



Will the true inclusive city rise? Mapping the strengths and weaknesses of the city ranking systems

Run Zhao^{a,*}, Martin de Jong^{b,c}, Jurian Edelenbos^a

^a Department of Public Administration and Sociology, Erasmus University Rotterdam, the Netherlands

^b Rotterdam School of Management, Erasmus School of Law, Erasmus University Rotterdam, the Netherlands

^c Institute for Global Public Policy, Fudan University, China

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ABSTRACT

Ranking cities is considered an effective instrument to rate and qualify the specific image of cities and encourage them to define and improve sustainable development strategies, but it has also been criticized for generating biased outcomes. Recently, the number of rankings for inclusive cities is rising, in fact along with growing investments in inclusive city projects and initiatives. The inclusive city rankings have both the strength to enhance lesson-drawing and self-improvement and the weakness to exacerbate competition among un-equals. In this article, nine different ranking systems for assessing urban inclusion are scrutinized and compared. Based on relevant theory regarding inclusive urban development and ranking systems, a methodology to compare and assess ranking systems is established, building on different quality aspects. The findings indicate that although for most ranking systems much essential information to understand how they produce results can be retrieved, motivations for generating these inclusive city rankings can be moral, utilitarian, or a combination of both, and that evaluation methods and dissemination of the results sometimes lack transparency and timeliness. Some metrics are incomplete and/or biased toward specific dimensions and indicators. The consistency across the ranking systems in producing the best-performing cities is much stronger than that of the worst-performing cities. Moreover, an obvious developed-developing gap was observed in the sense that most high performers are in Europe and to a lesser extent Nord-America, while the bottom 25 % are primarily in developing countries. Finally, suggestions are given to make methodologies for inclusive ranking systems more transparent, comprehensive and less biased.

1. Introduction

In a global context of rapid urbanization, cities face mounting problems such as increasingly fierce competition and rising levels of poverty, inequality, and exclusion. In this context, the discourse on inclusive cities is becoming an important aspect of sustainable development, much in line with SDG 11 “Making cities and human settlements inclusive, safe, resilient and sustainable” (Katila et al., 2019). A growing number of cities worldwide are introducing city labels, concepts, and projects emphasizing inclusion and inclusiveness, both prosperous and less prosperous ones (Carnemolla et al., 2021; Roy, 2014). To achieve inclusiveness, therefore, a range of tools are used to assess and promote a city’s inclusion performance. For example, Seattle promotes itself as a City of Inclusion, with over 40 % of state legislative positions being held

by women, hosting rainbow pride events, taking diversity measures, and issuing a Welcoming Cities Resolution which states that immigrants and refugees “foster our economic growth and cultural vibrancy.” These inclusive city policies and measures resonate with the city’s 4th position in the Top 20 Most Inclusive Cities (Yelp, 2019). Zurich ranked number one in another index measuring city inclusiveness (D&L Partners, 2019), and has thus become a popular answer to the search question “Which city is the most inclusive?” on search engines.

With the popularity of city assessment tools in media reports, they have not only become part of the everyday practitioner’s parlance among municipalities policymakers and consultants, but also attracted the attention of many researchers in urban governance (Acuto et al., 2021; McManus, 2012). Existing city assessment tools, such as indexes, indices, rankings, and ratings (hereinafter collectively referred to as

* Corresponding author at: Department of Public Administration and Sociology, Erasmus University Rotterdam, Burgemeester Oudlaan 50, 3062 PA Rotterdam, the Netherlands.

E-mail address: zhao@essb.eur.nl (R. Zhao).

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'ranking'), form not only a snapshot of the levels of inclusiveness in cities around the world but also a measurement and empirical pathway to inclusive urban development (Anttiroiko & de Jong, 2020a). The simple and direct scorecard makes it easy to disseminate rankings among a wide range of societal players, thus serving a city's branding strategy and public image, and even stimulating broad public participation (Giffinger et al., 2010; Liu et al., 2021; Wang, 2019). However, a simple presentation of the results tends to lead users to focus only on the final league table, while ignoring the procedures followed to derive the rankings or instructing policymakers on pathways to make their cities more inclusive. For example, New York and Chicago rank 2nd and 13th respectively in the final ranking of the IESE Cities in Motion Index, but these two cities rank 121st and 103rd in the social cohesion dimension of urban inclusiveness (Berrone & Joan, 2022). In addition, the heterogeneity of ranking methodologies has led scholars to agree that these 'black boxes' need to be deconstructed (Aleksandrov et al., 2022; Giffinger & Gudrun, 2010a; Okulicz-Kozaryn, 2013).

To fill the research gap where no studies exist offering an overview of the inclusive city assessment tools and uncover their strengths and weaknesses, the questions this study aims to answer are:

- (1) What are the rankings for inclusive cities?
- (2) What are rankings' characteristics and how do they measure inclusive cities?
- (3) What are the strengths and weaknesses of current inclusive city rankings?
- (4) How do these rankings relate to the theorization of inclusive cities?

This article is based on a synthesis of the literature regarding the inclusive city and city ranking, and provides a definition of and a division into dimensions of the inclusive city (see e.g. Anttiroiko & de Jong, 2020b; Elias, 2020; Liang et al., 2022; Meena & Singh, 2010), as well as a methodology to compare city rankings and analyze them (see e.g. Giffinger et al., 2010; Sáez et al., 2020; Taubenböck et al., 2021). Nine inclusive city rankings of repute were selected for downstream analysis. First, a general quality analysis of the ranking documents and related methodologies was carried out. Then a closer look was taken at the metrics of inclusive city rankings. Finally, by identifying the inclusive and non-inclusive cities in the ranking results, we conducted a consistency inspection among comparable rankings and further analyzed the interaction factors of cities' performance on inclusion. Through the above approach, this study not only enriches and refines our conceptual understanding of inclusive cities, but it also contributes to current methodologies for assessing inclusive cities, and finally proposes implications and lessons for inclusive urban development.

2. Literature review

2.1. Conceptualizing inclusive cities: Definitions and dimensions

The inclusive city was initially thought of as a nebulous urban entity closely linked to multiple aspects of urban development (Meena & Singh, 2010). Many definitions of the inclusive city exist. First promoted by the United Nations in 2001, the inclusive city has been described as a place where everyone, regardless of their economic status, gender, race, ethnicity, or religion, is enabled and empowered to fully participate in the social, economic, and political opportunities that are on offer (Berrone & Joan, 2022). Subsequently, the concept has been further expanded. The Asian Development Bank (2022) extends the concept to the level of livability, defining an inclusive city as one which "creates a safe, livable environment with affordable and equitable access to urban services, social services, and livelihood opportunities for all the city's residents and other city users to promote optimal development of its human capital and to ensure the respect of human dignity and equality".

Although the exact meaning of what an inclusive city entails has not

been fully agreed upon, many public institutions and scholars have deconstructed the concept through a certain number of different dimensions. At the policy level, the World Bank (2015a) argues that the concept of an inclusive city involves a complex web of multiple spatial, social, and economic factors. The New Urban Agenda (UN-Habitat, 2016) then envisages inclusive cities as ones that "prioritize safe, inclusive, accessible, green, and quality public spaces that are friendly for families, enhance social and intergenerational integrations [...] and foster social cohesion, inclusion and safety in peaceful and pluralistic societies". In academic research, scholars have made a more comprehensive description of inclusive city dimensions. Robin (2014) highlights that, by themselves, the political, social, economic, and environmental aspects are clearly all major aspects of an inclusive city, and doing well in all of them essentially constitutes a sine qua non for reaching inclusive city status. Liang et al. (2022) further identified five conceptual dimensions in inclusive cities, namely social inclusion, economic inclusion, spatial inclusion, environmental inclusion, and political inclusion. The dimensions of inclusive cities, although clearly distinguishable, are intertwined and mutually reinforcing, thus having an impact on the overall inclusiveness of a city (Liang et al., 2022).

Five holistic inclusive city development dimensions are used in this study, based on the comparative analysis of definitions and dimensions of inclusive cities. The five dimensions are mainly based on the research of Liang et al. (2022), because it offers the most comprehensive division of inclusive city dimensions, while other studies only include some of them. Moreover, our study did not fully adopt their definitions of these five dimensions but also combined the views of other researchers and organizations and integrated them into a more comprehensive and representative definition of dimensions, as shown in Table 1.

2.2. Ranking inclusive cities: Scholarly debate

The debate on city rankings originated in the early 2000s, with the popularity of city rankings themed around various emerging city labels (Giffinger et al., 2007; Leff & Petersen, 2015; McManus, 2012; Schönert, 2003). As a knowledge-based instrument, the value of city rankings to different stakeholders has been confirmed in empirical research (Acuto et al., 2021; Giffinger et al., 2010; McManus, 2012; Patrão et al., 2020). For example, evaluating and benchmarking cities against other cities may help municipal authorities to improve their international image and competitive position in the eyes of their target groups (Giffinger et al., 2010). For the funders, city rankings can be used as evidence of the results of their own projects (Caird et al., 2016). Moreover, extensive attention from the media and public to the ranking outcomes may stimulate the cycle of policy inspection, formulation, and implementation in related areas (McManus, 2012). Meanwhile, city rankings are also considered to have some potential drawbacks, such as incomplete sets of indicators and the use of opaque methods, leading scholars to make pleas for taking the development of solid city ranking systems seriously (Acuto et al., 2021).

In recent years, researchers conducted multidimensional deconstruction for city rankings of many themes, and two major analytical aspects were captured: one with a focus on the instrumental attributes of rankings, which requires a general quality assessment for the ranking methodologies; the other involves a more detailed analysis of themes and metrics of certain kinds of rankings (Sharifi, 2019).

In terms of the general quality evaluation of rankings, Giffinger et al. (2007) took the lead in conducting an empirical analysis of the ranking of European medium cities in terms of three aspects of ranking: purpose, method, and dissemination, after which they applied the methodology to the evaluation of European smart city rankings (Giffinger et al., 2010). Subsequently, Meijering et al. (2014) developed a methodology for systematically identifying the methodological characteristics of green city rankings, by following the stages of ranking formulation, namely the decomposition of the ranking attribute, aggregation of indicators, selection of cities, data collection, and reporting, and

Table 1
Conceptual dimensions of inclusive cities: authors' adjustment of Liang et al. (2022).

Dimension	Description	Authors
Economic inclusion	Economic inclusion is the process by which individuals and households are gradually integrated into the broader economic and community development. By alleviating material inequities and addressing structural barriers to marginalized groups, their economic conditions and status are improved.	Andrews et al. (2021); Liang et al. (2022); World Bank (2015b)
Social inclusion	Social inclusion is the process of making all groups of people within a society, especially people who are disadvantaged on the basis of age, sex, disability, race, ethnicity, origin, religion, economic, or other statuses, feel safe, involved, valued, and respected.	Anttiroiko and de Jong (2020b); World Bank (2015b)
Spatial inclusion	Spatial inclusion requires cities to provide affordable land and housing in strategic places, and accessible public infrastructure and basic services, such as hospital and medical services, energy infrastructure, waste management, ICT infrastructures, etc.	Elias (2020); Liang et al. (2022); World Bank (2015a)
Environmental inclusion	Environmental inclusion requires that contemporary human beings do not carry out their mode of production and consumption in such a manner that the needs and interests of future generations are sacrificed. To achieve this goal, climate change mitigation and adaptation, sustainable transportation, and environmental protection are suggested.	Liang et al. (2022); Elias (2020); UN-Habitat (2016)
Political inclusion	Political inclusion means that every citizen should have equal rights and opportunities to participate in and contribute to the functioning of democratic institutions and processes. These institutions and processes include elections, legislative processes, political parties, and parliament composition, etc.	Bilodeau et al. (2020); Liang et al. (2022)

combining the literature to identify possible problems at each stage. Nevertheless, these methodologies were still considered to be incomplete for specific analytical purposes, encouraging Sáez et al. (2020) to develop 25 criteria in combination with the Berlin Principles, and review various sustainable city rankings and their domains (purpose, methodology, transparency, and dissemination).

Ranking themes and metrics is a central element in city rankings, but this cannot be achieved by means of a one-size-fits-all approach (Acuto et al., 2021; Liu et al., 2021; Taubenböck et al., 2021). City rankings for different themes are measured through different indicators and variables. Obviously, the indicators that measure the ranks of smart cities and creative cities are quite different from those that measure inclusive cities, although a few indicators may show overlap. Anttiroiko and de Jong (2020a) briefly outlined several evaluation tools and their frameworks for inclusive cities, namely the Prosperity and Inclusion in Cities Seal and Awards Index, Open for Business City Ratings, Millennial Cities Ranking, Social Progress Index, and Social Cohesion in IESE Cities in Motion Index. However, their study does not include a detailed assessment of these rankings. Other studies focus only on the assessment of specific dimensions of inclusive cities. For example, in studies examining the ranking of smart cities, the dimension of smart inclusion was emphasized (Greco & Bencardino, 2014; Sant'Ana et al., 2021). Gawlak et al. (2021) assess tools for urban spatial inclusiveness and urban quality of life assessment. Nevertheless, no studies have assessed and compared comprehensive rankings of inclusive cities.

In addition to the analysis of the general instrumental quality and metrics, it is also crucial to analyze and compare the ranking results. As the result of ranking, the ranked city's performance, i.e., ranking position and score, evoke by far the most public attention (Acuto et al., 2021; Giffinger et al., 2010; McManus, 2012). Sáez et al. (2020) compared the consistency of the two rankings by counting the quartiles in which 11 cities appeared in the ranking. Their study found that even in similar types of rankings, cities' performance can be very different. Moreover, cities that perform well in the results are often over-focused, while cities that perform poorly are easily overlooked. This not only reinforces existing stereotypes, but also hinders the investigation of complex interrelationships and causations (Giffinger et al., 2010; Sáez et al., 2020; Schönert, 2003). However, few if any recent studies have investigated these dynamics by examining ranking results carefully.

Through a review of the city ranking literature, this study suggests that general quality, specific metrics, and ranking results may serve as useful bases for developing a framework to assess inclusive city ranking systems. Accordingly, in this study we operationalize this framework and subsequently conduct a comprehensive analysis of the inclusive city rankings to gain new insight for the benefit of research on inclusive cities and city rankings.

3. Methodology

3.1. Selection of rankings

The collection and identification of our sample of inclusive city rankings took place from August 2022 to January 2023. At first, a preliminary collection of inclusive city rankings was conducted and combined with existing literature. This pilot led us to conclude that inclusive city related rankings can be categorized into two types: the first is theme-based inclusive city rankings, where inclusiveness is the central theme and consists of several different pillars to measure urban inclusion; the other is that of pillar-based inclusive city ranking systems, which not only measure the inclusiveness of cities, but also other pillars such as aspects of sustainability and competitiveness. To ensure the reliability and robustness of the information collection process (Sáez et al., 2020), web searches were conducted by three researchers on different computers using different IPs. The search tool was generally the Google search engine, and it included academic databases such as Google Scholar, Scopus, Web of Science, and ProQuest. The search used the keyword "inclusive city", combined with terms related to the assessment tools, "city ranking", "city rating", "index", "indicator", and "benchmark".

After an independent data search and subsequent team deliberation, they compiled a comprehensive list of inclusive city related rankings. Then according to the inclusion and exclusion criteria, irrelevant and inaccessible city rankings were excluded. Inclusion and exclusion criteria of city rankings were as follows: 1) the inclusiveness of cities is measured in the ranking; 2) access should be fully or at least partially free, available on a website or in a stand-alone report; 3) published within the last five years (2018–2022), and if there were different versions of a city ranking, we selected the most recent update. Disagreements were discussed and solved through discussion with the research team. Based on the above criteria and selection process, nine city rankings were identified as valid research samples (Table 2).

3.2. Quality analysis criteria

The results of literature review show that although the developed methodologies assessing city rankings vary, the assessment is mainly based on motivation, methodology, and dissemination, which can be analyzed through more detailed criteria. Therefore, we combined the characteristics of inclusive cities and transformed them into 20 objectively interpretable criteria (see Table 3). The framework is divided into three tables, corresponding with the performance of each ranking in terms of motivation, methodology, and dissemination. The compilation work related to the general quality assessment was mainly done in Microsoft Word, and the next section provides a qualitative analysis of

Table 2
Selected city appraisal rankings.

Type	No.	Name	Year	Provider
Theme-based inclusive city rankings	1.1	Prosperity and Inclusion City Seal and Award Index (PICSA)	2019	D & L Partners
	1.2	Intercultural Cities Index (ICC)	2022	Council of Europe
	1.3	Inclusive Recovery in US Cities (IRUSC)	2018	Urban Institute
	1.4	The Urban Environmental and Social Inclusion Index (UESI)	2018	Data-Driven Yale, Samuel Centre for Social Connectedness
Pillar-based inclusive city rankings	2.1	Cities in Motion Index (CIMI)	2022	IESE Cities in Motion
	2.2	Generation Z City Index (GZCI)	2019	Nestpick
	2.3	Millennial Cities Ranking (MCR)	2018	Nestpick
	2.4	Open for Business City Ratings (OBCR)	2022	Open for Business
	2.5	The Quality of Life in European Cities (QLEC)	2020	European Commission

Table 3
The general quality evaluation criteria.

Quality	No.	Criteria
Motivation	MO1	Clear theme and purpose of the ranking
	MO2	Name of the ranking organization
	MO3	Type of the ranking organization
	MO4	Funder/funders of the ranking
	MO5	Number of cities ranked
	MO6	Selection criteria of cities ranked
	MO7	Reminder to use this ranking with caution
Methodology	ME1	Interpretation of the design of measurement dimensions/indicators
	ME2	Interpretation of the relationship between indicators and variables
	ME3	Display of every indicator/variable
	ME4	Type/Types of variables
	ME5	Providing data source for each variable
	ME6	Provide the time scale of used data
	ME7	Description of weights design
	ME8	Presentation of data standardization
Dissemination	DI1	Way/Ways to present ranking results
	DI2	Accessibility of report content
	DI3	Presentation of city ranking results
	DI4	Case studies of specific cities
	DI5	Updates of data and version

these criteria and their evaluation.

Based on the general quality requirements for city rankings derived from our extensive literature review, we scrutinized the methodological issues in Table 3 and established whether the motivation underlying the ranking was primarily ethical, primarily utilitarian, or a combination of the two and thus used as a learning tool, decision-making and management tool, a communication and marketing tool or both (Hezri, 2004; Wang, 2019). Therefore, the transparency of the data and source, the design and explanation of the weights, and data standardization are all important (Acuto et al., 2021; Aleksandrov et al., 2022; Sáez et al., 2020). According to Giffinger et al. (2010), the way the results are evaluated, interpreted, and presented is crucial for the impact of the ranking.

3.3. Inclusive city metrics

According to Sharifi (2019), relevant metrics for city assessment tools can be identified using one or a combination of approaches such as literature reviews, expert surveys, and stakeholder consultations. From a literature review of inclusive cities, we can only establish definitions and divisions into different dimensions based on expert and scholarly insight. There is currently no clear delineation yet of the specific measurement indicators for each dimension of inclusive cities.

This study, therefore, provides an in-depth comparative analysis of the five development dimensions of an inclusive city as found in the literature, as well as indicators and interpretations in the ranking documents. Below the indicators used in the inclusive city rankings are mapped, and the coverage matrix is presented as shown in Fig. 1.

3.4. Ranking results

In ranking results, the final position and the score of the city are usually deemed the most important (Giffinger et al., 2010). The performance of cities in different inclusive city rankings may vary markedly, because of the different methods used and the design of the metrics. Considering the heterogeneity among the rankings and data availability, this study incorporates the following criteria to identify the most inclusive and least inclusive cities in the rankings for downstream analysis. The identified criteria are as follows:

- 1) Having a clear final league table of ranked cities to present how inclusive they are. This results in five city rankings, four of which are rankings that with inclusion as the central theme (including PICSA, ICC, IRUSC, and USEI), and one is a pillar in the CIMI that specifically measures and presents the inclusiveness of cities.
- 2) Cities with a population of less than 200,000 in the five ranking lists are excluded to improve comparability. According to OECD (2023), a large metropolitan area is one with a population of 1.5 million or more; a metropolitan area with a population between 500,000 and 1.5 million; a medium-sized urban area has 200,000 and 500,000 inhabitants; and the population of a small urban area counts between 50,000 and 200,000 people.
- 3) On the bases of the above, this study selected the top 25 % and bottom 25 % of cities in 5 rankings as inclusive and non-inclusive city samples, as shown in Supplementary Appendix C.

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Dimension	No.	Evaluation indicator	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	2.5
Economic inclusion	EC1	Income and distribution inclusion									
	EC2	Education and training inclusion									
	EC3	Work and employment inclusion									
Social inclusion	SO1	Safety; crime and violence prevention									
	SO2	Demographic diversity									
	SO3	Cultural and civil life inclusion									
	SO4	Sense of belonging and happy									
	SO5	Open and welcoming social attitude									
	SO6	Friendly and equal to vulnerable groups									
Spatial inclusion	SP1	Housing inclusion									
	SP2	Access to basic infrastructures									
	SP3	Access to basic services									
	SP4	Addressing of spatial segregation									
Environmental inclusion	EN1	Air quality									
	EN2	Climate change, climate policy									
	EN3	Water and sanitation									
	EN4	Urban ecosystems and green spaces									
	EN5	Sustainable public transport									
Political inclusion	PO1	Commitment to diversity and inclusion									
	PO2	Inclusive voting in elections									
	PO3	Participation and civil liberties									
	PO4	Media inclusion, press freedom									
	PO5	Perception of corruption									
	PO6	Law and legal/legislative inclusion									

Fig. 1. Coverage matrix of the respective indicator in the rankings.

4. Results

Based on the literature review and methodology outlined above, this section describes the study results on (1) general methodological quality of inclusive city rankings, (2) composition and distribution of ranking metrics, and (3) consistency and discrepancies in ranking results. It analyses and compares the characteristics and methodologies of the various ranking systems and their results.

4.1. General quality analysis

4.1.1. Ranking motivation

The motivation behind the production of a ranking is clearly a priority for evaluating it. An analysis of the themes and purposes of the nine ranking systems shows that although these rankings are highly related to the theme of inclusive cities, different rankings have their own definitions and preferences. According to the rankings' statements of their own purpose, the motives can be of three kinds: moral, utilitarian, and both. Specifically, the ethical motivations stated in rankings revolve around the following: providing the basis for creating inclusive cities, identifying cities' inclusive achievements and challenges, examining the relationship between inclusive urban development, and creating urban prosperity and/or resilience, the connotation of extending urban inclusion into the social and environmental realms, and measuring inclusive urban development strategies. The utilitarian motivations for ranking include the following: making the city unique and raising its profile, attracting millennials and generation Z, attracting business investments,

and measuring the city in terms of its entire standard of living (see Table 4).

The providers of inclusive city rankings are diverse, including commercial organizations such as consulting firms, online housing platforms, a coalition of global companies; and non-profit organizations such as international organizations, nonprofit research organizations, research platforms, and academic institutions (see Table 5). In general, business corporations and international organizations tend to provide the rankings alone, while research organizations and research platforms are more likely to cooperate with other institutions.

In terms of funding, commercial companies, and international organizations do not specify the sources of funding, but the funding is likely to be internal, while rankings provided by research organizations are usually funded externally. External funding comes mainly from foundations, government programs, and companies. For example, the IRUSC is funded by the Kresge Foundation which works to expand opportunities in America's cities through raising grants and social investing, the OBCR is funded by Accenture and Brunswick (see Table 5 and Appendix A. Table A for more detail). Moreover, the IRUSC also noted that "The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders. Funders do not determine research findings or the insights and recommendations of Urban experts." Nonetheless, by examining the funding sources for the rankings, we can see that these funds come primarily from foundations, governments, commercial organizations, and university research programs in the United States and Europe.

In terms of the target group measured, seven of the ranking systems

Table 4

The ranking motivations.

No.	Name	Purpose	Type
1.1	PICSA	This study is part of a project commissioned in 2017 by the Bask Government, with the aim of providing the basis for the creation of an Inclusive Prosperity Corporate Seal, and its corresponding award and event.	Mix
1.2	ICC	The intercultural cities index assesses cities' performance in relation to the intercultural integration model. The results of the Index help cities make evidence-based judgments about the impact and outcomes of their policies and resource investment.	Ethical
1.3	IRUSC	Our Inclusive Recovery project examines how cities can overcome economic distress in a way that provides the opportunity for all residents - especially historically excluded populations - to benefit from and contribute to economic prosperity.	Mix
1.4	UESI	The Urban Environmental and Social Inclusion tracks city performance at the intersection of environment and social inclusion.	Mix
2.1	CIMI	Our index aims to offer a platform for a comprehensive initial diagnosis of the cities considered and, through comparative analysis, serve as a first point of reference for other cities.	Mix
2.2	GZCI	To understand this evolving demographic, we piloted a study determining which cities are making themselves attractive destinations to appeal to Generation Z.	Utilitarian
2.3	MCR	Not only to pinpoint those cities which are successfully attracting millennials, and therefore the upcoming decade's core workforce, but to highlight those up-and-coming locations which pique millennial interests.	Utilitarian
2.4	OBCR	This report provides a consolidated view of how inclusive and competitive a city is, presented in the form of the OBCR. They are intended to present a guide to which cities are open, progressive, and competitive and which are not.	Utilitarian
2.5	QLEC	This report presents the results from the fifth survey on quality of life in European cities. This report presents the results from the fifth survey on the quality of life in European cities. It can help to identify priorities for Cohesion Policy investments and can support the policy exchanges as part of the Urban Agenda for the EU.	Ethical

measure the inclusiveness of cities around the world, and the remaining two rankings measure cities in the United States and Europe respectively. Obviously, there are no rankings specifically measuring cities in other relatively backward regions. When it comes to the reasons for choosing the ranked cities, continental distribution, membership network, population, economic strength, and whether the city is the capital are used as selection factors (see Table 5). Finally, most of the rankings do not remind users to use rankings with caution, except IRUSE, GZCI, and OBCR.

4.1.2. Ranking methodology

Each ranking has its own interpretation of what an inclusive city is and designed its own measurement procedures. The four theme-based inclusive city rankings have different sub-dimensions, which are measured by specific indicators and variables. Across the five pillar-based inclusive city rankings, several different variables are also used to measure a city's performance in terms of inclusiveness. For all rankings, it is more or less explained how the indicators are selected, and they all present indicators and variables used, including their name, definition, source, and normally also the time of measurement. The PICSA and CIMI are the rankings that do not fully mark the time scale of the used data. The specific dimensions and indicators will be interpreted in the next section. The objective here is mainly to analyze the relevance and effectiveness of the ranking methodology as demonstrated in the design of its indicators.

Seven rankings used less than 10 variables, and of the two remaining rankings, the CIMI uses 17 variables, while the ICC uses as many as 86

(See Appendix A. Table B for details). In terms of the type of variables used, seven rankings used secondary data, which can be characterized as quickly, easily, and economically obtained, but relatively less strong in terms of accuracy and reliability (see Table 6). The remaining two rankings used the primary data, namely questionnaire surveys, which are more accurate and reliable, but more expensive and time-consuming. The ICC published by the Council of Europe and the QLEC published by the European Commission used questionnaires to obtain the data needed to measure the indicators. The remaining seven rankings rely on secondary statistics, with six measuring cities worldwide and one measuring cities in the United States.

In terms of weight allocation and data standardization/normalization, most rankings state how the weights are assigned, but do not give the final weighted results. For example, PICSA and ICC state that indicators have been weighed for relative importance, but we could not find specific numbers specified for the weights in the report. According to the rankings that present the actual weights, expert consultation and equal weights were the main methods they used (see Table 6). For example, PICSA conducted polls in different regions to see what people thought are the most important factors for inclusion and then based the weight of the composite indicator on those responses. Normalization allows for comparison across both cities and indicators. Most rankings fully or partially explained the data standardization, among them, the BoundarySeer turned out to be the main method (see Table 6). For example, MCR standardizes the results and creates the score, with all the different factors recalculated on a scale from 0 to 10.

Table 5

The provider, target group, and funder.

No.	Name	Provider	Target group	Funder
1.1	PICSA	D & L Partners	113 cities distributed across the five continents	Not indicated
1.2	ICC	The Council of Europe	159 worldwide cities in International Intercultural Cities Network	Not indicated
1.3	IRUSC	The Urban Institute	274 of the largest US cities	The Kresge Foundation
1.4	UESI	Data-Driven Yale, Samuel Centre for Social Connectedness	32 cities across a range of geographies and levels of economic development	The SCSC is founded by Kim Samuel
2.1	CIMI	IESE Cities in Motion	183 cities (85 of which are capitals), and 92 countries are represented	Government, commercial and university projects
2.2	GZCI	Nestpick	110 cities based on the feasibility of collecting extensive, reliable data, and inclusion at a global scale	Not indicated
2.3	MCR	Nestpick	110 cities focusing on capitals, economic, expat hubs, and cover major university cities	Not indicated
2.4	OBCR	Open for Business	145 cities, with a maximum of 5 cities per country, except the US which includes 10 cities	Accenture, Brunswick
2.5	QLEC	European Commission	83 cities in the EU, the EFTA countries, the UK, the Western Balkans, and Turkey	Not indicated

Table 6
Overview of the ranking methods.

No.	Name	No. of variable	Type of variable	Weight design	Standardization/Normalization
1.1	PICSA	8	Secondary data	Run polls in different geographies to see what people thinks are the most important elements to achieve inclusion (and then weights for a composite indicator are based on responses).	Start with a min-max normalization method and then try other methodologies such as distance to frontier (i.e., how cities compare to leading cities irrespective of their ranking in a composite indicator).
1.2	ICC	86	Primary data	Indicators have been weighed for relative importance.	For each indicator, participating cities can reach up to 100 points (which are consolidated for the general Intercultural Cities Index).
1.3	IRUSC	9	Secondary data	Each indicator is weighted equally in the indices. We do not employ weights in the construction of these indices; that is, every indicator is treated as an equal input into its respective index.	We first turn indicators into z-scores where the mean is zero and the standard deviation is one each year. We then sum up the z-scores for the indicators within each index and divide them by the number of indicators in that index.
1.4	UESI	5	Secondary data	The EPI aggregates the proximity-to-target scores into a single, weighted index that applies a series of statistical weights to each indicator and policy issue.	To compare how cities perform on average in all of the environmental indicators, we transform the raw data to a normalized scale of 0 to 100, with 0 being the worst performer and 100 the best
2.1	CIMI	17	Secondary data	The factors are given by the complement of the coefficient of determination (R ²) for each indicator with respect to the rest of the partial indicators.	/
2.2	GZCI	9	Secondary data	The final total score for each city was determined by calculating the sum of the weighted average score of the indicators under each category.	All factors as well as the overall total are measured as scores, and are valued between 1 and 100, and 1 is the lowest attainable score in the dataset and 100 is the highest.
2.3	MCR	4	Secondary data	* The weight of each pillar is marked, but the weighting process is not explained.	All the different factors have been evenly ranked between 0 and 10. This score is obtained directly from the raw data.
2.4	OBCR	9	Secondary data	Each of the categories are equally weighted as 50 % of the overall score. Each individual indicator weight is available in the table.	Standardize the data to a scale of 1 to 10 to create a comprehensive output to compare each city.
2.5	QLEC	7	Primary data	Percentages are based on all respondents (excluding don't know/not answered).	Numbers are rounded to the unit to improve readability and reduce misinterpretation of rankings due to small differences caused by statistical uncertainty.

4.1.3. Ranking dissemination

Transparency and timeliness are important for the quality of ranking dissemination. In terms of transparency, all rankings are presented online for free, and four of them also designed online interactive charts, namely ICC, IRUSC, GZCI, and MCR. The original calculation data generated by IRUSC and QLEC can be downloaded from GitHub and the attachments respectively, which is essential for data verification. Besides, all rankings provide the final league table and score to present the city's overall performance on inclusion. Among them, the four rankings with inclusion as their central theme also show the ranking of cities in different pillars of inclusion (PICSA only shows the top 40 cities).

Five rankings include specific case studies, and four do not (See Appendix A. Table C for details). The most noteworthy contribution these case studies make are deepening users' understanding of the ranking, promoting lesson-drawing from best practices, clarifying the challenges faced by governments, and helping the design of related action plans and developmental pathways (Mora et al., 2019).

In terms of timeliness, four rankings currently have their first and only published version, so city performance over time cannot be judged on basis of these results. Among the remaining five rankings, the measurement of urban inclusiveness can be traced back to 1980 for IRUSC, and other rankings have been updated regularly since 2000 (See Appendix A. Table C for details). This indicates to some extent that the United States has been the pioneer in focusing on urban inclusion, or that exclusion first became a social problem in the United States.

4.2. Analysis of ranking metrics

4.2.1. Dimension coverage

The five dimensions of the inclusive city are explained and measured by corresponding indicators as shown in Fig. 1 in Section 3. In general, the indicators used to assess the social and political dimensions of urban inclusion are the most diverse, with six types each (SO1-SO6, PO1-PO6). The economic dimension is mainly measured by indicators regarding income level and distribution, education and training, and work and employment (EC1-EC3). Spatial inclusion is measured by housing

inclusion, access to infrastructures and services, and mitigation of spatial segregation (SP1-SP4). Environmental inclusion is measured through five aspects: air quality, climate change and governance, water and sanitation, urban ecology, and sustainable transportation (EN1-EN5).

There are large differences in the extent to which the various dimensions are represented and valued across the rankings, reflecting differences in their respective definitions and assessments of urban inclusion. At present, there is no comprehensive inclusive city ranking covering all five dimensions. Three rankings include four of the inclusive city dimensions; two rankings use three dimensions; two rankings measure merely two dimensions; while the remaining two rankings measure inclusion through only one dimension (Fig. 2). In addition, the representation of the various dimensions of inclusion is usually more varied and comprehensive (considering at least three dimensions) in the theme-based inclusive city rankings (except for 1.4 UESI), while for the pillar-based inclusive city rankings, variety is considerably poorer.

Overall, social inclusion is most pronounced in all rankings, while the rest is relatively balanced, as shown in Fig. 3. For theme-based inclusive city rankings, economic and social inclusion matter the most, followed by spatial and environmental inclusion, while political inclusion is least prominent. In the pillar-based inclusive city rankings, social inclusion also dominates, followed by political and spatial inclusion, while economic inclusion and environmental inclusion are least prominent. Obviously, in the process of measurement, ranking agencies assume that inclusion in cities primarily revolves around the social dimension, while the environmental dimension is largely disregarded.

4.2.2. Indicator distribution

There are also large differences in the distribution of different indicators. Some specific indicators are more widely used to measure the corresponding dimensions (as shown in Fig. 4). In the dimension of economic inclusion, the distribution of various indicators is relatively balanced. However, in the dimension of social inclusion, the consideration of social security and friendliness to and equal treatment of vulnerable groups is more highly valued than other indicators. Social

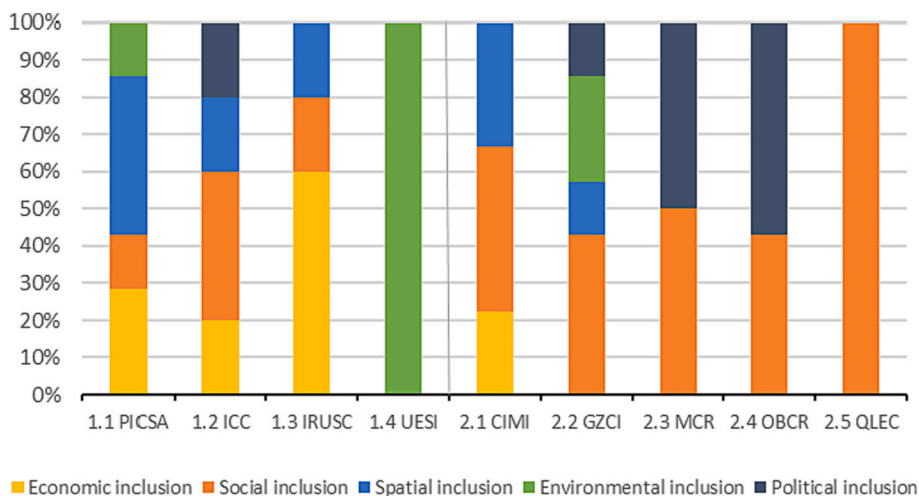


Fig. 2. Percentage of inclusive city dimensions included in each ranking.

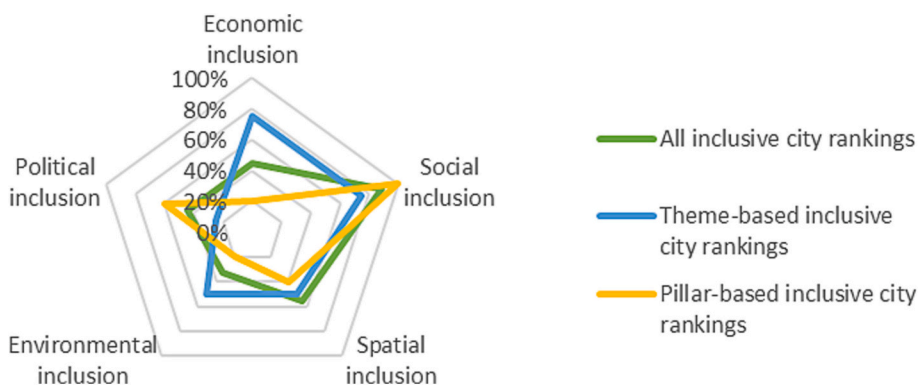


Fig. 3. Percentage of inclusive city dimensions included in different types of rankings.

safety indicators are usually assessed through variables such as crime rate, murder rate, terrorism, and perception of security. As for the indicator on Friendly and equal to vulnerable groups, the vulnerable groups represented in the variables are gender (female) and sexual orientation (LGBTQ+), race (immigrant), and age (old people, children). However, other groups that are equally vulnerable to exclusion, such as the disabled, religious and political minorities, and low-income group does not appear in the evaluation (see Appendix B for specific variables). In terms of spatial inclusion, access to basic infrastructures and housing inclusion are well-taken into consideration. In the dimension of environmental inclusion, air quality is often taken as a proxy. In the dimension of political inclusion, interaction and civil liberties prevail.

It is worth noting that the use of comprehensive indicators does not completely equal the comprehensiveness and objectivity of the ranking system as such. The evaluation of inclusive cities not only involves the coverage of various indicators, but also the weight of indicators plays a key role in the results. However, as the analysis of general quality aspects above shows, most of the existing inclusive city rankings do not explain how the specific weights are awarded. As a result, it is impossible to further analyze what indicators and dimensions are considered the most important ones in evaluating urban inclusion.

4.3. Analysis of ranking results

4.3.1. Consistency among city rankings

The consistency among city rankings partly reflects how solid their conclusions are, which can be seen by comparing the performance of cities in rankings. Therefore, based on the procedure described in the methodology section, two tables (Fig. 5, Fig. 6) listing the top 25 % and

bottom 25 % of cities in terms of their degree of urban inclusion can be produced. Among all rankings, Copenhagen is considered inclusive by four rankings, while Zurich, Oslo, Amsterdam, and Montreal are considered inclusive by three rankings (see Fig. 5). In the list of non-inclusive cities, Manila, Delhi, and Lima are evaluated as not inclusive by three rankings (see Fig. 6).

Consistency in the top 25 % across the ranking systems is relatively high, except for ranking 1.3 IRUSC, which specifically measures levels of inclusion in US cities. Among the global rankings, 68 % of the cities in ranking 1.1 PICSA and 75 % of cities in ranking 1.4 UESI are also considered inclusive by other rankings. Ranking 1.2 ICC and ranking 2.1 CIMI both have 47 % of cities considered as inclusive in other rankings. Overall, in the global rankings, more than half of the cities in the ranking (59 %) are considered inclusive by at least one other ranking, so consistency is relatively strong.

Among the cities in the bottom 25 %, consistency is far lower. No city in ranking 1.2 ICC and 1.3 IRUSC is considered non-inclusive by other rankings. The ranked cities in ranking 1.2 ICC are mainly concentrated in Europe, while the ranking 1.3 IRUSC is limited to cities in the United States. In the rest of the rankings, 17 out of the 28 cities in ranking 1.1 PICSA are considered non-inclusive by at least one other ranking; 6 out of 8 cities in ranking 1.4 UESI; in ranking 2.1 CIMI it is 13 out of 46 cities. Also, without counting ranking 1.3 IRUSC, about 36 % of the cities are considered non-inclusive by at least one other ranking; that is quite low in comparison with cities on the top 25 % list.

4.3.2. Exploration of the interrelations

We observe an obvious rich and poor divergence between cities in the top 25 % and bottom 25 % of inclusive city rankings (see Fig. 5).

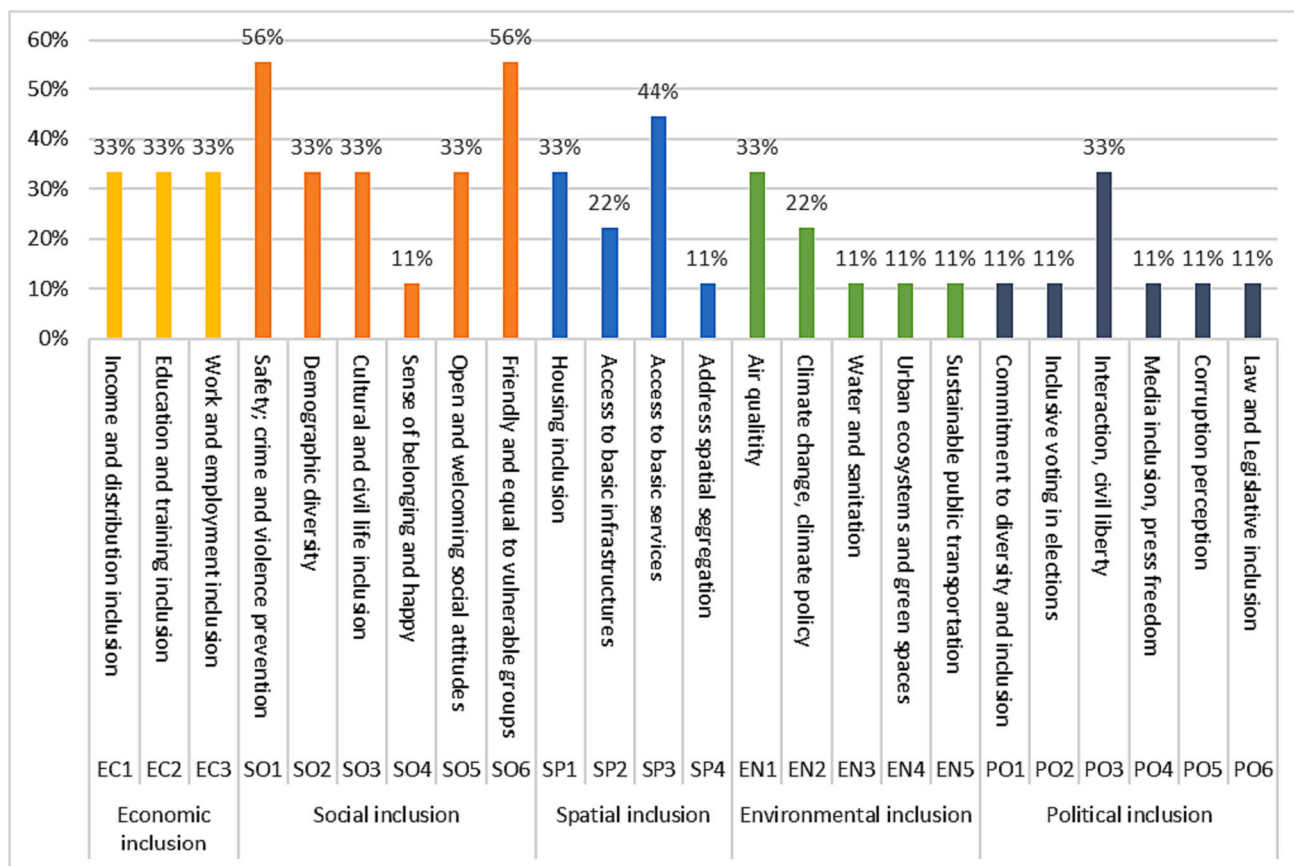


Fig. 4. Percentage of inclusion by dimension and indicator.

1.1 PICSA	1.2 ICC	1.3 IRUSC	1.4 UESI	2.1 CIMI	
Zürich	Guro-gu	Fremont	Melbourne	Taipei	Tel Aviv
Vienna	Oslo	San Francisco	Copenhagen	Edinburgh	Linz
Copenhagen	Copenhagen	Hayward	Boston	Canberra	Duisburg
Luxembourg	Dublin	Henderson	Vancouver	Copenhagen	Madrid
Helsinki	Zürich	Plano	Amsterdam	Wellington	Manchester
Taipei	Ansan-si	Chandler	London	Ottawa	Doha
Oslo	Limassol District	Virginia Beach	New York City	Munich	Rotterdam
Ottawa	Hamburg	San Jose	Chicago	Eindhoven	Berlin
Kiel	Montreal	Chula Vista		Helsinki	Tokyo
Geneva	Barcelona	Jersey City		Sydney	Geneva
Washington	Lutsk	Seattle		Melbourne	Hamburg
Munich	Turin	Fontana		Zürich	Abu Dhabi
Prague	Bilbao	Chesapeake		Stuttgart	Prague
Seattle	Leeds	Modesto		Glasgow	Antwerp
Stockholm	Bradford	Scottsdale		Liverpool	Shanghai
Boston		Fayetteville		Nottingham	Amsterdam
Amsterdam		Anchorage		Quebec	
Berlin		Corpus Christi		Oslo	
Eindhoven		El Paso		Tallinn	
Bilbao		Boise		Birmingham	
Bratislava		North Las Vegas		Leeds	
Tallinn		Newark		London	
Gothenburg		Sacramento		Auckland	
Rotterdam		Detroit		Dubai	
Frankfurt		Irving		Düsseldorf	
Montreal		Madison		Cologne	
Cardiff		Riverside		Vancouver	
Madrid		Garland		Singapore	
		Tacoma		Montreal	
% of cities for each ranking that co-occur with other rankings					
68%	47%	/	75%	47%	
Grand total: 59%					
Considered inclusive by 4 rankings			Considered inclusive by 2 rankings		
Considered inclusive by 3 rankings					

Fig. 5. Top 25 % cities in inclusive city rankings.

1.1 PICSA	1.2 ICC	1.3 IRUSC	1.4 UESI	2.1 CIMI	
Cairo	Nicosia District	Houston	Beijing	Caracas	Lima
Chongqing	Bucharest	Dallas	New Delhi	Karachi	Amman
Tianjin	Jerez de la Frontera	Miami	Lima	Johannesburg	Kampala
Nairobi	Osmangazi-Bursa	Atlanta	Manila	Tehran	Saint Petersburg
Cape Town	Strasbourg	Saint Paul	Jakarta	Athens	San Jose
Manila	Constanta	Phoenix	Bangalore	Lagos	Skopje
Mumbai	Loures	Memphis	Bangkok	Salvador	Cali
Rio de Janeiro	Izhevsk	Richmond	Ho Chi Minh City	Cape Town	São Paulo
Wuhan	Valencia	Fort Wayne		Rio de Janeiro	Tbilisi
Casablanca	Kirklees	New Orleans		Bogotá	Belgrade
Tunis	Tilburg	Milwaukee		Kyiv	Sofia
Johannesburg	Ville de Paris	Fresno		Manila	Las Vegas
Delhi	Sechenkivsky	Omaha		Kolkata	Minsk
Jakarta	Hamamatsu	Buffalo		Cairo	Vilnius
Shanghai	Vinnitsia	St. Louis		Delhi	Baltimore
Mexico City		Huntsville		Mumbai	Rosario
Shenzhen		Minneapolis		Belo Horizonte	
Guangzhou		Baton Rouge		Accra	
Quito		Rochester		Lahore	
São Paulo		Montgomery		San Salvador	
Santiago		Mesa		Brasília	
Kuala Lumpur		Little Rock		Novosibirsk	
Brasília		Tulsa		Guatemala City	
Beijing		Los Angeles		Nairobi	
Hanoi		Winston-Salem		Sarajevo	
Lima		Tampa		Hong Kong	
Hangzhou		Indianapolis		Casablanca	
Bogotá		Cincinnati		Curitiba	
		Laredo		Medellín	
% of cities for each ranking that co-occur with other rankings					
54%	0%	/	63%	29%	
Grand total: 36%					
Considered inclusive by 3 rankings					
Considered inclusive by 2 rankings					

Fig. 6. Bottom 25 % cities in inclusive city rankings.

Table 7

The basic geography characteristics of reference cities.

	Inclusive cities		Non-inclusive cities	
Continent	Europe	71 %	Asia	33 %
	N. America	21 %	S. America	33 %
	Asia	4 %	Africa	33 %
	Oceania	4 %		
	High income	100 %		
Income category			Upper middle income	53 %
			Lower middle income	47 %
Population	200,000–500,000	21 %	200,000–500,000	0 %
	500,000–1.5 million	46 %	500,000–1.5 million	0 %
	1.5 million or more	33 %	1.5 million or more	100 %

Inclusive cities can mainly be found in the rich regions, while non-inclusive cities are mainly located in the less developed regions. Despite this obvious divergence, not all cities in economically developed countries or regions are inclusive. When the ranking scope is narrowed down to regions and countries, some non-inclusive cities in developed countries also appear. This is for example for several bottom 25 % of American cities in IRUSC and Tilburg in ICC. In contrast, rankings that measure urban inclusion worldwide, such as PICSA and UESI, tend to cast a more positive light on cities in developed countries. In those two rankings, all the top 25 % of cities are in developed countries, while all the bottom 25 % of cities are in developing countries (see Appendix C). Moreover, different rankings reveal huge differences in a city's performance. For example, Shanghai ranks in the top 25 % of CIMI, but in the bottom 25 % of PICSA.

As mentioned above, city performance may vary from ranking to ranking. Nevertheless, due to the differences in the use of indicators and data, they in fact complement each other to a certain extent. That is to

say, the potential bias in individual rankings might be high, but the accuracy of estimating urban inclusion can be increased by highlighting those cities that show similar performances across multiple rankings. Therefore, we analyzed the cities that co-occur in the top 25 % and bottom 25 % city lists respectively as reference cities of relatively level of inclusion and low levels of inclusion respectively. In this way, 24 inclusive cities and 15 non-inclusive cities were identified (see Appendix C). It is worth noting that the cities selected in this article are determined based on existing rankings, thus inclusiveness and non-inclusiveness are relative.

More specifically, inclusive cities are mainly distributed in Europe (71 %) and North America (21 %) (see Table 7). A few inclusive cities can be found in Asia and Oceania, such as Taipei and Melbourne. Non-inclusive cities are distributed in Asia, South America, and Africa. All the inclusive cities have comparatively high per capita income, while non-inclusive cities are in the upper-middle and lower-middle categories (see Appendix C for details). From the perspective of the urban

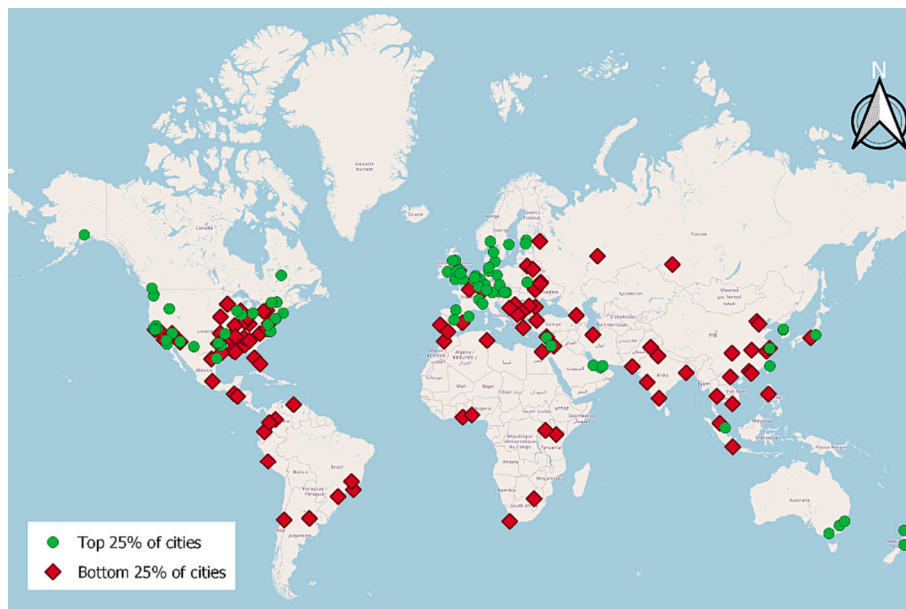


Fig. 7. The geography distribution of all cities of inclusive and non-inclusive.

population, 67 % of inclusive cities have urban populations below 1.5 million, while all non-inclusive cities have populations above 1.5 million (see Table 7).

In addition, IRUSC's selection is limited to U.S. cities, so we analyze these cities in a separate group, which can serve as a simple control group. This sample similarly reveals that inclusive cities generally have smaller populations (see Appendix C for details). Inclusive cities are also mostly located in so-called 'blue states' where the Democratic Party is dominant (66 % and 62 % of the inclusive cities are 'blue' in 2012 and 2016); while non-inclusive cities are found in 'red states' with Republican majorities (62 % and 72 % of cities are in the red states are non-inclusive in 2012 and 2016). Apparently, either political inclusion is safer in 'blue hands' or the ranking systems favor the Democratic Party (or both).

5. Discussion

Our findings indicate that the city rankings varied greatly with respect to their motivation, methodology, dissemination, composition of measured dimensions and indicators, and final ranking results for the cities under study. The major strengths and weaknesses pertaining to these issues are succinctly outlined in Table 8, followed by a comprehensive examination and deliberation on each issue enumerated.

Just as there is no single definition of inclusive cities (Anttiroiko & de Jong, 2020b; Liang et al., 2022; Meena & Singh, 2010), there is no definitive ranking of inclusive cities. Different city rankings attempt to define inclusive cities from different perspectives. For example, PICSA measures overall city inclusiveness in terms of economic inclusion, social inclusion, and spatial inclusion; UESI incorporates and primarily measures environmental inclusion; IRUSC and OBCR measure urban inclusion by focusing on the inclusion of immigrants and the LGBTQ+ community, respectively. The analysis reveals that the implementation of inclusive city rankings not only evaluates the accomplishments and obstacles of ranked cities in terms of inclusiveness, but also reflects the multidimensional nature of inclusive cities. Meanwhile, it is evident that a comprehensive understanding of inclusive cities is not commonly achieved in existing literature, which predominantly focuses on singular or limited dimensions of inclusion. Contemporary societies are confronted with policy and institutional options of different aspects to combat escalating poverty, inequality, and exclusion within urban areas, thereby striving toward inclusive prosperity (Gerometta et al., 2005;

Rodrik & Stantcheva, 2021). Consequently, we plea for a more comprehensive study and understanding of inclusive cities in research and ranking systems.

The ranking of inclusive cities may also be utilitarian in nature, and this is not always indicated. Some rankings are not simply a tool to measure a city's inclusiveness but are also used to make a city special and enhance its profile. Rankings are invariably shaped by the human perspective due to the different priorities of ranking providers and the needs of end users (government officials, investors, and talented workforce) (Leff & Petersen, 2015; Sharifi, 2020). The consulting firms using ranking indices devote significant resources to collecting data, conducting analysis, and translating their research into compelling narratives, generating reports that often represent core insights critical to the firm's consulting and business services (Acuto et al., 2021). It is therefore apparent that although each ranking has its criteria for including cities, since all the developers of inclusive city rankings hail from developed countries, their interest in including and making more meaningful comparisons of cities in developing countries that lack research funding and have fewer developmental opportunities may be influenced. As Zhang and Shmelev (2019) indicate, researchers often prioritize analyzing the success of cities in Europe, North America or Australia, neglecting meaningful comparisons with cities elsewhere that face distinctive and substantial challenges in terms of inclusion and sustainability.

City rankings are based on data-driven thinking, and the results they arrive at through data and scientific calculation processes seem objective and neutral at first sight, but are potentially reflective of the neoliberal geography of data-driven governance (Beer, 2015; Kitchin, 2014). Regarding the methodology, while some rankings are more explicit than others, many rankings do not make the underlying data, weighting design, and standardization process available and clear. As Leff and Petersen (2015) argue, ranking methods are often opaque. The data used for the ranking are limited by the attributes of the ranking agency, and generally, local governments have the most data resources (Meijering et al., 2014). There are no rankings that combine quantitative secondary data with perception-based primary data to measure urban inclusion. Only two rankings have raw data available for users, and even these two rankings do not fully display the time scale of used data. Moreover, standardizing and assigning varying weights to indicators has the potential to impact not only the significance of each indicator in the composite score but also the prioritization of policies (Giffinger &

Table 8
A summary of related strengths and weaknesses.

Issue	Strength(s)	Weakness(es)
Motivation	<ul style="list-style-type: none"> – Ranking themes are highly correlated with inclusive cities – Helpful for identifying cities' achievements and challenges in terms of inclusion – Diversity of ranking providers 	<ul style="list-style-type: none"> – Ranking motivation may be utilitarian but not always indicated – Ranking agencies rarely cooperate with each other – Most rankings do not indicate the criteria for selecting cities – Lack of assessment of inclusiveness in developing cities – Users are not always reminded to use ranking with caution
Methodology	<ul style="list-style-type: none"> – Relationship between measurement variables and themes is explained – City inclusiveness can be measured by both primary and secondary data – Shows the source of all data 	<ul style="list-style-type: none"> – Data are mainly secondary data and not used in combination with primary data – Do not fully display the time scale of the data used – Mostly rankings do not fully explain the weights – Some rankings do not show the standardization of data
Dissemination	<ul style="list-style-type: none"> – Full report is available for free for all rankings, and some rankings have interactive charts 	<ul style="list-style-type: none"> – Some rankings only show the final league table, but there is no scorecard for ranking by different pillars – Some rankings do not have case studies for in-depth understanding – Some rankings are one-time and therefore not updated over time
Metrics	<ul style="list-style-type: none"> – Ranking indicators constitute different dimensions of inclusive cities – Measurement indicators enrich and refine the understanding of inclusive cities 	<ul style="list-style-type: none"> – No ranking yet comprehensively measures the five development dimensions of urban inclusion – Rankings show bias in their use of indicators, i.e., some indicators get more attention than others
Results	<ul style="list-style-type: none"> – Inclusive cities that perform well are rather consistent across rankings – Contribute to illustrating the interrelationship of city ranking and inclusive urban development 	<ul style="list-style-type: none"> – Ranks of non-inclusive cities are not robust across rankings – More economically developed North American and European cities are overrepresented among inclusive cities

Gudrun, 2010b; Shmelev & Shmeleva, 2023). Without a clear and authentic display of weights and normalization of inclusive city rankings, the door is opened to black-box manipulation of the ranking outcomes.

In terms of dissemination, the full text of the final report of all rankings is available online for free. However, it is worth noting that most pillar-based inclusive city rankings do not provide information in the performance on the performance of cities in the inclusiveness ranking table, except for the IESE Cities in Motion Index. This demonstrates that in these comprehensive city rankings, even if a city lacks inclusiveness, this aspect can easily be overshadowed by economic development or other “brilliance” pillars. Cities that perform well in the rankings can also act as best practices to create a learning effect (Andersson & James, 2018; Giffinger et al., 2007). Unfortunately, nearly half of the city rankings did not provide the analysis of noteworthy cases. Moreover, four ranking systems do not allow for monitoring progress made over time, since they appear to be one-off studies only.

There is an intersection but not complete overlap between academic theory and the ranking practice for inclusive cities. According to researchers, an inclusive city should be a comprehensive whole that includes multiple development dimensions (Anttiroiko & de Jong, 2020b; Elias, 2020; Liang et al., 2022). Overall, the existing rankings together comprise five dimensions of inclusive urban development, but none of the rankings currently incorporate and measure all five dimensions in their entirety. Different inclusive city rankings have different biases and reflect the advantages and disadvantages of different cities in different dimensions of inclusiveness. Generally, the social inclusion dimension is the most incorporated dimension among all the rankings. The inclusiveness of spatial, economic, and political dimensions has also been partially reflected in the rankings. The inclusiveness of the environmental dimension is generally ignored, although this may be explained by the fact that it is more commonly interpreted as other approaches to urban development, such as sustainable cities, green cities, etc. When one looks into the specific indicators, some indicators also appear to be

Table 9
The implications for different stakeholders.

Stakeholder	Inspiration, advice, and other roles
Governments and policymakers	<ul style="list-style-type: none"> – Governance is more rule-based: an inclusive city is not just a vague concept, it includes five development dimensions, each of which contains corresponding indicators. – Inclusive city rankings can be used as a performance monitoring tool to measure the value of inclusive city investments and interventions. – Inclusive city rankings can serve as a positioning and communication tool, identifying cities' strengths and weakness, and learning from cities that perform well. – The results of rankings re-emphasize the challenges of inclusiveness posed by rapid urbanization, thus calling for greater attention to inclusive urban development. – Use existing research to define, operate and measure comprehensive inclusive cities. – Ranking providers can collaborate across disciplines and institutions, thereby enhancing the objectivity and rationality of the ranking's methodology and helping to improve the usability of data.
Ranking developers and Practitioners	<ul style="list-style-type: none"> – To ensure that the city samples can be meaningfully compared, developers of the ranking can select cities of similar types as target groups. – The ranking metrics should include more comprehensive inclusive city dimensions and improve the balance of indicator distribution. – Rankings should provide full information on the type, source, and time scale of the data used, preferable in a separately accessible attachment. – Weight design and data standardization should be paid attention to, including the method and results of weight design and the process of standardization. – The result display of the ranking should present city's performance from as many dimensions as possible, and if possible, the ranking should analyze specific cases of cities. – The one-off ranking cannot serve as a permanent benchmark of a city's inclusive performance and should therefore be updated as time and data change.
Researchers	<ul style="list-style-type: none"> – Due to the inevitable pitfalls of these city rankings, users should be reminded to use them with caution. – Some consensus were reached through rankings that inclusive cities emphasize safety, accessibility, and diverse society, but should be expanded to more comprehensive and practicable systems. – With the clear and detailed indicators and variables included in the rankings, it is possible to delve into strategies and plans for increasing urban inclusion.
Citizens	<ul style="list-style-type: none"> – Promote citizens' understanding of the concept of inclusive cities, and then participate in and monitor the governance of inclusive cities. – Improve citizens' rationality and prudence toward various types of city rankings, including inclusive city rankings.

more prevalent in inclusive city rankings. As [Alsayel et al. \(2022\)](#) show, different cities have different inclusive advantages, and cities will choose and prioritize certain dimensions of inclusion. Hence cities may all be inclusive, in their own prescribed ways.

City rankings are not just 'a simple way' to present a city's status ([Okulicz-Kozaryn, 2013](#)). The inclusive city rankings may reinforce the stereotype that cities in more economically developed parts of the world remain at the top of various hierarchies, exaggerating the perceived performance gap between rich and poor, which in turn may distort people's imagination of inclusive cities. For example, since the IRUSC and QLEC only include cities in the United States and Europe respectively, and ignore cities in other relatively backward regions, cities in the United States and Europe appear to be more inclusive than cities in other regions. A city's performance in the rankings depends not only on its sheer inclusive strength but also on how its 'competitors' are. In other words, the selection of ranked cities, calculation method, and design of the metrics in the ranking will all affect their eventual 'performance'.

Finally, inclusive city ranking is an important and special lens through which we look at our cities nowadays. Through it, small and medium-sized European cities become more visible and are therefore strongly represented in studies of social inclusion ([Acuto et al., 2021](#)). In our research, we found a considerable degree of convergence in which cities the rankings identify as the most inclusive ones, with Copenhagen being measured as inclusive by the most rankings, followed by Zurich, Oslo, and Montreal. The relevant strategies and policies of these cities correspond to multiple dimensions and key messages of inclusive city development. For instance, Copenhagen has set forth its explicit goal to become the most inclusive city in Europe by 2015, and its inclusive city planning strategy encompasses various facets of civic life, including but not limited to equal employment opportunities, affordable housing provisions, ecological sustainability, citizens' well-being, and inclusive participation in political affairs ([Andersen et al., 2014](#); [Lister, 2002](#)). Montreal was one of the pioneering municipalities to sign up for the OECD's Inclusive Cities Campaign ([OECD, 2016](#)). Notably, the city has undertaken an extensive array of initiatives aimed at fostering inclusivity such as proactive facilitation of social and community housing development ([LaFerrière, 2021](#)), investments in accessible, affordable, and sustainable transportation systems ([Breau et al., 2023](#)), active promotion of gender equality ([Chanady, 2022](#)), establishment of inclusive coalitions, among other noteworthy efforts ([Klein & Tremblay, 2010](#)). Top-ranked cities can serve as exemplary models offering valuable insights into development strategies and policy tools for other cities, especially those with similar backgrounds ([Shmelev & Shmeleva, 2019](#)). Thus, policymakers and practitioners in inclusive urban planning can draw lessons from their experiences.

6. Conclusion

Inclusive cities have been developing around the world for decades, yet there is currently no universal and widely accepted assessment tool to measure and rank these cities accurately and reliably. Heterogeneity remains among current inclusive city rankings, which is not a bad thing per se. However, the production of inclusive city rankings is largely still partly a black box. This article draws on and extends the analytical methodologies of other types of city rankings and applies them to the evaluation of inclusive city rankings. In this way, the methodology used in this study could enhance insights into future rigor and comprehensiveness of city ranking assessment methodologies. Furthermore, this research significantly enhances our understanding and measurement of inclusive cities, providing valuable benefits to stakeholders ([Table 9](#)).

Overall, for governments and policymakers, this research is an important theoretical and practical reference of inclusive city governance; for ranking developers and practitioners, the main effects should be awareness on how to improve their ranking methodology; for researchers, the paper supplements the theories regarding the methodology of city rankings and the promotion of inclusive urban development;

for citizens, it contributes to their understanding, participation, and democratic control of inclusive city governance.

There are several limitations in this paper which we hope future studies can address. First, as a relatively new research field, the scope of the current study is limited because the number of inclusive city rankings is not huge compared to city rankings on other topics. Although the rankings of the nine selected rankings in this study are representative, there may be omissions. Second, since we only selected a one-year snapshot for each ranking in our analysis, we did not pay attention to how cities' performance in the rankings evolved over time. We suggest that future research could incorporate time dynamics into the analytical approach. Finally, this study focuses on critically assessing the ranking systems for inclusive cities and exploring their relevance to the existing body of literature on inclusive urban development, without yet addressing all relevant policy considerations. In this regard, more in-depth and comparable case studies would be helpful in exploring the dynamic effects between rankings and urban inclusive policies.

CRedit authorship contribution statement

Run Zhao: Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft, Visualization. **Martin de Jong:** Conceptualization, Validation, Formal analysis, Supervision, Writing - review & editing. **Jurian Edelenbos:** Conceptualization, Validation, Formal analysis, Supervision, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

I have shared my data in attached file.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.cities.2023.104617>.

References

- Acuto, M., Pejic, D., & Briggs, J. (2021). Taking city rankings seriously: Engaging with benchmarking practices in global urbanism. *International Journal of Urban and Regional Research*, 45(2), 363–377. <https://doi.org/10.1111/1468-2427.12974>
- Aleksandrov, E., Dybsyna, E., Grossi, G., & Bourmistrov, A. (2022). Rankings for smart city dialogue? Opening up a critical scrutiny. *Journal of Public Budgeting, Accounting & Financial Management*, 34(5), 622–643. <https://doi.org/10.1108/JPAFM-03-2021-0059>
- Alsayel, A., de Jong, M., & Franssen, J. (2022). Can creative cities be inclusive too? How do Dubai, Amsterdam and Toronto navigate the tensions between creativity and inclusiveness in their adoption of city brands and policy initiatives? *Cities*, 128, 103786. <https://doi.org/10.1016/j.cities.2022.103786>
- Andersen, H., Blach, V., Winther, A., & Skovgaard Nielsen, R. (2014). DIVERCITIES: Urban policies on diversity in Copenhagen, Denmark. Doi: [10.13140/2.1.2655.6805](https://doi.org/10.13140/2.1.2655.6805).
- Andersson, I., & James, L. (2018). Altruism or entrepreneurialism? The co-evolution of green place branding and policy tourism in Växjö, Sweden. *Urban Studies*, 55(15), 3437–3453. <https://doi.org/10.1177/0042098017749471>
- Andrews, C., de Montesquiou, A., Arevalo Sanchez, I., Dutta, P. V., Paul, B. V., Samaranayake, S., ... Chaudhary, S. (2021). The state of economic inclusion report 2021: The potential to scale. *The World Bank*. <https://doi.org/10.1596/978-1-4648-1598-0>
- Anttiroiko, A.-V., & de Jong, M. (2020a). Real-life cases of inclusive urban development. In A.-V. Anttiroiko, & M. de Jong (Eds.), *The Inclusive City: The theory and practice of creating shared urban prosperity* (pp. 97–119). Springer International Publishing. https://doi.org/10.1007/978-3-030-61365-5_7
- Anttiroiko, A.-V., & de Jong, M. (2020b). *The inclusive city: the theory and practice of creating shared urban prosperity*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-61365-5>
- Asian Development Bank. (2022). *Inclusive Cities: Urban Area Guidelines*. Asian Development Bank. <https://doi.org/10.22617/TIM200037-2>

- Beer, D. (2015). Productive measures: Culture and measurement in the context of everyday neoliberalism. *Big Data & Society*, 2(1). <https://doi.org/10.1177/2053951715578951>
- Berrone, P., & Joan, E. R. (2022). IESE Cities in Motion Index 2022. <https://media.iese.edu/research/pdfs/ST-0633-E.pdf>.
- Bilodeau, A., White, S. E., Turgeon, L., & Henderson, A. (2020). Feeling attached and feeling accepted: Implications for political inclusion among visible minority immigrants in Canada. *International Migration*, 58(2), 272–288. <https://doi.org/10.1111/imig.12657>
- Breau, S., Wylie, M., Manaugh, K., & Carr, S. (2023). Inclusive growth, public transit infrastructure investments and neighbourhood trajectories of inequality in Montreal. In *Environment and planning a: Economy and space*. <https://doi.org/10.1177/0308518X231162091>
- Caird, S., Hudson, L., & Kortuem, G. (2016, April 1). *A tale of evaluation and reporting in UK smart cities [other]*. The Open University. <https://oro.open.ac.uk/46008/>.
- Carnemolla, P., Robinson, S., & Lay, K. (2021). Towards inclusive cities and social sustainability: A scoping review of initiatives to support the inclusion of people with intellectual disability in civic and social activities. *City, Culture and Society*, 25, 100398. <https://doi.org/10.1016/j.ccs.2021.100398>
- Chanady, T. (2022). Shifting inclusions: Identities and spaces of political lesbianism in Montreal from 1970 to 2020. *Journal of Lesbian Studies*, 26(2), 121–132. <https://doi.org/10.1080/10894160.2021.1975357>
- D&L Partners. (2019). Creating an Inclusive Prosperity Cities Index. <https://www.picsaindex.com/wp-content/uploads/2019/11/Creating-an-Inclusive-Prosperity-Cities-Index-final-PICSA-report-Nov2019.pdf>.
- Elias, P. (2020). Inclusive city, perspectives, challenges, and pathways. In W. Leal Filho, A. Marisa Azul, L. Brandli, P. Göçkin Özüyar, & T. Wall (Eds.), *Sustainable cities and communities* (pp. 290–300). Springer International Publishing. https://doi.org/10.1007/978-3-319-95717-3_32.
- Gawlak, A., Matuszewska, M., & Ptak, A. (2021). Inclusiveness of urban space and tools for the assessment of the quality of urban life—A critical approach. *International Journal of Environmental Research and Public Health*, 18(9). <https://doi.org/10.3390/ijerph18094519>. article 9.
- Gerometta, J., Haussermann, H., & Longo, G. (2005). Social innovation and civil Society in Urban Governance: Strategies for an Inclusive City. *Urban Studies*, 42(11), 2007–2021. <https://doi.org/10.1080/00420980500279851>
- Giffinger, R., & Gudrun, H. (2010a). Smart cities ranking: An effective instrument for the positioning of the cities? *ACE: Architecture, City and Environment*, 4(12), 7–26. <https://doi.org/10.5821/ace.v4i12.2483>
- Giffinger, R., & Gudrun, H. (2010b). Smart cities ranking: An effective instrument for the positioning of the cities? *ACE: Architecture, City and Environment*, 4(12), 7–26. <https://doi.org/10.5821/ace.v4i12.2483>
- Giffinger, R., Haindlmaier, G., & Kramar, H. (2010). The role of rankings in growing city competition. *Urban Research & Practice*, 3(3), 299–312. <https://doi.org/10.1080/17535069.2010.524420>
- Giffinger, R., Kramar, H., Fertner, C., & Meijers, E. (2007). City-ranking of European medium-sized cities. *Futures of Cities*, 1–12.
- Greco, I., & Bencardino, M. (2014). The paradigm of the Modern City: SMART and SENSEable cities for SMART, inclusive and sustainable growth. In B. Murgante, S. Misra, A. M. A. C. Rocha, C. Torre, J. G. Rocha, M. I. Falcão, ... O. Gervasi (Eds.), *Computational science and its applications – ICCSA 2014* (pp. 579–597). Springer International Publishing. https://doi.org/10.1007/978-3-319-09129-7_42.
- Hezri, A. A. (2004). Sustainability indicator system and policy processes in Malaysia: A framework for utilisation and learning. *Journal of Environmental Management*, 73(4), 357–371. <https://doi.org/10.1016/j.jenvman.2004.07.010>
- Katila, P., Colfer, C. J. P., de Jong, W., Galloway, G., Pacheco, P., & Winkel, G. (2019). *Sustainable development goals*. Cambridge University Press.
- Kitchin, R. (2014). The real-time city? Big data and smart urbanism. *GeoJournal*, 79(1), 1–14. <https://doi.org/10.1007/s10708-013-9516-8>
- Klein, J.-L., & Tremblay, D.-G. (2010). Social actors and their role in metropolitan governance in Montréal: Towards an inclusive coalition? *GeoJournal*, 75(6), 567–579. <https://doi.org/10.1007/s10708-009-9270-0>
- LaFerrière, S. (2021). Montréal: building an inclusive city. In *Cities and Affordable Housing*. Routledge.
- Leff, S., & Petersen, B. (2015). *Beyond the scorecard: Understanding global city rankings*.
- Liang, D., De Jong, M., Schraven, D., & Wang, L. (2022). Mapping key features and dimensions of the inclusive city: A systematic bibliometric analysis and literature study. *International Journal of Sustainable Development and World Ecology*, 29(1), 60–79. <https://doi.org/10.1080/13504509.2021.1911873>
- Lister, R. (2002). A politics of recognition and respect: Involving people with experience of poverty in decision making that affects their lives. *Social Policy and Society*, 1(1), 37–46. <https://doi.org/10.1017/S1474746402001069>
- Liu, J., Zhao, Y., Lin, T., Xing, L., Lin, M., Sun, C., Zeng, Z., & Zhang, G. (2021). Analysis of sustainability of Chinese cities based on network big data of city rankings. *Ecological Indicators*, 133, 108374. <https://doi.org/10.1016/j.ecolind.2021.108374>
- McManus, P. (2012). Measuring urban sustainability: The potential and pitfalls of city rankings. *Australian Geographer*, 43(4), 411–424. <https://doi.org/10.1080/00049182.2012.731301>
- Meena, M. K., & Singh, N. (2010). Model for inclusive city management and development. <http://repository.iimb.ac.in/handle/2074/20296>.
- Meijering, J. V., Kern, K., & Tobi, H. (2014). Identifying the methodological characteristics of European green city rankings. *Ecological Indicators*, 43, 132–142. <https://doi.org/10.1016/j.ecolind.2014.02.026>
- Mora, L., Deakin, M., & Reid, A. (2019). Strategic principles for smart city development: A multiple case study analysis of European best practices. *Technological Forecasting and Social Change*, 142, 70–97. <https://doi.org/10.1016/j.techfore.2018.07.035>
- OECD. (2016). *Making cities work for all: Data and actions for inclusive growth*. Organisation for Economic Co-operation and Development. https://www.oecd-ilibrary.org/urban-rural-and-regional-development/making-cities-work-for-all_9789264263260-en.
- OECD. (2023). *Urban population by city size [dataset]*. OECD. <https://doi.org/10.1787/b4332f92-en>
- Okulicz-Kozaryn, A. (2013). City life: Rankings (livability) versus perceptions (satisfaction). *Social Indicators Research*, 110(2), 433–451. <https://doi.org/10.1007/s11205-011-9939-x>
- Patrão, C., Moura, P., & de Almeida, A. T. (2020). Review of smart city assessment tools. *Smart Cities*, 3(4). <https://doi.org/10.3390/smartcities3040055>. article 4.
- Robin, H. (2014). *Leading the Inclusive City: Place-based innovation for a bounded planet*. Policy Press.
- Rodrik, D., & Stantcheva, S. (2021). A policy matrix for inclusive prosperity (working paper 28736). *National Bureau of Economic Research*. <https://doi.org/10.3386/w28736>
- Roy, A. (2014). Slum-free cities of the Asian century: Postcolonial government and the project of inclusive growth. *Singapore Journal of Tropical Geography*, 35(1), 136–150. <https://doi.org/10.1111/sjtg.12047>
- Sáez, L., Heras-Saizarbitoria, I., & Rodríguez-Núñez, E. (2020). Sustainable city rankings, benchmarking and indexes: Looking into the black box. *Sustainable Cities and Society*, 53, 101938. <https://doi.org/10.1016/j.scs.2019.101938>
- Sant'Ana, D. A., Pache, M. C. B., Borges, P. P., & Dias, J. L. E. (2021). Accessibility and digital inclusion in Brazil and South Korea: A comparison between micro and macro territorial approach. *Sustainable Cities and Society*, 64, 102524. <https://doi.org/10.1016/j.scs.2020.102524>
- Schönert, M. (2003). Städteranking und Imagebildung: Die 20 größten Städte in Nachrichten- und Wirtschaftsmagazinen. *BAW Monatsbericht*, 2(03), 1–8.
- Shariif, A. (2019). A critical review of selected smart city assessment tools and indicator sets. *Journal of Cleaner Production*, 233, 1269–1283. <https://doi.org/10.1016/j.jclepro.2019.06.172>
- Shariif, A. (2020). A typology of smart city assessment tools and indicator sets. *Sustainable Cities and Society*, 53, 101936. <https://doi.org/10.1016/j.scs.2019.101936>
- Shmelev, S., & Shmeleva, I. (2023). *Smart and sustainable benchmarking of cities and regions in Europe: The application of multicriteria assessment (SSRN scholarly paper 4327397)*. <https://doi.org/10.2139/ssrn.4327397>
- Shmelev, S. E., & Shmeleva, I. A. (2019). Multidimensional sustainability benchmarking for smart megacities. *Cities*, 92, 134–163. <https://doi.org/10.1016/j.cities.2019.03.015>
- Taubenböck, H., Reiter, M., Dosch, F., Leichtle, T., Weigand, M., & Wurm, M. (2021). Which city is the greenest? A multi-dimensional deconstruction of city rankings. *Computers, Environment and Urban Systems*, 89, 101687. <https://doi.org/10.1016/j.compenurbysys.2021.101687>
- UN-Habitat. (2016). *The new urban agenda*. Habitat III. <https://habitat3.org/th-e-new-urban-agenda/>.
- Wang, H. (2019). Green city branding: Perceptions of multiple stakeholders. *The Journal of Product and Brand Management*, 28(3), 376–390. <https://doi.org/10.1108/JPBM-07-2018-1933>
- World Bank. (2015a). *World inclusive cities approach paper*. In report no. AUS8539. DC: World Bank Washington.
- World Bank. (2015b). *Everyone counts: Making the cities of tomorrow more inclusive [text/HTML]*. World Bank. doi: 10/29/everyone-counts-making-the-cities-of-tomorrow-more-inclusive.
- Yelp. O. (2019, June 5). *Yelp celebrates pride month with first-ever top 20 Most inclusive cities*. Yelp - Official Blog. <https://blog.yelp.com/news/most-inclusive-cities/>.
- Zhang, B., & Shmelev, S. E. (2019). Multidimensional sustainability assessment for the cities of the global south: The PROMETHEE approach. In *Sustainable cities reimaged* (pp. 115–172). Routledge. <https://www.taylorfrancis.com/chapters/edit/10.4324/9780429287725-5/multidimensional-sustainability-assessment-cities-global-south-bei-zhang-stanislaw-shmelev>.