in journals that are growing within China itself. These analyses address inequalities in both the

West and China, as the cities of this Asian country are also affected by urban neoliberalism, a global phenomenon.

In terms of the publication mediums that have most extensively covered this topic, the journal *EURE (Revista Latinoamericana de Estudios Urbano Regionales)* stands out significantly above the rest. This journal, based at the Pontificia Universidad Católica de Chile, features up to 24 of the 133 articles included in the study, far exceeding the second most productive medium on urban fragmentation, the journal *Urban Studies* (of Anglo-Saxon scope) from Sage Journals with five registered publications.

These results position *EURE* as the epicenter of production on urban fragmentation, highlighting the relationship between fragmentation and its focus of study as a regional theme, with a special impact in Latin America and a multitude of cases manifesting in its cities and metropolitan areas, with new spatial patterns of segregation such as gated communities or condominiums.

In line with the aforementioned, studying the production according to the nationality of the authors' affiliations, the dominance of Spanish-speaking countries continues (Table 2). In fact, synergies have been generated between the different countries and institutions that have published on this topic in the last fifteen years. Mexico, Spain, and Chile stand out, and among the countries with the most producing authors are also Argentina, Brazil, Colombia, and Peru.

Table 2. Countries' scientific production in analyzed period.

Country	Count
Mexico	36
Spain	28
Chile	23
USA	20
France	18
Argentina	17
Brazil	12
Colombia	11
China	6
Peru	6

Finally, other countries show an upward trend in the study of fragmentation, due to the presence of case studies and the formation of new publication centers, in places such as China, the United States, and France. The Chinese case has already been mentioned. The United States accounts for 20 articles during the studied period, demonstrating the interest in urban fragmentation and the expansion of the phenomenon in North American cities. France also has a certain tradition and references authors in urban fragmentation. In fact, some paved the way for their theories to be later applied in spaces around the world [50].

Regarding specific affiliations (Table 3), the University of Colima, located in Mexico, stands out with eight indexed contributions in the databases. Similarly, the other universities with the highest production are also in Latin America, with the next two being Chilean, the fourth also Mexican, and the seventh Argentine. They are accompanied by universities from countries that, as noted, excel in the analysis of this topic, such as China, the United States, and Spain.

Table 3. Most productive affiliations.

Country	Count
Universidad de Colima	8
Pontificia Universidad Católica de Chile	6
Universidad de Chile	5
Universidad de Guadalajara	5
Idaho State University	4
Boise State University	4
Universidad de Buenos Aires	4
Universidad de Guanajuato	4
Universidad Politécnica de Madrid	3
City University of Hong Kong	3

4.3. Notable Authors and Documents

The authorship of the collected works is very diverse, as most authors have a low number of published studies. The observed scientific production does not have a clear structure, as there are no notable co-citation patterns. The authors of the most cited and notable literature indexed in these databases do not cite each other, suggesting a dispersion among the scientific community working on topics related to urban fragmentation.

The most relevant author in the results is Daniel Kozak, affiliated with the University of Buenos Aires and the National Scientific and Technical Research Council (CONICET) in Argentina. This researcher, specialized in urban fragmentation, has published various works ranging from theoretical reflections to case studies, focused on Argentina and its cities, with an eye on large developments, global neoliberalism, or urban sprawl, among others.

Secondly, with three published articles, are Rodrigo Hidalgo and Martín Lemma. These authors are also affiliated with countries in Latin America, specifically Chile and Argentina, confirming the previous trend of this part of the world as a hotspot in the analysis of urban fragmentation.

In the obtained database, the most-cited work corresponds to Walid Oueslati, Seraphim Alvanides, and Guy Garrod [56], with affiliations in France and the UK. It was published in 2015 in the first quartile Scopus journal *Urban Studies* and has a total of 221 citations from its publication to the date of the analysis. The article, following the thematic trend of the selected works, is a large-scale study on urban sprawl in Europe and its determinants in recent decades, providing an overview of the growth of large cities based on economic data and geographic variables. From these data and generated indices, the analyzed changes reveal increasing levels of urban fragmentation in the European cities studied, covering 237, including all major metropolitan areas in Western Europe.

The other most-cited documents correspond to a case study and a theoretical discussion, reaching 132 and 120 citations, respectively. The first is a study on land use and socio-spatial segregation in gated communities and private urbanizations, using the term segregation ambivalently with fragmentation in this case. It was developed in the city of Beijing and published in 2013 in the journal *Urban Geography* by Donggen Wang, Fei Li, and Yanwei Chai [57]. The work serves as a reference to indicate that not only does residential segregation imply socio-spatial differentiation, but it also affects how people spend their time and how they use urban space.

Finally, the third article with the greatest global impact in terms of citations is a theoretical reflection published in 2008 on planning and zoning policies and their effects on development, health, or environmental justice. It is authored by Sacoby Wilson, Malo Hutson, and Mahasin Mujahid [58] in the journal *Environmental Justice*. Their article is important support to many subsequent critical studies on urban governance and planning, concluding with a guide of recommendations to improve the quality of life in fragmented neighborhoods.

5. Discussion and Future Lines of Research

The findings presented demonstrate that urban fragmentation has a significant theoretical background, although it often suffers from conceptual ambiguity and a lack of precise boundaries. This background has expanded in recent years, especially after the pandemic [59], with a growing number of studies focusing on the conceptual disruption of the city as an integrated entity as it was previously understood [45]. These disruptions encompass social, physical, symbolic, and economic fractures.

Most of the analyzed studies approach fragmentation primarily as a physical phenomenon, examining it at the urban scale. Prominent examples include new spatial patterns such as *condominios*, gated communities, and urban sprawl. Most of this research is conducted in Latin America, authored by regional scholars who focus on case studies of major cities and urban areas in the region. These areas exhibit a high prevalence of such patterns, fueling case studies characterized by substantial diversity and stark inequalities. Nevertheless, contemporary cities are increasingly complex spaces influenced by a multitude of variables, some of which remain underexplored in discussions of urban fragmentation.

The inherent complexity of urban spaces has left certain dimensions of fragmentation insufficiently addressed in the existing literature. This concept's multidimensionality extends beyond its physical aspects, encompassing economic, symbolic, and political dimensions, among others. Moreover, fragmentation operates with a distinct multiscale character, as the urban issues extend well beyond administrative boundaries. Drawing on the analyzed studies and the research gaps identified within them, this article proposes several avenues for advancing the study of urban fragmentation.

One promising avenue for future study is fragmentation associated with the politics of space; a subject explored in its early stages by authors such as McFarlane [60]. This perspective focuses on the fragment itself, examining its specific power dynamics and the decisions that have shaped its development, often aligning with research on inequalities and urban poverty. Some other works focus on examining urban fragmentation in relation to spatial policies, pivoting on the dynamics and characteristics of the fragments themselves [61,62], opening the way to new studies more qualitatively oriented.

Furthermore, in an increasingly globalized world that transcends urban scales [63], it is essential to adopt a more diverse, multi-scale approach to analyzing fragmentation. This includes not only metropolitan areas but also delving into more detailed studies of districts, neighborhoods, and even smaller territorial units. These levels are often where the most pronounced differences in urban dynamics and relational processes can be observed [64].

Finally, within the context of global capitalist restructuring, with dominant global economic activities homogenizing urban dynamics [65], tourism has emerged as a key driver in shaping urban spaces and a significant driver of fragmentation. Over recent decades, tourism has reshaped urban morphology, transformed societies, redefined economic specializations, and connected distant parts of the world, while intensifying internal fragmentation [66]. Thus, the relationship between the increasingly prominent tourism sector and urban fragmentation represents a critical avenue for future research.

An additional aspect that warrants attention in fragmentation research, beyond the thematic scope, is the limited application of qualitative methodologies. To date, quantitative techniques and spatial analysis have largely dominated this field, highlighting an opportunity for a methodological shift. Such a change could incorporate more detailed scale analyses and explore new dimensions of fragmentation through qualitative approaches.

Another widespread bias observed in most published studies is the tendency to analyze fragmentation phenomena affecting low-income populations, socially vulnerable groups, or communities subjected to ethnic or racial discrimination. On the other hand, studies that examine wealthier groups, business and political leaders, professional execu-

tives, and elite immigrants—whose behaviors also contribute to urban fragmentation—are considered only marginally [67].

In summary, future research directions in the study of urban fragmentation could be expanded to include three key areas, among others: (1) examining urban fragmentation in relation to spatial policies, with a particular focus on the dynamics and characteristics of the fragments themselves; (2) exploring urban fragmentation beyond the citywide scale, emphasizing finer-grained levels such as neighborhoods, districts, and even smaller units; and (3) investigating tourism as a driver of fragmentation, given its cross-cutting impact on the transformation of cities globally.

The main limitation of the review stems from the type of works included in the indexed databases used, both of which are focused on journal articles with less presence or direct absence of other publications such as books, book chapters, conference papers, etc. Nonetheless, the validity of these databases is well established, and the sample is significant.

6. Conclusions

This paper analyzes the current scientific production on urban fragmentation through a selection of indexed bibliographies. Starting from a scenario of lacking systematic review of the existing publications in urban studies, this document addresses that need with an analysis and a state of the art that contributes to the development of a burgeoning concept. Therefore, this article fills this gap in the current literature in urban studies, contributing to a greater understanding of urban issues and the structure of the most important scientific contributions, employing an innovative methodology compared to prior reviews in the field of urban studies.

Urban fragmentation represents the physical manifestation of a latent inequality scenario that has persisted for many decades in cities around the world. These cities are no longer cohesive spaces, as segregation once asserted, but rather composed of many disconnected parts, especially in relational, social, and economic aspects, which relate their characteristics to their spatial distribution, leaving a task to local urbanists and city planners. This process has been studied by various authors in recent decades, highlighting the complexity of the phenomenon, the discontinuity of the urban fabric it entails, and the different dimensions it encompasses, ranging from socio-spatial to the governance of space.

Following the search conducted, the phenomenon of fragmentation is configured as a process of growing scientific interest, with an increasingly global reach. Since 2008, when the global financial crisis erupted and urban inequality increased, scientific production has remained constant and even on an upward trend, being situated in more places around the planet.

The thematic approaches are very diverse, with varied production among case studies, theoretical reflections, and conceptual analyses. The most recurrent are those that focus on urban space and its specific processes, concentrating on its physical changes: development, diffusion, planning, and new forms of fragmentation, such as condominiums, gated communities, and private urbanizations. The growing interest in the concept of fragmentation stands out in contrast to the stagnation of classic segregation.

Latin America, represented especially by Chile, Mexico, and Argentina, stands out as one of the main areas of study, both in the authors analyzing these processes and in the journals publishing on them. This occurs in two ways: with its cities as a center of analysis, given their urban inequalities and new forms of urban fragmentation, and on the other hand, through its scientific journals, which have become important spaces for scientific publication related to fragmentation both in Latin America and other regions of the world.

Given the importance and relevance of the urban fragmentation process in today's world, which leads, as has been demonstrated, to a growing academic literary production, future research will be necessary with updates to the literature review conducted here.

Author Contributions: Conceptualization, V.P.-G., F.E.G.-R. and L.A.E.-G.; methodology, V.P.-G.; software, V.P.-G.; validation, V.P.-G., F.E.G.-R. and L.A.E.-G.; formal analysis, V.P.-G.; investigation, V.P.-G. and F.E.G.-R.; data curation, V.P.-G.; writing—original draft preparation, L.A.E.-G.; writing—review and editing, V.P.-G., F.E.G.-R. and L.A.E.-G.; supervision, L.A.E.-G.; funding acquisition, L.A.E.-G. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the project ‘Cities in transition. Urban fragmentation and new socio-spatial patterns of in-equality in the post-pandemic context. The case of the urban area of Palma (Mallorca)’ (PID2021-122410OB-C31), funded by MCIN/AEI/10.13039/501100011033.

Data Availability Statement: The data shown in this review and more results included in the funding project may be found at the following website: <https://portal.uib.cat/es/web/proyecto-2cities-in-transition> (accessed on 16 March 2025).

Conflicts of Interest: The authors declare no conflicts of interest.

References

- González-Pérez, J.M.; Parreño-Castellano, J.M.; Sánchez-Aguilera, D. Fragmentación urbana. Marco conceptual para el análisis de la desigualdad en España. In *Geografía: Cambios, Retos y Adaptación. XXVIII Congreso de la Asociación Española de Geografía*, 1st ed.; Arnáez, J., Ruiz-Flaño, P., Pascual-Bellido, N.E., Noemí Lana-Renault, N., Jorge Lorenzo-Lacruz, J., Díez Angulo, A., Martín-Hernández, N., Lasanta, T., Estela Nadal Romero, E., Eds.; Asociación Española de Geografía: Madrid, Spain, 2023; pp. 811–820. [CrossRef]
- Abellán, J. Vivienda, los Fondos de Inversión y la Reestructuración del Capitalismo Español. 19 November 2015. Contested Cities. Available online: <http://contested-cities.net/CCmadrid/la-vivienda-los-fondos-de-inversion-y-la-reestructuracion-del-capitalismo-espanol/> (accessed on 19 November 2024).
- Alves, P.; San Juan, L. El Impacto de la Crisis Sanitaria del COVID-19 Sobre El Mercado de la Vivienda en España. *Boletín Económico*. 1–15 February 2021. Available online: <https://www.bde.es/f/webbde/SES/Secciones/Publicaciones/InformesBoletinesRevistas/ArticulosAnaliticos/21/T2/Fich/be2102-art16.pdf> (accessed on 10 October 2024).
- Janoschka, M. El nuevo modelo de la ciudad latinoamericana: Fragmentación y privatización. *Eure* **2002**, *28*, 11–20. [CrossRef]
- Escolano-Utrilla, S.; López-Escolano, C.; Pueyo-Campos, Á. Urbanismo neoliberal y fragmentación urbana: El caso de Zaragoza (España) en los primeros quince años del siglo XXI. *Eure* **2018**, *44*, 183–210. [CrossRef]
- Smith, N. *Uneven Development: Nature, Capital and Production of Space*; Blackwell: London, UK, 1984.
- Musterd, S. *Advanced Introduction to Urban Segregation*; Edward Elgar: Cheltenham, UK, 2023.
- Vasconcelos, P.A. Processus et formes socio-spatiales des villes: Une contribution au débat. In *Ségrégation et Fragmentation Dans Les Métropoles: Perspectives Internationales*; Carrel, M., Cary, P., Wachsberger, J., Eds.; Presses Universitaires du Septentrion: Lille, France, 2013; pp. 37–62. [CrossRef]
- Andersson, R.; Hedman, L. Economic decline and residential segregation: A Swedish study with focus on Malmö. *Urban Geogr.* **2016**, *37*, 748–768. [CrossRef]
- Zwiers, M.; Bolt, G.; Van Ham, M.; Van Kempen, R. The global financial crisis and neighborhood decline. *Urban Geogr.* **2016**, *37*, 664–684. [CrossRef]
- Burgess, R. Segregación y fragmentación urbana: Algunos comentarios. *Rev. Iberoam. Urban.* **2018**, *14*, 79–86.
- Svampa, M. Fragmentación espacial y procesos de integración social “hacia arriba”. *Socialización, Sociabilidad y Ciudadanía. Espiral Estud. Sobre Estado Soc.* **2004**, *11*, 55–84. [CrossRef]
- Wacquant, L. *Bourdieu in the City*; Polity Press: Cambridge, UK, 2023.
- Xi, J.; Liu, X.; Wang, J.; Zhou, C. A systematic review of COVID-19 geographical research: Machine learning and bibliometric approach. *Ann. Am. Assoc. Geogr.* **2023**, *113*, 581–598. [CrossRef]
- Burgess, R. Violencia y la Ciudad Fragmentada. In *Mujeres en la Ciudad. De Violencia y Derechos*, Falú, A., Ediciones SUR; Red Mujer y Hábitat de América Latina: Córdoba, Argentina, 2009; pp. 99–126.
- Benjamin, W. *The Arcades Project*, 5th ed.; Harvard University Press: Cambridge, MA, USA, 2003.
- McFarlane, C. Fragment urbanism: Politics at the margins of the city. *Environ. Plan. Dev. Soc. Space* **2018**, *36*, 1007–1025. [CrossRef]
- Simmel, G. *Soziologische Aesthetik*, 1st ed.; Die Zukunft: New York, NY, USA, 1986; pp. 204–216.
- Frisby, D. *Fragmentos de la Modernidad*, 2nd ed.; Visor: Madrid, Spain, 1995.

20. Mele, V. *City and Modernity in Georg Simmel and Walter Benjamin: Fragments of Metropolis*; Palgrave Macmillan: New York, NY, USA, 2023. [CrossRef]
21. De la Peña, G. *Simmel y la Escuela de Chicago en Torno a los Espacios Públicos en la Ciudad*; Quaderns-e de l'Institut Català d'Antropologia: Barcelona, Spain, 2003; Volume 1.
22. Martínez, E.; López, A. El desarrollo de la morfología social y la interpretación de las grandes ciudades. *Geo Crítica. Scr. Nova. Rev. Electrónica Geogr. Cienc. Soc.* **2002**, *6*. Available online: <https://revistes.ub.edu/index.php/ScriptaNova/article/view/445> (accessed on 8 December 2024).
23. Bronfenbrenner, U. *La Ecología del Desarrollo Humano*; Paidós: Barcelona, Spain, 1971.
24. Pérez-Fernández, F. El medio social como estructura psicológica: Reflexiones del modelo ecológico de Bronfenbrenner. *EduPsykhé: Rev. Psicol. Psicopedag.* **2004**, *3*, 161–177. [CrossRef]
25. Sampson, R.J. Urban sustainability in an age of enduring inequalities: Advancing theory and econometrics for the 21st-century city. *Proc. Natl. Acad. Sci. USA* **2017**, *114*, 8957–8962. [CrossRef]
26. Lefebvre, H. *El Derecho a la Ciudad*, 3rd ed.; Ediciones Península: Barcelona, Spain, 1975.
27. Lefebvre, H. *The Production of Space*, 4th ed.; Blackwell: London, UK, 1991.
28. Lefebvre, H. *Les Illusions de la Modernité*, 1st ed.; Le Monde Diplomatique: Paris, France, 1989.
29. Buckley, M.; Strauss, K. With, against and beyond Lefebvre: Planetary urbanization and epistemic plurality. *Environ. Plan. D Soc. Space* **2016**, *34*, 617–636. [CrossRef]
30. Merrifield, A. *The New Urban Question*; Pluto Press: London, UK, 2014. [CrossRef]
31. Pinder, D. Reconstituting the Possible: Lefebvre, Utopia and the Urban Question. *Int. J. Urban Reg. Res.* **2015**, *39*, 28–45. [CrossRef]
32. Stanek, L. *Henri Lefebvre on Space: Architecture, Urban Research, and the Production of Theory*; University of Minnesota Press: Minneapolis, MN, USA, 2013.
33. Chétry, M. La fragmentation: Un nouveau regard sur la ville brésilienne? In *Ségrégation et Fragmentation dans les Métropoles: Perspectives Internationales*; Carrel, M., Cary, P., Wachsberger, J., Eds.; Presses Universitaires du Septentrion: Lille, France, 2013; pp. 121–126. [CrossRef]
34. Sassen, S. *The Global City: New York, Londres, Tokyo*; Princeton University Press: Oxford, UK, 1991.
35. Mollenkopf, J.; Castells, M. (Eds.) *Dual City: Restructuring New York*; The Russel Foundation: New York, NY, USA, 1992.
36. Wacquant, L. Territorial Stigmatization in the Age of Advanced Marginality. *Thesis Elev.* **2007**, *91*, 66–77. [CrossRef]
37. Wacquant, L. *Urban Outcasts: A Comparative Sociology of Advanced Marginality*; Polity: Cambridge, UK, 2008.
38. Wacquant, L. Urban Desolation and Symbolic Denigration in the Hyperghetto. *Soc. Psychol. Q.* **2010**, *20*, 1–5. [CrossRef]
39. Ellen, E.; Turner, M.A. Does Neighborhood Matter? Assessing Recent Evidence. *Hous. Policy Debate* **1997**, *8*, 833–866. [CrossRef]
40. Goering, J. *Choosing a Better Life? Evaluating the Moving to Opportunity Social Experiment*, 3rd ed.; The Urban Institute Press: Washington, DC, USA, 2003.
41. Rose, D.; Seguin, A.M. Les débats sur les effets de quartier: Que nous apprennent les approches centrées sur les réseaux sociaux et le capital social? In *Le Quartier: Enjeux Scientifiques, Actions Politiques et Pratiques Sociales*, 1st ed.; Authier, J.Y., Bacqué, M.H., Guérin-Pace, F., Eds.; Éditions La Découverte: Paris, France, 2007; pp. 217–228.
42. Cary, P.; Fol, S. Introduction. Les métropoles soumises à des transformations socio-spatiales. In *Ségrégation et Fragmentation dans les Métropoles: Perspectives Internationales*; Carrel, M., Cary, P., Wachsberger, J., Eds.; Presses Universitaires du Septentrion: Lille, France, 2013; pp. 352–361. Available online: <https://books.openedition.org/septentrion/7800> (accessed on 16 March 2025).
43. Manski, C.F. Identification of endogenous social effects: The reflection problem. *Rev. Econ. Stud.* **1993**, *60*, 531–542. [CrossRef]
44. Manski, C.F. Economic analysis of social interactions. *J. Econ. Perspect.* **2000**, *14*, 115–136. [CrossRef]
45. Carrel, M. Conclusion: Ségrégation et fragmentation, de quoi et au nom de qui parle-t-on? In *Ségrégation et Fragmentation dans les Métropoles: Perspectives Internationales*; Carrel, M., Cary, P., Wachsberger, J., Eds.; Presses Universitaires du Septentrion: Lille, France, 2013; pp. 345–352. Available online: <https://books.openedition.org/septentrion/7839> (accessed on 16 March 2025).
46. Musterd, S. *Handbook of Urban Segregation*; Edward Elgar: Cheltenham, UK, 2020. [CrossRef]
47. Massey, D.S.; Denton, N.A. The dimensions of residential segregation. *Soc. Forces* **1988**, *67*, 315. [CrossRef]
48. Huntington, D. Revisiting the impact of urban shrinkage on residential segregation in European cities. *Vienna Yearb. Popul. Res.* **2023**, *21*, 1–28. [CrossRef]
49. Préteceille, E. La ségrégation sociale a-t-elle augmenté? La métropole parisienne entre polarisation et mixité. *Sociétés Contemp.* **2006**, *62*, 69–93.
50. Navez-Bouchanine, F. *La Fragmentation en Question. des Villes Entre Fragmentation Spatiale et Fragmentation Sociale*; L'Harmattan: Paris, France, 2002.
51. Wachsberger, J.M. Portée et limites des indicateurs statistiques de fragmentation et de segregation. In *Ségrégation et Fragmentation dans les Métropoles: Perspectives Internationales*; Carrel, M., Cary, P., Wachsberger, J., Eds.; Presses Universitaires du Septentrion: Lille, France, 2013; pp. 79–96. Available online: <https://books.openedition.org/septentrion/7807> (accessed on 16 March 2025).

52. Navez-Bouchanine, F. Des villes entre fragmentation spatiale et fragmentation sociale: Une approche critique de la notion de fragmentation. In *Vocabulaire de la Ville. Notions et Références*, 1st ed.; Dorier-Apprill, E., Ed.; Édition du Temps: Paris, France, 2001; pp. 109–118.
53. Qu, H.; Nordin, N.A.; Tsong, T.B.; Feng, X. A Bibliometrics and Visual Analysis of Global Publications for Cognitive Map (1970–2022). *Inst. Electron. Electron. Eng.* **2023**, *11*, 52824–52839. [[CrossRef](#)]
54. Haustein, S.; Larivière, V. The use of bibliometrics for assessing research: Possibilities, limitations and adverse effects. In *Incentives and Performance: Governance of Research Organizations*; Welp, I.M., Wollersheim, J., Ringelhan, S., Osterloch, M., Eds.; Springer International Publishing: New York, NY, USA, 2014; pp. 121–139. [[CrossRef](#)]
55. Aria, M.; Cuccurullo, C. Bibliometrix: An R-tool for comprehensive science mapping analysis. *J. Infometrics* **2017**, *11*, 959–975. [[CrossRef](#)]
56. Oueslati, W.; Albanides, S.; Garrod, G. Determinants of urban sprawl in European cities. *Urban Stud.* **2015**, *52*, 1594–1614. [[CrossRef](#)]
57. Wang, D.; Li, F.; Chan, Y. Activity Spaces and Sociospatial Segregation in Beijing. *Urban Geogr.* **2013**, *33*, 256–277. [[CrossRef](#)]
58. Wilson, S.; Hutson, M.; Mujahid, M. How planning and zoning contribute to inequitable development, neighborhood health, and environmental injustice. *Environ. Justice* **2008**, *1*, 211–216. [[CrossRef](#)]
59. Horrach, B.; Vilá-Vázquez, J.I.; Jiménez-Barrado, V. Apuntes sobre la construcción conceptual latinoamericana de la fragmentación urbana. Un enfoque hacia el vector turístico. *Rev. De Geogr. Norte Gd.* **2024**, *90*, 1–23.
60. McFarlane, C. *Fragments of the City: Making and Remaking Urban Worlds*, 1st ed.; University of California Press: Oakland, CA, USA, 2021.
61. Zhou, L.; Gong, Y.; López-Carr, D.; Huang, C. A critical role of the capital green belt in constraining urban sprawl and its fragmentation measurement. *Land Use Policy* **2024**, *141*, 107148. [[CrossRef](#)]
62. Morales, E.R. Planned Socio-Spatial Fragmentation: The Normalisation of Gated Communities in Two Mexican Metropolises. *Urban Plan.* **2024**, *9*, 6879. [[CrossRef](#)]
63. Kozak, D. Fragmentación Urbana y Neoliberalismo Global. In *Ciudades Compactas, Dispersas, Fragmentadas*, 1st ed.; Pradilla Cobos, E., Ed.; Universidad Autónoma Metropolitana Xochimilco y Miguel Angel Porrúa Editor: Xochimilco, Mexico, 2011; pp. 13–62.
64. Marengo, M.C.; Elorza, A.L. Segregación residencial socioeconómica y programas habitacionales públicos: El caso del programa “Mi casa, Mi vida” en la ciudad de Córdoba. *Rev. Iberoam. Urban.* **2018**, *14*, 43–58.
65. Pérez-Peñuelas, B.O. Problemática en la delimitación de fragmentación urbana por compartir procesos con otros impactos urbanos. *Rev. Ciudad. Estados Política* **2021**, *8*, 143–160. [[CrossRef](#)]
66. Bridge, G.; Watson, S. *A Companion to the City*; Blackwell: London, UK, 2000.
67. Baldán, H.; Torrado, J.M.; Susino, J. Beyond Gated Communities: A Typology of Residential Compounds in Granada. *Land* **2024**, *13*, 1116. [[CrossRef](#)]

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.