HOW ARE BUSINESSES ADOPTING CIRCULAR PRACTICES – EMPIRICAL STUDY ON THE CASE OF GEORGIA AND SELECTED EASTERN EUROPEAN COUNTRIES

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Abstract. The shift towards circular practices requires a variety of supportive actions from different parties, such as education from academic institutions, institutional support from government and policymakers, and financial aid. Our research aims to provide data on the adoption of circular practices in Georgia and selected Eastern European countries. The findings of the research summarize the trends of adoption of circular practices among firms in different economies.

In today's rapidly changing business environment, companies are under increasing pressure to reduce their environmental impact and embrace sustainable practices. Circular economy is seen as a promising solution to these challenges, as it shifts the focus from linear models of production and consumption to a closed-loop system where waste is reduced and resources are conserved.

The concept of circular economy has gained significant traction in recent years, as companies seek to reduce their environmental impact and achieve long-term sustainability. By adopting circular practices, companies can reduce the cost of goods sold, improve resource efficiency, and promote a cleaner environment. However, the adoption of circular practices requires a significant change in organizational culture, which can be challenging for many businesses.

Our research aims to provide practical information for policymakers and stakeholders from the private sector on the adoption of circular practices in Georgia and selected Eastern European countries. The results of the research will provide valuable insights into the trends of adoption of circular practices among firms in different economies and highlight the benefits of embracing circular economy.

In conclusion, the transition to circular practices is a highly sought-after trend for businesses seeking to reduce their cost of goods sold, promote sustainability, and benefit from a cleaner environment. The adoption of circular practices requires a significant change in organizational culture, which can be challenging for many businesses. Our

research aims to provide practical information for policymakers and stakeholders from the private sector on the adoption of circular practices in Georgia and selected Eastern European countries and summarize the trends of adoption of circular practices among firms in different economies.

Keywords: circular business, circular economy, Georgia, CE business models, EBRD-EIB-WBG enterprises survey.

INTRODUCTION

In a modern era, scarcity has become a major research dimension for many economists, which is basically linked to the limited resources on the one hand and limitless wants of people on the other. Governments, policymakers, scientists and the businesses are rethinking the traditional paradigm of economics, which is based on a linear approach (take-make-dispose) and should be changed towards the circularity. In this sense, circularity means to redesign operations on various levels, so that processes become more sustainable and eco-friendlier. By managing finite resources, a circular economy promotes a continual positive development cycle that maintains and increases natural capital, optimizes resource yields, and reduces system risks.

Most fundamental incentives for the companies to transform linear business operations to circular ones, still lays in the willingness to reduce negative environmental impacts. On top of that, businesses are seeing the potential fruits of improving resource-usage efficiency, thus reducing cost of goods sold, increasing competitive advantages and easing access to new markets. Also, environmental regulations and institutional incentives provided by policy-makers and governments, especially in developed countries are pushing companies to seek for alternative ways of doing business to reduce emissions and negative impact environment. In some cases, besides restrictions governments are providing subsidies and tax deductions to support circular business models.

Activities from Circular economy, which covers almost all industrial sectors, is increasing in terms of generating new revenues, reducing costs, and encouraging innovation. This growth is driven by shifts in regulation and evolving consumer attitudes.

The topic is getting very actual in Georgian Economic policy too. However, there is a lack of relevant local academic publications and related business statistics. For this reason, the research is using database from EBRD-EIB-WBG survey to calculate and provide detailed numbers on usage of circular practices in Georgian firms and to analyze general trends between other economies in the survey. Furthermore, the research can also dive deeper into exploring the challenges and opportunities that Georgian firms face in implementing circular economy practices, as well as identifying potential gaps in current policies and regulations that may be hindering the development of a circular economy in the country. Additionally, research can investigate on the potential benefits of a circular economy for the country's economy, environment and society, and how it can contribute to achieving sustainable development goals.

Within the framework of the research, one of the factors is the assessment of developed countries with certain indicators, which is an important point for the implementation of additional analysis.

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I. Literature Review

It was already mentioned in the introduction that local academic publications related to concept of circular economy are extremely rare in Georgia. However, several authors are discussing the general landscape of establishing circular economy in Georgia (Gubeladze & Pavliashvili, 2020; Pavliashvili, & Prasek, 2020; Jishkariani, et. al.; 2021; Buachidze et. al.; 2021). Additionally, some publications discussing the green economy opportunities from finance industry (Aslanishvili, & Omadze, 2019) or from the perspective of investemt sector (Verulidze & Miceikienė, 2021).

Another study (Chachkhiani et al., 2022) provides a qualitative and quantitative evaluation of the solid waste management system in Kutaisi, Georgia and the Imereti region. It reveals that share of recyclables is higher in urban areas and commercial centres.

On the other hand, there are plenty of academic publications which analysing circular business models or generally circular practices in firms from Eastern European countries (Malinauskaite et al., 2017; Muizniece et al., 2019), especially discussing challanges for circular business models in Baltic countries (Rizos et al., 2016; Uvarova et al., 2020, Atstja et al., 2021).

Accordingly, the research has focus on international publications which can provides useful insights or methodological notes to explore relevant data to analyse the current state of usage circular practices in local companies in Georgia. The few modern studies have used the green module from EBRD-EIB-WBG Enterprise Surveys to analyze green and circular economy trends in business for selected countries.

A study conducted by Kalantzis et al. (2022) is analyzing green management and green investments of firms and distinguish capital intensive or non-capital-intensive investments. The results are provided on regional level. The paper uses data from EBRD-EIB-WBG Enterprise Surveys to examine the determinants of green investment strategies in firms. It also uses logistic IV regression to analyze the data and finds that financially constrained firms pursue fewer mitigation measures while more climate-aware firms pursue more mitigation measures.

Whether, other publication has focus on levels of green management practices by country (Martin et al. 2022). That research used three different data sets including data set was from the EBRD-EIB-WB Enterprise Surveys, which provided information on firms' credit constraints, green management, and green investments. The purpose of this analysis was to understand the relationship between credit constraints, green management, and green investments and their impact on pollution and greenhouse gas emissions.

Another research is measuring losses from extreme events based on the green module (Benincasa et al. 2022).

The one recent publication used that survey for arguing that green management positively impacts on labor productivity, sales, and innovation (Fernandez, V. 2022). This study also finds that green management practices are influenced by various factors such as peer effects, management quality, customer requirements, and foreign ownership.

However, previous studies did not displaying the specific rates of adoption the different green/circular practices by firms for country level. Additionally, none of them has focus on insights of Georgia which is our priority research example. Furthermore, the literature review is showing that there is a lack of research that is exploring the circular economy from the

consumer's perspective. Therefore, the current study aims to fill this gap by exploring the sharing economy characteristics from the consumers' perspective in Georgia. The research will underline and understand the current problems to prepare recommendations for the upcoming challenges. The quantitative and qualitative findings from the paper can be source material for future researchers in this field in Georgia.

II. Methodology

The primary source of our research is the database by EBRD-EIB-WBG Enterprise Surveys, which was conducted between 2018 and 2020. This database covers approximately 28,000 enterprises in 41 economies of the European Union, Eastern Europe, Central Asia, and the Middle East and North Africa. These economies include Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Egypt, Estonia, Georgia, Greece, Hungary, Italy, Jordan, Kazakhstan, Kosovo, Kyrgyz Republic, Latvia, Lebanon, Lithuania, Malta, Moldova, Mongolia, Montenegro, Morocco, North Macedonia, Poland, Portugal, Romania, Russia, Serbia, Slovak Republic, Slovenia, Tajikistan, Tunisia, Turkey, Ukraine, Uzbekistan, and the West Bank and Gaza.

Our research focuses on a special module of the survey, the Green Economy module, which covers basic green management practices and green investments. For the purposes of our research, we have selected 10 questions for further analysis and discussion. These questions (BMGC23A-BMGC23J) are related to a firm's recent experience (over the last 3 years) of adopting circular measures (practices or technologies). The research calculates the share of firms (on a country level) that have adopted these circular measures. It uses weights according to the median eligibility from the Enterprise Surveys database.

The following 10 indicators were calculated according to this methodology: Share of firms that had adopted specific practices over the last three years:

- Heating and Cooling Improvements
- More Climate-Friendly Energy Generation on Site
- Machinery Upgrades
- Energy Management
- Waste Minimization, Recycling, and Waste Management
- Air Pollution Control Measures
- Water Management
- Upgrades of Vehicles, Vessels, and Aircraft in The Fleet
- Improvement of Lighting Systems
- Other Pollution Control Measures

The data for the research was collected from eligible firms, who were asked a set of questions with three possible answers: "Yes," "No," or "Do Not Know." To calculate the value for each question, the sum of the weights of the "Yes" answers was divided by the total weight of all eligible enterprises for that specific question. This provided an overall understanding of the situation, but to gain a more in-depth insight, the research also analyzed the data in a more granular manner by breaking it down into regions and industries, with a focus on Georgia. By doing this, the research was able to provide a more comprehensive picture of the situation in the state, including specific trends and patterns at the regional and industry levels.

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Overall, this research provides valuable insights into the adoption of circular measures by companies in a diverse range of economies. By focusing on a specific set of questions related to circular measures, the research is able to provide detailed information on which practices are being adopted most frequently and in which countries. Additionally, the use of weights based on median eligibility ensures that the results accurately reflect the experiences of the surveyed companies.

III. Results and Discussion

Figure 1 presents the results of an analysis of the share of enterprises that have implemented selected circular practices in Georgia over the last three years. The data was obtained from the EBRD-EIB-WBG Enterprise Surveys, which were conducted between 2018 and 2020. The survey covered a sample of enterprises in Georgia, and included a special module on green economy practices, from which the data for this analysis was extracted.

The results of the analysis indicate that the highest adoption rates among the selected circular practices were for machinery upgrades (43.0%), improvement of lighting systems (42.0%), and upgrades of vehicles, vessels, and aircraft in the fleet (37.1%). Heating and cooling improvements were also relatively frequent among Georgian enterprises, with an adoption rate of 34.6%. However, practices related to recycling and waste reduction had significantly lower adoption rates, with only 20.9% of firms reporting having implemented these practices.

The data also reveals that the adoption of other circular approaches related to pollution reduction or climate-friendly initiatives was relatively low among Georgian enterprises. Only 13% of firms reported having implemented air pollution control measures, and 8.5% reported having implemented other pollution control measures. Additionally, only 6.2% of firms reported having adopted more climate-friendly energy generation on-site. The adoption of practices related to energy management and water management was also relatively low, with 17.1% and 16.0% of firms reporting having implemented these practices over the last three years, respectively.

Figure 1: Share of firms which adopted specific measure over last 3 years in Georgia
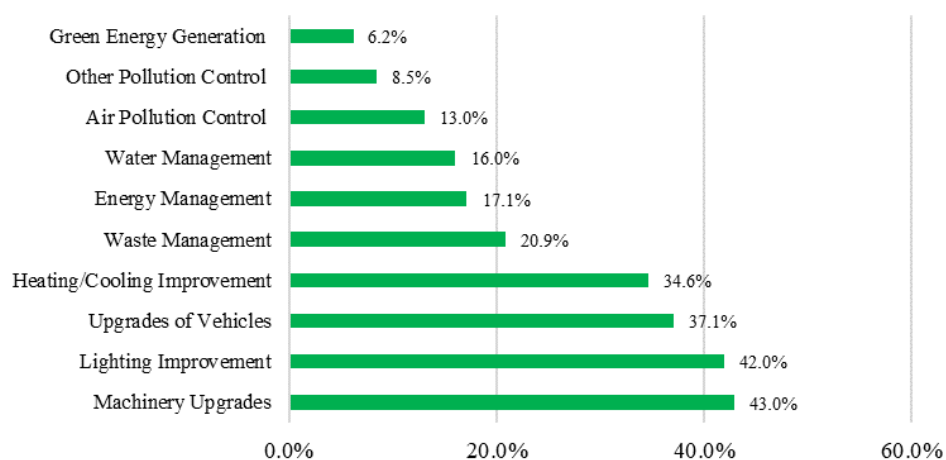
source: Author's own calculations on database of EBRD-EIB-WBG Enterprise Surveys conducted in 2018-2020.

The results of our research on the adoption of circular practices in Georgia found that the capital city of Tbilisi has a higher share of firms implementing these practices (7.4% vs 9.9%) compared to other regions. Out of the 10 indicators analyzed, Tbilisi had higher adoption rates for 9 of them, with the only exception being "Other Pollution Control Measures". The study also revealed that large-size enterprises (47.25%) were more likely to adopt circular practices compared to medium (29.4%) and small enterprises (19.7%). These findings highlight the importance of creating an enabling environment for circular practices, particularly in regions outside of Tbilisi, to encourage more widespread adoption. Additionally, there is a need to develop support mechanisms for medium and small enterprises to adopt circular practices and contribute to a more sustainable future.

It should be noted that these findings are consistent with the results from the survey of all 41 economies included in the EBRD-EIB-WBG Enterprise Surveys. The highest average indicator among all economies surveyed was for machinery upgrades (41.0%), which is also the most frequent circular practice adopted by Georgian enterprises (43.0%).

Another research finding is that most of the indicators for Georgia are close to the average numbers for all the countries surveyed in the EBRD-EIB-WBG Enterprise Surveys. However, there is a significant gap in the adoption of "Waste Minimization, Recycling and Waste Management" practices, which are adopted by only 20.9% of Georgian enterprises, while this indicator is significantly higher in most of the other countries surveyed (average value 36.0%). This can be seen in Figure 2, which displays the share of firms that have adopted waste management practices for selected Eastern European and Baltic countries. The rate is notably higher in EU countries, and Georgia's score is lower than that of Moldova or Ukraine. It has been also noticed that the rate of waste management in businesses of varying sizes in the state of Georgia is significantly lower in comparison to other regions. This lack of proper waste management practices can have adverse effects on the environment and public health. It is crucial that firms in Georgia make an effort to improve their waste management processes to ensure a cleaner and safer future for all.

Figure 2: Share of firms which adopted waste management measures over last 3 years in selected countries
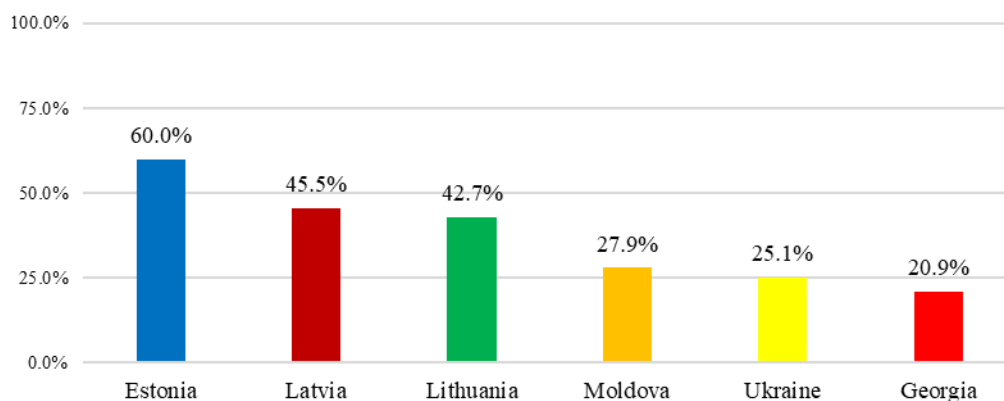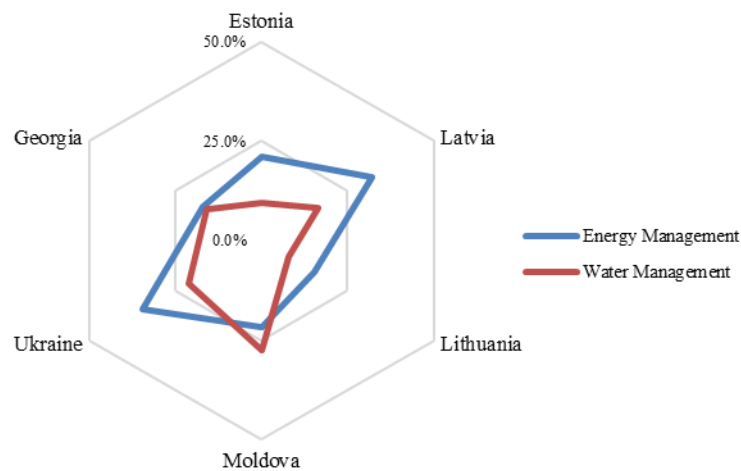

source: Author's own calculations on database of EBRD-EIB-WBG Enterprise Surveys conducted in 2018-2020

Additionally, Georgian enterprises have lower ranks in terms of introducing energy or water management measures. This can be seen in Figure 3, which displays the adoption rates for selected indicators in Eastern European and Baltic countries. Estonia and Latvia are the leaders in terms of average adoption rates for the 10 indicators analyzed. Based on the data provided, it is evident that the Baltic countries, specifically Estonia and Latvia, have higher adoption rates for circular economy practices compared to Georgia. These countries have consistently higher rates in various indicators such as machinery upgrades, waste management, energy management, water management and lighting improvements. For instance, Estonia has an average adoption rate of 69.8% for machinery upgrades, which is significantly higher than Georgia's rate of 43%. This trend can also be observed in other indicators such as green energy generation, where Estonia has an average of 11% and Latvia has an average of 9.7% which is relatively higher than the 6.2% in Georgia.

Overall, the research provides valuable insights into the adoption of circular practices by firms in Georgia and can be used to compare the country's achievements with those of other economies surveyed. It highlights the areas in which enterprises in Georgia have made the most progress in terms of circular adoption, as well as areas where there is room for improvement. Additionally, the findings of this research can inform the development of policies and initiatives aimed at promoting the adoption of circular practices among Georgian enterprises, particularly in smaller and medium-sized enterprises and other regions of the country.

Figure 3: Share of firms which adopted energy or water management measures over last 3 years in selected countries

Source: Author's own calculations on database of EBRD-EIB-WBG Enterprise Surveys conducted in 2018-2020

CONCLUSION AND RECOMMENDATIONS

The adoption of circular practices by enterprises in developing countries, including Georgia, is still relatively low. Despite the recognized potential for circular economy (CE) to promote sustainability and reduce waste, many companies are not yet investing in or considering the implementation of circular approaches in their business operations. The transition to circular business models can be a challenging process, with various obstacles that

companies of different sizes and industries may face.

One of the most significant obstacles is the lack of financial capability, as implementing circular practices often requires investments in new technologies and equipment. This is particularly challenging for small and medium-sized enterprises (SMEs) that may not have the resources to make these investments. Additionally, economic policies in many developing countries still tend to favor linear business models, providing little incentive for companies to adopt circular practices.

Another obstacle that companies may face is a lack of knowledge about CE business models and the current state of the circular economy. Despite the growing interest in the topic, many companies still lack an understanding of the benefits and potential challenges of implementing circular practices. This lack of knowledge can make it difficult for companies to identify opportunities for circular practices in their operations and to develop effective strategies for their implementation.

In such developed countries, as we identified in the part of the research by the principle of random selection, there are also many challenges in the way of implementing the circular economy, therefore a developing country like Georgia must definitely develop its own way in terms of the development of circular processes.

To overcome these obstacles, it is essential to create and distribute knowledge about CE business models, the current state of the circular economy, and the potential challenges that companies may face. This can be done through various means, such as training and education programs, workshops, and networking events. Additionally, targeted support and funding for SMEs to implement circular practices can help to overcome financial barriers and encourage the adoption of circular practices. Furthermore, the economic policies should be adjusted to support and encourage the implementation of circular economy in the country.

In conclusion, the adoption of circular practices by enterprises in developing countries, including Georgia, is still relatively low. The transition to circular business models can be a challenging process, with various obstacles that companies of different sizes and industries may face. However, by creating and distributing knowledge about CE business models and providing support and funding to overcome financial barriers, we can encourage the adoption of circular practices and promote sustainable and circular economic growth in developing countries. Additionally, economic policies should be adjusted to support and encourage the implementation of circular economy in the country, which will help to overcome the lack of knowledge of the circular economy among companies and promote sustainable business models. Overall, a concerted effort is needed to support the transition to circular economy and promote sustainable business practices in developing countries.

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