Bibliometric Analysis of the Publications of Law and Local Development

Análisis bibliométrico de las publicaciones sobre derecho y desarrollo local

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Resumen

Problemática: el derecho se utiliza como herramienta para políticas públicas que impulsen el desarrollo local. Sin embargo, la relación entre los marcos legales y el desarrollo local es compleja y está influenciada por múltiples factores socioeconómicos. **Objetivos**: el trabajo tiene como objetivo evaluar la producción científica referida al derecho y desarrollo local. **Materiales y métodos:** se realizó un estudio bibliométrico de la literatura en el período 2004 a julio 2024 en Scopus. Se aplica un análisis de redes para examinar las relaciones entre autores y observar el comportamiento del estado del arte. El estudio se completó con métodos de estadística multivariada y modelos probabilísticos generativos para el análisis. **Resultados:** se observa un aumento en la producción académica sobre derecho y desarrollo local desde 2010, llegando a su punto máximo en 2021. El examen de la red muestra la existencia de numerosos puntos de colaboración entre distintas instituciones y escritores de diversos países, lo cual indica una intensa transferencia de saberes.

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Revista GEON

" El estudio revela una creciente colaboración interdisciplinaria en torno al derecho y el desarrollo local, destacando su potencial para orientar políticas públicas más justas y efectivas. "

Maria Benilde Rincón-García (2024)

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Asimismo, la identificación de palabras clave como "gobernanza", "equidad", "justicia" y "participación social", son importantes para el ámbito académico actual, según el modelado de temas. **Discusión:** el análisis bibliométrico realizado revela patrones de colaboración interdisciplinaria y temas emergentes en la investigación sobre derecho y desarrollo local. Se observan limitaciones en la representación de estudios debido al uso exclusivo de bases de datos en ciertos idiomas y publicaciones. **Conclusiones:** en la investigación sobre derecho y desarrollo local, existe colaboración entre diferentes disciplinas. Los resultados indican que reforzar los marcos legales puede ser clave para fomentar el desarrollo local. El estudio constituye una base sólida para futuras investigaciones que busquen profundizar en el tema. **Contribución/originalidad:** este estudio proporciona un marco teórico para futuras investigaciones y la formulación de políticas públicas que respondan a necesidades locales.

Palabras clave: derecho, desarrollo local, economía regional, gobernanza, política pública, equidad social, sostenibilidad.

Códigos JEL: K10, K32, O10, R58

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Abstract

Problematic. The law serves as a tool for implementing public policies that support local development. However, the relationships between legal frameworks and local development is intricate and influenced by various socio-economic factors **Objectives**. The study aims to assess the scientific literature concerning the role of law in local development and its impact. **Materials and Methods**. A bibliometric analysis was conducted using literature from 2004 to July 2024, retrieved from the Scopus database. Network analysis was applied to examine relationships between authors and identify current trends in the field. The study was complemented by multivariate statistical methods and generative probabilistic models for analysis. **Results**. An increase in academic production on law and local development has been observed since 2010, peaking in 2021. The network analysis reveals the existence of numerous collaboration points among institutions and authors from various countries, indicating a dynamic exchange of knowledge. Similarly, the identification of key words such as "governance", "equity", "justice" and "social participation" are important in the current academic landscape, according to the topic modeling. **Discussion**. The bibliometric analysis highlights patterns of interdisciplinary collaboration and emerging research themes in research in the study of law and local development. Limitations in the representation of studies exist due to reliance on databases covering specific languages and publications types. **Conclusions.** Interdisciplinary collaboration is evident in research on law and local development. The findings indicate that enhancing legal frameworks can play a crucial role in promoting local development. This study provides a strong foundation for further research aiming to delve deeper into the subject. **Contribution/Originality.** This study offers a theoretical framework to guide future research and the development of public policies that address local needs.

Introduction

The role of law as a fundamental element in the organization and function of modern societies is decisive in shaping regulatory and normative frameworks. The interrelation between law and local development goes beyond the simple application of legal rules, becoming part of a complex system in which legal regulations both influence and are influenced by socio-economic factors within specific regions (Casanovas et al., 2022; Lee, 2021; Lizarazo-Rodríguez, 2021; Mendoza Reyna et al., 2024).

This study aims to conduct a bibliometric analysis to evaluate the progress of scientific production in the field of law and local development. Bibliometrics, as a quantitative discipline that statistically measure scientific activity, offers a reliable methodology to examine the publication patterns, citation frequencies, and collaborative relationships between authors and institutions. This methodology allows for the assessment of academic advancement and elucidates the fundamental processes involved in knowledge generation, while also identifying emerging topics and areas that require further research focus (Ali et al., 2023; González-Argote et al., 2024; Mercadal Cuesta, 2024).

The analysis was conducted using prestigious international databases such as Web of Science and Scopus, ensurin the rigor and validity of the findings. This research offers valuable insights into the current state of the literature concerning the relationship between law and local development, highlighting both achievements and shortcomings of the literature. It contributes to a deeper understanding of this connection and lays the foundation for future studies aimed at addressing the identified gaps and moving toward establishing legal frameworks that fosters inclusive and sustainable community development.

This article serves as a valuable resource for academics, policymakers, and professionals interested in local development. Ultimately, it aspires to influence the creation of regulatory policies and legal frameworks that are aligned with the socio-economic realities of different regions, promoting equitable and sustainable local development.

Theoretical Context

The relationship between legal frameworks and local development is essential in creating fair and equitable societies. Despite their different approaches, both fields aim to improve individual well-being and promote

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social equity within specific geographical areas. In recent years, academic research has increasingly explored the intersection between law and local development, emphasizing the significance of legal frameworks tailored to local contexts and public policies that address region-specific needs (Castillo et al., 2022; Marat & McCarthy, 2021; Yigitcanlar et al., 2021). This body of literature has highlighted how legal regulations can either facilitate or hinder local development, depending on their design, implementation, and responsiveness to local realities.

The use of bibliometric methods to evaluate the impact of scientific research on the relationship between law and local development is a relatively recent development, despite the increasing interest in this area. Bibliometrics, a quantitative approach to analyzing academic literature, has demonstrated effectiveness in assessing the impact and influence of publications in fields such as environmental and international law (Lv et al., 2021; Rejeb et al., 2023; Xie et al., 2020). However, the analyses conducted so far have mainly focused on traditional legal subareas, resulting in a noticeable gap in the evaluation of scholarship related to local development.

The study by Mercadal Cuesta (2024) investigates the relationship between law and local development using bibliometric analysis, underscoring the need for additional research in this field. While it identifies a growing volume of publications on law and local development, it also notes a lack of coherence and thematic consistency in the scientific literature. Recent research have stressed the importance of interdisciplinary approaches that integrate legal analysis with perspectives from other disciplines like sociology, economics, and public administration, offering a more comprehensive understanding of regional development dynamics (Hansen, 2022; Mitra & Das, 2018).

The importance of this analysis lies in its ability to offer a comprehensive perspective that quantifies academic progress in the field. It reveals underlying patterns in the production of knowledge and points to areas requiring greater focus. This work aims to contribute to a more solid theoretical framework and to inspire future research and policy initiatives that are better aligned with the specific needs and challenges of local communities.

Methodology

This study employed a quantitative, observational, and descriptive methodological approach to collect and analyze bibliometric data from publications indexed in the Web of Science and Scopus databases.

Data: Academic articles published between 2004 and 2024 were analyzed to explore the correlation between law and local development. The data selection process followed strict inclusion criteria, focusing on international journals with high impact factors and a consistent publication history in the relevant thematic area. This study utilized sophisticated bibliometric analysis tools to ensure the relevance and

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quality of the data (Bahroun et al., 2023; Castro et al., 2024; Ragazou et al., 2023; Tamascelli et al., 2024). The data collection process was designed to guarantee the accuracy and reliability of the instruments used for information gathering.

Type, Scope and Design: This research is a quantitative study with descriptive and correlational objectives. A non-experimental methodology was adopted, enabling the examination of data without manipulating variables. This approach enables a comprehensive analysis of research patterns in the fields of law and local development.

Procedure: The study involved collecting bibliometric data from specific databases, which was then analyzed using descriptive and correlational statistical methods. The analysis was conducted using Python, a versatile programming language known for its specialized libraries such as Pandas, NumPy, and Matplotlib. These tools allowed for the quantitative assessment of variables such as total number of publications, citation counts, co-authorships networks, and article impact, as measured by established indicators including the h-index and immediacy index (Kwiek et al., 2024; Moed, 2017).

Data Analysis: Network analysis methodologies were used with software libraries such as NetworkX and Seaborn to visually represent and understand author connections, identifying potential collaborations and thematic clusters within the specified academic domain. Additionally, correlation analysis and emerging topic modeling techniques were performed using Principal Component Analysis (PCA) and topic modeling Latent Dirichlet Allocation (LDA) to reveal collaborative patterns and highlight emerging topics within the domain of law and local development (Albalawi et al., 2020; Madzík & Falát, 2022; Zhang et al., 2016).

Ethical Considerations: Since the study was based on publicly available secondary data, no ethical issues regarding primary data collection were involved. However, ethical integrity was upheld by exclusively relying on published sources and by properly citing all referemced sources.
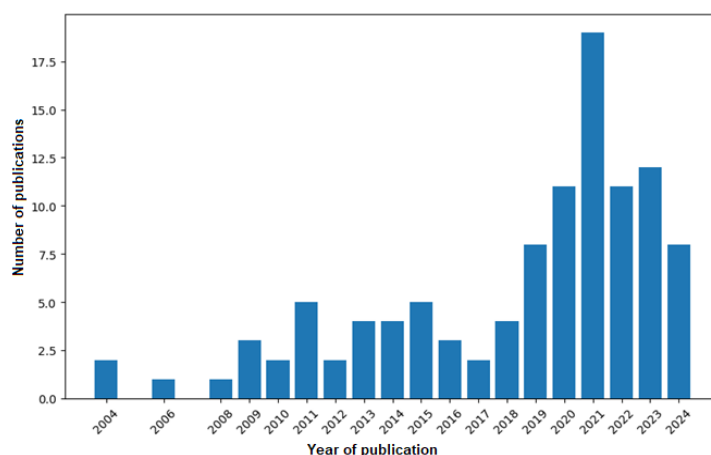
Results

This bibliometric study analyzed 107 academic articles retrieved from the Web of Science and Scopus databases. The articles, published between 2004 and 2024, focus on the interdisciplinary field that integrates legal studies with regional and local development policies, particularly exploring the relationship between law and local development. The results of the analysis have been classified according to key bibliometric indicators, providing an integral understanding of publication patterns and methodological approaches prevailing in academic works over the last two decades.

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Number of Publications by Year

Figure 1 shows the annual distribution of publications. An increase in academic production can be observed since 2010, with a peak in 2021.

This upward trend reflects a growing interest in the application of legal studies to local development, an interest likely influenced by modern challenges such as globalization, local governance, and sustainability.
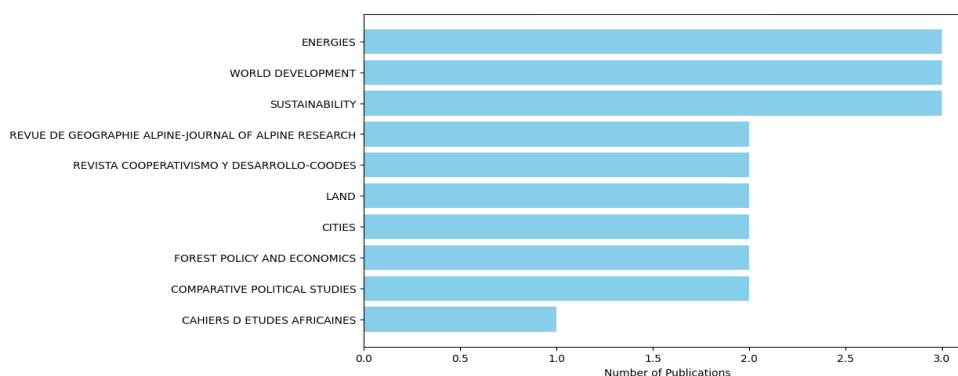
Figure 1. Number of publications by year.

Source: Own elaboration based on data retrieved from Scopus (2024).

Impact ofMajor Journals

Figure 2 illustrates the influence of prominent academic journals based on the number of publications related to law and local development. Energies, World Development, and Sustainability are identified as the most influential journals, each having

published multiple articles within this area of research. The prominence of these journals indicates that they serve as important platforms for disseminating interdisciplinary research that links law with regional and local development, highlighting their significant role in advancing the academic conversation on this topic.

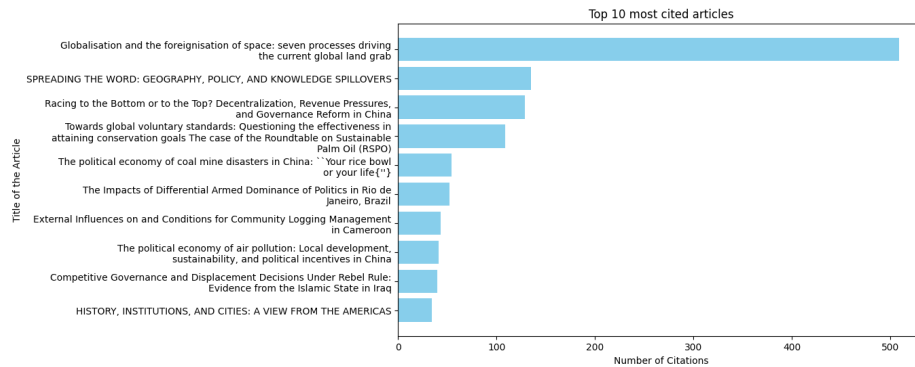**Figure 2.** Impact of the Major Journals.

Source: Own elaboration based on data retrieved from Scopus (2024).

Most Cited Articles

Figure 3 showcases the ten most cited articles in the field of law and local development. The article titled Globalisation and the foreignisation of space: seven processes driving the current global land grab stands out with over 500 citations, indicating its significance and influence within the academic literature. This visualization helps to pinpoint the studies that have made a substantial impact on the field, offering essential references for future research and scholarly discussion.
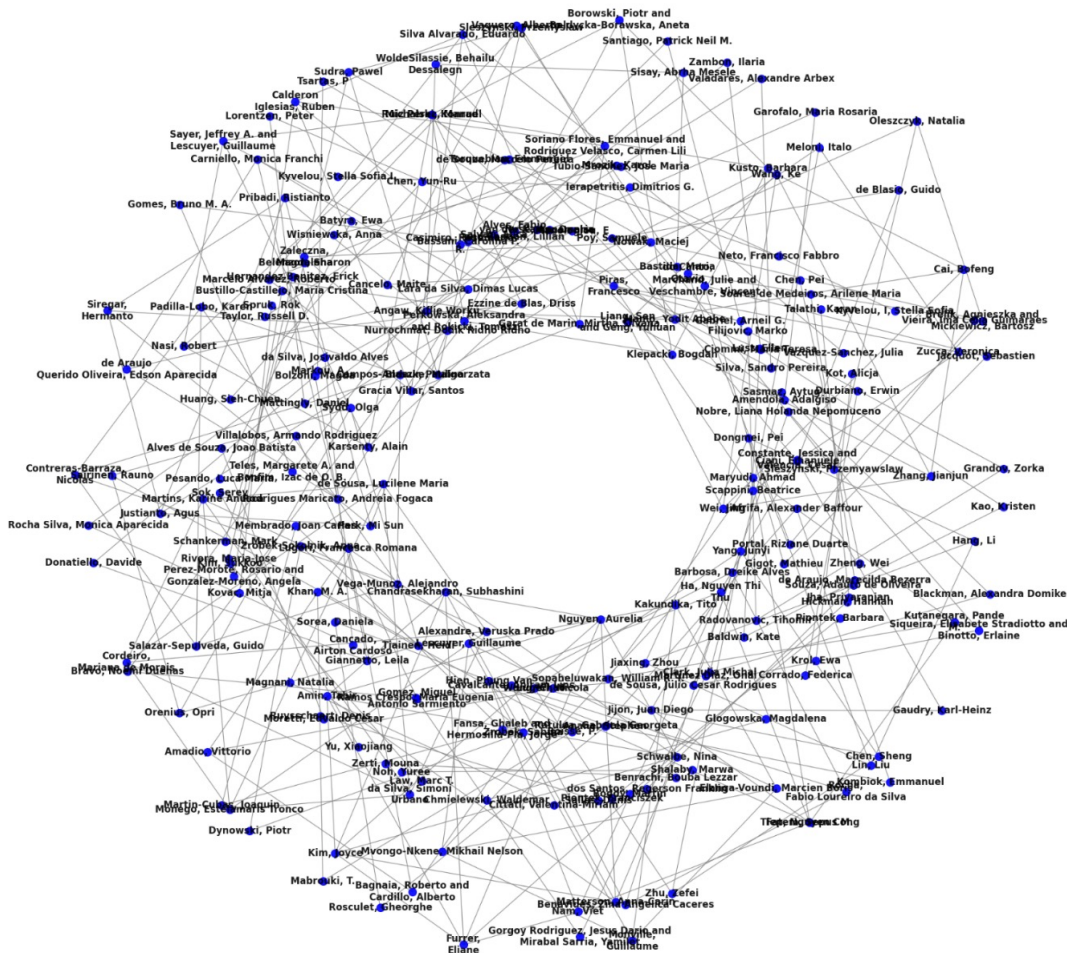
Figure 3. Most cited articles.

Co-Authorship Network - Layout Kamada-Kawai

Figure 4 displays the co-authorship network generated utilizing the Kamada-Kawai layout, offering a clear visualization of the collaborative relationships among authors in the field of law and local development. In the network, nodes represent individual authors, while the connections indicate co-authorship. Densely connected clusters indicate the presence of strong collaborative groups within the academic community. This discovery underscores the significance of academic collaboration in generating high-impact research and advancing knowledge in this interdisciplinary area.

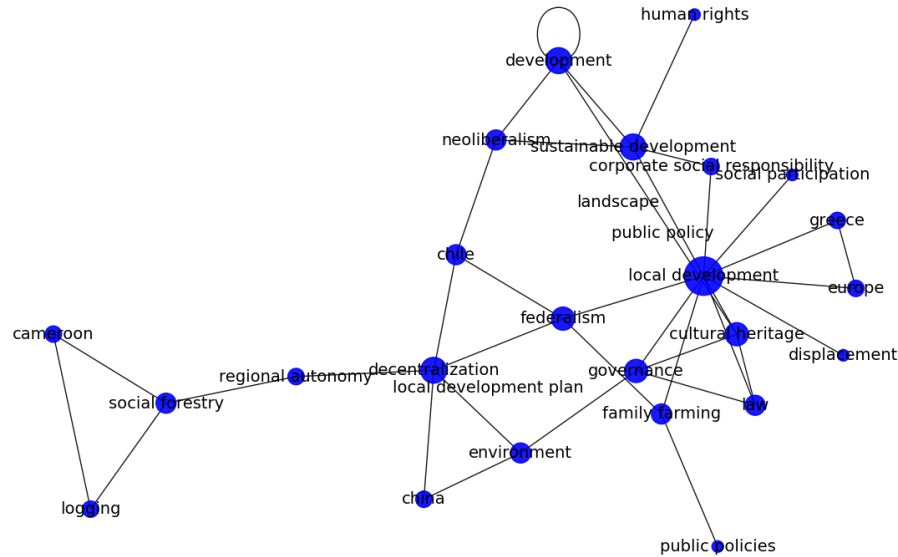**Figure 4.** Co-Authorship Network - Layout Kamada-Kawai.

Source: Author's own elaboration using Kamada-Kawai layout, based on co-authorship data retrieved from Scopus (2024).

Keywords Network

Figure 5 depicts the keyword co-oc-currence network generated from common terms found in the analyzed articles. It is observed that the terms "local development", "social participation" and "decentralization" appear closely linked, which highlights its importance in contemporary academic discussions within this field. This visualization helps to identify both emerging and established issues, as well as revealing the interrelationships among several research sub-areas.
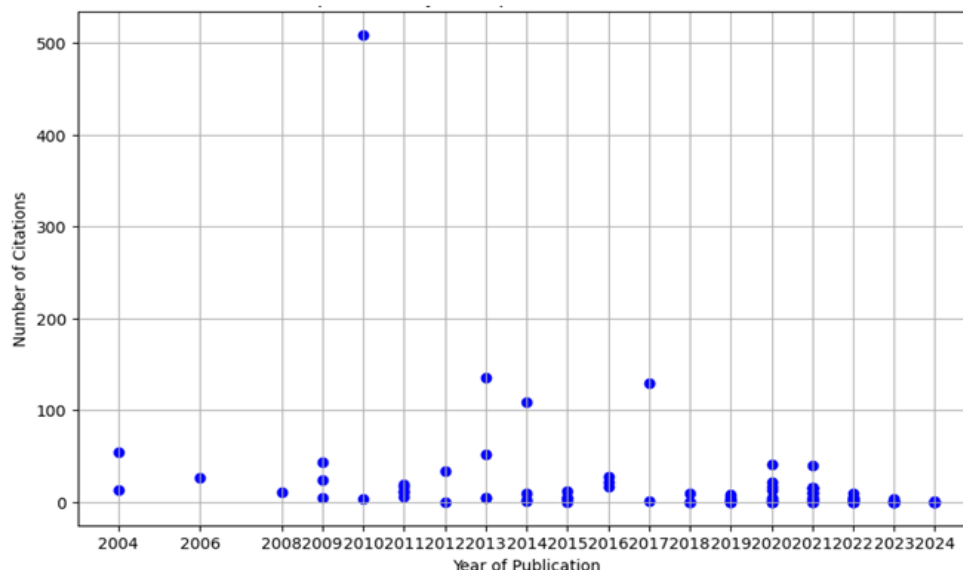
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Figure 5. Keywords Network.

Relationship between Year of Publication and Number of Citations

Figure 6 illustrates the relationship between the publication year of articles and their citation count. The data shows a scattered distribution, with several older articles receiving high citation counts, reflecting their lasting importance in the field. In contrast, more recent articles tend to have fewer citation, which is consistent with typical patterns observed in bibliometric studies, as newer publications have had less time to accumulate citations.

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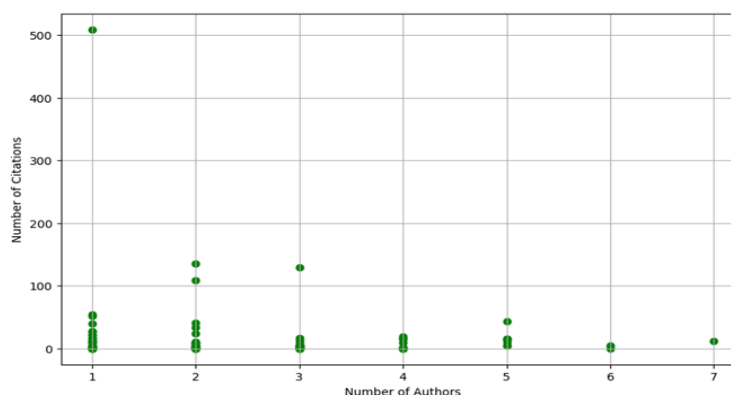**Figure 6.** Relationship between the year of publication and the citation number.

Source: Author's own elaboration based on bibliometric data retrieved from Scopus (2024).

Relationship between Number of Authors and Number of Citations

Figure 7 displays the correlation between the number of authors and the number of citations received by the articles. The data show that articles written by two or three authors generally receive a higher number of citations. This indicates a positive association between small-scale academic collaboration and the impact of research, highlighting the potential for collaborations that could improve both the quality and impact of research results.

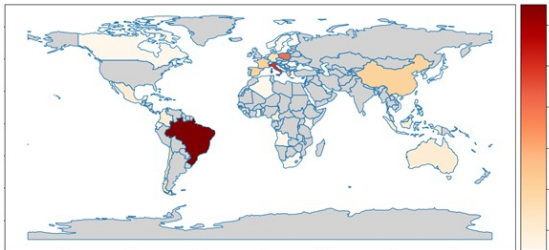**Figure 7.** Relationship between number of authors and number of citations.

Source: Author's own elaboration based on bibliometric data retrieved from Scopus (2024).

Geographical Distribution of Publications

Figure 8 presents the geographical distribution of publications related to law and local development. Brazil is highlighted as the country with the highest number of publications, followed by several European countries, reflecting a strong academic presence in these regions. This visualization facilitates the identification of global research priorities highlights potential areas for international collaboration in the field.

Figure 8. Geographical distribution of publications.

Source: Own elaboration based on bibliometric data retrieved from Scopus (2024).

Validation of Results

The results obtained in this study were validated using various statistical techniques and network analysis to confirm the internal coherence and relevance of the extracted data. The following subsection describes the methods used and results obtained.

1. Spearman Correlation Analysis

To investigate the relationship between journal impact and article citation count, a Spearman correlation analysis was conducted. This non-parametric statistical method is useful for detecting monotonic relationships between variables, especially when the data does not follow a normal distribution. It was determined that Spearman's correlation coefficient was 0.446, with a P of 1,448e-06, indicating a moderate and statistically significant positive correlation between the variables. These results suggest a notable correlation between the impact factor of the journals and the number of citations received by articles, highlighting the importance of selecting high-impact journals for the dissemination of research in the right fields and local development.
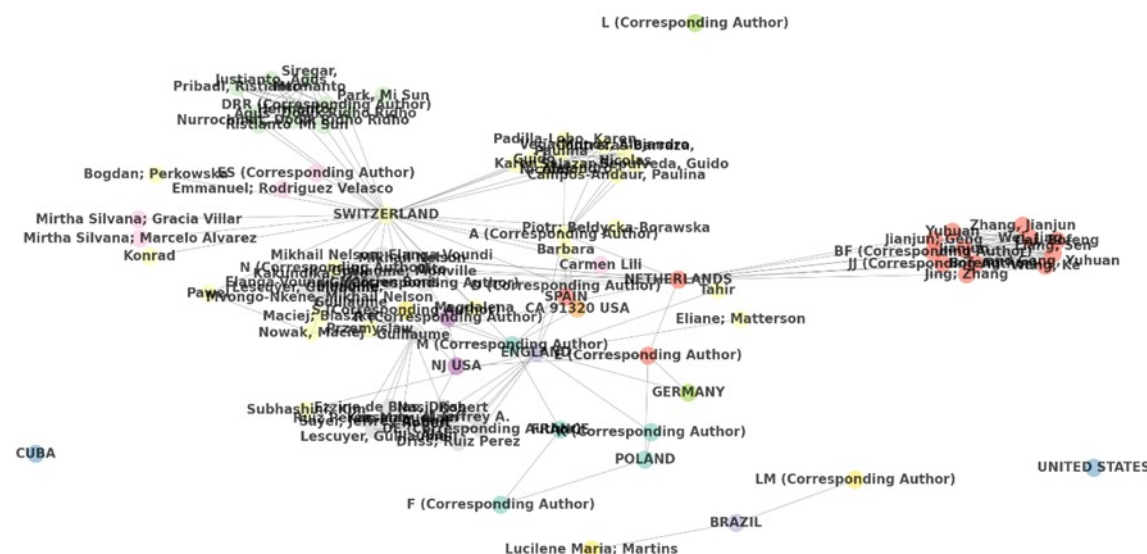
2. Analysis of Collaborative Networks

To validate the results of the bibliometric analysis, a collaborative network map was constructed to investigate patterns of cooperation between authors, institutions, and countries at different levels. This type of network analysis enables the visualization of relationships between key stakeholders involved in research on law and local development.

The results reveal the presence of multiple collaboration hubs between institutions and authors from a diverse set of countries. This indicates de presence of a cohesive and interconnected research network. Such a structure suggests a dynamic exchange of knowledge, perspectives, and methodologies across regions, strengthening the development of a solid and evolving knowledge base

in the field. The identification of key collaboration centers and their interconnections highlights the significant contributions of specific institutions and countries, while underlining the essential role of international collaboration in advancing research and promoting interdisciplinary dialogue in this interdisciplinary field.

Figure 9. Filtered clustered network of collaboration between authors, institutions, and countries.

Source: Own elaboration based on co-authorship data retrieved from Scopus (2024).
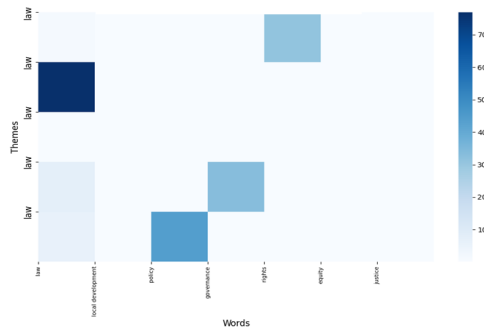
3. Analysis of Emerging Topics

A study was conducted to identify emerging topics within a specific field of study using Principal Component Analysis (PCA) and Latent Dirichlet Allocation (LDA) modeling. These methods helped identify the most relevant keywords associated with each primary thematic clusters present in the reviewed literature. The results revealed cohesive groupings of keywords such as "law", "local development", "politics", "governance", "rights", "equity", and "justice", which align with the objectives of the study and reflect dominant trends in current academic discourse. This analysis provides additional qualitative confirmation of important topics in current academic discussions.

In conclusion, the integration of statistical methods and network analysis provides strong validation of the results obtained. The results presented are both internally consistent and highly relevant for ongoing research in the field of law and local development. These methodologies have enabled the identification of crucial collaborative networks and emerging research themes, providing a reliable basis for future academic research and the development of effective public policies in this domain.

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Figure 10. LDA Topic Model- Relevant Keywords

Source: Author's own elaboration based on keyword co-occurrence data retrieved from Scopus (2024).

Discussion of the Results

Recent research has demonstrated a notable increase in scholarly publications examining the correlation between law and local development, particularly over the last decade. This upsurge in academic research can be seen as a response to the contemporary challenges that local communities are facing in an increasingly globalized world. The literature highlight emerging topics such as local governance, citizen engagement, and social equity, suggesting a growing recognition of the importance of context-specific legal frameworks in fostering equitable regional growth (Nedanovski & Shapkova Kocevska, 2023; Nuotio, 2021; Ramanujam & Farrington, 2022).

This bibliometric analysis has identified patterns of collaboration between researchers and institutions, emphasizing the value of interdisciplinary cooperation. Analysis of co-authorship networks indicates that highly cited and influential research often emerges from collaborative projects that integrate methodologies from diverse fields such as sociology and economics, alongside legal insights, in order to offer comprehensive solutions to complex issues in local development.

However, the scope of the research is constrained by the reliance on bibliometric databases like Scopus and Web of Science, which may exclude relevant publications in languages other than English or in less prestigious journals. Furthermore, an emphasis on quantitative analysis may neglect the qualitative nuances essential for a thorough comprehension of local development in diverse contexts. Future research could benefit from adopting mixed-methods approaches that combine bibliometric, qualitative and case-based analyses, as well as expanding the range of data sources to encompass a wider array of relevant publications.

The results highlight the need of using integrative methodologies that can evaluate the impact of legislation on regional growth accurately, while also considering sociocultural and economic factors that affect the successful implementation. This approach will support the development of more comprehensive theoretical models capable of analyzing the complex relationships between law, governance, and socioeconomic progress.

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Conclusions

This bibliometric analysis offers a comprehensive evaluation of the research progress in the field of law and local development, highlighting both significant advancements and notable shortcomings in the existing literature. By analyzing publication and collaboration trends, the study underscores the increasing importance of interdisciplinary research that integrates legal analysis with socioeconomic perspectives to address challenges of local development.

Future studies should prioritize empirical exploration into how various aspects of legal frameworks impact specific outcomes of local development. Additionally, it would be beneficial to examine how innovative legal practices adapted to local contexts, can enhance equity, inclusivity and sustainability in regional development processes.

This research study introduces a framework for future academic research and provides a basis for the creation of more effective public policies that are tailored to local needs. Encouraging transparency, citizen participation, and international cooperation in research can lead to the development of more effective strategies for governance and promote inclusive local development.

In conclusion, this bibliometric analysis has made a contribution to the understanding of the dynamics of research in the field of law and local development, establishing the basis for a more coordinated approach in future research. By integrating interdisciplinary perspectives and the promotion of international collaboration, both researchers and policymakers can contribute to the creation of legal frameworks that really support equitable and sustainable regional development.

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