Circular Economy and Green Economy: a network analysis

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Abstract Circular Economy and Green Economy are very popular concepts in modern scientific business management literature. Several papers already addressed both concepts as synonymous while others distinguish them differently. Based on this conceptual gap, this paper aims to shed a light on these topics by mapping how scientific literature is linking these two terms. The used method is the network analysis and reports with key findings from indexed papers. Finally, a research agenda and future research topics to be further explored are proposed.

Keywords: Circular Economy; Green Economy, Sustainability; network analysis.

1. Introduction

Management's response to environmental problems can be explored from different perspectives, using other adjectives such as 'green', 'ecological' and 'environmental' to reveal a specific approach, as key words analysis. In literature and practice, we encounter two closely related expressions: Circular Economy (CE) (Jurgilevich et al., 2016) and Green Economy (GE). As can be seen, these terms are understood as separate terms or as synonyms (Loiseau et al., 2016).

Due to the importance of environmental problems, the article examines the similarities and differences between CE and GE in bibliometric research. This research gap is related to the lack of a clear definition of CE (Kirchherr, Reike, & Hekkert, 2017) and GE's relationship. The aim of this paper is to map the intellectual structure of CE and GE research. We identified networks of connections in the co-citation analysis and detected the most and least active research areas. This test method is an appropriate complement to the literature review on CE and GE. Addressing an existing gap in the bibliometric study literature, we conducted a sharing analysis in CE and GE analysis to identify this field of knowledge's intellectual structure (Ferasso, Beliaeva, Kraus, Clauss, & Ribeiro-Soriano, 2020).

2. Research design

2.1. Data collection

We collected data from the Web of Science (WoS) database. We searched by the following key terms: TITLE-ABS-KEY ("circular economy" AND "green economy"), in title, abstract and keywords, and limited to papers only, without period limitation. This procedure allowed the retrieval of 96 documents, whose meta-data was downloaded. After a careful inspection, we cleaned the output from false positive papers that were excluded from analyses, and the sample totaled 53 papers.

2.2. Data analysis

Data was analyzed in two ways. The quantitative data allowed the identification of main fields and the evolution of publications per year and the identification of top five sources of publications and top five publications according to the number of citations. These quantitative data analyses followed the procedures adopted by Ferasso & Cherobim (2017).

For the network analysis, the procedures of Ferasso et al. (2020) were adopted. The *.CSV format file was created and used as input for the VOS Viewer – the bibliometric analysis program. The threshold applied to this dataset was map based (elaborated upon the obtained results) on text data, abstract field, full counting, and a minimum number of occurrences of a term was 5. Results are presented in Figure 1 and reported two networks of searched themes. The first network of Green Economy is formed by 45 terms and 78 links, and the second network of the Circular Economy is formed by 79 terms and 79 links, respectively. The quantitative data and key terms network were used for content analysis as presented in the next section.

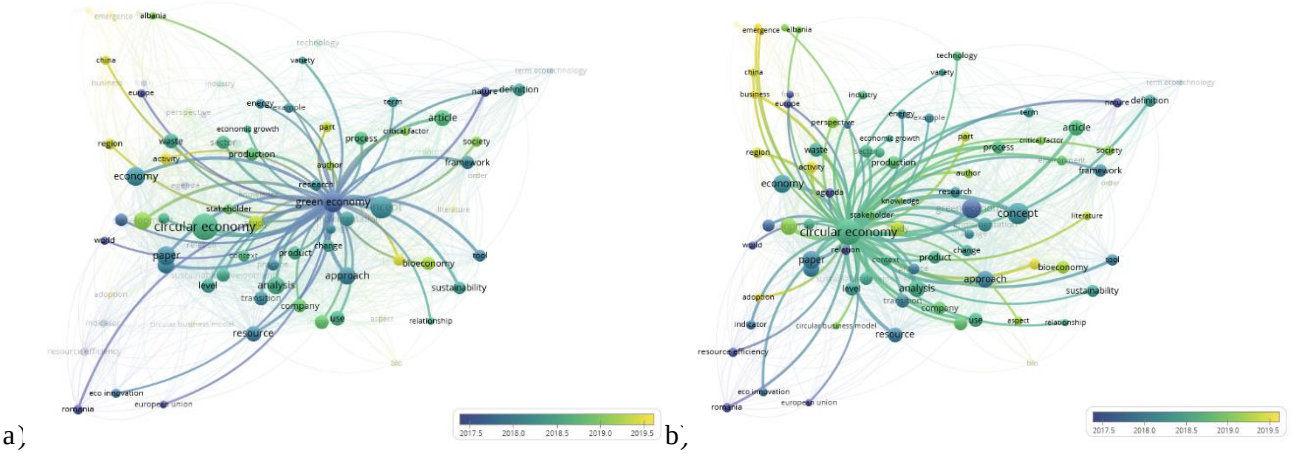

Figure 1. GE (a) and CE (b) networks analysis.

3. Findings

Quantitative results from WoS reported that the top 3 fields in the overall set of papers are Environmental Sciences (23), Green Sustainable Science Technology (21), and Environmental Engineering (13). The number of citations of selected papers increased in 2017, then passed 100 publications in the year 2018 to more than 250 in 2019, and reach the top of more 400 publications in 20219. The top five sources in the overall set of papers were *Journal of Cleaner Production* (10), *Sustainability* (8), *Journal of Environmental Planning and Management* (3), *Scientific Papers Series* (3), and *Futures* (2). Top five publications according to number of citations (number of citations in bracket) are D'Amato et al. (2017) (164), Rizos et al. (2016) (132), Loiseau et al. (2016) (120), Hobson and Lynch (2016) (86), and Hens et al. (2018) (44).

4. Conclusions

The obtained results proved that most papers refer to both concepts CE and GE, sometimes overlapping each other. The yellow nodes (as in Fig, 1) are considered as common elements of both topics. These nodes can be reported as promising, emerging topics for future research. The bigger circles are the most popular topics in research in the field of CE and GE, whereas smaller are rare subjects.

Therefore, we concluded that the CE and GE are synonyms to each other. This study opened new research perspectives for a systematic literature review, which we suggest should be based for a CE and GE in labor market context.

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