

Waste Recycling And Sustainable Economic Growth: Challenges Of The Circular Economy In Developing Countries

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Abstract

The aim of this paper is to analyze the impact of circular economy practices specifically the recycling of plastics, paper, and metals as well as infrastructure investment on economic growth in Kosovo. The study is grounded in circular economy theory, emphasizing waste reduction, environmental and material efficiency, and the integration of sustainable development principles. The paper adopts a quantitative research design with use of secondary data from the Kosovo Agency of Statistics and EU-funded projects. A linear regression analysis model was used to analyze how recycling rates and recycling infrastructure investments were impacting real Gross Domestic Product (GDP) per capita. Another application of the Performance Index (PI) was the comparison of the performance of individual recycling industries. Statistical findings confirm that recycling paper products, combined with plastic and metals, yields beneficial effects on economic growth. Infrastructure investment did not have any detectable effect, though. The study findings, based on the PI, indicate relatively low recycling performance across all three sectors, suggesting that significant opportunities for improvement remain unexploited. Policy and stakeholder coordination must be strengthened to enhance recycling performance and facilitate circular economy advancement, according to the findings. The research outcomes inform waste management strategy, environmental policy, and economic planning.

The study adds to scarce existing research on circular economy practices in developing nations by exploring practices in Kosovo. The article provides working knowledge, besides empirical evidence, of the benefits of specific recycling programs for sustainable economic development.

Keywords: Circular Economy, Recycling, Infrastructure, Economic Growth,

JEL Classification: O3, O4, O44, Q56, I61,

INTRODUCTION

The circular economy is a fresh and innovative style of resource management that focuses on minimizing waste and maximizing economic value by recycling and reusing materials. In contrast to Kosovo's traditional linear economy model rooted in the take-make-dispose model, the circular economy tends to embed closed loops in business cycles through product life extension and reduction of environmental negative externalities. As stated in the report published by Langsdorf and Duin (2022), the adoption of a circular economy model in developing economies can yield business opportunities, create jobs, ensure financial savings, and engage in the transition towards sustainable tech. Although most businesses in the manufacturing industry have invested in more advanced technologies in production processes, creating efficiency in these processes, which has reflected in reducing costs and increasing the profitability of businesses. But despite all of them, the scale of business models with the concept of circular economy is still small. A significant component in the circular economy model is recycling, which can lead to less pollution of the environment and create economic means. The degree to which recycling contributes to economic growth is much more amplified in developing countries, such as Kosovo. Given issues with waste management and lack of sufficient infrastructure, the transitions are more complicated in Kosovo. In this context, issues with waste management services and a lack of sufficient infrastructure complicate the situation. Given increasing consumption and urbanization, waste management policies and investment in infrastructure for recycling are essential. Although recycling has tremendous potential, its rate remains at unacceptably low levels in many developing countries, especially in Kosovo. This is due to the absence of a supportive regime, deficient public awareness, and regulatory barriers. To the effect of economic growth, Knäble et al. (2022) have focused on the impact of renewable energy, reuse, repair, and recycling as main indicators in a

circular economy. Using 22 European countries as her sample in the study, Knäble et al. (2022) assessed the role of recycling, reusing, repairing, or substituting materials in economic expansion. This study intends to contribute to the academic arena by estimating the relationship between recycling rates and economic growth by using indicators such as the amount of waste recycled from plastics, paper, and metal, in addition to investments in waste management infrastructure. The study employs linear regression analysis to quantify the impact of recycling rates in each industry and investments in infrastructure on economic growth, while also examining the challenges to transitioning an economy to a circular economy. The study aims to provide insight into the role of recycling as a means to support sustainable growth and develop policy suggestions which might improve the waste management system. This study contributes to the current literature in the circular economy by developing a focus on developing economies and illustrating the unique challenges and opportunities presented when establishing recycling practices in support of transitioning to a circular economy while also supporting national economic growth. By using the empirical analysis and certification of the research, this study hopes to help policy developers and market agents create sustainable strategies for economic growth through circular economy practices.

LITERATURE REVIEW

The circular economy has become one of the core objectives of economic policies around the world and is a baseline strategy aligned with the Sustainable Development Goals. It focuses on reducing waste and maximizing the use and value of resources. The significance of the circular economy model is acknowledged, and many authors have researched its applicability on a sector-by-sector basis. Based on the research by Kirchherr et al. (2017), the circular economy can be defined as a concept based on business models that replace the "end-of-life" concept with an orientation toward the reduction, reuse, and recycling of materials in production/distribution and consumption processes. The study found that the circular economy business model improves sustainable development measures such as environmental quality, economic prosperity, and social equity, creating advantages for both present and future generations (Kirchherr et al., 2017). Ultimately, sustainable advantages for a more resilient economy ensure improvements in material productivity that may contribute to economic growth beyond turnover effects in certain sectors. Additionally, the circular economy as a "rethink device" has been valuable in providing creative solutions and innovations as a new framework (Ellen MacArthur Foundation, 2013). The (2023) report released by the European Parliament also notes that companies adopting the circular economy would increase their competitiveness and foster innovation, economic growth, and new jobs. The report also states that approximately 700,000 new jobs are expected by 2030. Economic growth that is not accompanied by an increase in economic circularity leads to the accumulation of waste, which negatively affects social well-being due to environmental degradation (Ekins & Zenghelis, 2022). Circular economy policies can reduce waste flows to developing countries, limiting the loss of valuable resources and mitigating environmental and social harm (Langsdorf & Duin, 2022). The transition to a circular economy, particularly in the plastic manufacturing sector, combined with the support of small and medium-sized enterprises through effective governance, creates new employment and business opportunities that can stimulate economic growth in developing countries (Maitreyee & Purnell, 2022; Bening et al., 2021). Given the premise of the circular economy to eliminate material flows, minimize waste, and optimize resource use, evidence has shown that recycling and reusing materials not only mitigate harm to the environment but also develop jobs and generate economic value (Ghisellini et al., 2016). According to Mhatre et al. (2021), recycling is one of the most common strategies used in the circular economy that considers waste to be a valuable resource. Recycling involves all kinds of processes in which waste materials are collected, sorted, and used to create new products. In Ellen MacArthur Foundation's (2013) report, it was stated that emerging market economies—including Kosovo—stand to benefit more from embracing the circular economy because they are not as "locked-in" compared to advanced economies; emerging markets can leap forward by building circular structures as they develop production-based sectors. While the circular economy is still a nascent concept in Kosovo, many studies have shown that countries that embrace circular economy principles have seen positive trends in economic sustainability. Particularly, reimagining waste as a product resource may be a powerful accelerator of economic growth, which may in turn create new business models and practices, especially for businesses in the waste management and material recovery sectors (Teo et al., 2023). These findings are also evident in the work of Rustemi (2024), who indicated that despite the realities that have challenged businesses in Kosovo, particularly as they have tried to grow, the circular economy has emerged with exciting new opportunities in various sectors, including the growing recycling sector. Recycling and reusing resources may help drive economies of scale, enhance specialization, and create jobs, while increasing workplace value through a reduction

in environmental degradation (Ghisellini et al., 2016). Savini (2013) argues that businesses and governments can capture the untapped economic value embedded in the overall stock of the economy by viewing waste as anything that does not circulate. In 2019, the Ellen MacArthur Foundation reported that the circular economy could generate multiple value loops from waste, or "wealth flows." However, the key issue in a linear economy is the initial collection and disposal of waste in volume, as for every ton collected, the monetary value it produces is low. According to Savini (2023), the circular economy does not "shrink" the economy; rather, it expands it through enhanced relationships (mediated by goods) in the waste management sector. As documented by Razzaq et al. (2021) in their study on the United States, a one-percentage-point increase in the recycling of solid materials contributes to economic growth. Developing countries have demonstrated poor waste management practices, with waste often being dumped or openly burned. These practices release pollutants, including greenhouse gases (GHGs), toxic fumes, and particulate matter, leading to air, soil, and water pollution (Ferronato et al., 2019; Castagna et al., 2017). Therefore, promoting waste recycling initiatives has been shown to improve livelihoods, empower informal sector actors, and reduce environmental health risks (Ezeah et al., 2013). It is also worth mentioning that recycling rates rely on investments in technological infrastructures; therefore, it is relevant to measure levels of infrastructure investment. Infrastructure is a key component for the success of recycling—not only as physical capacity, but also as the outcome of strategic investment decisions. Therefore, the development of effective infrastructure requires not only supportive policies but also the careful design of economic and institutional mechanisms (Zhang et al., 2021). The Ellen MacArthur Foundation (2019) suggested that a more effective waste collection system would help manufacturers, remanufacturers, and retailers to achieve scale, and greater efficiency would enhance the attractiveness of the loops. Based on a (2024) report by the Council of Europe, the circular economy foresight report highlights that one of the primary recommendations to develop the circular economy is to invest in circular infrastructure. This includes developing or enhancing infrastructure to enable the circular economy, such as high-tech recycling centers and community repair shops, to facilitate the adoption of circular practices by citizens and businesses. The European Environment Agency (2020) states that EU waste policies are already aiding the transition to a circular economy, namely through political initiatives to promote recycling, which leads to less waste. Consequently, the overall demand for raw materials is lower if waste is avoided in the first place, supporting both the environment and the material and product value chain.

RESEARCH METHOD

This research aims to investigate how circular economy activities affect economic growth in Kosovo in terms of recycling and infrastructure investments. The study utilizes the secondary data provided by the data from the Kosovo Agency of Statistics and the various published reports of the time 2017 - 2023. The analysis of the data will use an econometrics model to establish the impact of recycling materials on Gross Domestic Product (GDP) per capita and the impact of infrastructure investments relating to economic growth. Regression analyses are a method used by a variety of authors in the literature relating to data analysis. The analysis and evaluation of the importance, type, and degree of relationships between indicators will be conducted by the following equations. Also, the recycling performance of materials will be compared individually against GDP by the PI, meaning a measure of recycling efficiency when taking into account the overall level of development of the economy, meaning the efficiency in the use of resources. The results will be processed through SPSS 21 software.

Through its findings, the research will address the questions:

1. Does the recycling rate of materials impact economic growth?
2. What is the economic performance of industries that rely on recycling?

The overall model is of a linear form as follows:

$$Y_{jt} = \beta_j + \sum_k \beta_k X_{kjt} + \epsilon_{jt} \quad (1)$$

Y_{jt} represents the dependent variable GDP per capita at time t , where $i=1, \dots, N_i$, and $t=1, \dots, T_t$, β_j (beta_j) is the regression coefficient for Recycling j , X_{kjt} are the k explanatory variables, and ϵ_{jt} is the error term for Recycling j at time t .

By substituting the variables, we obtain the following equations:

$$Y_{jt} = \beta_j + \sum \beta_1 X_{1jt} + \sum \beta_2 X_{2jt} + \sum \beta_3 X_{3jt} + \sum \beta_4 X_{4t} + \epsilon_{jt} \dots \quad (2)$$

Where:

- GDP_{jt} represents Gross Domestic Product per capita,
- RPI_{jt} represents the recycling rate of plastics,

- RPe_{jt} represents the recycling rate of paper,
- RMe_{jt} represents the recycling rate of metals,
- IN_{jt} represents investments in infrastructure,
- β_0 is the intercept,
- $\beta_1, \beta_2, \beta_3, \beta_4$ are the regression coefficients, and
- ϵ_{jt} is the error term accounting for unexplained variations.

By substituting the aforementioned indicators, we develop the following model:

$$GDP_{jt} = \beta_0 + \beta_1 RPe_{jt} + \beta_2 RPl_{jt} + \beta_3 RMe_{jt} + \beta_4 IN_{jt} + \epsilon_{jt} \quad (3)$$

We have also further deepened the analyses to measure the direct impact of the quantity of recycled materials on GDP through the **PI index**.

$$PI\ index_i = \frac{M_i}{GDP_i}$$

- M_i represents the quantity of recycled material for the respective industry (paper, plastics, metals).
- GDP represents the Gross Domestic Product for the same year.

RESULTS OF ANALYSIS

Through conducting empirical investigations in the research approach, we aim to answer the research questions mentioned above. The econometric model results indicate that the model is statistically significant, as $p\text{-value} = 0.000 < 0.05$. This means we may continue with further assessments. According to the results shown in Table No.2, the R^2 value is 0.944. That means 94.4% of the variances in (GDP can be accounted for independently by our independent variables, namely the recycling rates of plastic, paper, and metal, and an investment in infrastructure.

Table 1. Summary of the statistical model

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate
	,944 ^a	,892	,882	,022747477290938

a. Predictors: (Constant), IN, RMe, RPe, RPl

b. Dependent Variable: Real GDP

Moreover, the critical F-value was used to evaluate the model. The results show that the computed F-value is 90.701, and the critical F-value ($F_{c_F_c}$) computed manually, provided in the appendix, is 2.584.

$$F_c < F, \\ 2.584 < 90,701$$

Table 2. Results of ANOVA analysis for the statistical model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	,188	4	,047	90,701	,000 ^b
1 Residual	,023	44	,001		
Total	,211	48			

a. Dependent Variable: Real GDP

b. Predictors: (Constant), IN,RMe, RPe, RPl

The results of the F-test and significance coefficient with a p value of 0.000 ($p < 0.05$) in the table assert that the model developed in this study is valid. The T values for each variable, which lies above 0.1 and below 1, and the Variance Inflation Factor (VIF), where each independent factor lies above 1 and below 10, also indicates that there is no multicollinearity in the independent variables for the model to analyze the impact of the recycling material in the economic growth model.

Table 3. Regression coefficients and their statistical significance

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics
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	B	Std. Error	Beta			Tolerance	VIF
(Constant)	6.829	.016		414.590	.000		
RPe	.074	.008	1.261	9.846	.000	.150	6.675
RM	.033	.008	.470	4.263	.000	.202	4.938
RPl	.081	.014	.818	5.754	.000	.122	8.221
IN	-.003	.005	-.041	-.643	.524	.618	1.618

a. Dependent Variable: Real GDP

Based upon Table No. 3, the data show that recycling paper has a highly positive effect on GDP ($\beta = 1.261$, $p < 0.001$), suggesting that raising paper recycling has a significant effect on real GDP growth. There is a statistically significant impact of recycling plastic on GDP with $\beta = -0.818$, $p < 0.001$ with the effect being a negative one. Recycling metals also has a positive and significant effect on GDP with a $\beta = 0.470$, $p < 0.001$, although smaller than recycling paper. The results further demonstrate that geometry_df is not statistically significant ($\beta = -0.041$, $p = 0.524$), indicating that in this model, the factor has not statistically contributed to real GDP growth and is a negative effect compared to materials recycling. These findings can be concluded due to the fact that all waste collection depots in Kosovo are state-owned. Furthermore, most of the infrastructure expenditures within this sector are reliant on public investment. Therefore, this indicator has not directly led to economic growth in Kosovo. Using the procedures listed in the methodology section, we also measured recycling rates for plastics, paper, and metals and compared their impact on economic growth.

The information provided in Figure 1 shows that recycling rates for all materials have, on the whole, followed an upward trend over the years, with the exception of 2019, when metal recycling dropped, and in 2022, when plastic recycling decreased slightly.

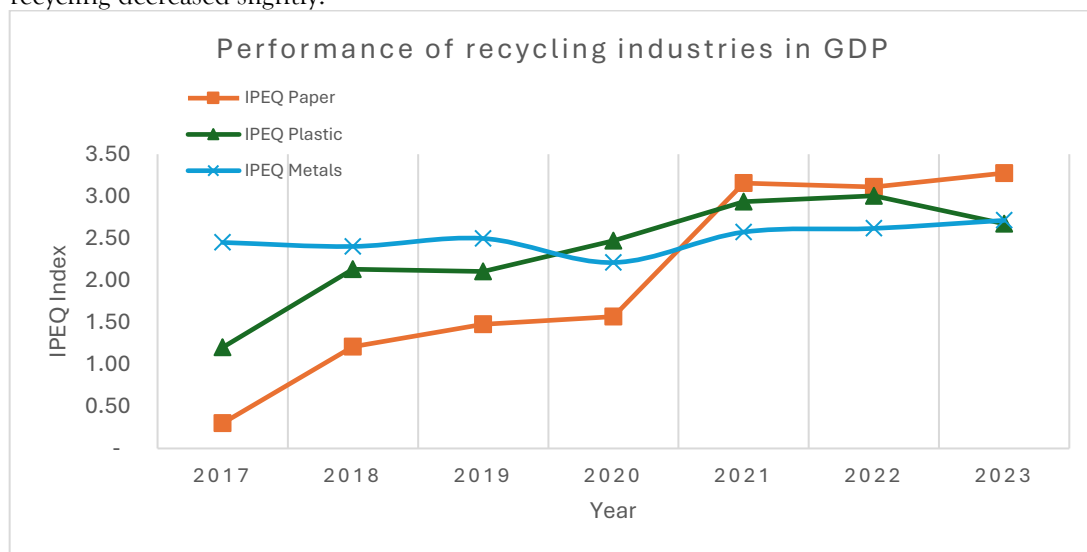


Figure 1. Performance of recycling industries in GDP

According to the calculated IP Index for the relative performance of each industry, the greatest impact of the three recycling industries on GDP was plastic recycling, with an average IP Index of 2.36%, followed by metal recycling, which had an average IP Index of 2.14%. The paper recycling industry exhibited the lowest performance compared to the other two materials, at 2.01%. Using the benchmark values of the IP Index, it is clear that the performance of all industries examined is poor since it is below 25%. This indicates that Kosovo has a low recycling rate for plastic, paper, and metals. In conclusion, these results imply that recycling is generally low in Kosovo, so there is a need for incentive policies directed at citizens and companies that produce waste as well as developing companies to process waste into raw material for market purposes.

DISCUSSION OF RESULTS

To achieve our research goals, we looked at how recycling rates for metals, plastics, and paper, along with investments in infrastructure, impact economic growth using economic models. Our findings show that recycling paper and metals had a clear and beneficial effect on economic growth. However, recycling plastics, while clearly

influential, had a negative effect. It's important to note that this could be because plastic waste is mainly exported, meaning it doesn't really boost our domestic economy. Plus, as indicated by the low level of infrastructure investment, we don't have the industrial technology to efficiently recycle plastics. These two factors might explain why recycling plastics isn't helping our economy grow. Also, looking at the B coefficient results, we saw that paper recycling had the biggest positive effect on economic growth, with metal recycling coming in second. This answers the first research question we set out to explore in this study. The findings are similar to those reported by Grdić et al. (2020). Their study focused on EU countries and suggested that higher recycling rates help the economy grow. Research by Eroğlu and Yılmaz (2023) also supports the idea that when recycling rates increase, economic growth is positively affected. Similarly, Maricut and Grădinaru (2023) found that circular economy practices play a role in economic development, highlighting that all countries gain from adopting these principles. Knäble et al. (2022) argue that recycling may not significantly contribute to economic growth, as their study indicates a weak relationship between the two. Different research shows varied results because they use different measures and focus on different recycling types. The environmental impact of recycling depends on the material and methods used. For instance, plastic recycling can harm the environment, which might explain its negative effect on economic growth. The findings of this study suggest that increased recycling has a positive impact on economic growth. This aligns with the perspective of Ekins and Zenghelis (2022), who emphasize that circular economy practices are fully compatible with sustainable growth, contributing to economic, social, and environmental dimensions of well-being. The study also indicated that spending on infrastructure didn't help the economy grow and could even have a negative influence. The Kosovo Agency of Statistics reported very low levels of investment in infrastructure, with no new investments recorded in the past three years. Most investment in infrastructure has been from the government. Increasing government spending on infrastructure without seeing positive economic returns might harm GDP. Research by Rustemi (2024) highlights that businesses in Kosovo within this field struggle due to a lack of funding and outdated technology. This situation hampers efforts to boost the effectiveness and economic gains from circular economy investments. Hapçiu's (2019) study found that 73% of the issues slowing circular economy development in Kosovo stem from widespread unawareness about this system and the government's lack of support to promote it. Waste collection is still managed by the public sector in Kosovo. This arrangement could hinder efforts to improve recycling rates. Prenovitz et al. (2023) found that recycling processes tend to be more cost-effective and innovation-driven when managed by private enterprises, as opposed to those administered by the public sector. The PI analysis was used to tackle the second research question that was considered in the study, to examine the recycling performance of each of the three materials (metals, paper, and plastics) in relation to the economic growth. The results proved that the recycling performance of the three materials, in general, was at a low level. The comparative results provide a clear picture of the metal recycling rate being the most influential of them all, having a 2.34% increase, and the paper recycling rate being the lowest in relation to economic growth performance. These figures show the urgency of it being necessary to have a planned connection with sectors and entities in the economy for the actualization of the circular economy. The ministry of environment via a publication, which is the report carrying the population, has illustrated the following initiatives to speedy circular economy development in Kosovo: Law on Waste, Strategic Plan (2019-2023); Extended Responsibility Programs (ERP) designed to give the producer the main responsibility for dealing with the environmental impacts of the product throughout life cycle; the Green Public Procurement (GPP) with the aim of reducing the number of non-recyclable, and minimize waste from the source; The scheme of voluntary agreements between the government and the private sector is aimed at the cooperation in new processes, products, and habits which are environmentally friendly; the source of funding for the eco-parks, which is also a part of the waste management strategy throughout the 12 municipalities and funded by the GEF. Through these measures and activities, the Ministry of Environment takes an active role in the implementation of national and international environmental policy. Further on, as noted in this report, the National Council for Climate Change has been created, the concept of the Circular Economy Center has been designed, the strategic documents and guidelines integrating the concept of the Circular Economy have been worked on, but the final decision to introduce these policies still falls under the auspices of the governmental institutions. The data support the performance results of the recycling industry for metals, plastics, and paper by the aforementioned stakeholders. However, we can still observe in Figure 1 that although the overall performance is low, there is a constant upward trend year by year. According to the report issued by The Balkan Forum, written by Rustemi (2024), the challenge that climate change has posed in different areas of business has also opened up new opportunities, such as greater growth in the recycling industry. Data presented in this research indicate that the rate of companies in this industry

is on the rise, offering increased prospects for exportation and emerging as a profitable business model. Nevertheless, as a developing country, Kosovo's economy remains largely linear, necessitating considerable effort to shift towards a circular economy for the advantage of the environment, the economy, and its people.

CONCLUSION

The circular economy remains one of the most complex economic concepts in the world. The purpose of this study was to investigate the impact of material recycling on economic growth, specifically plastics, paper, and metals, since they are at the core of the circular economy. The results show that recycling these materials has a statistically significant impact on the country's economic development. However, plastic recycling had a negative effect, while infrastructure investments not only had a negative effect but were also statistically irrelevant in terms of economic growth. Comparison of results from this study with results from other researchers indicates consistency in affirmation of the positive impact of recycling of materials like paper and metals on economic growth. It also seems that the impact of investment in infrastructure on economic growth is more complex since it may be affected by different factors that entail the efficiency and allocation of such investments. The results indicate that infrastructure investment was not substantial, and that it must be addressed by government institutions in order to make it strategic. Additionally, the PI analysis confirmed that all industries studied, including paper, plastics, and metals, were low in performance, primarily due to low recycling rates of these materials. This calls for concrete action from governments, businesses, and citizens to become more actively engaged in the process. These efforts should encompass the establishment of incentive policies to promote investment in green technology and infrastructure, the right policy formulation for the sector, and the establishment of a domestic market for recycles. More research needs to be done to research the contribution of recycling in other industries, i.e., the textile and wood industries, because Kosovo can support their development, and they are a driver of economic development. The outcomes of such research would help policymakers in Kosovo in planning economic policies towards these industries through targeted incentives. Development of the circular economy, treatment of waste, reuse, and recycling are all tasks that are challenging but crucial for any nation, particularly for developing economies.

REFERENCES

1. Agency, E. E. (2016). *Circular economy in Europe: Developing the knowledge base* (EEA Report No. 2/2016). Publications Office of the European Union. <https://doi.org/10.2800/51444>
2. Bening, C. R., Kahlert, S., & Asiedu, E. (2021). The true cost of solving the plastic waste challenge in developing countries: The case of Ghana. *Journal of Cleaner Production*, 330, 129649. <https://doi.org/10.1016/j.jclepro.2021.129649>
3. Castagna, A., Casagrande, M., Zeni, A., Girelli, E., Rada, E. C., Ragazzi, M., & Apostol, T. (2017). 3R's from citizens point of view and their proposal from a case-study. *UPB Scientific Bulletin, Series D: Mechanical Engineering*, 75(4), 253–264. https://www.scientificbulletin.upb.ro/rev_docs_arhiva/fulldf1_820316.pdf
4. Ellen MacArthur Foundation. (2013). *Towards the circular economy: Economic and business rationale for an accelerated transition* (Vol. 1). Ellen MacArthur Foundation. <https://www.ellenmacarthurfoundation.org/publications/towards-the-circular-economy-vol-1-an-economic-and-business-rationale-for-an-accelerated-transition>
5. Ellen MacArthur Foundation. (2019). *Cities and circular economy for food*. Ellen MacArthur Foundation. <https://www.ellenmacarthurfoundation.org/publications/cities-and-circular-economy-for-food>
6. Eroğlu, I., & Yılmaz, D. (2023). Panel data analysis on product recycling relationship in selected OECD countries. *Journal of Recycling Economy & Sustainability Policy*, 2(2), 11–32.
7. European Parliament. (2023). *Circular economy: Definition, importance and benefits* (Article 20151201STO05603). <https://www.europarl.europa.eu>
8. Ezeah, C., Fazakerley, J., & Roberts, C. L. (2013). Emerging trends in informal sector recycling in developing and transition countries. *Waste Management*, 33(11), 2509–2519. <https://doi.org/10.1016/j.wasman.2013.06.020>
9. Ferronato, N., Torretta, V., Ragazzi, M., & Rada, E. C. (2019). Waste mismanagement in developing countries: A case study of environmental contamination in Monteagudo, Bolivia. *International Journal of Environmental Research and Public Health*, 16(6), 1060. <https://doi.org/10.3390/ijerph16061060>
10. Gillham, L., & Tamsons, K. (2024). *Fostering a circular economy at local and regional levels*. 47th Session of the Congress of Local and Regional Authorities, Report CG(2024)47-14. <https://www.coe.int>
11. Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *Journal of Cleaner Production*, 114, 11–32. <https://doi.org/10.1016/j.jclepro.2015.09.007>
12. Grdić, S. Z., Nižić, K. M., & Rudan, E. (2020). Circular economy concept in the context of economic development in EU countries. *Sustainability*, 12(12), 1–13. <https://doi.org/10.3390/su12073060>
13. Hapçiu, A. (2019). *Ekonomia Qarkore në Kosovë*. ResearchGate. <https://doi.org/10.13140/RG.2.2.25951.89764>
14. Knäble, D., Puente, E. Q., Cornejo, T. H., & Baumgärtler, P. C. (2022). The impact of the circular economy on sustainable development: A European panel data approach. *Sustainable Production and Consumption*, 34, 233–243. <https://doi.org/10.1016/j.spc.2022.04.001>

15. Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221–232. <https://doi.org/10.1016/j.resconrec.2017.09.005>
16. Langsdorf, S., & Duin, S. (2022). *The circular economy and its impact on developing and emerging countries: An explorative study*. Ecologic Institute.
17. Maitreyee, K., & Purnell, P. (2022). Enabling circular plastic transitions in developing countries: A policy framework to support locally appropriate solutions. *Journal of Cleaner Production*, 337, 130468. <https://doi.org/10.1016/j.jclepro.2021.130468>
18. Maricut, A. C., & Grădinaru, G. L. (2023). The impact of circular economy on economic development: A review of EU countries. In *Proceedings of the 17th International Conference on Business Excellence* (pp. 1487–1496). Sciendo. <https://doi.org/10.2478/picbe-2023-0134>
19. Mhatre, P., Panchal, R., Singh, A., & Bibyan, S. (2021). A systematic literature review on the circular economy initiatives in the European Union. *Sustainable Production and Consumption*, 26, 187–202. <https://doi.org/10.1016/j.spc.2021.09.016>
20. Prenovitz, E. C., Hazlett, P. K., & Reilly, C. S. (2023). Can markets improve recycling performance? A cross-country regression analysis and case studies. *Sustainability*, 15(6), 4785. <https://doi.org/10.3390/su15064785>
21. Razzaq, A., Sharif, A., Najmi, A., Tseng, M. L., & Lim, M. K. (2021). Dynamic and causality interrelationships from municipal solid waste recycling to economic growth, carbon emissions and energy efficiency using a novel bootstrapping autoregressive distributed lag. *Resources, Conservation and Recycling*, 166, 105318. <https://doi.org/10.1016/j.resconrec.2020.105372>
22. Rustemi, V. (2024). *Sfidat ndaj ndryshimeve klimatike për ekonominë qarkore: Potencialet inovative/teknologjike në Kosovë, rajon dhe BE*. The Balkan Forum.
23. Savini, F. (2023). Futures of the social metabolism: Degrowth, circular economy and the value of waste. *Futures*, 150, 1–22. <https://doi.org/10.1016/j.futures.2023.103180>
24. Teo, T. C., Zhang, A., Djuraeva, Z., & Ettibaev, A. (2023). Out of Uzbekistan: The barriers of adopting circular business practices in rural SMEs. *Journal of Human Resource and Sustainability Studies*, 11, 356–380. <https://doi.org/10.4236/jhrss.2023.112021>
25. Zhang, H., Gu, W., & Liu, L. (2021). Incentivizing recycling infrastructure development under collective extended producer responsibility. *Production and Operations Management*, 30(6), 1843–1861. <https://doi.org/10.1111/poms.13310>