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Research trends in Economic Geography. Bibliometric study of the Web of Science (1920-2020)

María Pilar Alonso-Logroño

pilar.alonso@udl.cat  0000-0002-4327-623X

Departament de Geografia i Sociologia. Universitat de Lleida.

Plaza Víctor Siurana, 1. 25003 Lleida, España

Nuria Bautista-Puig

nbautist@bib.uc3m.es  0000-0003-2404-0683

Department of Industrial Management, Industrial Design and Mechanical Engineering.

University of Gävle. Kungsbäcksvägen 47, 801 76, Gävle, Suecia.

Universidad Carlos III de Madrid. Calle Madrid, 26. 28903 Madrid, España

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Economic geography is one of the major branches of Geography and studies economic activity and factors affecting them. This field was formerly created as a scientific discipline at the end of the 19th century, coinciding with the launch of the first handbook in 1889 and with the institutionalization as a discipline at the University of Cornell (United States) in 1893. In this stage, the main focus of the discipline was on the regional analysis (e.g. physical environment with population occupations). Later, in the fifties, the research approach changed to the location and the local organization from the economic activity (e.g. by using quantitative approaches such as statistics). In the eighties, culture and social movements became prominent and the focus was on labour markets and social networks, among others. Overall, the field has passed from being a descriptive discipline of the land to a more analytical and reflective one with a paradigm change through the years. In this regard, tools are needed for analysing the evolution of a scientific discipline, being bibliometrics an ideal to tackle this analysis. Although there are some studies that analyse the scientific output and the evolution, not many analyse the evolution of the topics discipline, a research gap that this study covers. In this context, the objective of this article is to present the usefulness of the use of bibliometric tools to do this analysis.

This article presents a methodology that allows analysing scientific trends in a discipline through a bibliometric analysis. Specifically, Economic Geography is used as a case study. Documents were collected in the Web of Science (WoS) database by using an ad-hoc strategy. With a set of 4,307 publications, various bibliometric indicators divided into patterns of research (evolution of scientific production, scientific output by countries and institutions, collaboration patterns and impact) and the thematic specializations (WoS categories, definition of cluster topics by using a topic modelling approach, keywords co-occurrence networks and hot topics identification) are analysed from the period 1920 to 2020. Different software was used for the publication patterns (ArcGIS) and thematic specialization (e.g. CiteSpace, R software).



In terms of research, the evolution shows the scientific production is concentrated recently, since the 2000s (80.8% of its production). The most prolific institutions that are publishing papers on Economic Geography are Anglo-Saxon (the United Kingdom and the United States); however, Nordic countries (e.g. Norway, Sweden) show greater specialization in the subject by using an activity index. More precisely, the most prolific institutions are the University of London (United Kingdom), University of Oxford (United Kingdom) and Utrecht University (The Netherlands). Regarding collaboration patterns, 21% of the documents are in international collaboration, which is also the one that has grown most significantly in the last years in the last forty years (with a growth of 15.5%). By checking the impact, regional studies on urban and rural areas, industrial clusters, and spatial proximity and innovation (e.g. patterns of location center-periphery according to the transport costs) are the ones that have a major number of citations.

Regarding thematic specialization, Geography and Economics constitute the main areas in which this research is published; however, other research fields are prominent (e.g. Urban Studies, Environmental Studies), indicating the interaction between space and economics. By using a topic modelling approach to determine the topics of the articles, 15 clusters were defined. Markets/businesses constitute a topic whereas other focus on spaces (rural and urban) and entrepreneurship issues. However, the intensity over time shows a different pattern. In this sense, in the last twenty years, markets and economic activity were more prominent in the early years whereas topics related to institutions, sustainability-oriented, networks (e.g. transport) and urbanization have become more relevant recently. This indicates the change of discourses over time. Last, "Impact" (13.77), "new economic geography" (13.65), "increased performance" (13.4), "organization" (12.43) and "trade" (11.78) are the keywords that are considered as 'hot topics' in the field.

In the discussion section, it is remarked that the number of records collected by using the search criteria are high, despite the fact that the methodology used is restrictive, focusing on the 'core' of the publications and other documentary typologies have not been used, such as other studies that focus on books (Gorraiz *et al.*, 2016) or in the analysis of the production of journals in Economic Geography (Foster *et al.*, 2007). In addition, the results obtained from the number of publications suggest that although research on this topic seems to have a long tradition, there is a concentration of publications in recent years, denoting a growing interest in this field in recent years. Although this growth is generalized in all areas of knowledge (Hu *et al.*, 2020), this growth is in line with other studies (for example, Wang & Liu, 2014), which show that the economic part is a great contributor, for example, in the studies of territorial studies such as the rural area.

The analysis also shows a positive evolution of international collaboration patterns, although these continue to be smaller, with collaborations within the same centers and within the same country (national collaboration) predominating. This fact reaffirms the conclusions of previous works in which it is stated that Economic Geography does not have a very international behaviour (Gutiérrez & López-Nieva, 2001; Müller, 2021).

On the other hand, the results show the Anglocentric character (United Kingdom and United States) of the institutions that publish in economic geography, in line with previous studies (Gutiérrez & López-Nieva, 2001; Wing & Liu, 2014; Foster *et al.*, 2007) that show how non-English-speaking communities are marginalized, despite the fact that the majority of readers are consumers and are increasingly multilingual (Müller, 2021). However, this fact may be related to the use of Web of Science database, which produces an English-publication bias. However, in terms of specialization some countries stand out (e.g. Nordic countries) with topics associated with innovation and entrepreneurship. In this way, topics of interest are associated with spaces where certain economic processes present a novelty in their operation or in social concerns, something that the results allow us to show.

In terms of topics, as also is pointed out by Atienza *et al.* (2019), the thematic interrelationships between the studies of economists and economic geographers are difficult to separate, as also attested by the results the collaboration between both fields. Although interdisciplinarity in this case also helps to focus on the issues that most concern researchers who work on the interrelationship between economy and space.

As a conclusion, this study helps to understand the path of the Economic Geography research field. The bibliometric analysis offers a starting point to get an overview of a research field, as it allows collecting and analysing data on the scientific production of a specific subject. In this study, a greater scientific effort in recent years is observed, as well as an increase of international collaboration along with the evolution of the



different themes in this regard. Thus, the method followed shows the usefulness for the various topics that you want to work on.

Some limitations of this study should be noted. First, we identify documents explicitly mentioning Economic Geography ('core publications' that include this term in the title, abstract and keywords). In this regard, articles related to the topic that do not explicitly include the search strategy used may have been omitted. Furthermore, the use of the Web of Science database may omit other works (for example, publications in Spanish language), as well as other types of documents (reports) that may be of interest for the analysis of this field. In future research, other search techniques (direct citations expanding method) will be included. As well, a more complete analysis will require checking whether this same happens in other bibliographic bases where productions in Latin, French and Italian languages are incorporated, little present in the basis on which this approach has been made. In addition, future studies could be complemented with qualitative research methods (interviews, surveys) with researchers in the field to learn more about their motivations in their specialization towards Economic Geography.