

## **BIBLIOMETRIC ANALYSIS OF HEALTH INSURANCE**

**Gabriela Mihaela MUREȘAN<sup>1</sup>**, ORCID ID: 0000-0001-6715-740

**Abstract:** *In a world characterized by technology, change and risk, maintaining health, and improving it as much as possible, is a subject that should be of great interest. It can be very important for insurance companies to know why people buy health insurance (HI), when people choose to buy health insurance, which are all benefits of a health policy and so on. In specialized literature is a lack of quantitative studies to review the health insurance field. This study attempts to cover this literature gap and focuses on the identification of relevant articles published in the Web of Science Core Collection. Further, we ran a bibliometric analysis to find the most repeated patterns used in health insurance. Moreover, we found that: the United States of America led the most articles, Health Affairs, Value in Health, Journal of Health Economics, and Health Economics are the most important and relevant journals on this topic, and the most repetitive keywords after health insurance are coverage, services, reform, medical care, mortality, prevalence, and risk. In addition, the present article also presents a classification of the determining factors that influence the subscription of a health insurance policy.*

**Keywords:** *bibliometric analysis, health insurance, map, VOSviewer, WOS.*

**JEL Classification:** G22.

### **Introduction**

The COVID-19 pandemic has caused significant difficulties for the whole world. Unfortunately, we discuss the importance of health only when it is increasingly precarious. Nevertheless, insurance companies offer various types of health insurance to help policyholders overcome delicate situations more easily. According to Eurostat substantial differences in the level of current healthcare expenditure per inhabitant are still observed, from the highest level in Luxembourg (€5 875 per capita) and Denmark (€5 642 per capita) to the lowest level in Bulgaria (€754) and Romania (€713). As such, the ratio between the highest (Luxembourg) and lowest (Romania) levels of expenditure per capita was 8.2. Even if health is a topical subject, a limited part of the literature has studied this topic at the macroeconomic level.

Starting from the review of the literature, a large part of the article is often focused on the determinants of the health insurance demand, but, for example, the influence of how can health insurance market improve well-being is rather limited. Several groups of determinants of the health insurance market have been identified in the literature. Financial factors are most often mentioned, with particular emphasis on *income* (Cameron & Trivedi, 1991; Liu & Chen, 2002; Erlangga et al., 2019), *healthcare expenditure* (Tynkkynen, et al., 2018), *price* (Dunn, 2016), socio-demographic factors such as *education* (Van de Ven & Van Praag, 1981; Liu & Chen, 2002), *age* (Nguyen & Knowles, 2010; Saltzman, 2019), *geographical area* (Turchetti, Cannizzo & Lorenzoni, 2015), *profession* (Machnes, 2006), *gender* (Mulenga et al., 2021), psychological groups of factors such as *perception of the quality* (Yang, 2018), *past negative experiences* (Innocenti et al., 2019), *self-efficacy* (Paez et al., 2014) *willingness to pay* (Asgary et al., 2004; Krueger & Kuziemko, 2013),

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<sup>1</sup> Lecturer, Finance Department, Faculty of Economics and Business Administration, Babes Bolyai University.  
Corresponding author: gabriela.muresan@econ.ubbcluj.ro

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*perceived severity of disease* (Dong, et al., 2008; He, 2017), *cognitive ability* (Paccagnella, Rebba, & Weber, 2013; Fang, Keane & Silverman, 2008) and others factors; *coverage* (Monheit & Vistnes, 2005; Kreider et al., 2016; Abouelmaged et al., 2019, Tevares & Marques, 2021; Takahashi, 2022), *life expectancy* (Mureşan et al., 2021), *the asymmetric information* (Bolhaar, Lindeboom & van der Klaauw, 2012), *the benefit package* (DeAllegri et al., 2004; Qian, 2021), *moral-hazard* (Thönnies, 2019; Aistov, Aleksandrova, & Gerry, 2021; Barros, Machado, & Sanz-de-Galdeano, 2008), *risk aversion* (Van Winssen et al., 2016; Steinorth, 2011).

It is obvious the importance to find the motivation why people decided to buy health insurance. This current study attempts to identify the relevant articles on this topic. To comprehensively understand why people buy health insurance, we conduct a bibliometric analysis. With the help of Vosviewer's graphic representations, keyword clusters, relevant articles and research trends can be identified more easily.

Also, the remainder of this paper is organised as follows: *section 2* contains information regarding the methodology used in this study, including the database and a short description of the bibliometric methods used. *Section 3* presents our results of the bibliometric analysis findings, and the last part of the paper, *Section 4* provides concluding remarks.

## **Methods and data**

This study aims to provide a comprehensive bibliometric analysis of the existing literature on health insurance with the help of maps.

In accordance with our purpose, our data were collected from the Web of Science Core Collection (WOS). Firstly, we searched in WOS for articles on this topic to create our database, then, we downloaded the following information: the title of the work, the author/authors, the abstract, the keywords used and the journal. In the second step, after completing our final database, it was entered into the VOSviewer version 1.6.18 program for generating the network analysis and mapping graphs (see Van Eck & Waltman, 2009).

We created a list of all possible keywords associated with health insurance, in line with their recommendation: Alshater et al., 2021; Khan et al., 2020; Paltrinieri et al., 2019, because the cartography analysis is based on the criteria used to collect data. Our selection criteria to search the relevant article in WOS: health insurance, private health insurance, national health insurance, health insurance system, and health insurance policy. Afterwards, we led this analysis in the following dimensions: a bibliometric journal, citation, co-authorship analysis, and keyword and content analysis.

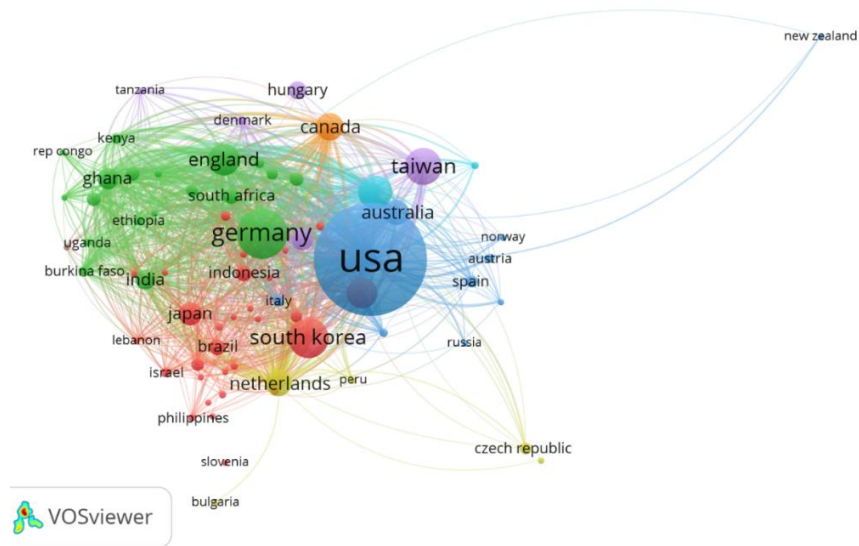
## **Results**

### **General information**

Our final database (May 2023) contains documents on health insurance (health insurance criteria: 81226; private health insurance criteria: 10046; national health insurance criteria: 27871; health insurance system criteria: 19845; and health insurance policy criteria: 13627) which are published in WOS journals. Most of them are co-authored which emphasizes the complexity of the subject and the need for collaboration.

### **Cartography analysis**

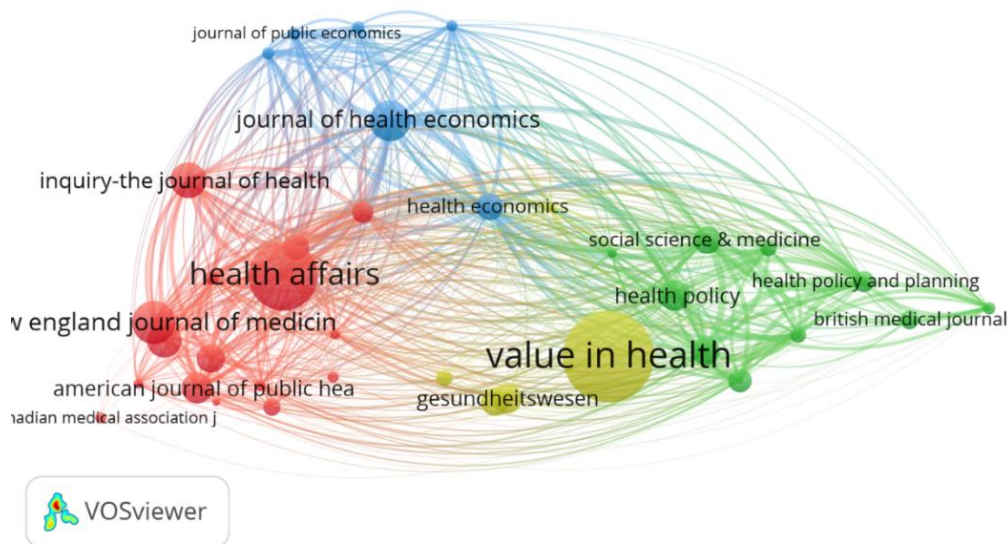
The distribution of health insurance articles is presented in Map No. 1.



**Map No. 1.** Most relevant countries on the HI subject.  
*Source:* Author processing

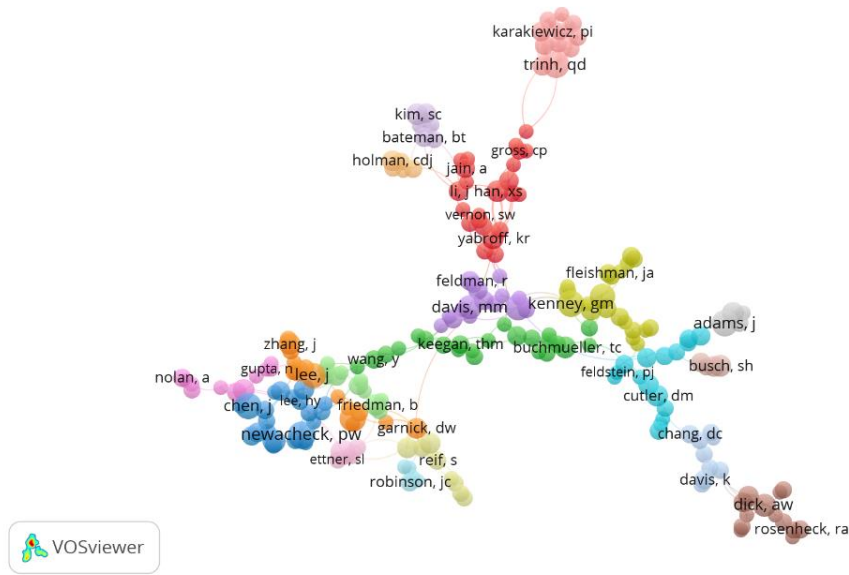
The research outputs of health insurance are widely distributed around the whole world. The United States of America led the most articles, followed by countries such as Germany, South Korea, Taiwan, England, Taiwan and other countries.

Moreover, we also identify the most influential WOS journals which will help the researchers to try to publish their research on this topic. Following Paltrinieri et al., (2019), we set a minimum threshold of at least 5 published WOS articles and 20 citations, thus, the results obtained can be observed more in Map No. 2.



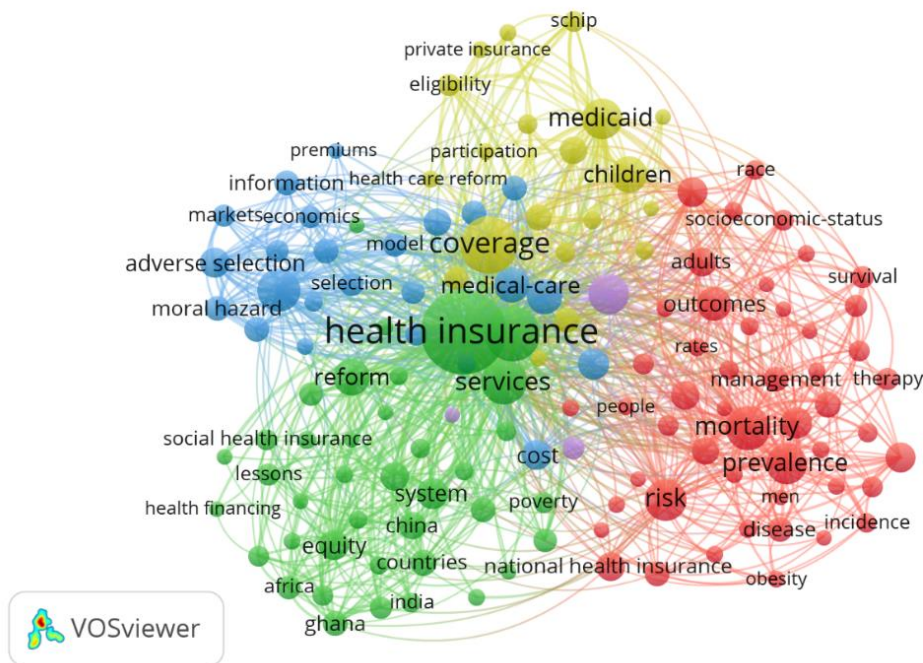
**Map No. 2.** Most relevant journal articles on the HI subject.  
*Source:* Author processing

Our results show that Health Affairs, Value in Health, Journal of Health Economics, and Health Economics are the most important and relevant journals for health economics. Moreover, in Map No. 3 we can observe some of the researchers who focus on this subject: health insurance.



**Map No. 3.** Researchers on the HI subject.  
*Source: Author processing*

Further, we ran a cartography analysis to find the most repeated keywords used in the health insurance literature. This analysis reflects the content of the paper and groups the articles into different clusters. As we can observe in Map No. 4 the most repetitive keywords after health insurance, are: coverage, services, reform, medical care, mortality, prevalence, and risk.

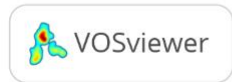
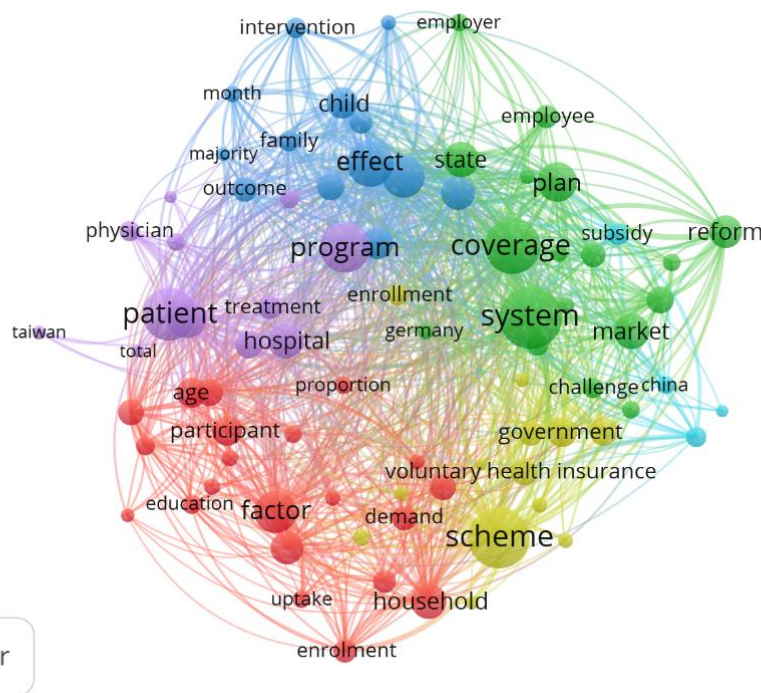


**Map No. 4.** Most relevant keywords on the HI subject.  
*Source: Author processing*

Summarizing this result, health insurance covers several risks and helps the insured improve their quality of life.



Also, we chose to treat the subject of health insurance separately, because voluntary behaviour largely depends on other factors, in contrast to behaviour constrained by law, practically mandatory. VOSviewer is also used for keyword co-occurrence analysis to present the distribution patterns of voluntary health insurance. We set a minimum threshold of word frequency statistics at 10, and the top 100 high-frequency keywords are selected to draw the label view of the co-occurrence of keywords. In Map No. 5 each colored circle represents a keyword node, while the size of them represents the level of statistic frequency. As we can see coverage, system, program, patient, and scheme are one of the most used words.



**Mapp no. 5.** Keyword co-occurrence tag view of the most relevant keywords for voluntary health insurance

*Source:* Author processing

Also, the links between the nodes represent the co-occurrence relationship, according to which different subject clusters are formed (red, purple, blue, green or yellow). High-frequency words within the: *red cluster* include factor, participant, age, household, enrolment, and education, the *purple cluster* includes program, patient, hospital, and treatment, the *blue cluster* includes effect, child, intervention, family, month, the *green cluster* include coverage, system, state, plan, employee, reform, and *yellow cluster* government, scheme, enrollment.

### **Outlook**

In this bibliometric document, based on the database of Web of Science and through using VOSviewer software, literature related to health insurance is studied to understand the research trends.

Our analysis shows that the United States of America led the most articles on health insurance and Health Journal (Affairs, Value, Economics) are the most important and relevant journals on this topic. Also, high-frequency words within health insurance are coverage, services, reform, medical care, mortality, prevalence, and risk.

Our VOSviewer analysis can help to identify the relevant and significant articles on this subject. As a future direction of research, it would be useful to apply a qualitative analysis, at the content level of this database.

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