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CONSUMER PERSPECTIVES ON ARRANGING CIRCULAR ECONOMY

Dr. Rafiq Mansoor[*1], Murad Ahmed[2], Asma Imran[3], Musferah Mehfooz[4]

*[*1]Assistant Professor (Engineering Management), Department of Mechanical Engineering, International Islamic University, Islamabad, Pakistan*
[2]PhD in Business Administration (In Progress) National College of Business Administration and Commerce Bahawalpur Department Business Administration
[3]Department of Management Sciences, COMSATS University Islamabad, Lahore Campus
[4]Department of Humanities COMSATS University Islamabad, Lahore Campus

[*1]rafiq.mansoor@iiu.edu.pk, [3]drasmaimran@cuilahore.edu.pk, [4]musferahmehfooz@cuilahore.edu.pk

ABSTRACT

The transition to a circular economy (CE) is essential for achieving sustainability goals, as it promotes the reduction of waste and resource consumption. Understanding consumer perspectives is crucial for the effective implementation of circular practices. This study aims to explore consumer motivations, behaviors, and barriers regarding participation in circular economy practices, focusing on how these factors influence the adoption of sustainable consumption habits.In this study, we employed a non-probability convenience sampling method to collect data from 600 Romanian consumers from March to June 2024, resulting in a final sample of 582 respondents. An online survey, designed using E-survey and Google Forms, assessed consumer attitudes and behaviors regarding circular economy practices. Disseminated via social media, the survey targeted diverse demographic segments. Data collection was voluntary and anonymous, with responses validated using SPSS software. Analysis revealed significant correlations between environmental concern, positive attitudes toward circular products, and actual purchasing behaviors. Structural equation modeling indicated a strong model fit, underscoring the importance of consumer motivations in promoting engagement with circular economy initiatives. This research underscores the significance of consumer perspectives in fostering circular economy practices. It highlights the need for businesses to address barriers and leverage motivators to enhance consumer engagement. By understanding consumer motivations and behaviors, companies can tailor their strategies to effectively promote circularity, contributing to a more sustainable economic model.

INTRODUCTION

The transition to a circular economy (CE) is a pivotal step in addressing global sustainability challenges, aligning with the goals of the United Nations' Sustainable Development Agenda. Shifting from the traditional linear model of resource consumption and waste generation to a more regenerative approach is vital for reducing environmental impacts and closing resource loops[1][2][3]. While much of the literature focuses on the industrial and organizational dimensions of the circular economy, the role of consumers remains under-researched. However, consumer behavior and perceptions are critical to the successful implementation of circular practices. As organizations aim to introduce circular products and services, understanding consumer demand and the factors influencing purchasing behavior becomes essential[4].

Empirical evidence highlights that a major barrier to the adoption of CE practices is a lack of consumer interest and awareness[5]. Despite growing advocacy for sustainable consumption, many consumers remain disconnected from the concepts underpinning the circular economy. Marketing experts have recognized the challenge of fostering consumer demand for circular products, which often requires a shift in deeply ingrained consumption habits. To harness the potential of circular economy principles like recycling, reusing, and reducing, consumers must undergo a transformation in how they perceive and engage with products[6][7][8].

Furthermore, consumers are motivated by various factors, including environmental values, knowledge, and trust in the organizations offering eco-friendly products[9]. Previous research emphasizes the importance of individual-level environmental concern and climate skepticism in shaping attitudes toward circular products[10]. This paper explores how these factors, alongside perceptions of greenwashing, influence consumer behavior toward circular products[11]. By investigating the intersection of environmental concern, skepticism, and attitudinal factors, the study aims to provide insights into the pathways that lead consumers to adopt more sustainable purchasing behaviors[12]. Ultimately, this research highlights the need to better understand consumer perspectives in order to drive the transition to a circular economy at the individual and collective levels.

Literature review:

Lopez NSR, Legardeur J(2024):The paper offers important insights into the connection between consumer behavior and the circular economy, highlighting the necessity of overcoming barriers and harnessing motivators to enhance consumer engagement with circular business models. It concludes that businesses must integrate consumer behavior into the development and implementation of these models. By understanding consumers' motivations and the challenges they face, companies can better design strategies that effectively promote circularity[13].

Lakatos E, Dan V(2016):Romanian consumers demonstrate a positive attitude toward environmental protection and are aware of Circular Economy (CE) models. However, their adoption of eco-friendly consumption patterns remains limited without the presence of incentives. While there is a general awareness and favorable outlook towards environmental sustainability, motivating consumers to actively engage in CE behaviors requires targeted incentives and benefits[14].

Lakatos ES, Bacali L(2018):The findings reveal a high level of agreement and active participation in eco-friendly activities, demonstrating strong support for the circular economy, particularly in urban areas. Respondents from Bucharest exhibit a higher frequency of ecological activities compared to those in rural regions. Additionally, the consensus on engaging in ecological practices is more consistent among participants in Bucharest[15].

Mak V, Terryn E(2019):Consumers play a key role in advancing the circular economy through their demand-side actions, and EU legislation has aimed to support environmentally conscious choices by enhancing consumer information rights. However, more comprehensive measures could be introduced, integrating sustainability goals into consumer law. This could encourage consumers to opt for product repairs or participate in shared product usage through "servitization" models, further promoting sustainable consumption practices[16].

Lut LLTY.(2020):This qualitative research aims to explore the role of consumption in the circular economy and identify the cultural barriers that hinder its adoption. The study investigates consumers' awareness and attitudes toward refurbished personal ICT devices, examining whether increased awareness of consumption's environmental impact influences behavioral change. Additionally, it delves into consumers' decision-making processes when purchasing these devices, providing insights into how awareness shapes their buying choices[17].

Kohlbeck E, Tokarz B,(2022):The research underscores the importance of involving all stakeholders, including consumers, in driving changes in habits and raising awareness of sustainable development. It emphasizes that consumers play a critical role in promoting sustainable practices. Additionally, the study provides a theoretical foundation for future empirical research, contributing to and expanding

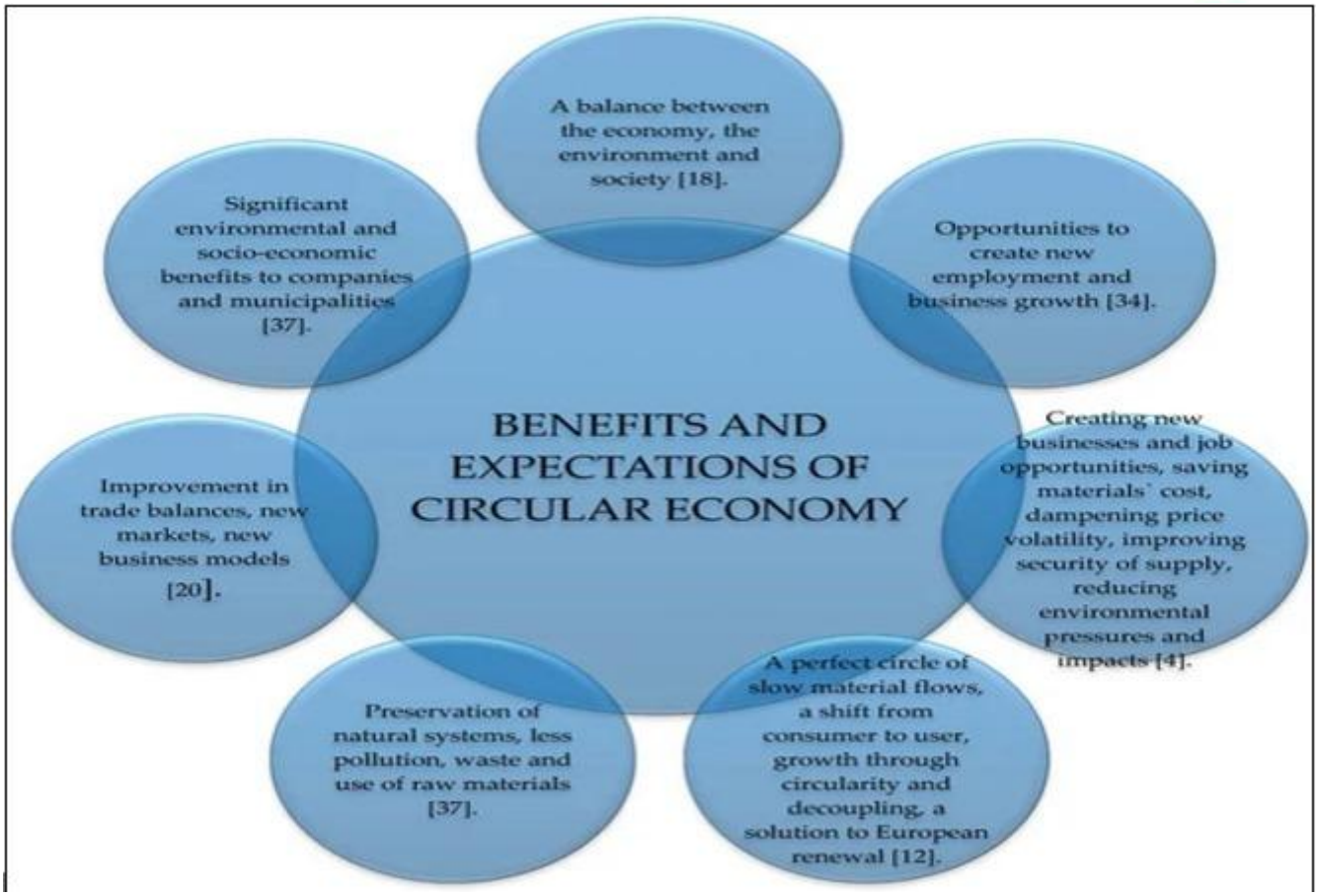
the understanding of the relationship between Circular Economy and Product-Service Systems[18]. Vidal-Ayuso(2023):This paper focuses on the relationship between the circular economy (CE) and consumer behavior, particularly the decision-making processes surrounding CE products and services. The findings provide valuable insights for researchers interested in exploring areas of CE and consumer interaction that remain under-researched, such as consumer behaviors and attitudes toward product lifetime extension, involvement in innovative processes, and the role of consumer education. These areas hold significant potential for advancing understanding of consumer engagement with circular economy practices[19]

Cantú A, Aguiñaga.(2021):The study revealed that barriers to implementing circular economy (CE) practices can be intensified by a business model's misalignment with its operational context. The unsuccessful company examined in our research did not adequately recognize or adapt to the specific market characteristics, including the financial infrastructure and customer preferences. Additionally, the failure of this case can be attributed to a lack of financial inclusion[20].

Material and Methods:

Sample and Data Collection:

In this study, we employed a non-probability convenience sampling method to gather data from a total of 600 individuals between March and June 2024. The research specifically targeted Romanian consumers to explore their perspectives on the circular economy[21]. Ultimately, the final sample consisted of 582 respondents, as 18 responses were excluded due to incomplete data.To facilitate data collection, we designed an online survey encompassing all relevant variables related to consumer behavior and perceptions of the circular economy. This survey was created using E-survey and Google Forms platforms, ensuring accessibility for participants. The authors were responsible for the formulation of the questionnaire and were available to address any questions or concerns participants might have regarding their involvement in the study.The dissemination of the questionnaire was carried out through various social media platforms, including Facebook and LinkedIn, to reach a broad audience of potential respondents[22]. After the data collection period concluded in June 2024, the authors compiled the responses into a single database using SPSS software, where the data was meticulously validated for accuracy and consistency. This robust methodological approach aimed to ensure a comprehensive understanding of consumer perspectives on arranging the circular economy.



Participants:

A survey was distributed to consumers to assess their attitudes, awareness, and behaviors regarding circular economy (CE) practices[23]. The participants were carefully recruited through purposive sampling to ensure a diverse representation across various demographic segments, including age, gender, income level, education, and geographic location. All participants agreed to take part in this study and provided permission for their data to be used for research purposes. Data collection was completely voluntary and anonymous, and participants were informed that their information would be kept confidential.This approach aimed to capture a wide array of consumer perspectives on CE, as these factors can significantly influence attitudes and behaviors related to sustainability[24]. Inclusion criteria mandated that participants be over 18 years old and actively engaged in sustainable consumption practices, such as recycling, purchasing eco-friendly products, or participating in community sustainability initiatives. By setting these criteria, the study sought to include individuals who are likely to have relevant insights into circular economy practices[25].

Data Analysis:

To analyze consumer perspectives on arranging the circular economy, we employed structural equation modeling (SEM) using AMOS v.25 and IBM SPSS Statistics for Windows v.25 (IBM Corp., Armonk, NY, USA). This approach enabled us to rigorously test our proposed hypotheses regarding the relationships between various consumer attitudes and behaviors related to the circular economy[23].The analysis commenced with preliminary and exploratory data evaluations to identify potential issues within the dataset, including any missing data cases. We ensured the robustness of our analysis by utilizing maximum-likelihood estimation for parameter estimation,

which allowed us to eliminate cases with missing values. Subsequently, we implemented path analysis to model the causal relationships among multiple variables, incorporating mediators to better understand their interactions.

Descriptive statistics were calculated for each variable, encompassing means, standard deviations, and correlation coefficients. Our findings confirmed that all variables exhibited a normal distribution, as indicated by the skewness and kurtosis values falling within acceptable ranges[26]. This foundational analysis provided a solid basis for the SEM and helped validate the integrity of the data before delving into more complex modeling of consumer behaviors and perceptions regarding circular economy practices[21]. We use multiple indices for evaluating model fit: the chi-square test value ($\chi 2$) with the corresponding p-value ($p > 0.05$),the root-mean-squared error of approximation (RMSEA ≤ 0.06), and finally the standardized root mean square residual (SRMR < 0.08). This rigorous approach not only enhances the reliability of our findings but also ensures that the insights drawn from the data accurately reflect consumer attitudes in the context of the circular economy[27].

Results and Discussion:

Table 1: Demographic Characteristics of Participants:

Variables	**Frequency (%)**
Age Group	
18-25 years	37.8%
26-30 years	7.6%
31-40 years	18.6%
41-50 years	20.5%
51-60 years	10.6%
61years to onwards	4.9%
Gender	
Male	48.6%
Female	51.4%
Education Level	
High School	29.8%
Bachelor's Degree	24.8%
Master's Degree	28.4%
PhD/Doctorate	16.4%
Occupational status	

Employee	54.9%
Entrepreneur	11.7%
Student	28.8%
Un employee	1.3%
Other	3.5%

The table shows a diverse participant group with a balanced representation of genders. Most participants are within the 26-40 age range, which indicates that younger adults may be more engaged or interested in discussions about sustainability and the circular economy. Additionally, 80% of participants had at least a bachelor's degree, suggesting that individuals with higher education levels are more likely to be aware of and participate in circular economy practices.

Table 2: Consumer Motivations for Engaging in Circular Economy Practices

Motivation Factor	**Frequency (%)**
Environmental Concern	65%
Cost Savings	20%
Social Responsibility	10%
Trend/Fashion	5%

The primary motivation for participants engaging in circular economy practices is environmental concern (65%). This is consistent with previous literature, which often cites environmental awareness as a key driver. However, cost savings (20%) and social responsibility (10%) also played significant roles, indicating that circular economy initiatives might benefit from highlighting both personal and societal advantages.

Table 3: Frequency of Engagement in Circular Practices

Practice	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**
Recycling	5%	10%	20%	30%	35%
Buying Second-hand Goods	15%	25%	30%	20%	10%
Repairing/Refurbishing Products	20%	30%	25%	15%	10%
Sharing/Renting Goods	40%	35%	15%	7%	3%

Recycling emerged as the most common circular practice, with 65% of respondents reporting that they often or always engage in it. However, behaviors like sharing or renting goods remain relatively uncommon (only 10% engage often or always), suggesting that certain aspects of the

circular economy, like product sharing, may require more promotion and cultural shifts.

Table 4:Descriptive statistics:

Variable	Mean	SD	Skewness	Kurtosis
Environmental concern	4.409	0.743	0.983	1.562
Climate Skepticism	2.060	0.813	0.793	0.315
Perceived Green Wash	3.384	0.864	0.408	0.100
Attitude towards Circular products	2.992	0.749	0.058	0.261
Circular Purchasing behavior	2.887	0.873	0.194	0.39

This table summarizes the bivariate, zero-order Pearson's correlation coefficients between all of the study variables. As expected, we found a negative correlation between environmental concern and climate skepticism ($R = -0.359$, $p < 0.001$). There is also a significant correlation between the positive attitude towards circular products and actual purchase behavior ($R = -0.396$, $p < 0.001$). Moreover, the correlation between environmental concern and purchase behavior was significant ($R = 0.270$, $p < 0.001$).

Table 5: Pearson correlation for all of the study variables:

Variable	1	2	3	4	5
Environmental Concern	1				
Climate Skepticism	0.359	1			
Perceived Green Washing	0.123	0.144	1		
Attitude towards Circular Products	0.268	0.048	0.054	1	
Purchasing behavior	0.270	0.100	0.050	0.396	1

Table 6:Model Fit Assessment:

Goodness of Fit Indices	Recommended value	Proposed model
CMIN/DF	≤3	0.176
NFI	≥0.9	0.998
GFI	≥0.9	1.000
AGFI	≥0.9	0.998

CFI	≥0.9	1.000
TLI	≥0.9	1.032
RMSEA	≤0.08	0.000
SRMR	≤0.08	0.067

The RMSEA assesses how effectively the proposed model aligns with the actual conditions within the population. Values between 0.08 and 0.10 are deemed acceptable, while values below 0.05 suggest a strong fit. As shown in Table 5, the proposed model demonstrates a strong fit. The CFI compares the hypothesized model against a model that assumes no relationships. With a maximum value of 1, a CFI value exceeding 0.95 is regarded as indicative of a satisfactory model fit. The proposed model surpassed this critical threshold, confirming it as a good fit.

Discussion:

The results of this study highlight the critical role of consumer perspectives in advancing circular economy practices. The diverse participant demographic, predominantly aged 26-40 and well-educated, suggests that younger, educated individuals are more engaged in sustainability discussions, reflecting a broader awareness of circular economy principles. Notably, environmental concern emerged as the primary motivator for 65% of participants, aligning with existing literature that emphasizes the importance of environmental awareness[28]. However, significant motivations such as cost savings (20%) and social responsibility (10%) indicate that circular economy initiatives can benefit from showcasing both personal and societal advantages[29[. Recycling was the most commonly practiced circular activity, with 65% of respondents engaging frequently, while practices like sharing or renting goods were less prevalent, suggesting the need for greater promotion and cultural shifts in these areas. The study also revealed significant correlations between environmental concern, climate skepticism, and purchasing behavior, indicating that enhancing consumers' positive attitudes toward circular products could drive actual purchase behavior[30]. Overall, the strong model fit results indicate a robust relationship between consumer motivations and behaviors in the context of the circular economy, emphasizing the necessity for businesses to consider these factors when designing and implementing circular business models.

Conclusion:

In conclusion, this study provides a comprehensive understanding of Romanian consumer perspectives on circular economy (CE) practices. A key finding is that 65% of participants are primarily motivated by environmental concerns, demonstrating that ecological awareness is a major driver for engaging in circular behaviors. Cost savings (20%) and social responsibility (10%) also play significant roles, indicating that promoting both personal and collective benefits could enhance consumer participation in circular initiatives. Recycling is the most frequent circular activity, with 65% of respondents reporting regular involvement, while only 10% consistently engage in sharing or renting goods. This suggests that more effort is needed to encourage these less common practices. Additionally, the demographic data showed that younger adults (26-40 years) and individuals with higher education levels (80% with at least a bachelor's degree) are more likely to engage with CE. Businesses and policymakers should focus on addressing the barriers to consumer engagement, such as greenwashing concerns, which were reported by 33% of participants, to further promote circularity. These findings emphasize the critical role consumers play in fostering the transition to a sustainable, circular economy.

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