# A BIBLIOMETRIC ANALYSIS OF RESEARCH ON REGIONAL DISPARITIES IN ECONOMICS

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**Abstract**
*Regional disparities represent one of the most persistent challenges in economic development, reflecting uneven growth, income distribution, and opportunities across different territories. The paper identifies the current state of knowledge regarding the research conducted to date on regional disparities. For this analysis, we referred to the information provided by WoS (Web of Science), and the data were processed using VOSviewer. The analysis contributes to a deeper understanding of how the topic of regional disparities has been approached over time, by identifying the main areas of interest, academic collaborations, but also emerging directions on the topic studied. This paper offers a cohesive view of the primary research trajectories, highlighting collaboration networks and contemporary issues within the field. The findings aid in forming a clear understanding of scientific advancements and in directing future research efforts.*

**Key words:** *region, regional disparities, inequality*

**JEL Classification:** *R10, R11, R28*

## I. INTRODUCTION

Over the last years, the study of regional development disparities has become more visible and started to be treated as a central topic in scientific research, influenced by the interests and activities regarding regional, territorial cohesion, and socio-economic fairness. Due to the increased diversity of works done within this field, a systematic and objective assessment must be conducted.

This paper aims to investigate, with the help of a bibliometric analysis on the topic of regional development disparities, using the VOSviewer software. The analysis was carried out based on data extracted from the Web of Science Core Collection. Visual maps were constructed, maps that highlight the links between authors, keywords, publications and research methodologies. By carrying out the bibliometric analysis of regional development disparities, using the VOSviewer software, the research aimed at designing and graphically displaying a large amount of information. We also mentioned that bibliometric analysis responds to this need, providing a quantitative method through which research topics and dominant themes in a given field can be explored.

This paper has a first introduction section followed by Section 2, entitled "Literature Review", which highlights the most important and relevant topics aligned with the research theme. In Section 3, "Materials and Methods", the methodological aspects used and tested in the study are described. In Section 4, "Results and Discussion", the main findings are presented, and in Section "Conclusions", the main perspectives, limits, and future research directions are synthesized.

## II. LITERATURE REVIEW

Literature review can be done through three methods: systematic review, meta-analysis, and bibliometric analysis. Bibliometric analysis provides a systematic approach to mapping the intellectual landscape of a research field by quantifying publication trends and thematic clusters. In bibliometric analysis, it starts by establishing a defined set of nodes and connections. Therefore, the analysis is based on the identification of nodes - such as authors, articles, keywords, and citations - and the relationships between them, allowing both visual and quantitative interpretation of the main research directions.

The use of quantitative analysis of research papers is valuable for both researchers and editors, and reviewers. In this article, the use of bibliometric analysis on studies on “regional disparities” allows the identification of research areas and time periods in which articles on this topic were published. The contributing authors and their countries of origin were highlighted, thus providing a clear overview of the interest in this topic. Table 1 presents the main authors and the areas investigated regarding the bibliometric analysis.

**Table 1. Main authors and Areas of investigation in the Bibliometric analysis**

| Year | Explanation | Authors |
|---|---|---|
| 2019 | They selected various areas of investigation for bibliometric analyses, which led to the recognition of the prestige of the institutions from which the authors belong. | Zhang, Xu et al. (2019) |

| | | |
|---|---|---|
| | They explained the role that bibliometric analysis plays in decision-making. | Guo, Huang et al.(2019) |
| 2020 | They considered the nodes in the bibliometric analysis (published works, authors, citations and keywords) and the connections. | Escamilla-Fajardo,Numez-Pomar et al. (2020) |
| | They considered that bibliometric analysis helps to better understand the research field based on the studies analyzed, which provides a comprehensive picture of scientific fields. | Baraibar-Diez, Luna et al. (2020). |
| 2021 | They provided the opportunity to identify evolving variations of a particular field, with clarification of emerging areas. | Donthu, Kumar et al. (2021) |
| | They showed that its main units of measurement in bibliometric analysis can include the number of documents, authors and vocabulary used. | Gao, Meng et al.( 2021) |
| 2022 | They identified components and patterns of collaboration through bibliometric analysis. They showed that the main distinction between bibliometric analysis and other approaches lies in its reliance on large-scale data sets. | Castaneda, Sanchez et al. (2022) |
| 2023 | They showed that bibliometric analysis can reveal trends and characteristics in works, facilitating the exploration and organization of existing works in any given field and period. This provides a complete picture of all trends in the field studied. | Sahabuddin, Sakib et al. (2023) |
| | They researched how disciplinary maps can be generated using information from the studied literature. | Li, Tang et al.( 2023) |
| | The author mentioned the VOSviewer application and its ease of use in order to create and display bibliometric maps. | Kirby (2023) |

Source: own processing, based on the literature review

Table 1 shows that a new stage in the evolution of mapping was marked by the application of information visualization techniques to citation network analysis.

## III. MATERIALS AND METHODS

The present paper applies bibliometric techniques to the field of regional disparities using VOSviewer tool, recognized for its ability to construct and display large and complex maps of scientific literature. By employing this tool, we aim to uncover the main research streams, identify emerging topics.

The bibliometric investigation contributes to the literature in two key ways. First, it provides a comprehensive overview of the evolution and structure of research on regional disparities in economics. Second, it offers insights into knowledge gaps and potential avenues for further studies, which may guide both academics and policymakers in addressing the complex challenges of regional inequality (Han, Feng et al., 2021).Web of Science is a platform rich in information about publications and researchers (Chen, Law et al., 2020).

Table 2 presents the way in which the information was analyzed and all the steps of the analysis up to the creation of the bibliometric maps.

**Table 2. Data and Methods of Analysis**

| Step of analysis | Description | Author contribution |
|---|---|---|
| Data collection | Retrieval of publications from Web of Science | Conducted by the author |
| Data cleaning | Filtering by keywords, time frame, authors and subject categories | Conducted by the author |
| Bibliometric mapping | Co-authorship, co-citation, keyword, co-occurence | Performed by the author using VOSviewer software |

Source: own processing

The bibliometric analysis was based on the use of VOSviewer software, which was considered the main research objective. This was supported by the following secondary objectives: examining the Web of Science website and conducting a bibliographic assessment of existing research on regional disparities; identifying and presenting the most frequently used words in VOSviewer. To perform the bibliometric analysis, the following steps were taken: data search, data processing, data extraction, presentation, analysis, and mapping.

## IV. RESULTS AND DISCUSSION

The data search on the Web of Science Core Collection (WoS) portal began by choosing from the database to be queried the time range setting to „all years".

The next step was to perform a primary search using the phrase „regional disparities", search that yielded 16.056 results across all fields, 14.156 results with „regional disparities" as a subject, and 1.743 results with the

term appearing in the title. The search process revealed 107 research areas, which were grouped into 8 groups, categories. The results are shown in Fig. 1.

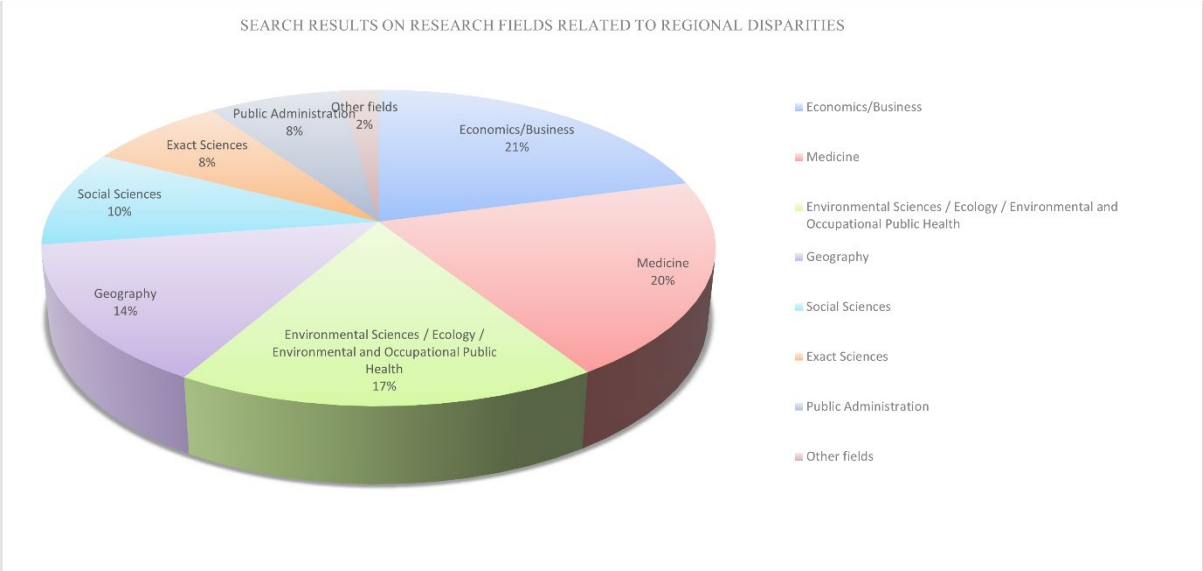


**Figure 1. Search Results on Research Fields Related to Regional Disparities, Web of Science Platform**
Source: own processing

Regarding the „authors" criterion, we compiled a list of authors whose records equal or exceed 5 publications containing the keyword „regional disparities". This overview is presented in Fig. 2.

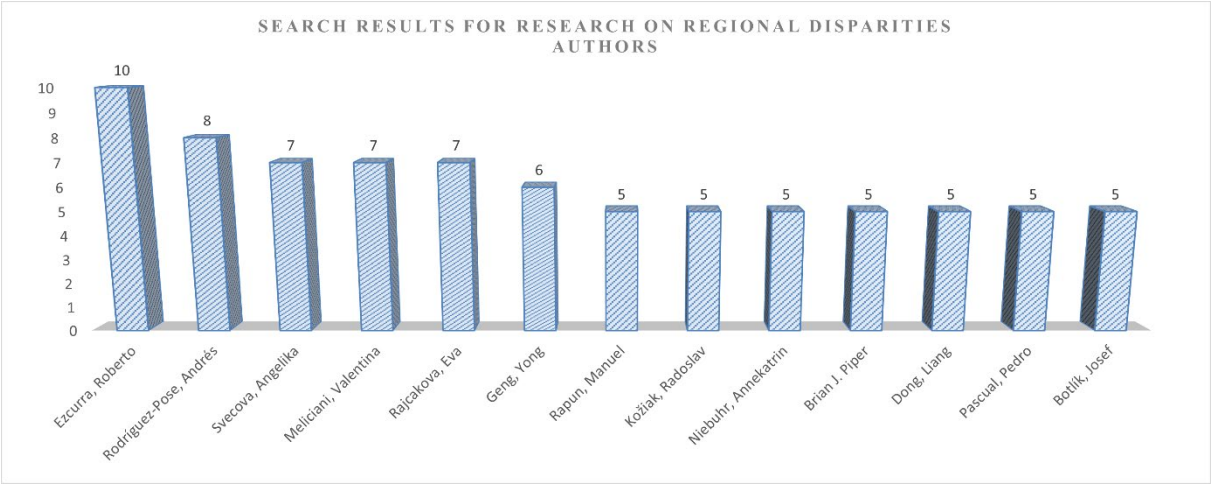


**Figure 2. Search Results for Research on Regional Disparities, WOS Platform – Authors**
Source: own processing

It can be observed from Figure 2, the diversity of countries of origin of the authors, with contributions from nations such as Spain and Italy, as well as Slovakia. This presence may be explained by the fact that, similar to Romania, Slovakia faces challenges related to regional structure—such as deepening polarization, the growth of marginal regions, and the implementation of the EU's cohesion policy.
In terms of document type, the search yielded a total of 1.152 articles (representing 66%) out of the total 1.743 documents. These were accompanied by other categories (conference papers, abstracts, editorials, book reviews, book chapters, and other types) illustrated in Fig. 3.

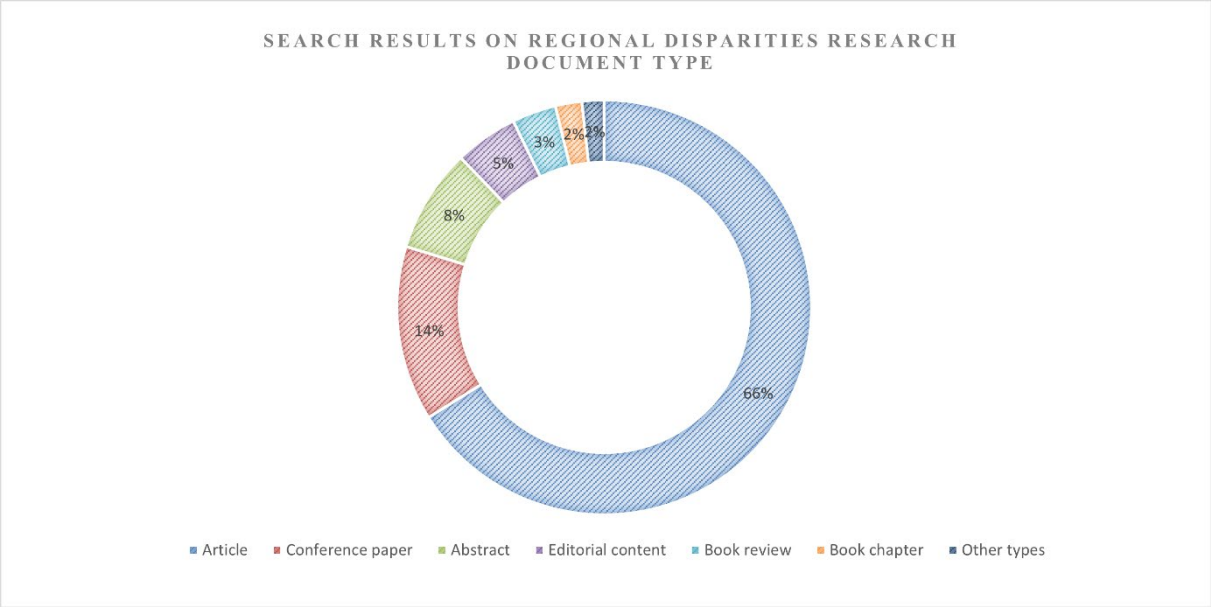


**Figure 3. Search Results on Regional Disparities Research, Web of Science Platform – Document Type**
Source: own processing

The earliest publication indexed on the Web of Science platform that explicitly references "regional disparities" in its title dates back to 1975. Fig. 4 presents the results of a search based on studies related to regional disparities, extracted from the Web of Science platform, categorized by year of publication.

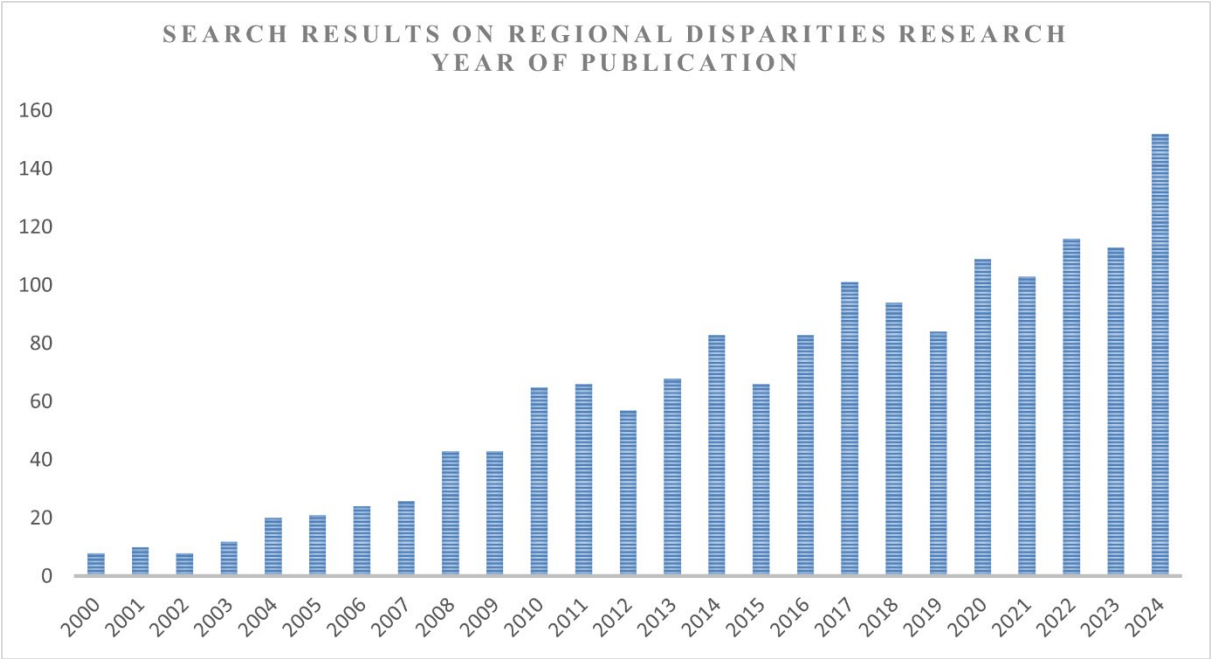


**Figure 4 - Search Results on Regional Disparities Research, Web of Science Platform – Year of Publication**
Source: own processing

The analysis of data from the Web of Science database continued with a refined search, limited to publications containing the term "regional disparities" in the title and classified under the domain of "Economics." Although the words "regional disparities" appeared across 107 research areas, only articles within the mentioned domain were considered relevant for this study. To generate the map shown in Fig. 5, the process consisted of extracting a total of 1,445 terms, of which 51 words were identified as having at least 8 occurrences in the selected research articles.

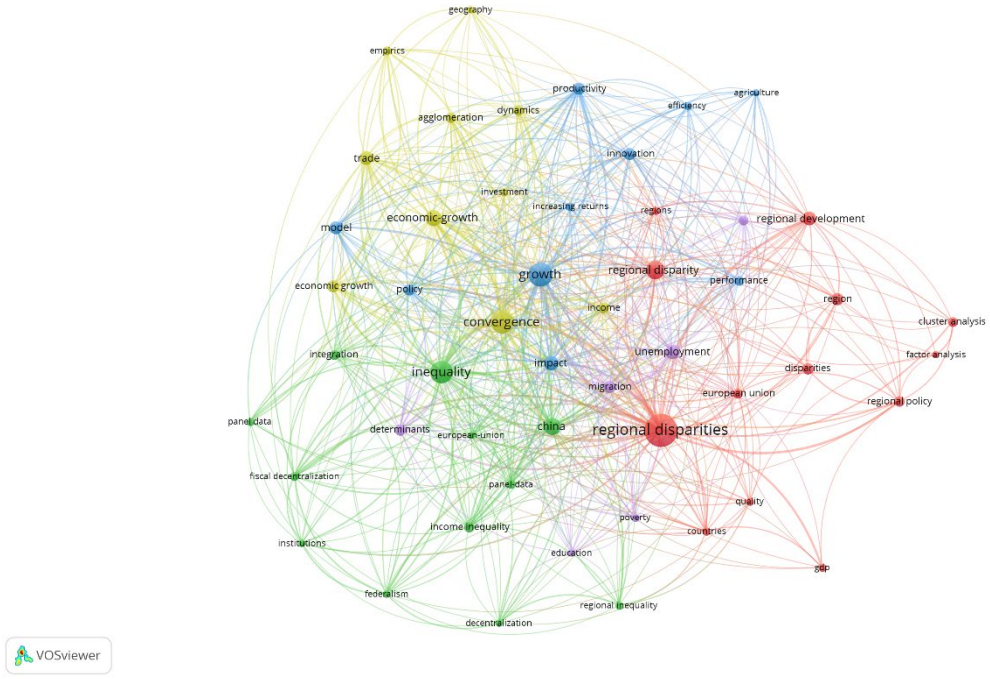


**Figure 5 - The Most Frequently Used Terms in Research on Regional Disparities within the Field of Economics (VOSviewer Map )**
Source: own processing

Keywords represent a summary of a research paper, expressed through representative terms. Their high frequency and co-occurrence centrality can reflect the core topics within a research area (Barbu, Mihaiu. et al., 2022). Keywords are, in general, regarded as one of the most important parts of any academic work, as they help recognize the primary research topics across numerous scientific domains (Gao, Jia et al.,2019). According to (Gao, Meng et al., 2021), keyword co-occurrence analysis mainly investigates the semantic similarity between terms and deduces the research hotspots. Thus, by examining the relationships between keywords, the relevant keywords were classified into 5 clusters. Table 3 shows the thematic cluster no. 1.

**Table 3. Cluster Thematic No. 1**

| Term name | Number of Links | Total Link Strength | Occurences |
|---|---|---|---|
| Cluster analysis | 9 | 15 | 12 |
| Factor analysis | 7 | 9 | 8 |
| Quality | 16 | 21 | 9 |
| Regional development | 26 | 49 | 25 |
| Regional disparity | 31 | 65 | 45 |
| Disparities | 14 | 21 | 17 |
| Regional disparities | 44 | 252 | 142 |
| GDP | 9 | 16 | 9 |
| Regional policy | 15 | 32 | 14 |
| Region | 16 | 27 | 20 |
| Regions | 23 | 29 | 10 |
| Country | 23 | 36 | 10 |
| European Union | 26 | 44 | 13 |

Source: own processing

As shown in Table 3, the most frequently used words/phrases within the first cluster are: regional disparities (187 occurrences), regional development (25 occurrences), region (20 occurrences), disparities (17 occurrences), and

regional policy (14 occurrences). These findings indicate that the first cluster is precisely centered on the core theme of the study—namely, regional disparities. Table 4 presents the thematic cluster no. 2.

**Table 4. Cluster Thematic No. 2**

| Term name | Number of Links | Total Link Strength | Occurences |
|---|---|---|---|
| China | 36 | 113 | 38 |
| Panel data | 14 | 22 | 9 |
| Panel-data | 24 | 42 | 11 |
| Decentralization | 19 | 30 | 8 |
| Fiscal decentralization | 23 | 49 | 11 |
| Federalism | 22 | 41 | 8 |
| Inequality | 45 | 216 | 65 |
| Regional inequality | 16 | 28 | 9 |
| Income inequality | 26 | 52 | 15 |
| Institutions | 17 | 30 | 8 |
| Integration | 24 | 46 | 12 |
| European Union | 26 | 42 | 8 |

Source: own processing

As shown in Table 4, the second cluster is centered around the following words and phrases: inequality (65 occurrences), China (38 occurrences), panel data (20 occurrences), income inequality (15 occurrences), and integration (12 occurrences). It is evident that this cluster focuses on the efforts of one of the world's major economies—China—to implement policies aimed at reducing income inequality, thereby contributing to the mitigation of broader disparities. Additionally, in the context of globalization, the Chinese government utilizes public-private partnerships to promote domestic enterprises and enhance their participation in global market competition, such as European Union. PPPs have become one of the government's key policy instruments (Cheng, Wang et al., 2021). Table 5 presents the thematic cluster no.3.

**Table 5. Cluster Thematic No. 3**

| Term name | Number of Links | Total Link Strength | Occurences |
|---|---|---|---|
| Agriculture | 16 | 24 | 8 |
| Growth | 46 | 213 | 78 |
| Efficiency | 19 | 26 | 9 |
| Impact | 34 | 99 | 27 |
| Innovation | 26 | 50 | 19 |
| Model | 27 | 56 | 23 |
| Performance | 23 | 41 | 12 |
| Policy | 28 | 59 | 18 |
| Productivity | 32 | 80 | 19 |
| Increasing returns | 22 | 40 | 10 |

Source: own processing

Table 5 shows the most important terms: growth (78 occurrences), impact (27 occurrences), model (23 occurrences), innovation and productivity (19 occurrences each) and policy (18 occurrences). These findings suggest that the third group focuses on the role of innovation and productivity in stimulating regional growth and development. Table 6 presents the thematic cluster no. 4.

**Table 6. Cluster Thematic No. 4**

| Term name | Number of Links | Total Link Strength | Occurences |
|---|---|---|---|
| Agglomeration | 28 | 46 | 15 |
| Trade | 31 | 84 | 26 |
| Convergence | 44 | 235 | 72 |

| | | | |
|---|---|---|---|
| Economic growth | 26 | 61 | 21 |
| Economic-growth | 37 | 121 | 36 |
| Dynamics | 23 | 46 | 15 |
| Empirical | 17 | 36 | 11 |
| Geography | 14 | 21 | 8 |
| Investment | 16 | 23 | 9 |
| Income | 29 | 58 | 15 |

Source: own processing

Table 6 highlights thematic cluster no. 4, in which the most frequently used terms identified on the map are: convergence (72 occurrences), economic growth (57 occurrences), trade (26 occurrences), followed by agglomeration, dynamics, and income (15 occurrences each), and empirical (11 occurrences). The map generated for the fourth cluster reveals a notable relationship between dynamics/trade – convergence - economic growth. Table 7 presents the thematic cluster no. 5.

**Table 7. Cluster Thematic No. 5**

| Term name | Number of Links | Total Link Strength | Occurences |
|---|---|---|---|
| Determinant factors | 25 | 53 | 17 |
| Employment | 23 | 38 | 12 |
| Education | 16 | 25 | 8 |
| Migration | 29 | 65 | 21 |
| Poverty | 19 | 34 | 9 |
| Unemployment | 29 | 65 | 27 |

Source: own processing

Table 7 reveals that the most frequently used are: unemployment (27 occurrences), migration (21 occurrences), determinant factors (17 occurrences), employment (12 occurrences), and poverty (9 occurrences). This cluster illustrates how unemployment—and, by extension, the presence of poverty—can lead to migration and deepen disparities between regions.

The findings reveal that between 2020 and 2024, research output on “regional disparities” reached its highest level, with most publications falling within the fields of economics, medicine, and environmental sciences/public health and occupational health. The most frequently associated words and expressions with “regional disparities” include: region, inequality, impact, growth, innovation, productivity, dynamics, convergence, and migration. These terms formed the basis for constructing the thematic cluster map.

## V. CONCLUSION

This paper analyzed the scientific literature on regional disparities using data from the Web of Science Core Collection and the VOSviewer application to identify thematic connections and research trends. A substantial increase in interest in this topic has been observed over the past two decades, with a significant peak in recent years.

The structuring of terms into five thematic clusters revealed the main analytical directions within the specialized literature: key concepts related to regional development and public policies; the analysis of economic and territorial inequalities; the role of innovation and economic efficiency in regional dynamics; the impact of trade and convergence on territorial balance; and the influence of socio-economic factors such as unemployment, migration, and poverty on regional polarization.

Through this approach, the study provided a coherent overview of recurring themes and their interrelations, contributing to a better understanding of the subject’s complexity. Moreover, the findings may serve as a starting point for future investigations, supporting a more integrated and solution-oriented approach to the study of regional disparities.

As a limitation of the research conducted in this paper, we consider that a relatively small number of publications were analyzed compared to the total volume of articles regarding regional disparities existing on the Web of Science platform.

As future research directions, we intend to expand the analysis to a larger set of publications over a broader time period and to empirically test an econometric model addressing regional disparities.

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