

A SCIENTIFIC REASONING FOR INVESTMENT DEVELOPMENT IN TOURISM INFRASTRUCTURE

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ABSTRACT

This paper aims to analyze the scientific literature regarding an economic field capable of supporting growth, namely the field of tourism. The study follows a methodology for bibliometric analysis development in order to substantiate the relationship between investment and tourism infrastructure development. At first, the collection of documents is described. Second, Essential aspects of authors' and sources' contribution to the collection of scientific documents are presented. Last, the analysis of main themes in the collection's documents is developed and their impact in the scientific literature is substantiated. With China and the USA as the largest contributors to the collection of studied papers, the analysis shows there is a shift from demand, consumer, product, and service in tourism oriented themes to investment, performance, impact, and management models with a high frequency of occurrence in the second part of the studied period. The Conclusions section highlight the most significant obtained results and perceived limitations.

KEYWORDS: *investment, tourism development, tourism infrastructure.*

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1. INTRODUCTION

While trying to define the tourism domain, we will observe that it depends on the way that we see it. Thus, an economist will always see tourism as an engine for socio-economic domain. Researchers in this area will see it as an important factor linking with key indicators of growth and development. Service providers will understand it as a supplier of entrepreneurial opportunities. Nevertheless, tourists are perceiving it as the main method that they will choose to spend their time. From this point of view, tourism, as a domain, will get economic and social dimensions or will be determined on different forms as sustainable, responsible, environmental or cultural, leisure or historical tourism. Therefore, the importance of investment in tourism, especially in tourism infrastructure, is called into question. This research aims to analyze the attention given by researchers to this topic using bibliometric research.

This chapter is structured as follows: in the first part, it describes, from a literature point of view, both the type of analysis that will be used and the concepts of investments and tourism infrastructure. After the presentation of research methods, we substantiate the bibliometric analysis. This presents the collection of scientific documents and focuses on essential aspects of authors' and sources' contribution to the collection of scientific papers. Last but not least, it presents the analysis of keywords and the main topics studied in relation to elements of interest, respectively investments in tourism infrastructure. In the end, it offers an idea on the impact of the studied documents in this paper on the scientific literature.

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2. LITERATURE REVIEW

2.1 Bibliometric analysis – brief introduction of concept

As the need to study large databases from a scientific point of view on topics of interest appeared, a new type of analysis has been developed in recent years that is capable to fulfil this need. This type of analysis has grown in recent times in popularity, thus it is the perfect time to understand this concept. The first step is represented by trying to define this type of analysis. An author that does this is Passas (2024, p. 1014) who states that the bibliometric analysis suggests a detailed study of a domain through the lens of literature in attempt to identify models, trends, and tendencies, following certain steps, with the advantage to examine large databases. Starting from this explanation, we can take the concept forward by following the way this research is carried out (Passas, 2024, p. 1015):

1. Setting research objective;
2. Collection of literature database;
3. Filtering the data;
4. Setting the type of bibliometric analysis;
5. Data analysis;
6. Data visualization;
7. Interpretation and reporting results.

Regarding databases that can be used to accomplish a bibliometric analysis we can use Web of Science, Scopus, Google Scholar or Microsoft Academic, and for conducting the analysis: CReplorer, Publish or Perish or ScientoPyUI. For mapping the results Bibexcel, Biblioshiny, BiblioMaps, CiteSpace, CitNetExplorer, SciMAT, Sci2 Tool or VosViewer, package used often are Bibliometrix, BiblioTools, Citan, Metaknowledge, ScientoPy, scientoText (Moral-Muñoz et al., 2020, pp. 3-12).

Overtime, this type of analysis is utilized in tourism domain too, few examples could be seen in table 1.

Table 1. Bibliometric studies selection on subjects regarding tourism and investments

No. crt.	Paper	Source
1	A bibliometric analysis of sports tourism and sustainability (2002–2019)	Mercedes et al. (2020)
2	A bibliometric analysis and systematic literature review of tourism-environmental degradation nexus	Muhammad et al. (2021)
3	Railways transport infrastructures for supporting tourism: a bibliometric analysis	Rahmawati et al. (2023)
4	Research trends of digital tourism: a bibliometric analysis	Roziqin et al. (2023)
5	Sustainable tourism development and economic growth: Bibliometric review and analysis	León-Gómez et al. (2021)
6	Trends in research of responsible investment in the context of sustainable development: bibliometric analysis	Bulavinova et al. (2021)
7	Bibliometric review on FDI attractiveness factors	Bretas at al. (2022)
8	Mapping Global Research on Green Energy and Green Investment: A Comprehensive Bibliometric Study	Kwilinski (2024).
9	Sustainable investments: a scientometric review and research agenda	Singhania et al. (2024)
10	Impact investing: Scientometric review and research agenda	Singhania & Swami (2024)

Source: authors' conception based on cited papers

2.2 Investments in tourism infrastructure

Researchers in this area demonstrated the direct connection between development of infrastructure investment and tourism development (Seetanah et al., 2011; Adebayo & Iweka, 2014), a link that can

contribute to efficiency growth in providing goods and touristic services (Jovanović & Ilić, 2016). There are various approaches to present elements that include tourism infrastructure. According to Raine (2005), the tourist infrastructure consists in four categories of components:

- (1) Physical elements including: accommodation, restaurants, transportation, communication, utilities);
- (2) Cultural elements, which include everything related to local culture: heritage, fairs and festivals, food, art, dance and local music;
- (3) Services, referring to banking services offered by travel agencies, insurance companies, tour guides;
- (4) Laws directly related to tourism and travel conditions, customs, and immigration.

Conducting investments in tourism infrastructure has a major role in maintaining certain level of development in tourism by increasing the number of tourists, contributing to their satisfaction and motivation through developing attractive tourist destinations. A well-developed tourism infrastructure contributes to the general image and competitiveness of a destination, attracting tourists and stimulating economic growth (Nguyen, 2021). Globally, by 2023, investments in this field increased by 13% compared to the previous year, back to prepandemic levels of one trillion dollars (The World Travel & Tourism Council, 2024). World Travel & Tourism Council (WTTC) reveals in its latest report that the greatest market in the tourism field is the one of the United States, followed by China and Germany, then the United Kingdom and France (World Travel & Tourism Council, 2024).

The development of tourism infrastructure and recreational facilities leads to the development of tourism (Mandić et al., 2018, p. 44), chaining benefits for all stakeholders, either investors, clients or public field. This idea is supported by the same authors (Mandić et al., 2018, p. 42) who suggest that the increased importance at local, regional, and national level for economy needs but also boosts cooperation between public and private sector. Although the roles that each sector has are well defined, the role of the political government is salient in infrastructure tourism development through established laws and regulations, even if major investments are made by the private sector (Nawaz & Hassan, 2016, p. 581). Therefore, we can observe the interdependence between these two entities, collaboration being necessary in order to develop tourism. For example, Paramati et al. (2018, p. 16-17) capture the magnitude of tourism in the European Union in terms of employment level, revenues assimilation, tax collection, and society development. Also, the idea that tourism represents an important piece of an economy is emphasized by León-Gómez et al. (2021, p. 13) who imply that after long studies, tourism has been established as the 'engine' of economic growth.

Tourism investments in historical or important locations help both to protect those places, but also to increase the number of tourists in that region, and at the same time helps to maintain the share of market in a competitive environment (Paramati et al., 2018, p. 3). Budget allocation helps to form contemporary tourism destinations that create the perfect environment for focusing on tourist and resident's needs (Mandić et al., 2018, p. 57). Creating an attractive climate for tourists can only provide assurance and the desire for tourists to choose these types of destinations. At the same time, recently, the focus is on responsible and sustainable tourism, with investments made taking this aspect into account.

Paramati et al. (2018, p. 17) highlight that researchers started to emphasize this topic, but also to focus their attention on environmental degradation as a result of tourism activities. Thus, compliance with certain principles is being questioned, sustainability being an inseparable element of tourism for future economic growth in the field (León-Gómez et al., 2021, p. 13). Therefore, future developments in the field are desired to consider the effects on the environment.

3. METHODOLOGY

As mentioned earlier, this type of analysis aims to outline, from a scientific literature point of view, a relationship between two economic domains of interest: investments and tourism. To obtain this relationship, it is necessary to follow some steps, which have been described in detail in previous works (Popa et al., 2023; Cicea & Marinescu, 2021). Thus, they can be grouped into two broad phases:

- 1) *The selection of documents that form the collection which will be subject of the bibliometric analysis.* This phase will include the choice of the database in which the search will be conducted, the use of filters (related to language, period of time, field of interest, and others) that will help and facilitate the refinement of the search in the database, the collection of the necessary bibliographic information on the documents of collection.
- 2) *Analysis of the documents' collection,* highlighting the aspects related to the statistics regarding documents, to the authors that published this type of documents, to those referring to keywords (an important analysis, as it can indicate the main elements closely related to the two main concepts studied, investments and tourism) and the last but not the least the aspects related to the impact of these documents in the literature.

The Web of Science (WoS) database was used for document search, taking into account considerations related to its widespread use in such type of analysis, to the quality of indexed documents or to their multidisciplinary nature (Cicea & Marinescu, 2021). Thus, the search performed focused on the following topics and used expressions such as:

“Investment tourism infrastructure”

“investment travel tourism”

“investment hospitality”

Initially, 1588 documents were returned. In order to have a relevant analysis and to be able to easily study these documents, they were selected language of publication, which is English. In the end, a total of 1466 documents remained. These documents will represent the subject of bibliometric analysis carried out in the following.

4. BIBLIOMETRIC ANALYSIS REGARDING INVESTMENTS IN TOURISM INFRASTRUCTURE

4.1 The scientific documents collection

Within the next table, we can observe documents related to the two concepts of interest for this research, investments, and tourism infrastructure. Most of them are articles, followed by papers in proceedings (Figure 1 is suggestive in this regard). The collaboration between authors is strong, indicating a value of 24.15 (which suggests a high level of collaboration between them). The number of citations for each document is high (11.83), which can give a first idea about the importance of the topic and its relevance. Also, 3897 authors contributed to these papers, out of which only 278 are sole authors, the average number of papers per author being low (0.3761).

Table 2. Descriptive elements of documents collection

	Documents regarding investments in tourism infrastructure
Period of time	1992:2025
Sources (journals, books, volumes etc.)	787
Documents	1466
Years since publication (mean)	6.54
Citations per document (mean)	11.83
Citations per year per document (mean)	1.3057
References	60.028

	Documents regarding investments in tourism infrastructure
Article	1073
Article; book chapter	36
Article; proceedings	18
Article; early access	45
Review	1
Withdrawn article	1
Editorial papers	11
Paper in proceedings	241
Review	39
Keywords PLUS	1938
Author's Keywords	4837
Authors	3897
Authors of single-authored documents	278
Authors of multi-authored documents	3619
Single-authored documents	292
Authors per document	0.3761
Co-authors per document	2.97
International collaboration	24.15

Source: authors with Biblioshiny

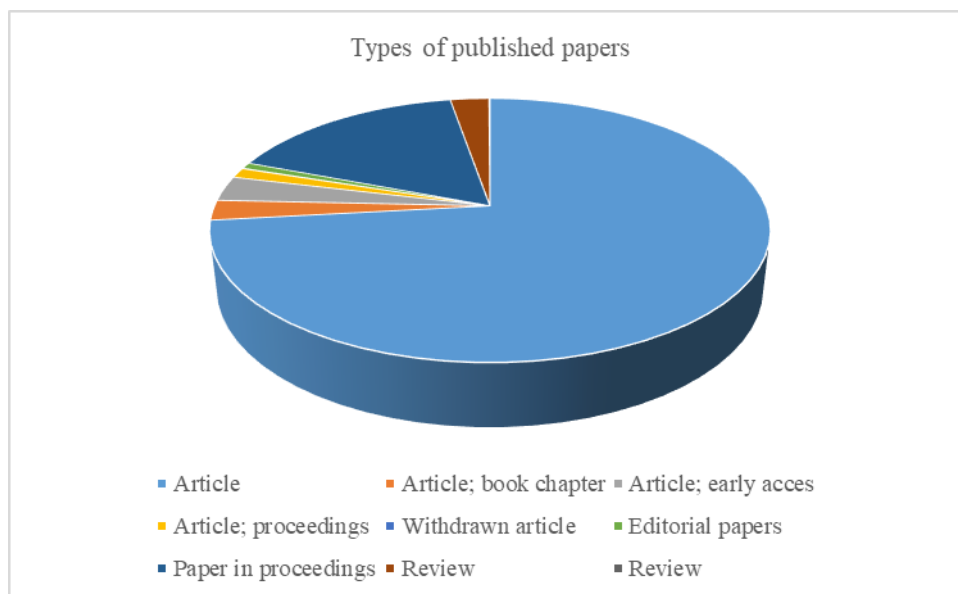


Figure 1. Types of published papers

Source: authors with database from WoS

The period of time analyzed starts in 1992 and extends until 2025, where we can observe that a paper is published in advance. As seen in Figure 2, the studied theme experiences an accelerated increase in the number of papers published since 2001, thus highlighting the relevance of this topic. We can observe a stagnation in the number of papers between 2018 and 2020, with the upward trend resuming thereafter. The year 2024 is not yet a final year in terms of papers published, therefore this explains a lower number of papers (the database was realized at the level of August 2024).

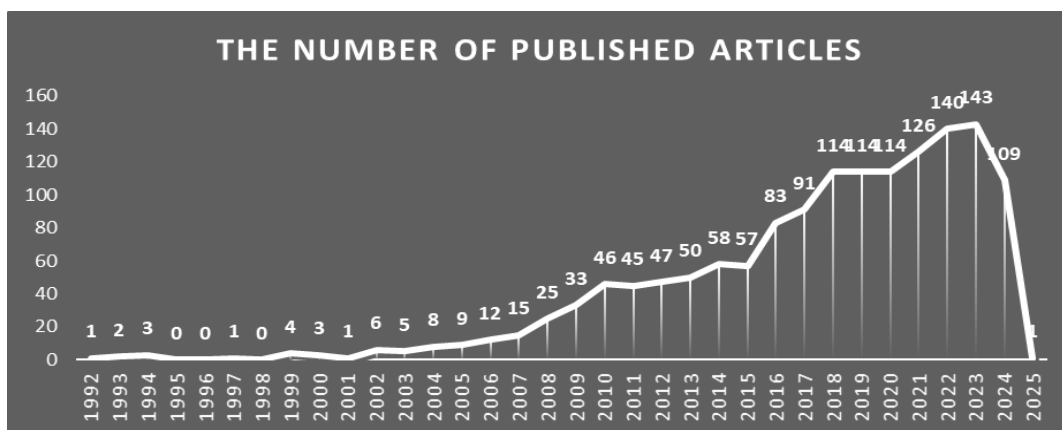


Figure 2. Annual scientific production of documents regarding tourism infrastructure

Source: authors with Biblioshiny

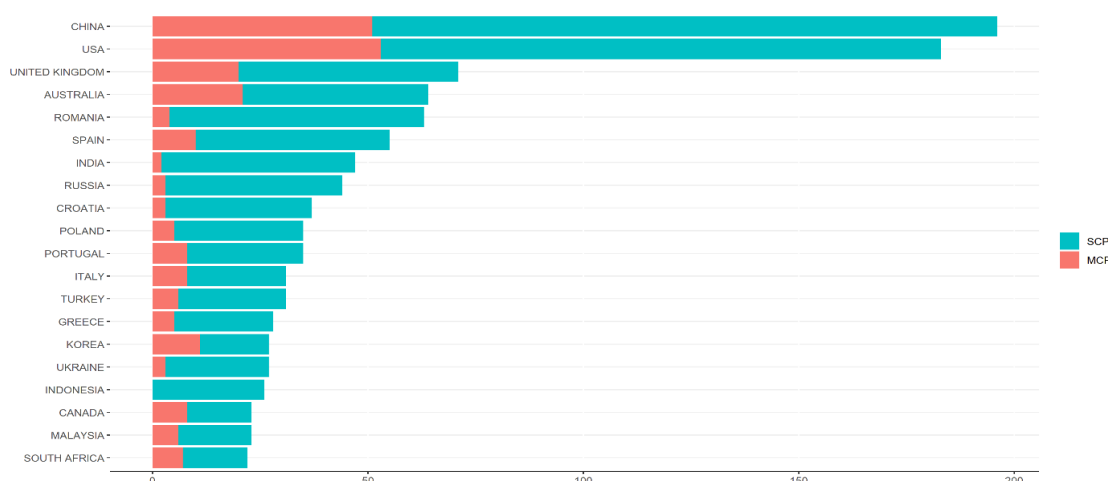


Figure 3. Country of origin of corresponding author on documents regarding tourism infrastructure

Source: authors with Biblioshiny

Another important aspect, in terms of the collection’s papers, can be seen in Figure 3. This figure shows the number of papers published by authors affiliated with research institutes or universities in different countries. Thus, China ranks first, followed by the United States of America. Both are similar in terms of the degree of author collaboration. The two elements, MCP and SCP emphasize this fact. MCP is the acronym for Multiple country publications, while SCP is the abbreviation for Single country publications. The first one shows papers having at least one coauthor from another country. The second one shows that all authors of a document are from the same country. Romania ranks fifth, indicating the importance of scientific research in this field in our country. Thus, at global level, we can observe that SCP has a much higher degree of occurrence than MCP, which may indicate a low level of international collaboration or even lack of such collaboration in the case of Indonesia.

Regarding the categorization of the documents by subject area (WoS categories), most of them are included in the categories “Hospitality Leisure Sport Tourism”, “Economics”, “Management”, which is to be expected, considering the specific subject matter of this analysis. However, most of the analyzed studies are also included in the categories “Environmental Studies” and “Environmental Sciences”, which may indicate a direct link between the studied elements (of investment in tourism) and their impact, mainly environmental.

4.2 Essential aspects of authors' and sources' contribution on the collection of scientific documents

4.2.1 Focus on authors

Figure 4 refers to the top 15 authors with the highest number of papers (as absolute value) as contributions to the collection of the analyzed documents. Among them, we can identify Popescu Agatha (affiliated at the University of Agronomic Sciences and Veterinary Medicine of Bucharest) with four articles in the collection.

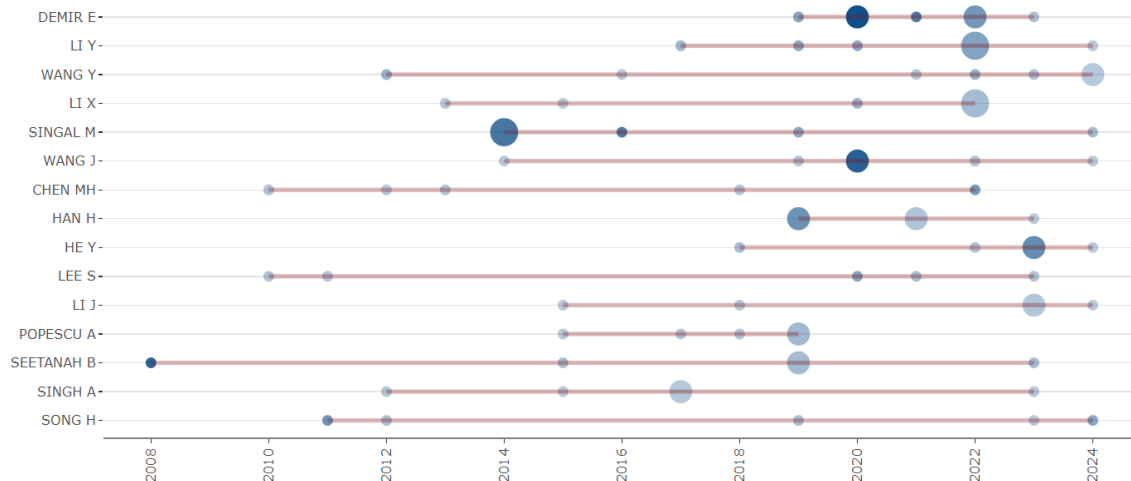


Figure 4. Publication frequency for authors with most contributions

Source: authors with Biblioshiny

The author Agatha Popescu's four scientific papers are papers included in the journal *Scientific Papers Series Management, Economic Engineering in Agriculture, and Rural Development*. Within the first of them, Popescu and Pleșoianu (2017) analyze, for Romania, the relationship between economic growth in tourism and new tourist arrivals, showing that there is a direct positive relationship between the two indicators. As a conclusion, the authors suggest that macroeconomic policies should better promote tourism to increase the number of tourists and the contribution of this sector to GDP, in order to influence the number of employees working in this sector, as well as the investments made.

The author's second article (Popescu, 2018) emphasises the importance of agrotouristic and the development of tourist guesthouses and their role in the local environment and national tourism. Of the last two recently published works, the first (Popescu & Pleșoianu, 2019a) analyses the Romanian seaside in terms of tourism supply and demand. The recommendations offered by the authors focus on the tourism strategy, which should consider investments in new accommodation units, job creation, increasing labour productivity, service quality, comfort level, diversification of leisure and entertainment activities, beach administration, means of transportation, parking lots, access roads and green spaces. The author's latest paper (Popescu & Pleșoianu, 2019b) presents an analysis of the impact of tourism on the Bulgarian economy as compared to Romania.

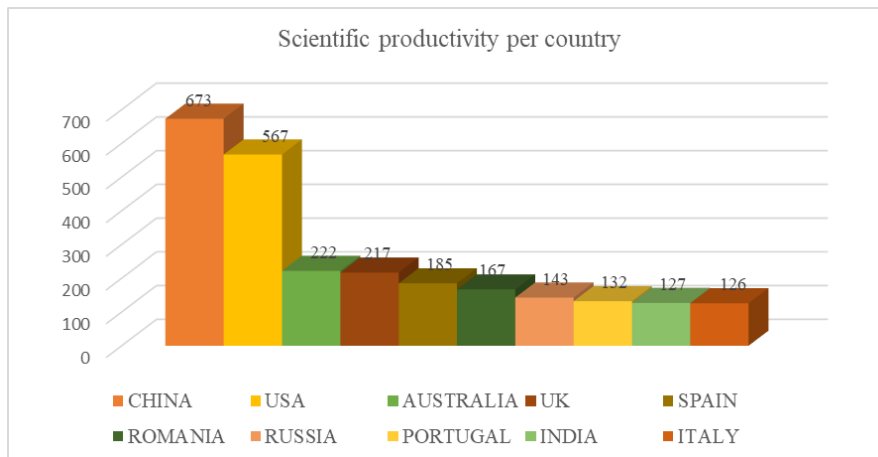


Figure 5. Scientific papers regarding investments in tourism infrastructure by authors' country origin

Source: authors with Biblioshiny

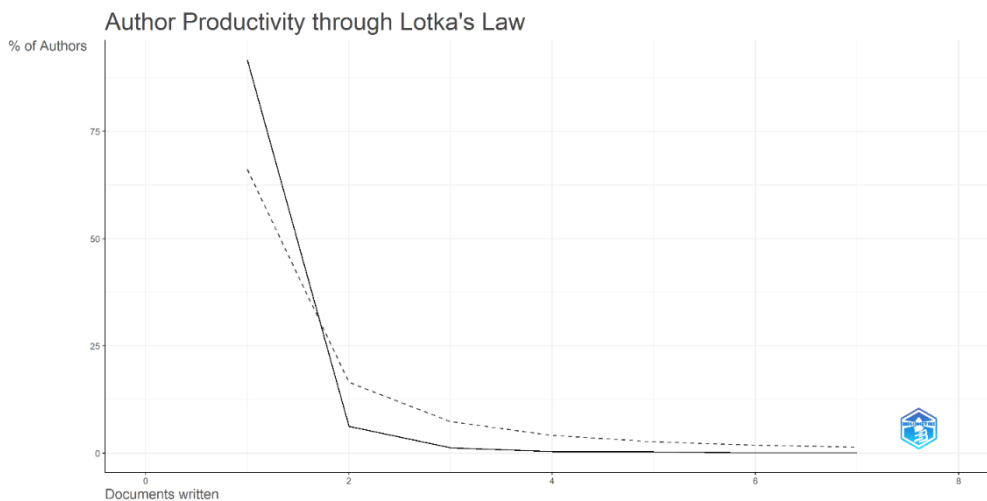


Figure 6. Authors' productivity

Source: authors with Biblioshiny

In figure 5 we can observe the country with the highest number of published papers, China (673 papers), followed by United States of America with 567 publications, while the third place is occupied by Australia with 222 scientific documents. Romania is positioned on fifth place with 185 documents, below United Kingdom and Russia.

Figure 6 designs the authors' productivity information based on Lotka's law. We previously described Lotka's law (Cicea et al., 2022) as showing two types of papers' distribution: a theoretical one (the dotted line) and the distribution of the papers taken into account for this analysis. Figure 6 reveals that 91% of the authors contributing with one document to the collection of documents represents a higher percentage than the one attributed to the theoretical distribution. On the right side of the graph, we can see the percentage of authors who contributed two or more documents to the analyzed collection. 6% of the contributions are attributed to groups of two authors, while 1% of them are attributed to teams of three authors.

Table 3 presents the authors leaderboard, after analysing citations inside scientific documents, precisely about document collection. In specialized terminology this is called *Most local cited authors*. Thus, we can observe 10 most cited authors, first being Seetanah, B. (affiliated to a university in Mauritius), Demir, E. (affiliated to a university in Turkey) and Khadaroo, J. (affiliated to a university in Mauritius).

Table 3. Most cited authors in collection’s references

Author	Citations received
Seetanah, B.	23
Demir, E.	20
Khadaroo, J.	18
Akron, S.	13
Diego, D.	13
Garcia-Gomez, C.	13
Maria Diez Esteban, G.	13
Singbal, M.	13
Agbola, F.W.	11
Assaf, A.G.	11

Source: authors with Biblioshiny

4.2.2 Focus on sources

According to Figure 7, 36 journals are included in the core area, totaling 485 articles. These 36 journals published one-third of the papers included in our collection, which validates Bradford’s law. This implies that if the sources are arranged in descending order of the number of articles, it results a classification in three areas, comprising an approximately equal number of papers. Lancaster and Pontigo (1986) explain that the number of sources in each zone will be proportional to n , n^2 , n^3 . The first zone is called the core zone, containing the journals devoted to the searched topic. Thus, for the theme on tourism investment, the core area includes 36 sources. Table 4 shows only scientific journals appearing among the top 20 of the reported sources.

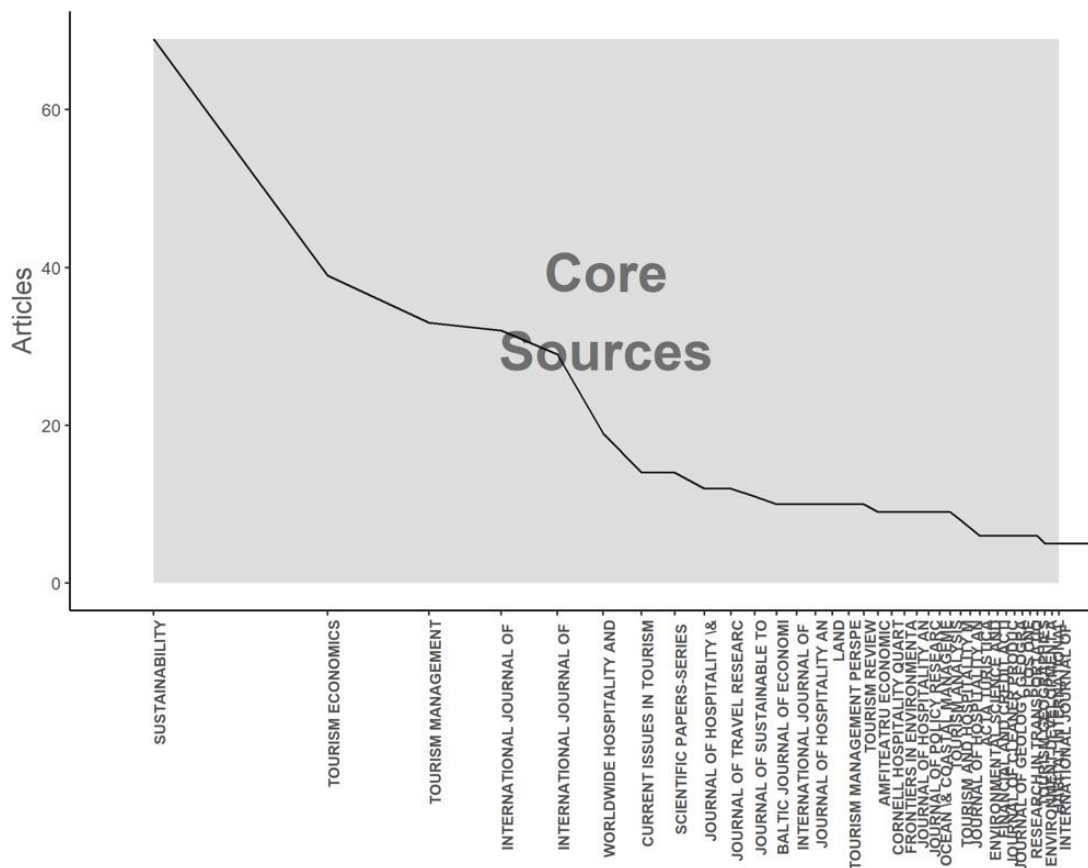


Figure 7. Main journals that published papers on investments in tourism topic

Source: authors with Biblioshiny

Table 4. Leaderboard of main journals for document collection

Source name	Number of documents
SUSTAINABILITY	69
TOURISM ECONOMICS	39
TOURISM MANAGEMENT	33
INTERNATIONAL JOURNAL OF CONTEMPORARY HOSPITALITY MANAGEMENT	32
INTERNATIONAL JOURNAL OF HOSPITALITY MANAGEMENT	29
WORLDWIDE HOSPITALITY AND TOURISM THEMES	19
CURRENT ISSUES IN TOURISM	14
SCIENTIFIC PAPERS-SERIES MANAGEMENT ECONOMIC ENGINEERING IN AGRICULTURE AND RURAL DEVELOPMENT	14
JOURNAL OF HOSPITALITY & TOURISM RESEARCH	12
JOURNAL OF TRAVEL RESEARCH	12
JOURNAL OF SUSTAINABLE TOURISM	11
BALTIC JOURNAL OF ECONOMIC STUDIES	10
INTERNATIONAL JOURNAL OF TOURISM RESEARCH	10
JOURNAL OF HOSPITALITY AND TOURISM TECHNOLOGY	10
LAND	10
TOURISM MANAGEMENT PERSPECTIVES	10
TOURISM REVIEW	10
AMFITEATRU ECONOMIC	9
CORNELL HOSPITALITY QUARTERLY	9
FRONTIERS IN ENVIRONMENTAL SCIENCE	9

Source: authors with Biblioshiny

As we can observe in table 4, the main journal in which articles were published regarding investments in tourism infrastructure was Sustainability. In the leaderboard exists a Romanian journal indexed in WoS, *Amfiteatru Economic*, in which there were published 9 articles on this topic.

4.3 Analysis of main themes in the collection documents

In order to identify those elements that become the main points of the discussions within the documents of the collection, we can resort to keyword analysis (those chosen by the authors or the keywords PLUS from the WoS database). There are several graphical tools that can be useful to perform the analysis and visualizing the results. Thus, the map of the links between keywords, the dendrogram of the discussed topics, the keywords tree, and the map of keywords on time frames will be presented.

For the analyzed topic, Figure 8, which is presented in the form of a tree graph, shows the keywords analysis. The size of each spot in the tree is proportional with the frequency of occurrence of the word or phrase. The word “tourism” predominates, followed by “hospitality” and “development”, which may also appear in this way as a result of their use in search query in the WoS database. Another word that has been closely related to the field of tourism investment is Covid-19, representing and together forming a widely debated topic in recent years. The tree highlights words related to tourism infrastructure that have been captured in the literature: “hospitality”, “sustainability”, “investment”/“investments”, “infrastructure”, “tourism development”, “travel”, “hotels”.

In Figure 9 we can identify the same type of tree as in Figure 10, but this time, keywords PLUS are shown. These are identified as (Clarivate, 2020) words or phrases that appear frequently in the titles of references of an article, but do not appear in the title of the article itself. Based on a special algorithm that is unique to Clarivate databases, the keywords PLUS enhance the power of the cited

reference search, with the algorithm searching across disciplines for all articles that have cited references in common.

This time, on first place, near „tourism” we can see „impact”, „performance”, „model”, „management” and „growth”.

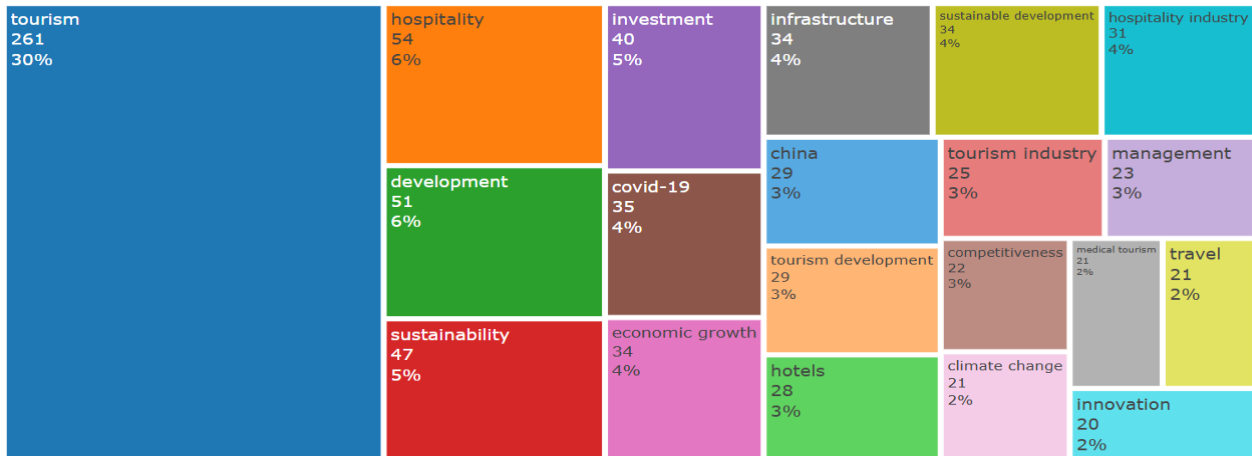


Figure 8. Authors' keywords tree
 Source: authors with Biblioshiny



Figure 9. Authors' keywords PLUS tree
 Source: authors with Biblioshiny

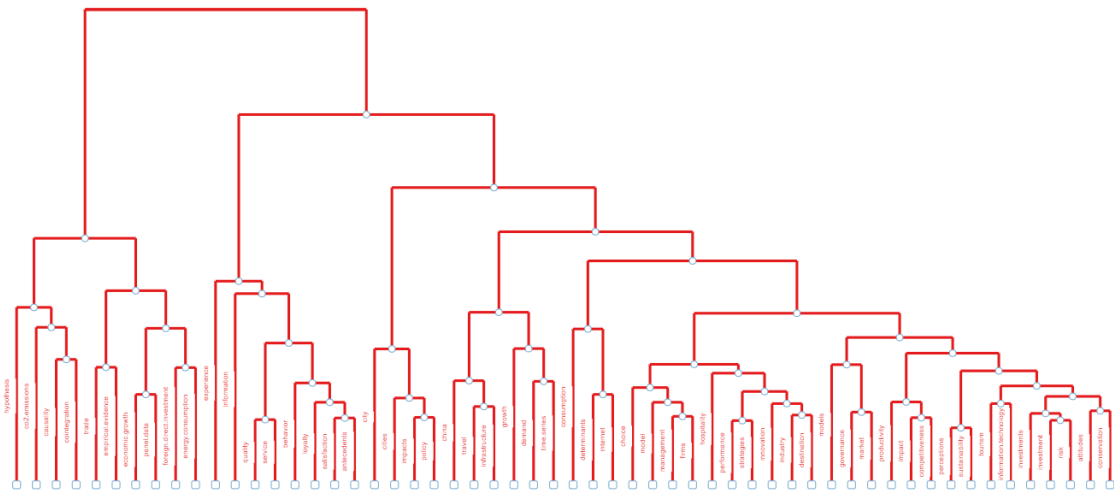


Figure 10. Thematic dendrogram
 Source: authors with Biblioshiny

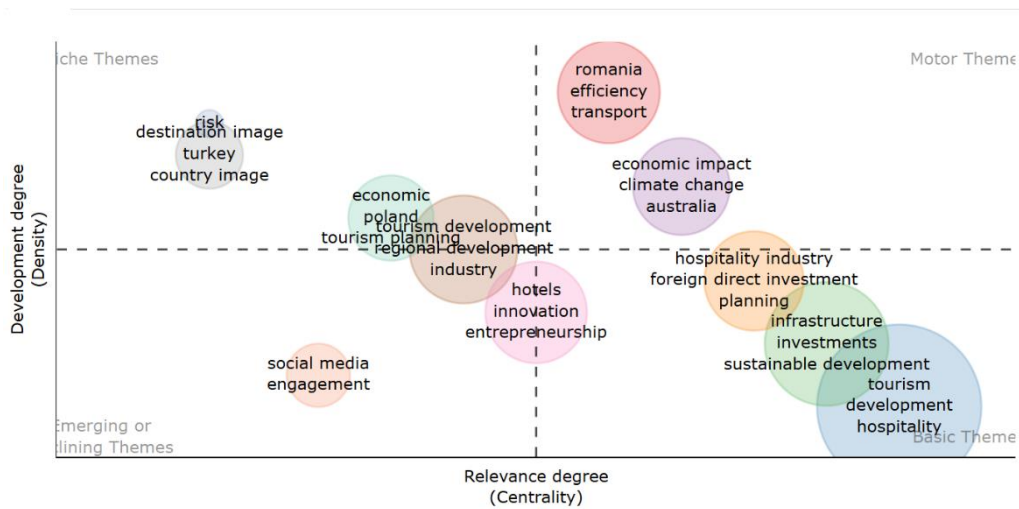


Figure 11. Thematic map between 1992-2019
 Source: authors with Biblioshiny

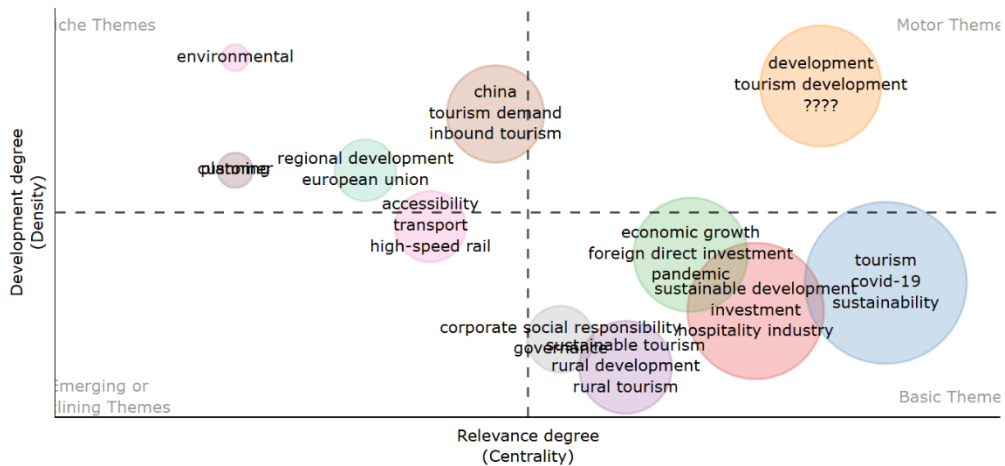


Figure 12. Thematic map between 2020-2024
 Source: authors with Biblioshiny

We further discuss the issues presented in Figures 10-12. Figure 10 organizes the dendrogram of themes of interest for the collection’s documents. It is a useful tool as it graphically shows thematic groups and subgroups according to the frequency of occurrence of those items together within the studied documents. Therefore, it can be seen how subgroups of keywords show how frequently they occur in the documents. For example, “risk” and “investments” are part of the same subgroup, and this sub-group is linked to other closely related sub-groups comprising “sustainability”, “competitiveness” and “impact”. Discussion themes are also presented over time, as can be seen in As for the thematic maps on the two time frames, it is relevant to first explain how exactly the keywords are divided into the four quadrants and what it means to be categorized into one of them. Thus, to obtain a thematic map, the programme uses a mixed approach (combining network analysis with factor analysis) to highlight different themes in a two-dimensional space, governed by centrality and density; these two dimensions are: the importance of the topic in the research domain (this refers to centrality on the horizontal axis) and the degree of development of the topic (this being the second dimension, density, on the vertical axis) (Cicea et al., 2024). The size of the bubbles corresponds to the total number of occurrences for the keywords belonging to a group, while the name of the bubble is given by the word that occurs most often.

The quadrants that are created along these dimensions summarize (Cicea et al., 2021; Cicea et al., 2024):

- (1) ‘driving themes’ characterized by both high levels of centrality and density; the themes included in this quadrant are of high importance for the development and structuring of the domain under analysis.
- (2) ‘core and cross-cutting themes’ characterized by high level of centrality and low level of density; here, topics that are relevant to the field but are insufficiently debated can be included.
- (3) ‘emerging or declining themes’ distinguished by both low levels of centrality and density; these themes are developing or will soon be out of the researchers’ focus.
- (4) ‘highly developed or isolated themes’ described by low level of centrality and high level of density. These themes are mature or narrow themes specialized in tourism investment.

In Figure 11, this map of themes for the period 1992-2019 indicates a multitude of core or cross-cutting themes and makes it possible to identify countries such as Romania, Poland, Turkiye and Australia, thus highlighting areas where researchers have focused their attention, areas where it has been more important or relevant to discuss or analyse certain aspects of tourism investment. For this period, 1992-2019, the driving themes are: climate change with its effect on tourism, economic impact and efficiency of transportation infrastructure as part of tourism infrastructure.

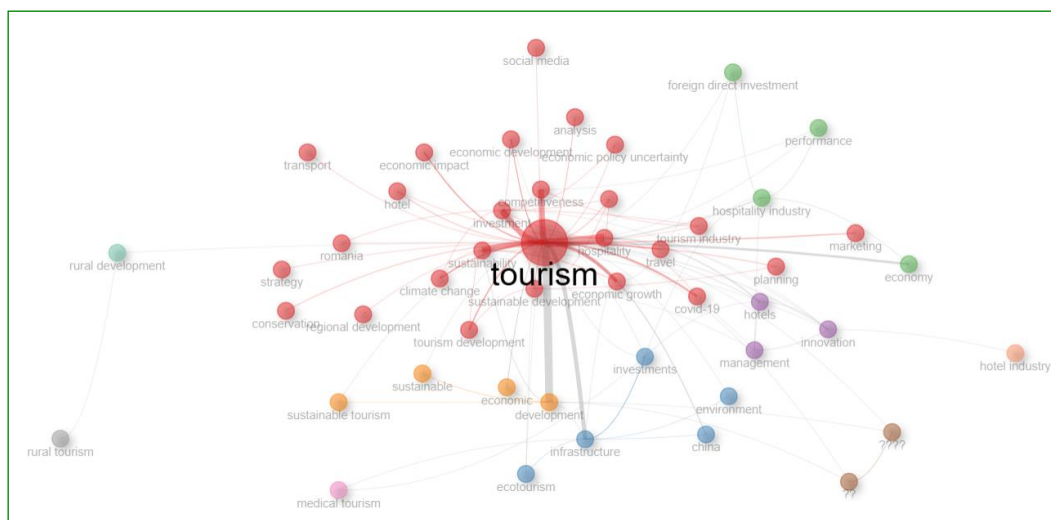


Figure 13. Keyword network map

Source: authors with Biblioshiny

Figure 12, captures the positioning of the specific themes. Similarly, to the previous map, a multitude of themes are positioned in the typology of core or cross-cutting themes. Keywords such as pandemic or Covid-19 appear here, clearly reflecting the concerns of the period, which affected the entire tourism sector. Compared to the previous map, the countries that stand out in this period are China and the European Union, and in the category of driving themes the idea of tourism development predominates (probably also because of the period after the Covid-19 pandemic).

The representation in Figure 13 is based on the authors' keywords. They can be found as nodes, of various sizes, depending on their frequency of occurrence. It can be seen that these nodes are interconnected by branches and assigned to specific groups, signaled by different colours. These are called clusters. We can notice the cluster represented in red, as being the most populated and having numerous keywords gravitating around the domain under study: tourism. The size of a keyword is given by the number of links created with other keywords. The network graph in Figure 13 mainly emphasises the strong link between 'tourism' and 'development', as well as the connections with 'investment' and 'sustainability'. At the same time, the keyword map reveals types of tourism such as rural tourism, medical tourism and sustainable tourism.

4.4 Impact of scientific documents collection in the literature

When we talk about the impact of the collection's scientific documents, we refer to what happened in the literature from the moment when they were published, respectively, how many times they were cited in the WoS database by other authors who treated similar topics.

We can talk about this type of scientific documents in literature, and as seen above, at Focus on authors section, about received citation or about the most cited countries. According to the analysis developed with Biblioshiny, they are in order, as follows: USA (3469 citations), China (2356 citations), Great Britain (1414 citations), Spain (937 de citations) and Australia (660 de citations).

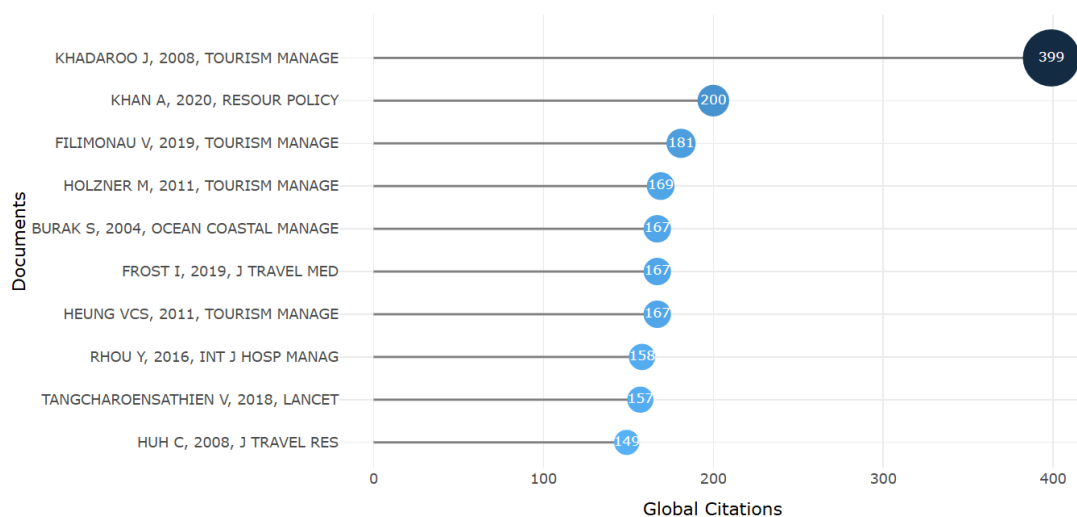


Figure 14. Most cited documents in WoS from publication to date

Source: authors with Biblioshiny

Figure 14 centralizes the most cited scientific papers in the WoS database. Thus, the paper by Khadaroo and Seetanah (2008) has about 400 reported citations since publication to date. The paper presents an analysis that emphasizes the importance of transportation infrastructure for increasing the competitiveness of tourist destinations. Second and third place are papers published a decade later, which reach almost half of the number of citations reported for the first paper. Thus, the paper of

Khan et al. (2020) proposes a new tourism development index and uses it to analyze the relationship between tourism, natural resources and energy-CO₂ emissions. Regarding the third-ranked paper, the authors (Filimonau & Delysia, 2019) raise food waste in tourism and hospitality as a significant social challenge. In doing so, they address the challenges of classifying, quantifying and characterizing food waste in the hospitality sector, discuss the opportunities and barriers to mitigating it, and, drawing on examples of good business practices, develop a framework for food waste management.

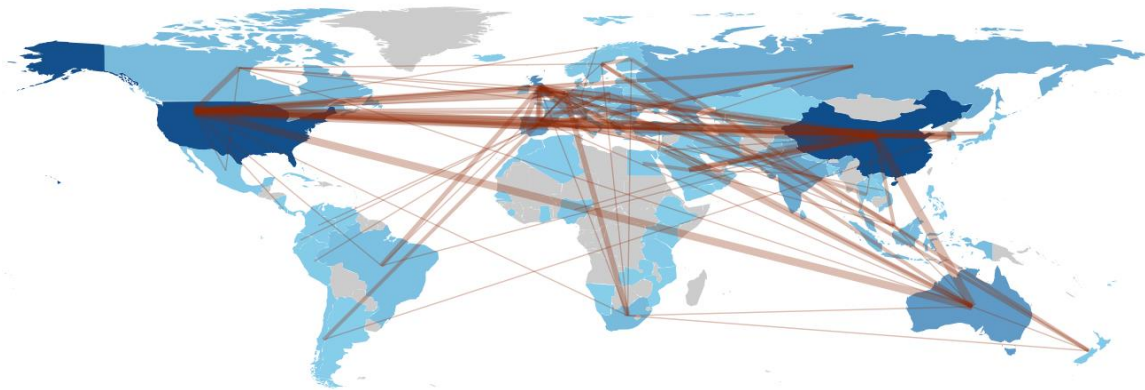


Figure 15. Level of collaboration in research between countries

Source: authors with Biblioshiny

Figure 15 shows a representation of research collaboration between countries in the field of interest for this study. Thus, we can observe by analyzing connections between different states that the main collaborations and most of them are between the USA and China and between them and Australia. The Great Britain is one of the countries with multiple connections in research with Italy, China, France, Portugal, and Turkiye.

5. CONCLUSIONS

Conducting the bibliometric study from this research made possible the fast evaluation of literature regarding the concept of investments, applicable in the field of tourism and especially for the development tourism infrastructure. The analysis shows how there is a shift from demand, consumer, product, and service in tourism oriented themes to investment, performance, impact, and management models with a high frequency of occurrence in the second part of the period. It can also be seen that most studies highlight the importance of the sustainable development concept, which has also given a new facet to tourism, that of sustainable tourism.

Among the most significant obtained results are: (1) the fact that the topic of investment in tourism infrastructure has attracted the attention of researchers, according to the WoS database, since three decades ago; (2) China and the USA are by far the largest contributors to the collection of papers studied; (3) from the analysis of the graphical representations, we can emphasize countries such as Croatia, India, Ukraine and Indonesia, which do not tend to collaborate much on this theme with other countries; (4) most of the scientific documents are included in the categories "Hospitality Leisure Sport Tourism", "Economics", "Management", which is to be expected, considering the specificity of the subject matter of this analysis; (5) There are more than 91% of authors with unique contributions to the collection of papers to be analysed, i.e. 6% of the contributions are attributed to groups of 2 authors, while 1% of the contributions are attributed to teams of 3 authors; (6) Khadaroo and Seetanah (2008), Khan et al. (2020), Filimonau and Delysia (2019) are the authors of the most cited articles, in the WoS database, since publication to date; (7) Seetanah B., Demir E. and Khadaroo J. are the most cited authors in the references of the collection; (8) the main sources that have

published one third of the papers in the collection are scientific journals (9) keyword analysis signals the high frequency of the words: sustainability, development, impact, and Covid-19, in addition to those that were part of the specific search in the WoS database: investment, tourism, hospitality; (10) the impact the studied papers have within the literature is relatively high, fact supported by the number of received citations (the highest number is 399 citations for the paper of Khadaroo and Seetanah (2008).

The research has its limitations that can be associated with either the database in which the investigation was conducted (for example results could be different if Scopus was used), or the way the search was developed (we refer to the words that were chosen for doing the search in WoS database, at selecting fields of search, and choosing the software meant to process a large part of bibliographic information). Taking into account all the above stated findings, the research is used as a starting point for the systematic analysis of the literature on investments in tourism infrastructure, and also for a future development of a performance analysis on this topic.

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