

TeMA

Journal of
Land Use, Mobility and Environment

print ISSN 1970-9889 e-ISSN 1970-9870
FedOA press - University of Naples Federico II

DOAJ

 Rivista scientifica
di classe A - 08/F1

Scopus WEB OF SCIENCE

Special Issue 2024 Urban Inequalities

This Special Issue intended to wonder about how urban planning can contribute to reduce disparities due to the diversity of access to services, infrastructure and urban places, as well as the origin from a specific territorial area (center vs. periphery) and that could be accentuated by unforeseen global pandemics. Hence, contributions coming from scholars as well as from technicians have been collected around rethinking and redesigning territories and cities to support policy-makers in preventing and reducing socio-spatial inequalities.

TeMA is the Journal of Land Use, Mobility and Environment. The Journal publishes papers which adopt unified approach to planning, mobility and environmental sustainability. With the ANVUR resolution of April 2020, TeMA Journal and the articles published from 2016 have been included in the A category of scientific journals. The articles published on TeMA are part of the Core Collection of Web of Science, since 2015, and of Scopus database, since 2023. The journal is in the Sparc Europe Seal of Open Access Journals and the Directory of Open Access Journals.

TeMA

Journal of
Land Use, Mobility and Environment

Special Issue 2.2024

Urban Inequalities

Published by

Laboratory of Land Use Mobility and Environment
DICEA - Department of Civil, Architectural and Environmental Engineering
University of Naples "Federico II"

TeMA is realized by CAB - Center for Libraries at "Federico II" University of Naples using Open Journal System

Editor-in-chief: Rocco Papa
print ISSN 1970-9889 | online ISSN 1970-9870
Licence: Cancelleria del Tribunale di Napoli, n° 6 of 29/01/2008

Editorial correspondence

Laboratory of Land Use Mobility and Environment
DICEA - Department of Civil, Architectural and Environmental Engineering
University of Naples "Federico II"
Piazzale Tecchio, 80
80125 Naples

web: www.serena.unina.it/index.php/tema
e-mail: redazione.tema@unina.it

Cover photo: Taipei (Taiwan) urban street, provided by Maxio on Pixels.com (royalty free image)

TeMA. Journal of Land Use, Mobility and Environment offers researches, applications and contributions with a unified approach to planning and mobility and publishes original inter-disciplinary papers on the interaction of transport, land use and environment. Domains include: engineering, planning, modeling, behavior, economics, geography, regional science, sociology, architecture and design, network science and complex systems.

With ANVUR resolution of April 2020, TeMA Journal and the articles published from 2016 are included in A category of scientific journals. The articles published on TeMA are included in main international scientific database as Scopus (from 2023), Web of Science (from 2015) and the *Directory of Open Access Journals* (DOAJ). TeMA Journal has also received the *Sparc Europe Seal* for Open Access Journals released by *Scholarly Publishing and Academic Resources Coalition* (SPARC Europe). TeMA is published under a Creative Commons Attribution 4.0 License and is blind peer reviewed at least by two referees selected among high-profile scientists. TeMA has been published since 2007 and is indexed in the main bibliographical databases and it is present in the catalogues of hundreds of academic and research libraries worldwide.

EDITOR-IN-CHIEF

Rocco Papa, University of Naples Federico II, Italy

EDITORIAL ADVISORY BOARD

Mir Ali, University of Illinois, USA
Luca Bertolini, University of Amsterdam, Netherlands
Luuk Boelens, Ghent University, Belgium
Dino Borri, Politecnico di Bari, Italy
Enrique Calderon, Technical University of Madrid, Spain
Pierluigi Coppola, Politecnico di Milano, Italy
Derrick De Kerckhove, University of Toronto, Canada
Mark Deakin, Edinburgh Napier University, Scotland
Carmela Gargiulo, University of Naples Federico II, Italy
Aharon Kellerman, University of Haifa, Israel
Nicos Komninos, Aristotle University of Thessaloniki, Greece
David Matthew Levinson, University of Minnesota, USA
Paolo Malanima, Magna Graecia University of Catanzaro, Italy
Agostino Nuzzolo, Tor Vergata University of Rome, Italy
Rocco Papa, University of Naples Federico II, Italy
Serge Salat, UMCS Institute, France
Mattheos Santamouris, NK University of Athens, Greece
Ali Soltani, Shiraz University, Iran

ASSOCIATE EDITORS

Rosaria Battarra, CNR, Italy	Seda Kundak, Technical University of Istanbul, Turkey
Matteo Caglioni, Université Côte d'Azur, France	Rosa Anna La Rocca, University of Naples Federico II, Italy
Alessia Calafiore, University of Edinburgh, UK	Houshmand Ebrahimpour Masoumi, TU of Berlin, Germany
Gerardo Carpentieri, University of Naples Federico II, Italy	Giuseppe Mazzeo, Pegaso Telematic University, Italy
Luigi dell'Olio, University of Cantabria, Spain	Nicola Morelli, Aalborg University, Denmark
Isidoro Fasolino, University of Salerno, Italy	Enrica Papa, University of Westminster, United Kingdom
Romano Fistola, University of Naples Federico II, Italy	Yolanda Pena Boquete, AYEconomics Research Centre, Spain
Stefano Franco, Politecnico di Bari, Italy	Dorina Pojani, University of Queensland, Australia
Federica Gaglione, University of Sannio, Italy	Nailya Saifulina, University of Santiago de Compostela, Spain
Carmen Guida, University of Naples Federico II, Italy	Athena Yiannakou, Aristotle University of Thessaloniki, Greece
Thomas Hartmann, Utrecht University, Netherlands	John Zacharias, Peking University, China
Markus Hesse, University of Luxembourg, Luxembourg	Cecilia Zecca, Royal College of Art, UK
Zhanat Idrisheva, D. Serikbayev EKTU, Kazakhstan	Floriana Zucaro, University of Naples Federico II, Italy
Zhadira Konurbayeva, D. Serikbayev EKTU, Kazakhstan	

EDITORIAL STAFF

Gennaro Angiello, Ph.D. at University of Naples Federico II, Systemica, Bruxelles, Belgium
Annunziata D'Amico, Ph.D. student at University of Naples Federico II, Italy
Valerio Martinelli, Ph.D. student at University of Naples Federico II, Italy
Stella Pennino, Ph.D. student at University of Naples Federico II, Italy
Tonia Stiuso, Research fellowship at University of Naples Federico II, Italy

Special Issue 2.2024

Urban Inequalities

Contents

- 3** EDITORIAL PREFACE
A bibliometric review of evolution and knowledge gap of urban inequalities
Benjamin Buettner, Floriana Zucaro
- 19** **From peripheries to neighbourhoods: measuring urban insertion of social housing projects**
Paulo Nascimento Neto, Marina Quirino Luxi de Paula, Agnes Silva de Araújo,
Everton Narciso de Oliveira
- 33** **User-centred mobility management and social inclusion. Urban insights from the University of Genoa**
Valentina Costa, Ilaria Delponte
- 47** **Analysis of urban green space inequalities in Isparta, Turkey**
Atila Gül, Gizem Dinç, Çağla Aydemir
- 65** **Developing processes for the co-creation and co-governance of urban green space in dense urban areas: a Maltese case study**
Sarah Scheiber, Wendy Jo Misfud
- 81** **Investigating the spatial distribution of energy poverty. An application to the city of Bologna**
Sofia Manaresi, Angela Santangelo
- 97** **Eco-mobility justice in the ecological transition. An analysis for possible directions in mobility and transport equity**
Irina Di Ruocco

113 The deprivations and inequalities based on settlement typologies and urban form: the case of Addis Ababa, Ethiopia

Gizachew Berhanu, Solomon Mulugeta, Ephrem Gebremariam, Aramde Fetene,
Daniel Tesfaw Mengistue

143 Examples of good experiences for child-friendly cities. Comparison of sustainable practices in Italy and around the world

Annunziata D'Amico

EDITORIAL PREFACE

Special Issue 2.2024

Urban inequalities

A bibliometric review of evolution and knowledge gap of urban inequalities

Benjamin Buettner ^a, Floriana Zucaro ^{b*}

^a School of Engineering and Design, Technical University of Munich, Munich
e-mail: benjamin.buettner@tum.de
ORCID: <https://orcid.org/0000-0003-4733-545X>

^b Department of Civil, Building and Environmental Engineering, University of Naples Federico II
e-mail: floriana.zucaro@unina.it
ORCID: <https://orcid.org/0000-0003-4171-3659>

*Corresponding author

1 Aim, scope and methodology

The main aim of this work is to analyse and examine the evolution of the main factors and features behind urban inequalities after the Agenda 2030 publication (UN, 2015) and applying a bibliometric analysis to a worldwide scientific production. Defining the main trend topics, contents, limits and gaps of the academic works, allowed to identify the main research fields concerning which the urban inequality topic can be declined within the broader domain of the governance of urban and territorial transformations. This constituted a preliminary and crucial step in the development of this Special Issue, in order to outline the key aspects and research questions to investigate and answer through the submitted works. Furthermore, this editorial preface can provide interesting insights by complementing existing academic works that seem to deal with specific aspects of economic and social inequalities, leaving out the urban dimension.

Not surprisingly, Sustainable Development Goals (SDGs) are based on the imperative to leave no one and no place behind by building sustainable cities and communities, with the stated aim of reducing inequality within and among countries.

To provide a systematic scientific framework, a bibliometric analysis was developed to study and interpret evolution and relations between documents, to identify the different approaches according to the geographic affiliation of authors and applications and the relationship of co-occurrence between keywords. The progress in sophisticated text-mining techniques has revolutionized the ability to analyze massive collections of scholarly publications. This enables researchers to not only stay current with the latest advancements in their field but also to gain insights into the underlying knowledge structure and evolving trends. Consequently, the past decade has witnessed the development of numerous bibliometric analysis software tools to facilitate these endeavours (Cobo et al., 2011; van Eck & Waltman, 2017).

Bibliometric analysis encompasses extensive literature and offers dependable insights into the development of academic disciplines, compared to other forms of review, such as narrative review and meta-analysis (Carpentieri et al., 2023; He et al., 2023; Sharifi, 2021). As several authors like Aghaloo et al., (2024), Cobo et al. (2011) and Sharifi (2021) describe, bibliometrics is often used for performance analysis, to assess indicators related to various aspects such as authors, universities, journals, and countries, and science mapping to illustrate the structure of a research topic and visualising its thematic evolution. Specific objectives are to identify influential authors, sources,

and countries; to understand major thematic focus areas and methodological approaches, and to analyze the thematic evolution of the field.

In this work, the bibliometric analysis is based on the academic production between 2016 and 2023 from the Scopus database. The temporal range was defined to investigate the possible influence of the publication of the SDGs on scientific research perspectives, while the selected international academic database collects a greater number of documents than Web of Science (28.5 M vs 23.1 M) and has a more effective management of BibTex files than the latter.

The bibliometric analysis was developed through VOSviewer and Bibliometrix software can make statistical and graphical analyses designed by authors' affiliations and countries and provide spatial representations of how disciplines, fields, authors (with related institutions and countries) and papers are related to each other in maps of science. In particular, the former was developed in 2019 by the Centre for Science and Technology Studies (CWTS) at Leiden University (NL); it has a user-friendly interface and its term co-occurrence outputs are more suitable for determining the knowledge structure of a field and its changes over time. The latter works in the R Studio environment to be flexible and facilitate integration with other statistical and graphical packages and was developed in 2017 by Aria & Cuccurullo at the University of Naples Federico II. Bibliometrix proves instrumental in mapping the scientific landscape by developing structured analysis of vast datasets, uncovering temporal trends, dominant research themes, and evolving disciplinary boundaries.

1.2 Bibliometric analysis steps

Fig.1 below sums up the bibliometric analysis flowchart. The first step required to identify a suitable query to guarantee good coverage in collecting relevant publications from the Scopus database. To this end, the search string "spatial inequalities" OR "urban inequalities" was used to retrieve records through their title, and/or abstract and/or keywords. The OR operator was used to identify at least one of the search terms in returned documents, so to retrieve a larger number of works than the AND operator instead finds documents containing all the search terms. Moreover, an English language filter was applied to ensure an international scientific panorama to the review. This query covered both the geographical and economic aspects, in terms of possible disparities among territories (e.g. North vs South countries), the accessibility aspects, in terms of facilities and services distribution, and the functional and organization aspects, in terms of urban asset and planning.

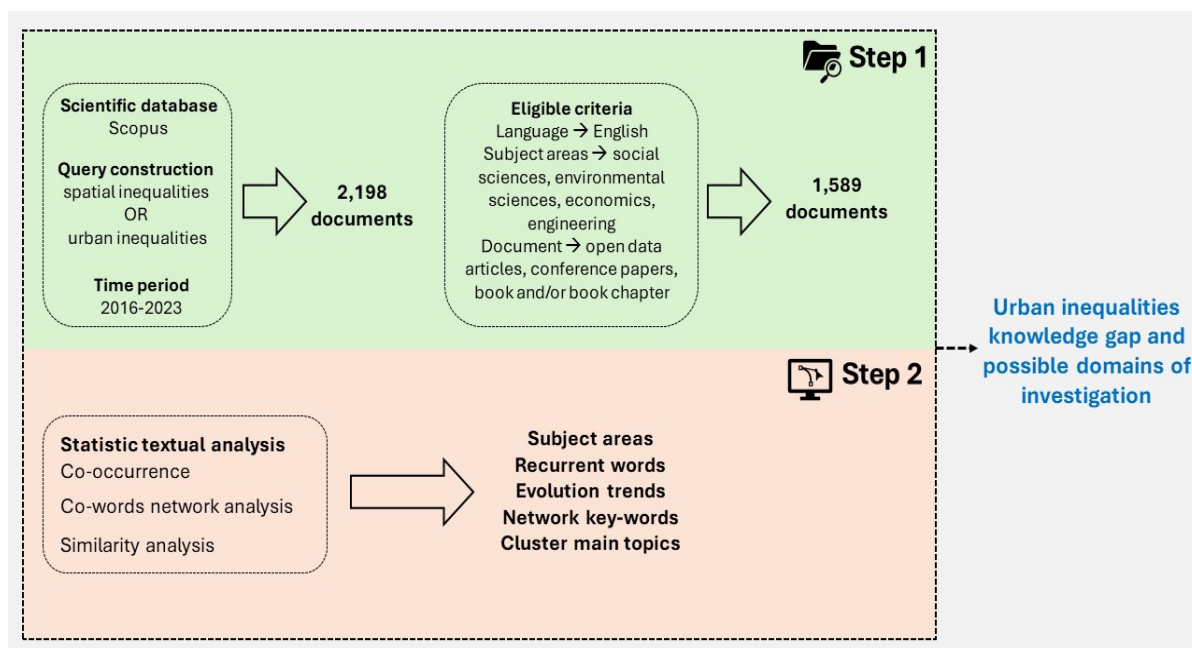


Fig.1 The bibliometric analysis flow chart

The research was limited to the narrow fields of Engineering, Environmental Sciences and All Social Sciences, referring to aspects of interest for the TeMA Journal and its guest editors. Fig.1 shows that this process, based on the PRISMA method (Preferred Reporting Items Systematic Review and Meta-Analysis), (Page et al., 2021; Panic et al., 2013) drew 2,198 documents down to 1,589.

In the second step, different analyses to identify key thematic areas and the relationships among them, both singly and in groups, also according to the different geographical areas of the scientific production were run.

Three key concepts play a central role in uncovering the thematic structure of research fields: term co-occurrence, co-citation, and bibliographic coupling (Van Eck & Waltman, 2022). In this work the term co-occurrence analysis was elaborated as it focuses on identifying and examining the interactions between key thematic areas within a field.

The resulting co-occurrence map visualizes these relationships as a network of nodes, where each node represents a frequently co-occurring term. The size of each node corresponds to the term's overall co-occurrence frequency, while the thickness of the connecting lines reflects the strength of the association between terms. Terms that frequently co-occur tend to cluster together within the map, representing distinct thematic areas. Conversely, terms with weak thematic connections appear more distant from each other on the map.

Co-words network analysis allows to understand the topics covered by a research field to define what are the most relevant and the most recent issues (so-called, research front). It was also helpful to study the evolution of subjects over time.

Then, to draw a conceptual structure of the field and identify clusters of documents which express common concepts, a cluster analysis was developed thanks to Bibliometrix. Multiple Correspondence Analysis (MCA) and K-means clustering techniques were used to obtain a graphic representation of the word clusters along two main factorial axes, allowing identification of their connections. The distribution of the clusters in the graph is based on chi-square values, which determine the significance associated with each variable. This analysis is useful in synthesising large amount of data, and supports the explanation of the relationships between words and word clusters throughout the entire document sample.

2. Results and discussion

2.1 Distribution, temporal trend of publications and spatial affiliations of authors

Fig. 2 shows the percentages of documents by subject area. The three most relevant areas are Social Sciences (45.3%), Environmental Sciences (16%), and Economics and econometrics (7.4%). The results reflect the fact that these fields all directly address aspects of urban life, economic vitality and development, and demography that can contribute to or be affected by inequalities.

The research areas with values near or slightly higher than 4% are Business, Management (4.8%), Engineering (4.8%) and Earth and Planetary Sciences (4.7%). These focus the attention on economic production and organization that can determine equal or not access to facilities and products.

In the engineering field, disparities can be due to the digital divide limiting access and use of Information and Communications Technologies (ICTs), such as ownership of hardware and software, connectivity and lack of digital literacy and skills (Robinson et al., 2015; Ulbrich et al., 2018). It is worth noting that subject areas like Medicine and Energy are among the lowest values of documents, even though health inequities between and within cities have been globally documented. Furthermore, SDGs highlight the critical leadership role of cities in fostering healthier and more sustainable environments (Feritas et al., 2019). This emphasis stems from the recognition that cities represent key settings for addressing the social and environmental determinants of health (D'Amico, 2024; Berhanu et al., 2024). On the energy issue side, this result confirms the renewed and emerging interest in the energy justice topic that investigates energy benefits and burdens within cities. Low-income communities often

have limited access to reliable and affordable energy sources and this can lead to energy poverty, where households struggle to meet their basic energy needs for heating, cooling, and lighting (Apergi et al., 2024; Manaresi & Santangelo, 2024; Nascimento Neto et al., 2024).

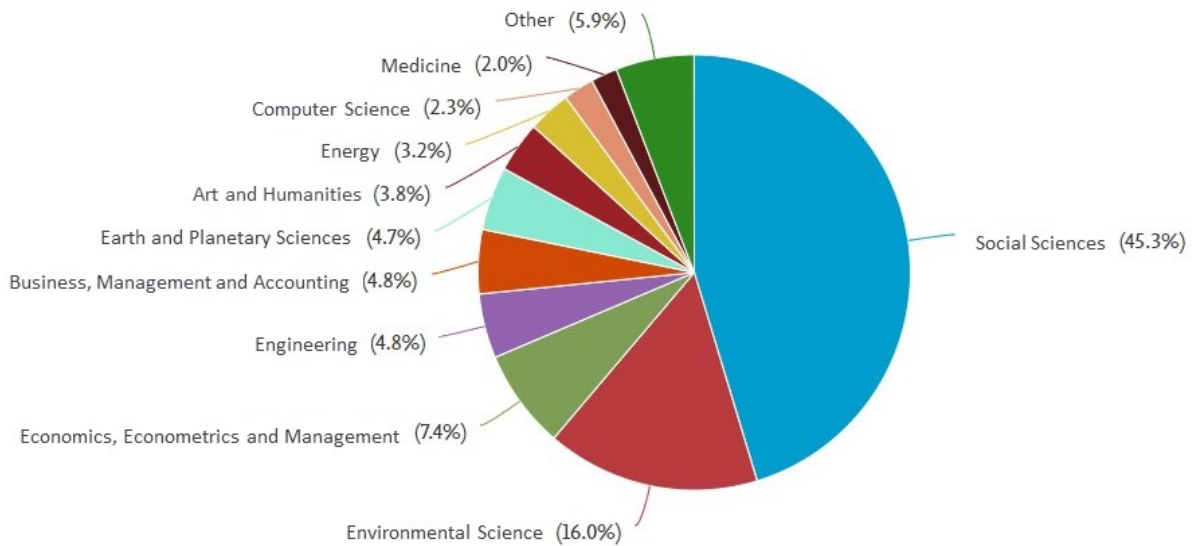
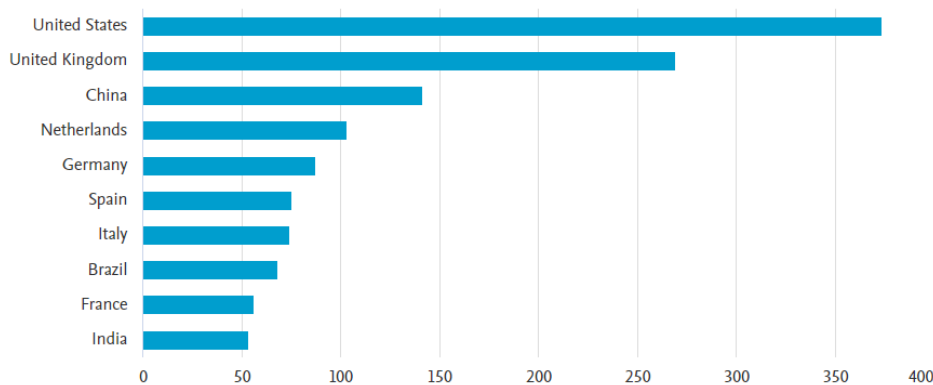
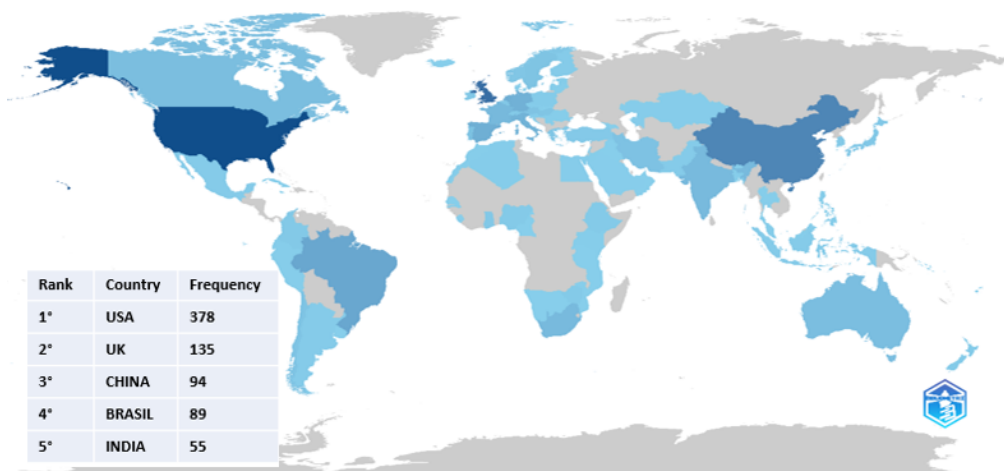


Fig.2 Documents by subject areas



(a)



(b)

Fig.3 Documents by the first 10 countries (a) and related geographical distribution about urban inequalities published in Scopus from 2015 to 2023. Different shades of blue indicate different productivity rate: dark blue means high productivity, while grey means no articles

Among the summarized data provided by Scopus, the geographical distribution of documents is reported in Fig.3. Within the sample of 1,589 articles, 51 were independent publications and 44 articles have an undefined source. The entire sample covers 10 countries, with the bulk characterizing United States (380 - 24%), the United Kingdom (272 - 17.1%) and China (145 - 9.1%), followed by Netherlands and the Germany (Fig.3a). This is not surprising, as in developed and leading countries like USA, China and UK current challenges like climate change, globalization and recovering from pandemics can make it harder for vulnerable people and communities to escape poverty, as price shocks from natural disasters and agricultural production issues reverberate through the national economies (Nascimento Neto et al.,2024).

In addition, by moving to the developing and global South countries side, Fig.3b shows that nations like India, South Africa, Brazil and Saudi Arabia seem to be characterized by a growing interest in the inequalities that have always characterised their regions and territories and that risk is further exacerbated by both phenomena such as climate change and increased awareness of the permanently high vulnerability and disadvantages that these populations face daily (Berhanu et al., 2024; Nascimento Neto et al., 2024; Ngcamu, 2023).

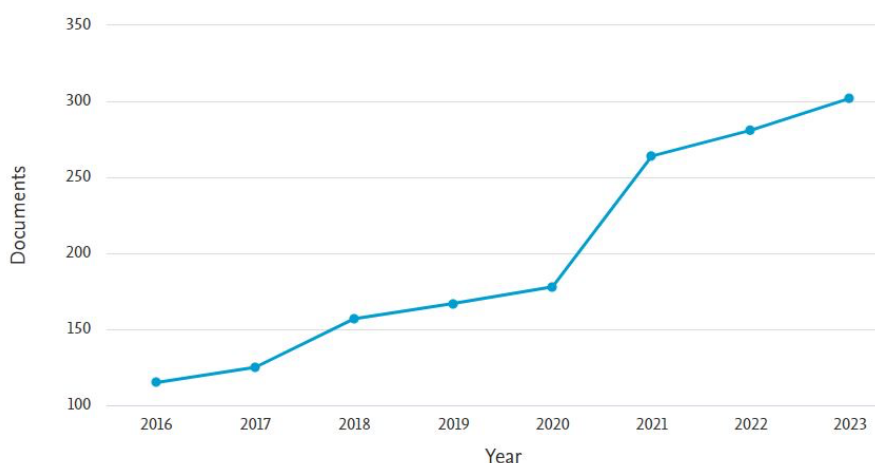


Fig.4 Documents by year

2.2 Overall thematic focus

The graphs in Fig. 5 and 6 show the major thematic areas and the connection between items, where the node's size is proportional to the keyword frequency, while the line thickness is proportional to the strength of the connection between terms. The keywords "inequalities" and "city" were excluded since they are not significant to the scope of the research, as well as the ones of geographical areas of study, as this aspect was investigated in the previous analysis. The wide range of topics reveals the multidisciplinary nature of urban inequalities and explains the systemic and multidimensional/integrated approach used by the academic community. The co-occurrence analysis allowed to identify the most prevalent topics, as such as the undeveloped ones.

Seven disciplinary fields were identified (Fig.6): accessibility and equity (greenish cluster), neighbourhood (light blue), Covid-19 (orange cluster), housing (red cluster), urban planning (violet cluster), human and socioeconomics (green cluster) and climate change and vulnerability (blue cluster). Most of them are characterized by two centroids revealing the strong interrelation between topics that can be considered complementary.

Starting from the accessibility node, scholars have emphasised its relevance in assessing urban facilities' spatial and social equity (Costa & Del Ponte, 2024; Sharma & Patil, 2024; Van Heerden et al., 2022). Improved accessibility is noticeably linked to enhanced participation in essential services, encompassing work, education, recreation, and social activities (Tilahun & Fan, 2014). Conversely, limited accessibility to these services can exacerbate social exclusion, as evidenced by the Social Exclusion Unit (2003).

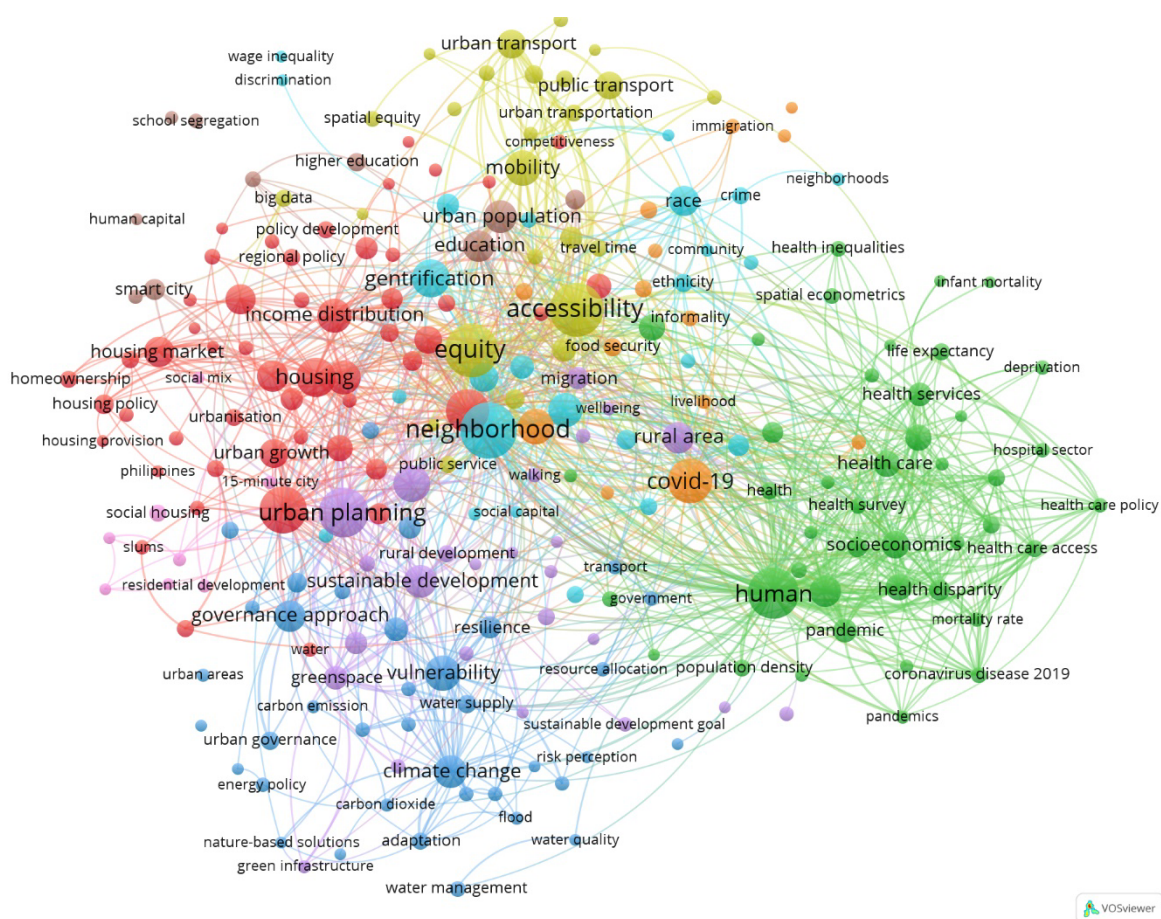


Fig.5 Network visualization of the keywords, divided into different clusters.

From an integrated urban planning and transport perspective, Farrington (2007) argues that restricted access to services poses a significant challenge in achieving social equity within a city. Furthermore, research by Liu & Kwan (2020) and Xiong et al. (2022) suggests that the limited availability of opportunities within a region disproportionately impacts low-income families.

It is not surprising that this first cluster is strictly related to the neighbourhood one: accessibility can vary significantly within short distances, and district-level analysis captures these shades.

It allows scholars and local policymakers to measure how residents in different parts of the city experience access to vital services like grocery stores, schools and parks (Gül et al., 2024; Scheiber & Mifsud, 2024).

Additionally, neighbourhoods often reflect socioeconomic diversity, unveiling potential inequalities in access to resources between different communities. This knowledge is crucial for promoting socially equal urban planning practices. Gentrification and well-being are minor nodes related to these first topics, even though the former contributes to increased residential segregation within cities, pushing low-income residents further to the periphery and limiting their access to quality schools, healthcare, and job opportunities that can determine low welfare levels (Cole et al., 2018; Zhang & Churchill, 2020).

The unprecedented scale and multifaceted consequences of the pandemic have raised a critical reflection regarding the roles of actors, planning process and interventions aimed at transforming cities and improving living conditions (Gargiulo et al., 2020). This re-evaluation is particularly relevant considering the rapid and profound disruptions to urban organization and the proper supply of resources and services (D’Amico, 2024; Di Ruocco, 2024; Gargiulo & Zucaro 2023). As highlighted by Goldin & Muggah (2020) and Sen (2020), the pandemic has served as a stark revealer of pre-existing inequalities at all levels. It has not only exposed existing disparities but also exacerbated socio-economic, health and political divisions locally, nationally, and globally often overlapping disadvantages based

Crucial aspects of urban inequalities like income levels, housing, health and urban planning are also part of the set SDGs to reach at worldwide level. At the same time, mobility, walkability, resilience, spatial equity (rationale distribution of urban services and activities), energy saving seem to still stay in the background among the political strategies and the investigated academic sphere.

The study period (2016–2023) was divided into two sub-periods, according to the key milestone determined by the pandemic spread. The Sankey diagram was plotted through biblioshiny to illustrate the intersections and changes in fields of interest in the academic debate (Fig.8). The width of the arrows represents the relative volume of research outputs.

Gentrification and urban planning characterised strongly the first period, while the pandemic reshaped the quality of life in cities but has also provided important lessons for recovery-resilient urban planning and policy. It has also unveiled that the negative impacts of pandemic events on the urban quality of life may not be equally distributed (Mouratidis, 2021). These assumptions can explain the cross-links between these two themes and housing, education and environmental justice, as the distribution of essential services (especially schools, residences and healthcare) can represent the booster to prevent social exclusion phenomena (Cai et al., 2022; LaFontant, 2023). Moreover, urban planning 2016-2021 research period feeds into gender and geography domains, revealing the still ongoing attention to the different needs, perceptions and use of services and places of female population (Scarponi et al., 2023; Williams et al., 2023).

Social exclusion, spatial justice, urbanization and geography mainly flew in geography and sustainability suggesting a growing focus on territorial factors and discrepancy among different parts of the world (North vs. South), maybe concerning disadvantaged communities (Huang et al.,2023; Randolph, 2024).

Overall, the Sankey diagram depicts a dynamic research landscape in which social science scholars are increasingly making connections across disciplinary boundaries to address complex urban challenges. The emergence of COVID-19 and its social and spatial impacts is a clear driver of new research questions such as the accessibility and supply of urban places (especially green areas), the use of technology to facilitate daily life and the new mobility patterns. There is also a growing emphasis on social justice issues, particularly racial and economic inequality, and the importance of geographic context in understanding these issues.

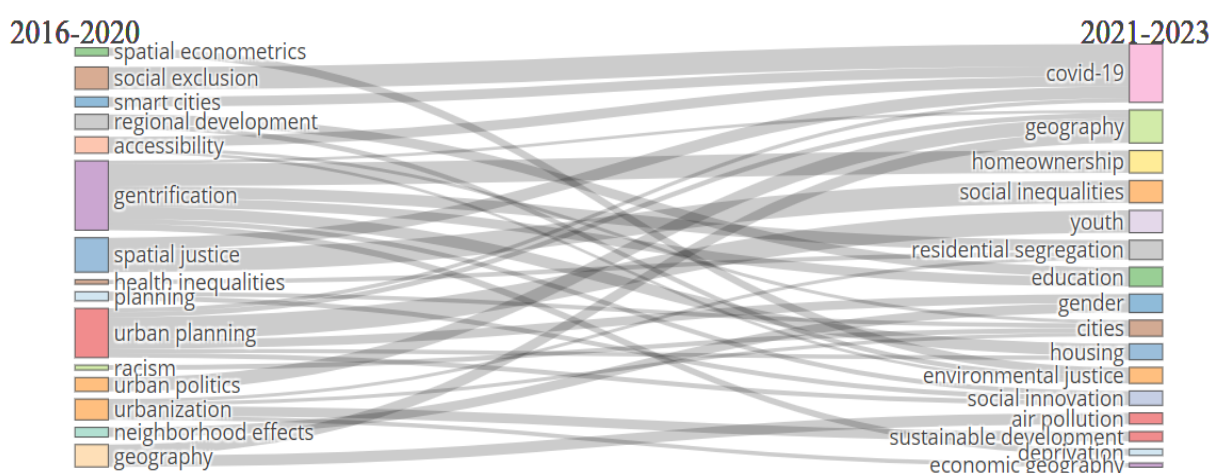


Fig.8 Sankey diagram of thematic evolution

2.2 Factorial analysis

Furthermore, a factorial correspondence analysis (FCA) was employed to visually represent the clusters formed by the most frequent active words. In particular, K-means clustering was used to identify clusters of documents that express common concepts to map the conceptual structure of a framework using the word co-occurrences in the selected scientific database. The distribution of clusters within this space is indicative of their statistical significance

and potential relationships. The keywords are clustered in different areas of the scatter plot, suggesting that they are related to each other based on their co-occurrence in the text corpus (Fig.9). Words that appear closer together in the plot are likely more semantically similar or frequently co-occur with each other.

In the current analysis, clusters 1 and 2, depicted in red and light blue respectively, exhibit minimal spatial proximity, suggesting a lack of strong association between their constituent words.

Dim 1 (32.99%) and Dim 2 (16.62%) refer to the two principal components indicating the proportion of variance explained by each dimension; they have a cumulative percentage of variance of nearly 50%. Higher percentages indicate that the dimension captures a more significant portion of the variation in the data.

It is immediately clear that the two clusters differ in the number of keywords and above all in their multidisciplinary breadth. Cluster 1 includes keywords like poverty, climate change, COVID-19, housing and gender, while words such as mobility, public transport and accessibility characterise cluster 2.

Cluster 1 can be named as *the determinants of inequalities*, as it includes socio-economic aspects, health and well-being aspects, environmental and climate context aspects. Cluster 2, on the other hand, can be named as *the opportunities for use and distribution of resources*, as it is related mainly by the physical and mobility sub-systems of the urban system. In other words, cluster 1 collects the studies linking urban inequalities to the current and near-future challenges in urban areas; cluster 2 reflects the interest of the scientific community in studying the “spatial mismatch” within and among cities, under the umbrella of the consolidated issue of urban accessibility.

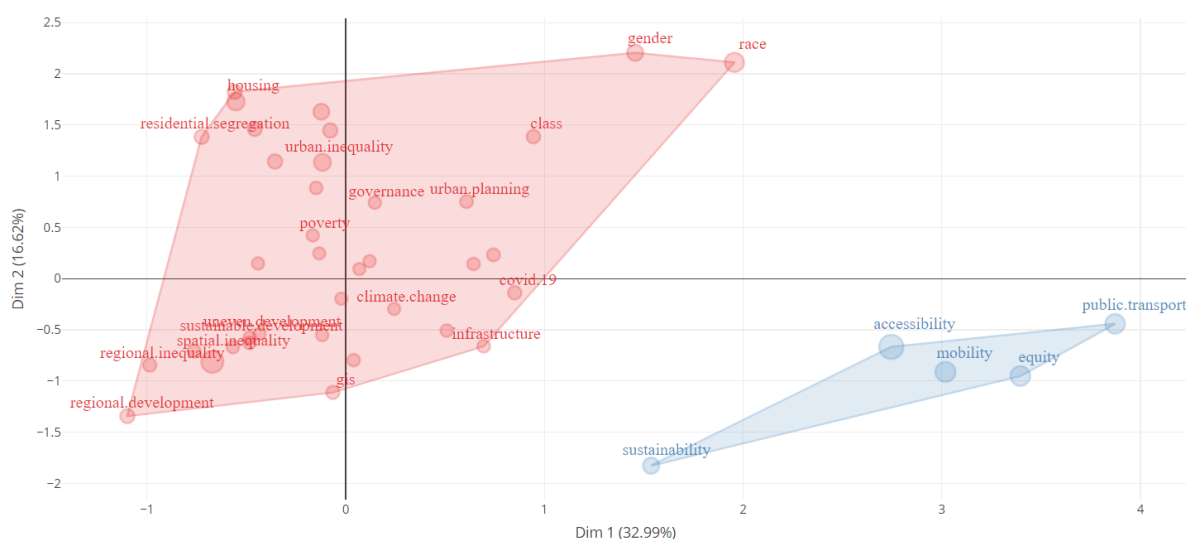


Fig.9 Hierarchical clustering outputs

By applying a clustering algorithm on the keyword network, biblioshiny can highlight the different themes of a given domain. Each cluster/theme can be represented on a particular plot known as thematic map where “Centrality” is a measure of the theme’s relevance and “Density” is a measure of the theme’s development (Cobo et al., 2011). Fig.10 shows the thematic map of the selected scientific production about urban inequalities, where each bubble represents a network cluster. The bubble names are words, belonging to the cluster, with the higher occurrence value. The bubble size is proportional to the cluster word occurrences.

The centrality of the bubble at the origin of the axes confirms previous findings on the identification of spatial planning as a pivotal element of the subject under investigation. It is no coincidence that the bubbles relating both to urban policies and governance and to planning, organization and land use choices, are located in the first quadrant of the motor themes, close to the basic themes, given that they are among the indispensable aspects of the government of urban and territorial transformations.

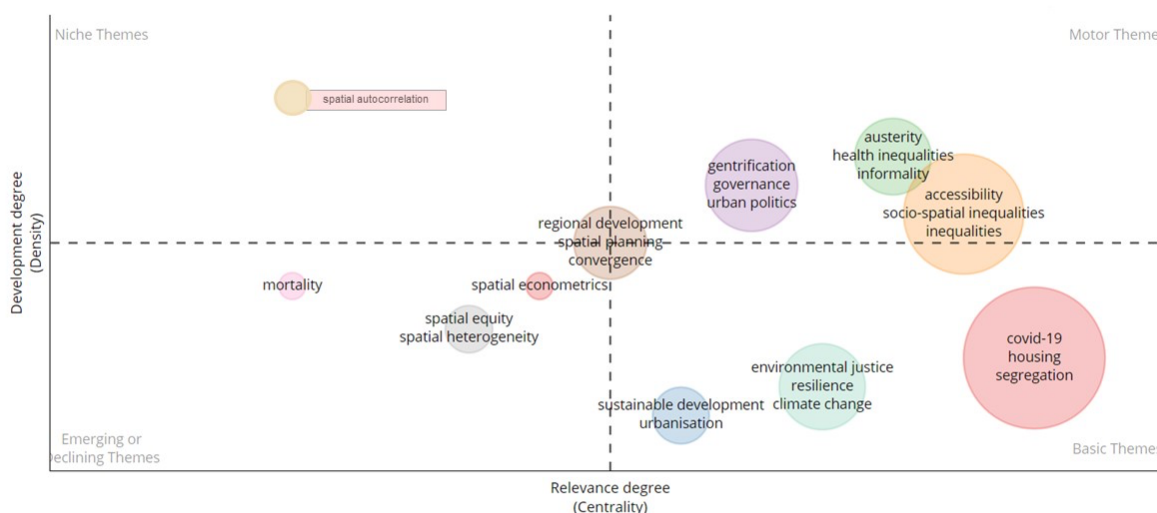


Fig.10 Distribution of main themes based on co-occurrence analysis

If the issues relating to decisions and possible effects in terms of liveability and accessibility of urban places and services are located to the right of the centre of mass of the diagram (first quadrant), diametrically opposed are those emerging or declining (second quadrant) relating to how public spaces are distributed and restricted, used and made unusable, and the different outcomes that result for different communities, i.e. spatial equity.

Finally, it seems that the study of urban inequalities is still strongly embedded in phenomena both exogenous to the urban system, such as pandemics and climate change, and endogenous, such as urbanisation and social segregation (fourth quadrant, basic themes). It is worth noting that although resilience and climate change are among the core themes, they are not yet as well established as those related to the human health sphere, as anticipated by previous density network findings obtained through VOSviewer.

3 Conclusions

The United Nations World Social Report (2020) underscores a concerning trend: over two-thirds of the global population is hosted in nations where urban inequalities have escalated during the past three decades. Traditionally viewed as an economic concern, “contemporary” urban inequalities operate on a broader, even global scale. They are embedded within cross-sectoral determinants such as socio-economic status, accessibility, and health. This interconnectedness between the urban context and the extent of inequality is a growing area of scholarly investigation (Lawrence, 2002; Nelson et al., 2023). High levels of inequality demonstrably impact the; social and spatial organization of cities (Sitaraman et al., 2020). Notably, reducing inequalities within and among countries is a core principle of the Sustainable Development Goals (SDGs), a global commitment adopted by nearly all nations with a target achievement date of 2030. Research suggests that societies with significant inequality are less effective at poverty reduction (United Nations, 2020:4). Disparities in health, education, and access to essential social and economic resources create barriers to escaping poverty and perpetuate disadvantage across generations (Nijman & Wei, 2020). Cities are particularly susceptible to the rapid intensification of social and spatial unevenness (Nijman & Wei, 2020; Pultrone, 2024). Scholars are actively exploring urban inequalities across diverse thematic areas, including housing ownership (Dewilde & Waitkus, 2023), access to opportunities (Pereira et al., 2021; Bittencourt & Giannotti, 2023), energy poverty (Middlemiss, 2020), internet access disparities (e.g. Singleton et al., 2020), the influence of digitalization, and the analysis of policies for inclusive urban development (Omole et al., 2024). Their findings reveal that the cumulative impacts of inequalities manifest across multiple dimensions of well-being (social, economic, political, and environmental), and are fundamentally linked to issues of resource distribution and accessibility (Logan et al., 2021). Advancements in computational power and access to new data sources further

emphasize that the urban disparities can be exacerbated by the inner vulnerabilities of the territories, linked both to natural and climate risks. Consequently, urban inequalities can no longer be considered independent of the urban and territorial contexts and their evolution dynamics. This requires new cross-sectorial studies investigating new domains of interest, in addition to the economic, accessibility, and health ones that seem to be the main research fields related to urban inequalities.

This Special Issue aims in this direction and, through a bibliometric review of the scientific framework of reference, many research gaps still to fill were identified, by raising significant questions like the following:

- How can adaptation to climate change help reduce social inequalities? To what extent do the effects of climate change contribute to widening inequalities in already fragile territories?
- How can urban mobility/accessibility contribute to reducing social inequalities by improving the use of places and services?
- How to define new governance approaches and processes that can reduce social inequalities?

This special issue aims to answer these questions in order to provide interesting insights useful both to enrich the scientific debate on urban disparities and to support political decision-makers in defining strategies, measures and actions aimed at guaranteeing equal opportunities for participation and access to services, activities and places of interest in different urban and territorial contexts.

References

- Aghaloo, K., Sharifi, A., Habibzadeh, N., Ali, T., & Chiu, Y. R. (2024). How Nature-based Solutions Can Enhance Urban Resilience to Flooding and Climate Change and Provide Other Co-benefits: A Systematic Review and Taxonomy. *Urban Forestry & Urban Greening*, 128320. <https://doi.org/10.1016/j.ufug.2024.128320>
- Anderson, C. M., Mach, K. J., & Field, C. B. (2019). Environmental justice concerns in the use of offsets. *Frontiers in Ecology and the Environment*, 17(3), 144–144. <https://doi.org/10.1002/fee.2019>.
- Apergi, M., Eicke, L., Goldthau, A., Hashem, M., Huneus, S., de Oliveira, R. L., ... & Veit, K. (2024). An energy justice index for the energy transition in the global South. *Renewable and Sustainable Energy Reviews*, 192, 114238. <https://doi.org/10.1016/j.rser.2023.114238>
- Aria, M. & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959-975. <http://dx.doi.org/10.1016/j.joi.2017.08.007>
- Batty, M. (2009). Urban Modeling. In: N. Thrift, & R. Kitchin (Eds.), *International Encyclopedia of Human Geography*, 51-58. Oxford, UK: Elsevier. <http://dx.doi.org/10.1016/B978-008044910-4.01092-0>
- Berhanu, G., Mulugeta, S., Gebremariam E., Fetene, A. & Tesfaw Mengistu, D. (2024). The Deprivations and Inequalities Based on Settlement Typologies and Urban Form: The Case of Addis Ababa, Ethiopia. *TeMA - Journal of Land Use, Mobility and Environment*, (2), 113-141. <http://dx.doi.org/10.6093/1970-9870/10770>
- Bittencourt, T. A. & Giannotti, M. (2023). Evaluating the accessibility and availability of public services to reduce inequalities in everyday mobility. *Transportation research part A: policy and practice*, 177, 103833. <https://doi.org/10.1016/j.tra.2023.103833>
- Cai, R., Hu, L., & He, S. (2022). Policy-driven education-led gentrification and its spatiotemporal dynamics: Evidence from Shanghai, China. *The Geographical Journal*. <https://doi.org/10.1111/geoj.12440>
- Carpentieri, G., Guida, C. & Sgambati, S. (2023). Textometric analysis on the ongoing academic spatial planning debate. *TeMA - Journal of Land Use, Mobility and Environment, Conversations with TeMA*, (1), 197-223. <http://dx.doi.org/10.6092/1970-9870/978>
- Chen, Y., Ge, Y., Yang, G., Wu, Z., Du, Y., Mao, F., ... & Chang, J. (2022). Inequalities of urban green space area and ecosystem services along urban centre-edge gradients. *Landscape and Urban Planning*, 217, 104266. <https://doi.org/10.1016/j.landurbplan.2021.104266>
- Cirianni, F. M. M., Comi, A., & Luongo, A. S. (2022). A sustainable approach for planning of urban pedestrian routes and footpaths in a pandemic scenario. *TeMA - Journal of Land Use, Mobility and Environment*, 15(1), 125-140. <https://dx.doi.org/10.6093/1970-9870/8629>
- Cobo, M.J., Lopez-Herrera, A.G., Herrera-Viedma, E. & Herrera, F. (2011). An approach for detecting, quantifying, and visualizing the evolution of a research field: a practical application to the Fuzzy Sets Theory field. *Journal of Informetrics*, 5, 146–166. <https://doi.org/10.1016/j.joi.2010.10.002>
- Cole, H. V., Mehdipanah, R., Gullón, P., & Triguero-Mas, M. (2021). Breaking down and building up: gentrification, its drivers, and urban health inequality. *Current environmental health reports*, 8, 157-166. <https://doi.org/10.1007/s40572-021-00309-5>

Costa, V. & Delponte, I. (2024). User-centred mobility management and social inclusion. Urban insights from the University of Genoa. *TeMA - Journal of Land Use, Mobility and Environment*, (2), 33-45. <http://dx.doi.org/10.6092/1970-9870/10299>

D'Amico, A. (2024). Examples of good experiences for child-friendly cities. Comparison of sustainable practices in Italy and around the world. *TeMA - Journal of Land Use, Mobility and Environment*, (2), 143-155. <http://dx.doi.org/10.6093/1970-9870/10770>

Dewilde, C. & Waitkus, N. (2023). Inequality and Housing. In: K.F. Zimmermann, (Ed.) *Handbook of Labor, Human Resources and Population Economics*. Switzerland: Springer, Cham. https://doi.org/10.1007/978-3-319-57365-6_337-1

Di Ruocco, I. (2024). Eco-mobility justice in the ecological transition. An analysis for possible directions in mobility and transport equity. *TeMA - Journal of Land Use, Mobility and Environment*, (2), 97-111. <http://dx.doi.org/10.6093/1970-9870/10162>

Farrington, J. H. (2007). The new narrative of accessibility: its potential contribution to discourses in (transport) geography. *Journal of Transport Geography*, 15 (5), 319-330. <https://doi.org/10.1016/j.jtrangeo.2006.11.007>

Freitas, Â., Rodrigues, T.C., & Santana, P. (2020). Assessing Urban Health Inequities through a Multidimensional and Participatory Framework: Evidence from the EURO-HEALTHY Project. *Journal of Urban Health*, 97 (6), 857-875. <https://doi.org/10.1007/s11524-020-00471-5>.

Gargiulo, C., Gaglione, F., Guida, C., Papa, R., Zucaro, F., & Carpentieri, G. (2020). The role of the urban settlement system in the spread of Covid-19 pandemic. The Italian case. *TeMA - Journal of Land Use, Mobility and Environment*, 189-212. <http://dx.doi.org/10.6092/1970-9870/6864>

Gargiulo, C., Sgambati, S., & Zucaro, F. (2023, June). The Analysis of the Urban Open Spaces System for Resilient and Pleasant Historical Districts. In: O., Gervasi, et al. (Eds.) *Computational Science and Its Applications – ICCSA 2023 Workshops. ICCSA 2023. Lecture Notes in Computer Science*, 14106. Cham: Springer Nature Switzerland.

Gargiulo, C. & Zucaro, F. (2023). A Method Proposal to Adapt Urban Open-Built and Green Spaces to Climate Change. *Sustainability*, 15(10), 8111. <https://doi.org/10.3390/su15108111>

Goldin, I. & Muggah, R. (2020). COVID-19 is increasing multiple kinds of inequality. Here's what we can do about it. Retrieved from: <https://www.weforum.org/agenda/2020/10/covid-19-is-increasing-multiple-kinds-of-inequality-here-s-what-we-can-do-about-it/> (Accessed: 15 January 2024).

Gül, A., Dinc, G., & Aydemir, C. (2024). Analysis of Urban Green Space Inequalities in Isparta, Turkey. *TeMA - Journal of Land Use, Mobility and Environment*, (2), 47-63. <http://dx.doi.org/10.6092/1970-9870/10307>

He, B. J., Wang, W., Sharifi, A., & Liu, X. (2023). Progress, knowledge gap and future directions of urban heat mitigation and adaptation research through a bibliometric review of history and evolution. *Energy and Buildings*, 112976. <https://doi.org/10.1016/j.enbuild.2023.112976>

Huang, S., Yu, L., Cai, D., Zhu, J., Liu, Z., Zhang, Z., ... & Fraedrich, K. (2023). Driving mechanisms of urbanization: Evidence from geographical, climatic, social-economic and nighttime light data. *Ecological Indicators*, 148, 110046. <https://doi.org/10.1016/j.ecolind.2023.110046>

LaFontant, B. J. (2023). The Effect of Gentrification on the Education Outcomes of Black and Latino Students in Miami, Florida (Doctoral dissertation, Georgetown University). Retrieved from: <https://repository.library.georgetown.edu/> (Accessed: 1 February 2024).

Lawrence, R. J. (2002). Inequalities in urban areas: innovative approaches to complex issues. *Scandinavian Journal of Public Health*, 30 (59_suppl), 34-40. <https://doi.org/10.1177/14034948020300030601>

Liu, D. & Kwan, M. P. (2020). Measuring spatial mismatch and job access inequity based on transit-based job accessibility for poor job seekers. *Travel Behaviour and Society*, 19, 184-193. <https://doi.org/10.1016/j.tbs.2020.01.005>

Logan, T. M., Anderson, M. J., Williams, T. G., & Conrow, L. (2021). Measuring inequalities in urban systems: An approach for evaluating the distribution of amenities and burdens. *Computers, Environment and Urban Systems*, 86, 101590. <https://doi.org/10.1016/j.compenvurbsys.2020.101590>

Manaresi, S. & Santangelo, A. (2024). Investigating the spatial distribution of energy poverty. An application to the city of Bologna. *TeMA - Journal of Land Use, Mobility and Environment*, (2), 81-96. <http://dx.doi.org/10.6092/1970-9870/10344>

Middlemiss, L. (2020). Energy poverty: Understanding and addressing systemic inequalities. In: R. Galvin (Ed.) *Inequality and energy*, 99-114. Academic Press. <https://doi.org/10.1016/B978-0-12-817674-0.00005-9>

Mobaraki, O. (2023). Spatial analysis of green space use in Tabriz metropolis, Iran. *TeMA - Journal of Land Use, Mobility and Environment*, (2), 55-73. <https://doi.org/10.6093/1970-9870/10117>

Mouratidis, K. (2021). How COVID-19 reshaped quality of life in cities: A synthesis and implications for urban planning. *Land use policy*, 111, 105772. <https://doi.org/10.1016/j.landusepol.2021.105772>

Nascimento Neto, P., Luxi, M. Q., Araujo, A. S. de, & Oliveira, E. N. de (2024). From Peripheries to Neighbourhoods: measuring urban insertion of social housing projects. *TeMA - Journal of Land Use, Mobility and Environment*, (2), 19-32. <http://dx.doi.org/10.6093/1970-9870/10221>

- Nelson, R., Warnier, M., & Verma, T. (2024). Conceptualizing Urban Inequalities as a Complex Socio-Technical Phenomenon. *Geographical Analysis*, *56* (2), 187-216. <https://doi.org/10.1111/gean.12373>
- Ngcamu, B.S. (2023). Climate change effects on vulnerable populations in the Global South: a systematic review. *Natural Hazards*, *118*, 977–991. <https://doi.org/10.1007/s11069-023-06070-2>
- Nijman, J. & Wei, Y. D. (2020). Urban inequalities in the 21st century economy. *Applied geography*, *117*, 102188. <https://doi.org/10.1016/j.apgeog.2020.102188>
- Omole, F. O., Olajiga, O. K., & Olatunde, T. M. (2024). Sustainable urban design: a review of eco-friendly building practices and community impact. *Engineering Science & Technology Journal*, *5* (3), 1020-1030. <https://doi.org/10.51594/estj.v5i3.955>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Bmj*, *372*. <https://doi.org/10.1136/bmj.n71>
- Panic, N., Leoncini, E., de Belvis, G., Ricciardi, W., & Boccia, S. (2013). Evaluation of the endorsement of the preferred reporting items for systematic reviews and meta-analysis (PRISMA) statement on the quality of published systematic review and meta-analyses. *PLoS one*, *8* (12), e83138. <https://doi.org/10.7326/0003-4819-151-4-200908180-00135>
- Pereira, L., Asrar, G.R., Bhargava, R. & ... (2021). Grounding global environmental assessments through bottom-up futures based on local practices and perspectives. *Sustainability Science*, *16*, 1907–1922 <https://doi.org/10.1007/s11625-021-01013-x>
- Pultrone, G. (2024). Transform Active cities facing the ecological transition. *TeMA - Journal of Land Use, Mobility and Environment*, (1), 79-96. <https://doi.org/10.6093/1970-9870/10210>
- Randolph, G. F. (2024). Does urbanization depend on in-migration? Demography, mobility, and India's urban transition. *Environment and Planning A: Economy and Space*, *56* (1), 117-135. <https://doi.org/10.1177/0308518X231180609>
- Robinson, L., Cotten, S.R., Ono, H., Quan-Haase, A., Mesch, G., Chen, W., Schulz, J., Hale, T.M., & Stern, M.J. (2015). Digital inequalities and why they matter. *Information, Communication & Society*, *18*, 569–582. <https://doi.org/10.1080/1369118X.2015.1012532>
- Scarponi, L., Abdelfattah, L., Gorrini, A., Valenzuela Cortés, C., Carpentieri, G., Guida, C., ... & Choubassi, R. (2023). Thematic Review on Women's Perception of Safety While Walking in Public Space: The STEP UP Project. *Sustainability*, *15* (21), 15636. <https://doi.org/10.3390/su152115636>
- Scheiber, S. & Mifsud, W. J. (2024). Developing processes for the co-creation and co-governance of urban green space in dense urban areas: a Maltese Case Study. *TeMA - Journal of Land Use, Mobility and Environment*, (2), 65-79. <http://dx.doi.org/10.6092/1970-9870/10273>
- Scheiber, S. & Zucaro, F. (2023). Urban open and green spaces: is Malta planning and designing them to increase resilience?. *TeMA - Journal of Land Use, Mobility and Environment*, *16* (2), 331-352. <https://doi.org/10.6093/1970-9870/9951>
- Sen K. (2020). Five ways Coronavirus is deepening global inequality. The Conversation. Retrieved from: <https://theconversation.com/five-ways-coronavirus-is-deepening-global-inequality-144621> (Accessed: 15 January 2024).
- Sharifi, A. (2021). Urban sustainability assessment: An overview and bibliometric analysis. *Ecological Indicators*, *121*, 107102. <https://doi.org/10.1016/j.ecolind.2020.107102>
- Sharma, G. & Patil, G. R. (2024). Urban spatial structure and equity for urban services through the lens of accessibility. *Transport Policy*, *146*, 72-90. <https://doi.org/10.1016/j.tranpol.2023.10.017>
- Singleton, A., Alexiou, A., & Savani, R. (2020). Mapping the geodemographics of digital inequality in Great Britain: An integration of machine learning into small area estimation. *Computers, Environment and Urban Systems*, *82*, 101486. <https://doi.org/10.1016/j.compenurbsys.2020.101486>
- Sitaraman, G., Ricks, M., & Serkin, C. (2020). Regulation and the Geography of Inequality. *Duke LJ*, *70*, 1763.
- Tilahun, N. & Fan, Y. (2014). Transit and job accessibility: an empirical study of access to competitive clusters and regional growth strategies for enhancing transit accessibility. *Transport Policy*, *33*, 17-25. <http://dx.doi.org/10.1016/j.tranpol.2014.02.002>
- Ulbrich, P., Porto de Albuquerque, J., & Coaffee, J. (2018). The impact of urban inequalities on monitoring progress towards the sustainable development goals: Methodological considerations. *ISPRS international journal of geo-information*, *8* (1), 6. <https://doi.org/10.3390/ijgi8010006>
- UN (2015). Transforming Our World: The 2030 Agenda for Sustainable Development. Retrieved from: <https://doi.org/10.1007/s13398-014-0173-7.2> (Accessed: 03 December 2024).
- van Eck, N.J. & Waltman, L. (2017). Citation-based clustering of publications using CitNetExplorer and VOSviewer. *Scientometrics* *111*, 1053–1070. <https://doi.org/10.1007/s11192-017-2300-7>
- Van Heerden, Q., Karsten, C., Holloway, J., Petzer, E., Burger, P., & Mans, G. (2022). Accessibility, affordability, and equity in long-term spatial planning: Perspectives from a developing country. *Transport Policy*, *120*, 104-119. <https://doi.org/10.1016/j.tranpol.2022.03.007>

Xiong, X., Li, V. J., Huang, B., & Huo, Z. (2022). Equality and social determinants of spatial accessibility, availability, and affordability to primary health care in Hong Kong, a descriptive study from the perspective of spatial analysis. *BMC health services research*, 22 (1), 1364. <https://doi.org/10.1186/s12913-022-08760-2>

Zhang, Q. & Churchill, S. A. (2020). Income inequality and subjective wellbeing: Panel data evidence from China. *China Economic Review*, 60, 101392. <https://doi.org/10.1016/j.chieco.2019.101392>

Image Sources

Fig.1: Authors' own elaboration;

Fig.2: Scopus elaboration;

Fig.3: Scopus elaboration;

Fig.4: Scopus elaboration;

Fig.5: Authors' elaboration - obtained by VOSviewer;

Fig.6: Authors' elaboration - obtained by VOSviewer;

Fig.7: Authors' elaboration - obtained by VOSviewer;

Fig.8: Authors' elaboration - obtained by biblioshiny;

Fig.9: Authors' elaboration - obtained by biblioshiny;

Fig.10: Authors' elaboration - obtained by biblioshiny.

Author's profile

Benjamin Buettner

He is the deputy head of the Chair of Urban Structure and Transport Planning and is the head of the Research Group on Accessibility Planning at Technical University of Munich (TUM). Currently works in the fields of accessibility planning and decision and policy making. Urban transitions, tactical urbanism and street experiments are the foci of his professional skills. Since 2019 he is the head of the EIT Urban Mobility "Doctoral Training Network" which includes 100 interdisciplinary PhD students all over Europe. Since 2020 he is the founding Editor-in-Chief of the Journal of Urban Mobility.

Floriana Zucaro

She is an engineer, Ph.D. in Hydraulic, Transport and Territorial Systems Engineering at the Department of Civil, Building and Environmental Engineering (DICEA) – University of Naples Federico II. She received a M.Sc. in Environmental and Territorial Engineering at the University of Naples Federico II with a specialization in management of urban and territorial transformations. Since 2021 she is an assistant professor at DICEA and she has currently been involved in three main research projects: she is a component of the research team of the ERASMUS + Key Action2: Project "Development of a Master Program in the Management of Industrial Entrepreneurship for Transition Countries" (MIETC); she is a component of the research team of the Centro Nazionale per la mobilità sostenibile – Spoke 8 – MaaS & Innovative services (CUP E63C22000930007) within the Italian National Recovery and Resilience Plan supported by funding from the Next Generation EU programme; she is head of the TeMALab research team, with Gerardo Carpentieri, of the project STEP UP – Walkability for Women in Milan financed by Fondazione Cariplo. Her research interests are in the field of land use planning and energy saving integration in urban policies and sustainable mobility.