The Effect of Circular Economy and Environmental Sustainability on Economic Growth: A Bibliometric Analysis

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Abstract. This research explores the impacts of circular economy and sustainable development on economic growth through a systematic literature review (SLR). In this study, we will focus on two main goals: investigating how circular economy and environmental sustainability are interconnected and contribute to economic growth and exploring the themes through which circular economy and environmental sustainability shape economic growth. The findings reveal the rising attention on this topic in top-tier journals such as Resources, Conservation and Recycling, Resources Policy, and Economic Research - Ekonomska Istrazivanja, and based on our demographical findings, three countries that contribute the most in the field of circular economy, environmental sustainability and their effects on economic growth are China, UK, and USA. Our study contributes to academia from two perspectives: first, by examining the effect of CE and ES on economic growth and giving valuable insights into the existing body of knowledge, and second, by proposing a framework.

Keywords. Circular Economy, Environmental Sustainability, Economic Growth, SLR

1 Introduction

The idea behind a circular economy is to build a dynamic system to decrease resource input and lower waste, pollution, and energy leakage. The significance of restricting, stopping, and narrowing material and energy loops is emphasized by [24]. This strategy is becoming more widely acknowledged as essential for severing the link between economic growth and the use of natural resources and reducing the environmental effects of economic activity [11]. Adopting sustainable practices through creative business models and integrating them into supply chains based on consumer logic are necessary for implementing the circular economy [6]. Furthermore, there is continuous debate concerning the definition and interpretations of the circular economy due to its strong connection to sustainable development objectives [28]. Fundamentally, the circular economy is essential for stimulating the development of sustainable plans and

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augmenting the general sustainability of the current economic structure. This means finding a balance between the need for economic growth and the protection of natural resources as well as people's well-being [16].

The idea of environmental sustainability is intricately tied to the circular economy, striving to reduce waste and optimize resource utilization through practices such as remanufacturing goods, recycling, reusing, repairing, and sharing [24]. In order to ensure long-lasting environmental quality, environmental sustainability requires thoughtful interaction with the natural world with the goal of preventing the depletion or deterioration of its resources. This includes maintaining ecological balance, protecting biodiversity, and considering present and future generations' social and economic needs. Promoting environmental sustainability is significantly bolstered by adopting circular economy strategies, including inventive business approaches and the transition to sustainable energy sources [13], [45]. Moreover, cultivating a closed-loop supply chain mindset and harnessing green capabilities is crucial for elevating circular economy effectiveness and, by extension, promoting environmental sustainability [46].

Economic growth defines the steady rise in a nation's production of services and goods over an extended period. There is a complex relationship between economic growth and sustainability of the environment due to increased emissions caused by economic growth, which can impact sustainability [5], However; It has been acknowledged that the circular economy's practices can promote environmental sustainability, slow the reduction of the natural resources and promote economic growth [7]. Reverse logistics is one of the circular economy approaches linked to sustainable practices and can work as a catalyst for creating strategies for sustainable development [17]. Moreover, the transition from a linear to a circular economic model is regarded as a critical step in diminishing the manufacturing industry's environmental impact and promoting more efficient use of resources [26].

The intersection of economic growth and circular economy is underscored by the circular economy's capacity to boost sustainable economic progress. Circular economy not only focuses on enterprises' economic facets but is also dedicated to environmental sustainability [3]. Research done by [8]. found that integrating circular economy principles with technology can yield positive outcomes for sustainable production and also economic growth. Moreover, a circular economy is recognized as a promising strategy for achieving sustainable growth, necessitating foundational transformations in social, industrial and consumption systems [36]. Additionally, a circular economy is connected to the advancement of sustainable supply chain performance, indicating its potential to increase economic efficiency and sustainability both [22].

Based on prior studies, economic growth and environmental sustainability have a multifaceted relationship [31]. A study by [38] found that environmental sustainability practices positively affect the economic growth. Contrarily, it is argued that economic growth hinders environmental sustainability by increasing emissions, showing a contrasting view [5]. On the other hand, a circular economy has positive effects on economic growth. Circular economy practices can considerably advance business operations regarding financial and environmental performance [10]. Although multiple studies found that a circular economy has positive effects on economic growth, it is worth mentioning that according to research by [15], in the short term, the GDP growth rate was suppressed by implementing circular economy practices.

In the current body of literature, a major gap has been identified in this study, and there is a contradiction regarding the relationship between environmental sustainability and economic growth. A study done by [2] shows that expansion of monitory resources and economic growth positively affect environmental sustainability, while another study revealed a negative impact of economic advancement on environmental sustainability, which has been done in the Asian regions [4]. Therefore, this study focuses on the impact of a circular economy and environmental sustainability on economic growth. There are two main objectives in this study that we are going to address: 1) to explore the interconnectedness between circular economy and environmental sustainability that direct toward economic growth and 2) to explore the themes through which circular economy and environmental sustainability shape economic growth.

One main research question in this study is: how does the juncture of circular economy and environmental sustainability contribute to economic growth? The question in this article is created to identify the significance of circular economy and environmental sustainability supports to grow the economy as mentioned by [23], [29], [43]. These studies highlight the importance of the circular economy on economic growth. To put it briefly, this study has several contributions to the progress of literature. First, this study addresses the gap by examining the controversial impact of environmental sustainability on economic growth. Previous studies had controversial findings regarding the impact of environmental sustainability on economic growth. Another contribution of this study is to present a framework. Our study can make a remarkable contribution by presenting a framework to comprehend the effect of circular economy and environmental sustainability to economic growth.

The rest of this paper is arranged accordingly. First, the literature review section explores the circular economy and environmental sustainability and how it affects economic growth. Next is the method section, where we discuss how the data was collected and how we analyzed the data. The result outlines the important factors for successfully achieving economic growth by implementing circular economy principles and considering environmental sustainability. The last section will summarize the conclusion, future research directions, and managerial implications.

2 Literature Review

2.1 Circular Economy

According to [57], the circular economy is an economic strategy that prioritizes developing a self-sufficient production system and reusing resources to extend the production cycle and expand value creation over an extended period. The concept is to turn waste materials and energy into useful resources in a closed-loop system [35]. The objective is to promote sustainable development through the product lifecycle, creating a closed-loop economic ecosystem that covers economic, social and environmental dimensions [48]. The circular economy is a manufacturing and consumption model that boosts the use of resources, components, and goods throughout their existence [41]. According to the European Commission, it is a system that epitomizes the value of products, materials, and resources that endure within the economy for as long as possible while minimizing waste generation [33]. Fundamentally, the concept revolves around maximizing the endurance of goods and resources

[62]. To diminish the need for raw materials and natural resources while fostering their recovery, recycling and reuse as a vital component of the production process act as an economic paradigm that balances economic advancement with environmental stewardship and resource maintenance [21].

The notion of a circular economy revolves around and economic framework dedicated to eliminating waste and fostering the continuous utilization of resources. This approach can potentially fuel economic growth through several channels [37]. Furthermore, the circular economy can spur economic growth by fostering the emergence of novel opportunities and products. For example, implementing adaptive reuse, a main tenet of the circular economy can open avenues for creating innovative tourism offerings, thereby invigorating economic activity within the tourism industry [42].

Environmental sustainability involves integrating economic, social, and environmental aspects into the organization's goals, planning, and activities, and the reason for that is to create long-term value for its stakeholders, firms and society, thereby fostering enduring value for both the organization and its stakeholders while contributing positively to the wider community [44]. Economic growth, on the other hand, can be grasped as a frequent enrichment in a nation's tangible production of commodities and services across time, quantified by the increase in its gross domestic product (GDP), also economic growth stands as a key element for a country, fostering elevated national earnings, expanded employment avenues, and an enhanced quality of life [39].

The correlation between maintaining environmental balance and promoting economic growth is a subject of large scholarly attention. Many studies have highlighted the potential for environmental sustainability to influence economic progress positively. For example, the notion of circular economy has appeared as a promising avenue for sustainable development, offering the principle to disentangle resource utilization and environmental repercussions from economic growth [27]. Furthermore, implementing renewable energy sources has determined its capacity to stimulate eco-friendly economic growth [9]. Likewise, sustainable circular economic practices have been suggested to yield promising outcomes such as energy recovery, greater resource efficiency, sustained economic growth, and responsible consumption [23].

3 Data and Methodology

This research explores circular economy's and sustainable development's impacts on economic growth through a systematic literature review (SLR). A systematic literature review (SLR) is a precise and open methodology employed to consolidate the existing body of knowledge in a defined field [25]. The main objective of SLR research lies in identifying the principal studies within a domain while emphasizing potential gaps in research [12]. This approach includes methodical, transparent, and replicable procedures at each stage of the procedure, striving to diminish bias through exhaustive searches across both published and unpublished works [49], [50]. SLRs are adept at extracting crucial insights from literature in an organized manner, providing researchers with a strong comprehension of a given research landscape and perceptions of future avenues of exploration [52], [56]. on a manual clarification certifies a reliable and transparent process, minimizing biases in the review outcomes [14]., SLRs act as

efficient tools for navigating an enormous array of academic publications and helping the construction of complicated research frameworks [34]. This methodology provides a comprehensive panorama of a specific field or subject, lessening biases through a meticulous and transparent search containing the identification, analysis, and review of both published and unpublished literature [59]. The systematic review approach represents a distinct methodology for scrutinizing, analyzing, and interpreting all available evidence relating to a specific inquiry in an impartial and repeatable manner [55].

3.1 Data

Article Selection

Following a thorough examination akin to similar review inquiries, pertinent literature was identified by carefully investigating keywords spanning three dimensions: title, abstract, and keywords. The range of search terms applied to fold all possibly related documents for his analysis included the following phrases [40].

("Circular Economy") AND ("Environmental Sustainability" OR "Sustainable Environment" OR "Environmental Protection") AND ("Economy Growth")

The articles we searched are all in English and published between 2023 and 2024. In the primary phase, the search query produced a total of 44,443 records retrieved from the Scopus database. Numerous principles were employed for the selection of the article to distinguish publications that want to eliminate (exclusion criteria) from those that are eligible to consider (inclusion criteria) [54]. For the subject area in this study, we chose Economics, Econometrics and Finance; then, we added more filters for each variable, such as keywords; for the source type, we selected only journals, and after adding all these filters, the number of articles reduced to 713 articles.

3.2 Method

Systematic and Bibliometric Procedure

The method used to conduct this study is a systematic literature review (SLR). The initial step of this study is to explore previous studies on circular economy, environmental sustainability, and economic growth within the Scopus database. The keyword search includes abstracts, keywords and titles that align with our study's objectives. Following the principles outlined by [54], the approach progressed through three distinct phases: devising the review strategy, executing the review process, and finally recording the result achieved.

In the study, we are adopting bibliometrics instruments such as 'R studio' or, to be specific ', bibliophile' to explore the paths, current themes, and patterns where circular economy intersects with environmental sustainability, thereby heightening economic growth. Analyzing the bibliometrics data serves as an important asset within the SLR endeavors. This technique allows scholars to delve empirically into the strongest research matches within a particular domain over a defined period. Through bibliometric analysis, researchers can pinpoint important articles, specific authors, and influential journals, finding current trends and central themes nested within

the literature. This approach makes understanding the current studies easier and unfolds the exploration for studies while charting the framework and paths for future research directions [19], [30], [53]. Additionally, bibliometric analysis performs as a compass for perceiving evolving trends, providing general insights into the evolution and significance of specific subject areas. It also contributes as a guide for outlining the insights from past literature and explaining promising avenues for future inquiry, thus fostering knowledge development within the disciplinary realm [20], [32].

4 Empirical Findings

4.1 Descriptive Statistic

This section of the article presents the findings attained through a thorough analysis of the literature organized in a structured manner. It begins by analyzing notable trends in publications, encompassing cited references, keywords, author patterns, pertinent sources, and network visualization. Subsequently, it contributes to the recap of the studies incorporated, enlightening the broader context of the circular economy and environmental sustainability literature, and at the end, suggests a framework for guiding future scholarly endeavors.

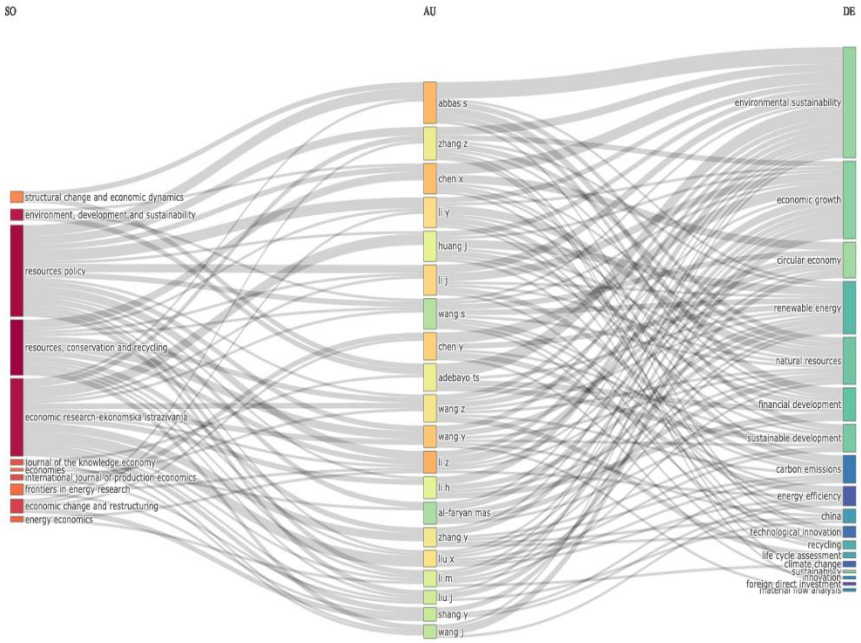

Figure 1. Three-Field Plot displaying the connection between Source (SO), Authors (AU) and Keywords (DE).

The Three-Field Plot in Figure 1 shows the connection between the sources, authors, and keywords. In this case, environmental sustainability has the highest incoming flow count of 17. Considering the number of connections directed toward the keywords, Abbas has the highest

connections among all the authors, with an incoming flow count of 3 and an outgoing flow count of 6.

Table 1. Most Relevant Sources

Sources	Articles
RESOURCES, CONSERVATION AND RECYCLING	124
RESOURCES POLICY	82
ECONOMIC RESEARCH-EKONOMSKA ISTRAZIVANJA	77
ENVIRONMENT, DEVELOPMENT AND SUSTAINABILITY	62
RESOURCES, CONSERVATION AND RECYCLING ADVANCES	20
CLEAN TECHNOLOGIES AND ENVIRONMENTAL POLICY	17
ECOLOGICAL ECONOMICS	12
ECONOMIC CHANGE AND RESTRUCTURING	12
CLEANER AND RESPONSIBLE CONSUMPTION	11
INTERNATIONAL JOURNAL OF PRODUCTION ECONOMICS	11

Table 1 shows the top 10 most relevant sources in this study and journal of the Resources, Conservation and Recycling has the highest number of articles, specifically 124 articles, and Resource Policy has the second highest articles with 82 articles.

Table 2. Most Cited Countries

Country	TC	Average Article Citations
CHINA	851	4,40
UNITED KINGDOM	101	1,90
ITALY	89	2,90
USA	87	1,70
BANGLADESH	86	9,60
CYPRUS	78	15,60
TURKEY	70	7,00
BRAZIL	66	4,10
AUSTRALIA	59	3,30
SPAIN	52	3,70

Table 2 shows the top 10 total cited and average article citation countries. China has the highest TC of 851 and Spain is at the bottom of the list with 52 TC; Although China has the highest

total citation, when we look at Table 2. It shows that considering the average article citation, Cyprus has the highest average citation of 15.60, and USA has the lowest average citation of 1.70.

Table 3. Seven Most Frequent Words

Words	Occurrences
circular economy	268
environmental sustainability	135
economic growth	126
sustainability	46
sustainable development	37
natural resources	28
recycling	23

Figure 3. WordCloud of the Keywords.

Based on Table 3, most frequent words and Figure 3 WordCloud, we can say that circular economy, environmental sustainability, and economic growth are the top three frequent words occurring in our study.

4.2 The Interconnectedness of The Circular Economy and Environmental Sustainability: Impacts to Economic Growth

Economic growth shows the consistent enhancement in the tangible yield of commodities and amenities inside a country's economy throughout time, normally assessed by the pace of growth in the gross domestic product (GDP) [18]. It stands as an essential scale of a nation's economic welfare and advancement, demonstrating the pervasive increase in production, earnings, and

utilization inside of its boundaries (Acheampong & Opoku, 2023). The economy's advancement is paramount in elevating living standards, decreasing poverty, and promoting employment opportunities [18]. Moreover, the interrelation between economic growth and environmental sustainability bears significance, as sustainable economic growth hinges on resource efficiency, adoption of cleaner energy sources, and the integration of eco-conscious practices [51], [58].

The notion of circular economy stresses waste reduction and enhancing resource consumption and stands as an essential pillar in guaranteeing the sustainability of our environment [61]. Developments in electricity and environmental protection are getting more important than ever since most countries are making specific objectives and goals for sustainable development, one of which is circular economy initiatives [61]. Boosting green growth recovery, a tactic that promotes GDP increase and environmental stewardship, appears imperative for promoting sustainable economic growth [47]. Furthermore, the advancement of eco-tourism appears as a positive force in both environmental sustainability and the pursuit of a green economic recovery [60].

Figure 4 shows the high interdependence of the circular economy and the importance of environmental sustainability. The results from the co-occurrence network show that circular economy and environmental sustainability are at the centre and illustrate a strong connection to economic growth.

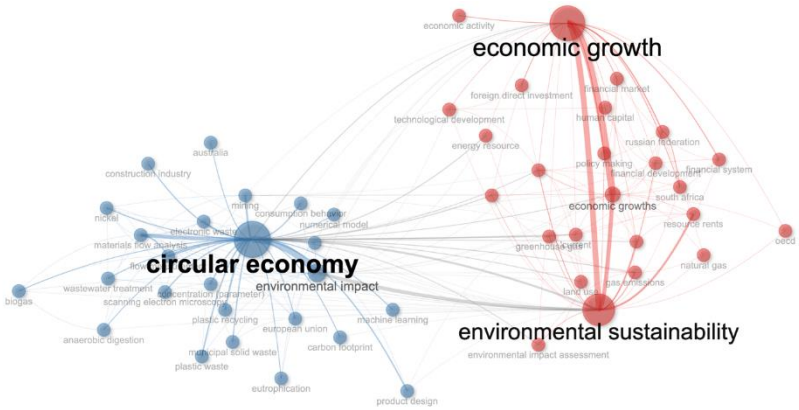

Figure 4. Network Visualization, co-occurrence network – full keywords

4.3 A framework for Economic Growth: future research directions

This article presents a framework intended to offer insight into the circular economy and environmental sustainability and the integration of both in order to attain economic growth. A wide set of articles from the Scopus database was analyzed to map and evaluate existing research accomplishments and to measure the possible integration of the circular economy and environmental sustainability to enable economic growth.

Key Component

- Maximum resource utilization with the aim of reducing costs and waste, promoting economic growth through optimized resource utilization (resource efficiency).
- Aiming to make more durable and repairable products encourages a longer product lifecycle, reducing the demand for frequent replacements (durability and reusability).
- Creating an effective recycling system that turns waste into a valuable product, reducing the demand for new raw materials (recycling and material recovery).

Environmental Sustainability

- Effective waste management can decrease businesses' costs through lower disposal fees, increased recycling income, and diminishing resource utilization (waste management).
- Low air quality results in substantial economic expenses, such as healthcare costs, efficiency losses, and damage to the ecosystem and infrastructure (Pollution).
- Measuring energy performance involves assessing the effectiveness of energy construction, sharing, and utilization systems (energy performance).

Economy growth

- Adopting renewable energy sources such as solar and wind power diminishes fossil oil, restricts greenhouse gas emissions, and promotes a cleaner environment (renewable energy investment).
- Focusing more on eco-friendly infrastructure, such as public transportation and green constructions, to diminish energy utilization and increase resilience to climate change impacts (development of green infrastructure).
- Applying strict environmental guidelines and sustainable practices motivates businesses to adopt cleaner production approaches and move toward long-term environmental protection (environmental regulation and policies).

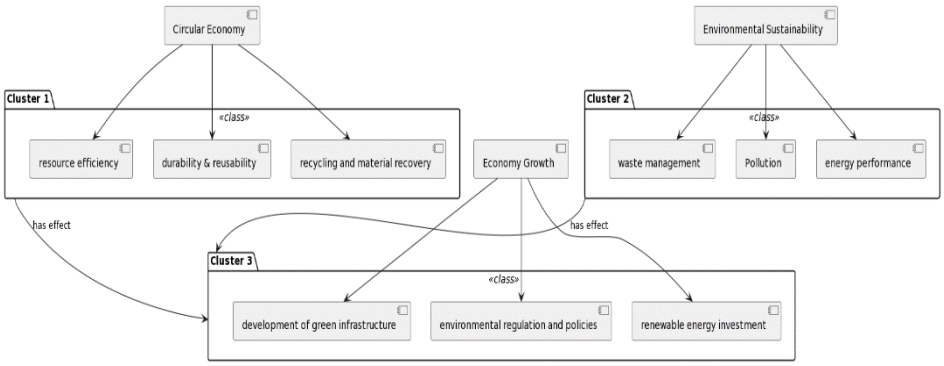

Figure 5. Proposed Framework for Economy Growth

4.4 Discussion, limitation, and future research directions

This study systematically examined the existing academic works at the junction of circular economy, environmental sustainability, and economic growth. After adding multiple filters, we chose 713 articles for analysis, all chosen from the Scopus database, with a period of time selected between 2020 and 2024. The top three journals that have focused more on this topic in recent years are Resources, Conservation and Recycling, Resources Policy, and Economic Research - Ekonomska Istrazivanja. The top 3 productive countries contributing to research on circular economy, environmental sustainability and economic growth are China, the UK, and the USA based on the corresponding author country examination. The results also show that the juncture of circular economy and environmental sustainability significantly affects economic growth.

Future research directions

Our findings from the previous studies we have reviewed suggest directions that are needed for future research investigation.

1) Investigating specific environmental sustainability indicators such as pollution or waste management to economic growth.
2) Since the circular economy is still a growing field of knowledge, future research can more quantitatively analyze circular economy policies and their effects on economic growth.
3) More longitudinal studies are suggested to track the evolution of circular economy policies over time.

Research Limitation

Even though our article provides precious insights into economic growth, it is necessary to admit the limitation of this research as they deliver an important understanding of the scope and applicability of our results. First, all the articles reviewed in this study are Scopus index journals, which limits the results based on a single source database. Second, all the articles used in this study were written in English and excluded from any other language. Third, we filtered and chose the articles only in the scope of Economics, Econometrics, and Finance, which led to the emission of the other relevant articles.

5 Conclusion

This article examines the effect of circular economy and environmental sustainability on economic growth by conducting a systematic literature review approach. We carefully chose 716 articles from the Scopus database for the final analysis. The findings reveal the rising attention in this topic in top-tier journals such as Resources, Conservation and Recycling, Resources Policy, and Economic Research - Ekonomska Istrazivanja and based on our demographical findings, three countries that contribute the most in the field of circular economy, environmental sustainability and their effects on economic growth are China, UK, and USA. Our study contributes to academia from two perspectives: first, by examining the effect of CE and ES on economic growth and giving valuable insights into the existing body of knowledge and second, by proposing a framework.

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