

THE ROLE OF THE CIRCULAR ECONOMY IN FOSTERING SUSTAINABLE ECONOMIC GROWTH IN THE-GCC

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Overview

The circular economy CE plays a pivotal role in global sustainable economic systems. Depending on linear production is not feasible nowadays, given the limited resources available and the rapid economic growth (Suárez-Eiroa et al., 2019). Production and consumption materials need to be recycled to improve the efficiency of using scarce natural resources. As such, current developments in the CE are addressing the heightened need for transforming linear economies into circular ones (Corona et al., 2019, Hysa et al., 2020). The CE concentrates on the optimal use of resources in order to achieve sustainable development, which in turn contributes to environmental, economic and social goals (Banaitè, 2016, Rodriguez-Anton et al., 2019). Therefore, it is important to analyse the contribution of the CE in enhancing sustainable economic growth in different countries (Tantau et al., 2018, Corona et al., 2019, Busu and Trica, 2019).

There is a growing need to convert to CE especially in developing countries, as CE strategy helps these countries to be more sustainable in using their limited resources. Therefore, a new type of economic growth is proposed focusing on reducing, reusing and recycling production and consumption materials (Ngan et al., 2019). Adopting this conversion contribute to sustainability by improving environmental and economical performance without spending more costs on new resource or waste management (Tantau et al., 2018, Busu, 2019). The successful transition to CE is more important to developing countries, as it solves the waste and resource issues; thus, saving the future generation from incurring environmental and economic costs.

Although the CE plays a role in achieving economic sustainability, few studies have explored the effect of transitioning to a CE in developing countries. Therefore, it is essential to examine the effect of circular economic factors on economic growth. To address this research gap, this study attempts to analyse selected indicators of the CE in the Gulf Cooperation Council (GCC) countries by focusing on the environmental, social and economic components. The aim of this paper is to analyse and elaborate on the impact of the CE on the economic growth of GCC countries. Moreover, the paper attempts to examine the interrelation of economic, social and environmental factors and sustainability in the GCC economies.

The main question of this paper is how CE factors contribute to fostering economic growth in the GCC countries. Furthermore, determine which CE indicators affect economic growth positively. The study contributes to the literature by estimating the link between circular economy indicators and economic growth, which has not been done previously in developing countries. The study can also help in improving our knowledge of the emerging different empirical literature on CE transforming towards enhancing environmental and economic development.

Methods

The sustainability of a CE is determined by the dependency of the main CE factors on GCC economic growth; this dependency is estimated using a regression model of economic growth, as a dependent variable, based on different explanatory variables such as CO₂ emissions, unemployment rate, electric power consumption, labour productivity, and renewable energy consumption. These independent variables are included in the model, based on the effects of each variable in previous literature (Trica et al., 2019). To fulfill the purposes of this paper, statistical hypotheses are validated by a multiple regression model using the statistical STATA software (StataCorp, 2015). The paper conducted a panel data for 6 GCC countries (Saudi Arabia, United Arab Emirates, Bahrain, Oman, Kuwait, and Qatar) to identify the effects of the CE indicators on economic growth. The data used in the regression model are collected from the World Bank database and correspond to the 2000– to 2020 time frame. The model is estimated first by the Ordinary Least Squares, followed by the Fixed and Random-Effects model which considers the panel effects of the dataset.

Results

Investigating the CE indicators based on the results of our economic model contribute to the empirical literature on CE transition in GCC countries. The indicators' statistical analysis reveals that the data has a normal distribution. To decide whether to adopt a fixed or random effect model, a Hausman test is performed. The test's findings demonstrated that fixed effect models were the most suitable ones for our situation. According to the estimation's findings, CO₂ significantly and favorably influences the GCC nations' per-capita economic growth at the 0.01 level of significance. The f-statistics were found to be significant, confirming the model's overall significance. We underline that 82% of the variability of the dependent variables is explained by explanatory variables due to the R² value of 0.82. The explanatory factors were tested for multicollinearity using Pearson correlation analysis. Since the correlation coefficient between the independent variables is less than 0.5, multicollinearity between the variables cannot be inferred.

Conclusions

This aim of the present study is to explore the relationship between the CE and economic growth in the GCC countries by using the multi-regression model. The study has been one of the first attempts to thoroughly examine economic, social and environmental influences on GCC economic growth. It highlighted the importance of the transition to CE in developing countries, and that the relationship can be observed in different variables which affect the economic growth. Based on the results of the multi regression analysis, the most obvious finding to emerge is that CO₂ significantly affects the GCC countries per-capita economic growth. Further research could be carried out to measure the impact of these explanatory variables on the sectoral level on GCC economies. A considerable policy implication of this study, is to maintain CO₂ as a driver for fostering the economic growth of the GCC countries.

References

- BANAÏTÉ, D. 2016. Towards circular economy: analysis of indicators in the context of sustainable development. *Social Transformation in Contemporary Society*, 4, 142-150.
- BUSU, M. 2019. Adopting circular economy at the European Union level and its impact on economic growth. *Social Sciences*, 8, 159.
- BUSU, M. & TRICA, C. L. 2019. Sustainability of circular economy indicators and their impact on economic growth of the European Union. *Sustainability*, 11, 5481.
- CORONA, B., SHEN, L., REIKE, D., CARREÓN, J. R. & WORRELL, E. 2019. Towards sustainable development through the circular economy—A review and critical assessment on current circularity metrics. *Resources, Conservation and Recycling*, 151, 104498.
- HYSA, E., KRUIJA, A., REHMAN, N. U. & LAURENTI, R. 2020. Circular economy innovation and environmental sustainability impact on economic growth: An integrated model for sustainable development. *Sustainability*, 12, 4831.
- NGAN, S. L., HOW, B. S., TENG, S. Y., PROMENTILLA, M. A. B., YATIM, P., ER, A. C. & LAM, H. L. 2019. Prioritization of sustainability indicators for promoting the circular economy: The case of developing countries.
- RODRIGUEZ-ANTON, J., RUBIO-ANDRADA, L., CELEMÍN-PEDROCHE, M. & ALONSO-ALMEIDA, M. 2019. Analysis of the relations between circular economy and sustainable development goals. *International Journal of Sustainable Development & World Ecology*, 26, 708-720.
- STACORP, L. 2015. Stata Statistical Software: Release 14. [computer program]. College Station, TX: StataCorp LP.
- SUÁREZ-EIROA, B., FERNÁNDEZ, E., MENDEZ-MARTÍNEZ, G. & SOTO-OÑATE, D. 2019. Operational principles of circular economy for sustainable development: Linking theory and practice. *Journal of cleaner production*, 214, 952-961.
- TANTAU, A. D., MAASSEN, M. A. & FRATILA, L. 2018. Models for analyzing the dependencies between indicators for a circular economy in the European Union. *Sustainability*, 10, 2141.
- TRICA, C. L., BANACU, C. S. & BUSU, M. 2019. Environmental factors and sustainability of the circular economy model at the European Union level. *Sustainability*, 11, 1114.