PUBLIC POLICY OPPORTUNITIES FOR THE TRANSITION TO A CIRCULAR ECONOMY: HIGHLIGHTS OF SCIENTIFIC RESEARCH

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Abstract The paper aims to reveal the highlights of scientific research dedicated to public policy opportunities for the transition to a circular economy. It reflects the findings of the literature review based on 119 scientific articles. Research accents tend to be systematized according to compliance with the universal goals of public policy: Stimulate a design for the circular economy, manage resources to preserve value, make the economics work, invest in innovation, infrastructure, and skills, and collaborate for system change. Our research may prove useful to economic policy makers working toward the transition to a circular economy. Along with identifying current scholarly highlights, the article suggests opportunities for future research and thus offers interesting conclusions for researchers interested in the intersection of circular economy and public policy. This paper will be useful for the further development and systematization of conceptual tools to accelerate the transition to a circular economy.

Keywords:
transition, SDGs, circular economy, public policy, sustainable development

JEL:
H11, Q01, Q58

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1 Introduction

There are many reasons to move from a linear economy to a circular economy (CE). According to various estimations, the use of resources has tripled over the past 50 years, and is expected to double by 2050 unless production approaches change. Population growth and, as a result, consumption growth, creates additional threats and dictates the need to change approaches to consumption. The circular economy presents a multi-trillion-dollar economic opportunity. Shifting towards a circular economy model will not only deliver climate and other environmental and social benefits, but will also provide significant new and better growth opportunities (Prasek, 2022).

The future of the planet has become an objective concern of academic and political circles. One of the solutions is an immediate transition to a circular economy, which is not an easy process. The transition to a circular economy will not happen automatically (Schröder, 2020). Many recent studies point to the importance of the circular economy in achieving the Sustainable Development Goals (SDGs) (Valverde & Avilés-Palacios, 2021; Gubeladze & Pavliashvili, 2020; Gagnidze, 2018). This gives a broad scope for many areas of public policy (Lekashvili, 2022; Mikaberidze & Papahashvili, 2020). Although the circular economy is not directly mentioned in the SDGs or other relevant documents, it can contribute greatly to the achievement of these goals. National governments can support the transition to a circular economy by providing an overarching policy framework for all levels of government (OECD, 2020).

Even though several scientific studies are dedicated to the specific results of public policy for the transition to a circular economy, there is a gap in the systematic studies of the possibilities of the same policy. In this respect, analysis of the relevant scientific studies is most valuable. Our interest is how scientific research responds to these large-scale goals, though in this paper, we have limited ourselves to the issue of activation and thematic scalability of public policy opportunities for transition to a circular economy.

Policymakers usually make decisions based on wide-ranging information. We share the opinion that there is a great risk of information asymmetry in developing green policies, such as specific difficulties associated with the existence of big data and the

systemic perception of problems (Papachashvili et al., 2018). Considering the turbulent environment, review papers are also thought to have a timesaving purpose. As such, the given analysis of the scientific literature, and the summary analytical conclusions, in addition to defining the area of interest for further scientific research, will bring practical benefits to the relevant policy-making process.

The research question of our paper is: Which main goals are more reflected in the scientific research of the last two decades, and in the direction of which goals will it be useful to activate relevant research in this topic in the future?

2 Theoretical Background

The circular economy is wide-ranging and is of interest to academic circles. At the initial stage of this research, it was revealed that there are different understandings of what a circular economy is. Researchers point to ambiguity in the definition of "circular economy," and the challenges in measuring it, which in turn leads to difficulty in setting goals for the transition to circularity. Scientific studies are intended to help us understand ways to ensure circular economy policies are related to the conceptual understanding of the issue. In some countries, these policies are integrated into environmental, pollution, waste management and resource issues. While some scholarly work has been carried out on barriers to the development of a circular economy strategy (Talens Peiró et al., 2017), there are relatively few academic studies on policies that may accelerate the transition toward a circular economy (Hartley et al., 2020). Our analysis of circular economy articles showed us that researchers rely more on the definition established by the Ellen MacArthur Foundation (EMF). Policy-related scientific studies are more country-specific (The Circular Economy in Ireland, 2022), or sector-specific, and most of them share the same Foundation's proposed universal framework for transitioning to a circular economy. Considering critical analysis of the relevant works, we defined five universal public policy goals for the transition to a circular economy elaborated by the EMF as a theoretical guide for our scientific literature review. Naturally, the starting points for each country and each sector will be different, and local specificities will need to be considered, but the essence of the five goals and the need to establish coherence between policy efforts are universally important.

The mentioned objectives are: Stimulate a design for the circular economy; Manage resources to preserve value; make the economics work; invest in innovation, infrastructure, and skills; and collaborate for system change.

For an inclusive transition from a linear to a circular economy, the goals cover a wide range of activities (see the source EMF (2021), "Universal Circular Economy Policy Goals"), and an area of integrated actions is envisaged. In addition, it provides a framework for the implementation of common tasks for governments and businesses to achieve the goals of the transition to a circular economy through effective coexistence.

3 Methodology

A literature review was defined as the type of research. Descriptive qualitative research was conducted based on the scientific literature review, dedicated to the public policy opportunities for the transition to a circular economy. Among the systematic review studies developed on this topic, noteworthy is the work of researchers (Thiago et al., 2022) covering the years 2017-2021, with articles searched in the ScienceDirect and WoS databases, using the descriptors "Circular Economy and Policies." The sample consisted of 29 articles.

Our study was carried out based on the scientific database of EBSCO. "Academic Search Elite" was defined as a core resource for receiving the scholarly information. Peer-reviewed articles published in English-language academic journals were selected. "Transition to a circular economy" and "public policy, or government policy, or policy" were taken as search words. In the first stage, 2001-2023 was indicated as the search period, but as most of the works published in the given search direction come from 2015 and later, works published in 2015-2023 were determined for analysis. After automatic filtering, the initial number was 271. After matching the titles, abstracts, and keywords with the search thesaurus, 119 papers were selected for study. Analysis and synthesis of the main results/conclusions of the works was carried out. The results were grouped according to the Ellen MacArthur Foundation's five (1-5) universal areas of public policy, noted above. In addition, two groups were added: (6) articles that were not identified for only one purpose and included general policy recommendations, development of a general/unified framework, and circular economy action plans (including in the context of SDGs),

and (7) articles that reflected a results-comparative analysis, modeling, literature reviews, bibliometric studies, or meta-analysis - multiple interdisciplinary scientific studies addressing the transition to a circular economy.

The content of the articles, which dealt with various areas, was recorded in more than one public policy objective. A total of 149 entries were made[1].

4 Results

The thematic distribution of the selected papers according to the entries is given in Figure 1. The share of the individual thematic group is as follows: 24% (36) of entries cover the development of a general/unified framework for the transition to a circular economy, among which there are works that cover the mentioned issues in the context of sustainable development; about 23% (34) of entries reflect managing resources to preserve value, 14% (21) of entries cover stimulating circular economy design, 13.4% (20) of entries are dedicated to regulatory mechanisms for the economy, 10% (15) of entries refer to collaborative systemic change, around 7.4% (11) of entries cover issues such as investment in innovation, infrastructure and skills, and 8% (12) of the records of analyzed papers are of a literature review or bibliometric research type, which at the same time reflect the results of either a meta-analysis or a comparative study.

The second figure shows the distribution of emphases of scientific research articles according to the universal goals of public policy on the transition to a circular economy. The shares of analysis records are as follows: Stimulate a design for the circular economy – 20.8 %; Manage resources to preserve value – 33.7%; Make the economics work – 19.8%; Invest in innovation, infrastructure, and skills – 10.9%; Collaborate for system change – 14.9%.

[1] Due to the limitation of the scope of the article, the other relevant references are not presented in this work.

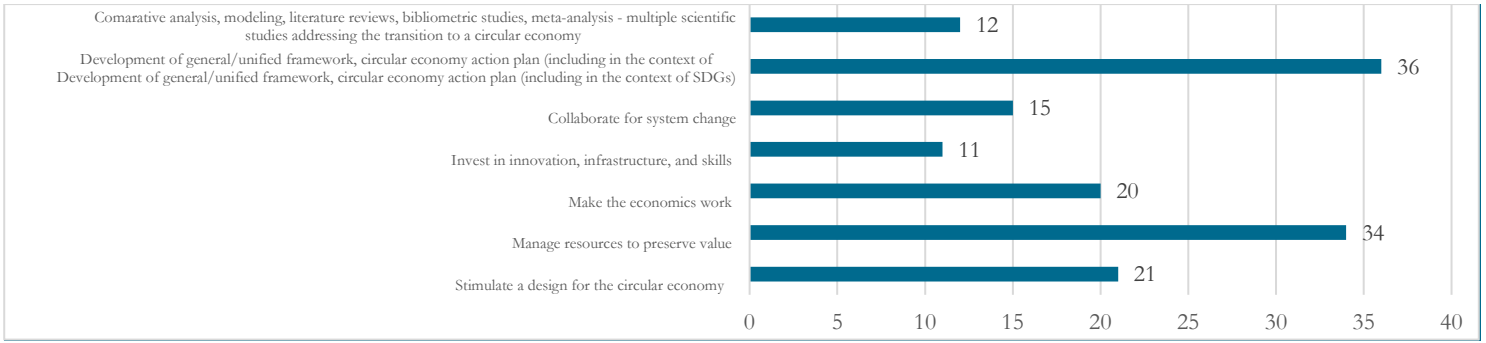

Figure 1: Quantitative distribution of scientific papers on public policy for the transition to a circular economy, EBSCO databases, 2015 - March 2023.

Source: Authors' illustration.

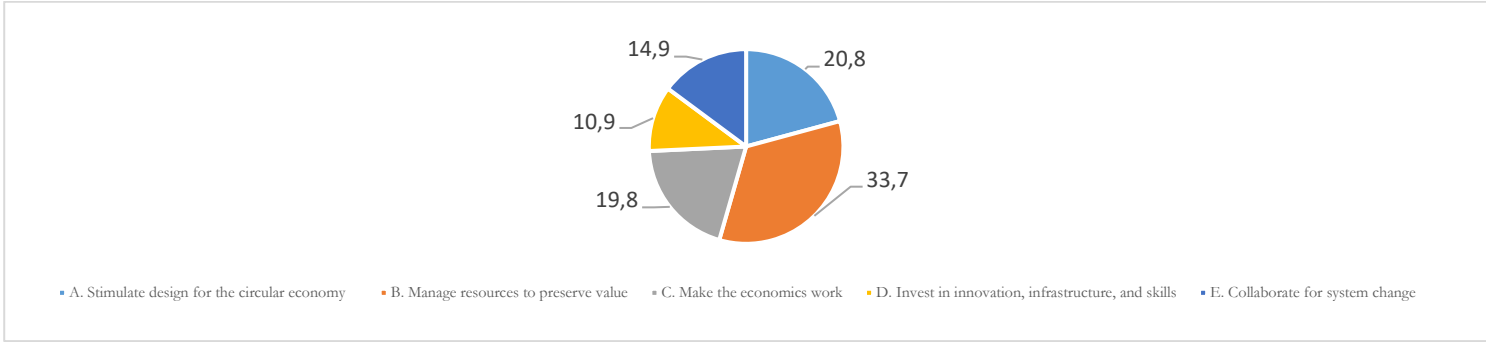

Figure 2. Emphases of scientific research according to the universal goals of public policy on the transition to a circular economy, %, 2015 - March 2023.

Source: Authors' illustration.

5 Discussion and Conclusion

The first stage of the study issue showed us that circular economy policies require a more adequate knowledge base and that science-based policies are needed to increase the efficiency of the transition to circularity. Public policy can encourage companies, remove barriers, and offer incentives for high material value reuse, efficient waste management, etc. Intensive integration of research results at the macro level will support systemic approaches. Public policy has ample scope to accelerate the transition to a circular economy.

From the beginning of the 21st century to 2015, the term "transition to a circular economy" was rarely used in our determined scientific base (EBSCO, journals in Academic Search Elite, peer-reviewed articles), although the content of the articles reflects this process and is mostly related to waste recycling.

Research in this direction became more active after 2015, presumably connected to the UN General Assembly resolution 70/1 – Transforming Our World: The 2030 Agenda for Sustainable Development.

The special emphasis of scientific studies (24%) on an action plan and unified framework for the transition to a circular economy is related to the period after the adoption of the mentioned resolution. These studies contain many useful recommendations for policymakers, especially as almost all studies are aligned with one or another goal of sustainable development.

Comparative studies of the transition to a circular economy in different countries provide unique opportunities to share the achieved progress for effective public policy, while literature reviews and bibliometric studies provide a unique opportunity for both policymakers and researchers to quickly familiarize themselves with the results achieved in this field. This focus on such studies was seen in 8% of the studied papers, indicating the need for further academic research.

Outcomes of reviewing the literature on the transition to a circular economy, according to the universal objectives of public policy, clearly highlight a special scientific interest in research into business models related to the management of resources to preserve value (33.7%). There is approximately equal research interest

in circular economy stimulation and promotion systems (20.8%) and proper regulation of the economy (19.8%).

Issues of effective multi-stakeholder collaboration (14.5%) and issues of investment in innovation, infrastructure, and skills in the context of public policy (10.9%) have been relatively less in the focus of scientific research, and, as such, these future scientific research directions are promising.

Six of eleven articles related to innovations were related to digital transformation. Roblek and co-authors (2020) proposed interesting conclusions for expanding this research area, emphasizing the importance of scientific innovation with the conceptual, technological, and contextual frameworks of the Internet and Internet technology usage, and its impact on sustainable development and the emergence of Society 5.0.

The intensive use of digitization advances for the transition to circularity is important for both the public and private sectors, and obviously provides a wide arena for scientific research. Within the framework of this study, the direct research focus was not the correlation of raising the level of knowledge about the field of education and circularity, although observation of this direction during the review process also revealed the scarcity of scientific studies in this regard. Only two papers of those studied focused on the role of education, which is also worth noting for future research.

The contribution of this paper to scientific novelties lies in the systematization of scientific research emphases, according to the universal public policy goals, for the transition to a circular economy in the last two decades. In addition, a study of bibliometric and literature review scientific articles related to the issue was carried out. The results of this research offer new findings for the academic community.

The limitation of the work is the determination of the study area to the scientific research papers found in the EBSCO database, sought in the direction of academic research. The conclusions are derived from analysis of the studied scientific works.

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