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Behavioral readiness for circular economy in Albania: a consumer perspective

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Background: The transition to a circular economy is critical in achieving sustainable consumption, particularly in emerging economies such as Albania. While circular economy strategies have gained attention in policy and academic discourse, their success heavily depends on consumer engagement. Albania presents a unique context as a post-socialist, EU-inspiring country with evolving infrastructure and limited consumer exposure to circular economy practices.

Objective: This study investigates the readiness of Albanian consumers to engage with circular and sustainable practices, examining behavioral drivers, perceived barriers, and the influence of socio-demographic variables.

Methods: A cross-sectional survey was conducted among respondents in North Albania, employing a structured questionnaire based on behavioral theories. Statistical analysis including regression models and structural equation modeling (SEM) is realized to assess relationships among latent variables.

Results: Employment status, income and education significantly predicted circular economy knowledge and behavior. Key practices like sufficiency-driven consumption and donation of goods were associated with socio-economic variables, while motivational drivers such as environmental concern and practicality were more universally distributed. SEM results confirmed significant impacts of knowledge, behavior and practices on circular economy readiness, while preferences and influences had weaker predictive power. The findings inform context-specific policy and business interventions to support circular economy adoption in emerging economies.

Conclusion: Behavioral engagement in circular economy in Albania is shaped by both structural constraints and evolving socio-cultural values. Policy and business strategies must consider contextual realities and co-create circular solutions with customers to ensure adoption. The findings contribute to the behavioral understanding of circular economy readiness in emerging economies and provide a basis for targeted interventions in similar contexts.

KEYWORDS

circular economy, sustainable consumption, consumer behavior, emerging economies, Albania, behavioral science

1 Introduction

The circular economy (CE) has emerged as a transformative paradigm that shifts the focus from linear modes of production and consumption to regenerative and resource-efficient systems. It integrates environmental sustainability with economic innovation, aiming to close material loops, minimize waste, and foster long-term resilience. Achieving circular economy objectives like waste reduction and resource conservation requires both recycling and purchasing circular products (Stangherlin et al., 2023). The transition to a

circular economy requires a shift not only in technological and systemic infrastructures but also in individual and collective behaviors. Behavioral science provides a framework for understanding the psychological, social, and cultural dimensions that influence the adoption and success of circular practices.

Circular ecosystems thrive on the active participation of individuals, communities, and organizations. Behavioral science highlights the interplay between individual decisions and collective actions in driving sustainability (Aarikka-Stenroos et al., 2021; Singh and Giacosa, 2018). Individual actions, such as recycling, composting, and purchasing refurbished goods, are foundational to CE (Kirchherr et al., 2018). However, these behaviors are often hindered by barriers like lack of awareness, perceived inconvenience, and cultural resistance (Koistila, 2020). Addressing these barriers through education, incentives, and accessible infrastructure is essential for fostering widespread participation. Collective behaviors on the other hand emerge when groups coordinate efforts to achieve shared goals (Aarikka-Stenroos et al., 2021). In circular ecosystems, collective actions include community-led recycling initiatives, business partnerships for resource sharing, and government policies and incentives to promote sustainability (Avdullahi and Shala, 2023; Singh and Giacosa, 2018). Collaborative efforts amplify the impact of individual behaviors and create a supportive environment for circular practices. The integration of sustainable consumption with circular practices requires robust policy incentives and consumer education to build trust and ensure behavioral shifts (Snezana et al., 2025).

While the CE concept has gained substantial momentum in European policy agendas, especially under the European Green Deal, its implementation in emerging economies faces significant contextual challenges. One of the least explored dimensions of this transformation is the behavioral readiness of consumers, particularly in societies undergoing post-socialist transitions, such as Western Balkans countries (Albania included), which are currently in the process of aligning their institutional and environmental governance frameworks with European Union (EU) standards, making this a salient case for examining the intersection of policy ambition and consumer realities in EU-aspiring countries.

This study addresses a critical question: To what extent are consumers in emerging countries such as Albania ready to engage with circular and sustainable business offerings? It aims to explore the behavioral readiness of Albanian consumers to engage with CE and sustainable consumption practices, considering demographic, attitudinal and motivational factors. The objectives of the study are:

- To assess the level of consumer awareness and engagement with CE practices
- To identify demographic and socio-economic predictors of sustainable behaviors, and
- To evaluate key motivational influences and perceived barriers to CE adoption in an emerging context.

By integrating behavioral science with empirical data from a transitioning economy, the paper contributes to the literature on sustainable consumption and business model innovation. In doing so, the study also builds on key behavioral theories to explore the

psychological, social, and cultural dimensions that shape consumer decisions in circular ecosystems. These theoretical insights inform both the design of the research instrument and the interpretation of findings.

Based on prior literature, regional and international (De et al., 2025; Bhar, 2023; João et al., 2025; Rexhepi Mahmutaj et al., 2025; Avdullahi and Shala, 2023; Snezana et al., 2025), we propose the following hypothesis:

- H1: Full-time employment and higher education levels are positively associated with knowledge and engagement in CE practices.
- H2: Gender differences influence motivations and perceived barriers to adopting CE behaviors.
- H3: Economic incentives and awareness campaigns significantly impact willingness to adopt sufficiently driven practices.
- H4: Demographic variables have limited predictive power for certain CE behaviors, suggesting contextual or structural limitations.

The remainder of the paper is structured as follows: *Section 2* outlines the theoretical background and local context, moving on *Section 3* is the methodology, including the theoretical underpinnings of the survey design; *Section 4* presents the empirical results and critical discussions; and *Section 5* provides the conclusions for the study including implications, limitations and prospects.

2 Theoretical background and local context

Behavioral science offers a range of theories that explain how individuals and groups make decisions about sustainability. A significant blind spot in traditional CE business models in the passive framing of consumers. Chevrollier et al. (2025) advocate for business model innovation that involves the consumers from the outset, including in the co-creation of value and service design. This is echoed by De et al. (2025) who argue for deeper consumer-business alignment through participatory design approaches. In Albania, this means embedding consumer values into business models from the ideation phase rather than merely offering “green” alternatives. Nielsen (2023) and Pearce (2023) also discuss how regulatory uncertainty in emerging markets can be leveraged for innovation, including flexible models that adapt to consumer co-creation. Ajzen (1991) in his *Theory of Planned Behavior* (TPB) posits that behavior is driven by three key factors: attitudes, subjective norms, and perceived behavioral control, being this the most referenced model explaining consumer intention and making a widespread use in sustainability contexts (Naskar and Lindahl, 2025). In the context of CE, TPB has been used to explain why individuals engage in recycling, reuse, and waste management practices (Koistila, 2020). For instance, individuals with positive attitudes toward recycling, influenced by societal norms and confidence in their ability to perform recycling

tasks, are more likely to engage in such behaviors. Valencia-Arias et al. (2025) demonstrate that integrating environmental values, subjective norms and perceived policy support significantly improves predictive power in emerging economies, demonstrating this as an extension of TPB. The *Value-Belief-Norm Theory (VBN)* (Stern et al., 1999) connects values (e.g., environmental concern) with pro-environmental behaviors through personal norms and a sense of moral obligation. This theory has been instrumental in examining behaviors such as waste reduction and product reuse, where individuals' ethical responsibility often drives action (Kirchherr et al., 2018). *Social Practice Theory* shifts the focus from individual actions to the broader social practices that shape behavior (Hargreaves, 2011). Practices like recycling or sharing-economy activities are embedded in routines, cultural norms, and material contexts (Gobbo, 2022). Adopting circular practices often requires reshaping these practices at the societal level (Singh and Giacosa, 2018). *Cognitive dissonance theory* (Festinger, 1957; Bosone et al., 2022) suggests that individuals experience discomfort when their actions contradict their beliefs or values. This discomfort can motivate behavior change, such as adopting circular practices to align actions with environmental concerns (Koistila, 2020).

Taking Albania into consideration, it represents a relatively young market economy, having undergone a radical transformation in the early 1990s after more than five decades of centralized economic governance. Prior to 1990, Albania operated under an autarchic system, largely self-regulated and disconnected from international trade flows. Consumer goods were domestically produced, reused, and circulated within national borders, and household waste was predominantly organic or biodegradable in nature. Notably, plastic was largely absent from the local market due to total isolation of the country. On the other hand, there were great environmental issues caused by the heavy industry, but they were not even considered at that time (Xhafa and Kosovrasti, 2016). Decades of centralized economic planning prior to the 1990s shaped consumption patterns that emphasized reuse and scarcity-driven sufficiency. However, the rapid liberalization of markets in the post-1990s introduced a proliferation of imported goods, especially plastics, significantly altering consumer behavior. The rapid market liberalization, coupled with limited public awareness and infrastructure for waste segregation or recycling, exacerbated the environmental pressures associated with plastic waste. The transition altered substantially the composition and volume of municipal waste, with plastic becoming a growing component of urban waste streams. Understanding this historical trajectory is essential to assessing consumers' preparedness and behavioral orientation toward circular and sustainable consumption practices nowadays. Albania grapples with underdeveloped recycling infrastructure, weak enforcement of environmental regulations, and fragmented public awareness campaigns. These structural limitations are compounded by cultural and economic factors that hinder widespread engagement in CE-aligned practices. Bhar (2023) conceptualizes the notion of sustainable consumption as requiring contextual frameworks that move beyond universal models. Similarly, Saravanan (2024) shows how property and cultural practice shape consumption patterns, suggesting that behavioral nudges must be tailored to socio-economic realities.

Recent studies emphasize the intention-behavior gap, a persistent challenge where pro-environmental attitudes do not translate into action (De et al., 2025). Moreover, Akomea-Frimpong et al. (2024) identify macro-level regulatory and operational barriers, including limited stakeholder engagement, fragmented waste management systems, and insufficient enforcement of legal frameworks in emerging economies. Similar insights are echoed by Trigkas et al. (2025), who examine Greek consumers' readiness and find low levels of awareness and behavioral engagement despite stated environmental concern. Mindful consumption prioritizes awareness of the environmental footprint and promotes intentional consumption choices (De et al., 2025; Snezana et al., 2025). However, its application in emerging economies remains underexplored, revealing a research gap this paper addresses. Furthermore, as CE transitions require consumer alignment with new business models, scholars underscore the importance of co-creation and value-alignment between firms and consumers (João et al., 2025). Empirical evidence from business-level perception in the Western Balkans highlights systematic barriers to circular economy adoption, including added costs, the perception of customer demand, and a prevailing of knowledge and technical capacity within the business, conditions that collectively undermine the operationalization of circular strategies in the private sector (Rexhepi Mahmutaj et al., 2025).

Infrastructure limitations, informal economies, and low regulatory enforcement shape the everyday realities of consumption (Akomea-Frimpong et al., 2024). For CE to be effective, circular offerings must align with local value systems (Dawkins et al., 2023; Axelsson et al., 2023) and affordability thresholds. As João et al. (2025) argue, without tailoring models to cultural and institutional contexts, CE efforts risk non-participation. In Albania and other Western Balkan countries this is intensified by systematic and infrastructural deficits, as well as weak market readiness for CE-oriented business models. Business models that merely integrate circular principles operationally, without involving consumers in the design or delivery of sustainable services, risk misalignment and rejection. This is especially salient in Albania, where CE adoption is in nascent stages and lack a history of participatory policymaking, even if by promoting resource efficiency, reducing waste, and enhancing local engagement, the sector of agritourism in Albania embodies the call for sustainability in production processes and consumers patterns (Dionizi and Kercini, 2025). There is also a growing consensus around integrating social marketing approaches into circular interventions, especially in culturally diverse and economically transitioning societies. These approaches leverage behavioral insights and local values to reshape consumption norms and improve CE adoption (Trigkas et al., 2025; Mont et al., 2022). For Albania this could mean embedding circular practices into social identity and community-based frameworks, increasing legitimacy and uptake. This points to a persistent "intention-behavior" gap (De et al., 2025), also identified in Albania, where individuals may express willingness for sustainable behavior but lack the infrastructural and economic means to act accordingly. However there are cases where traditional knowledge aligned with sustainability objective, can foster food security, biodiversity preservation and local ownership (Dionizi et al., 2025), critical

dimensions for circular models. Empirical evidence in emerging markets highlights perceived barriers such as affordability, lack of awareness, and absence of local circular options, as constraints even for environmentally aware individuals (De et al., 2025). They propose models of mindful, responsible consumption where intentional awareness (rather than automaticity) drives behavior. This is especially relevant in the contexts like Albania, where consumer behavior is deeply embedded in cultural and historical consumption norms. In transitioning societies, societal belonging and status can significantly influence behavioral conformity to green norms. In terms of theoretical innovation, models such as mindful consumption, rooted in individual reflection and values, have emerged as useful complements to TPB. Drawing on the TPB and extended sufficiency frameworks, this study hypothesizes that intention to engage in CE-related practices is influenced by attitudes (e.g., care for environment), subjective norms (e.g., social responsibility), and perceived behavioral control (e.g., affordability, infrastructure). These theoretical constructs inform our hypothesis (H1-H4), which connect consumer attitudes, socio-demographic characteristics, and behavioral drivers within the specific context in Albania.

3 Materials and methods

3.1 Research design and data collection

The research process went through some key stages from conceptual development to empirical analysis. Figure 1 represents the logical sequence and methodological rigor of the study.

The study employed a cross-sectional quantitative design using a structured questionnaire to explore customer readiness for CE practices in Albania. The survey used Google Forms and was administered online and in person to ensure inclusivity across digital divides. A total of 250 valid responses were collected from residents of North Albania area between January and June 2025. Respondents were reached through a combination of email outreach, WhatsApp/Viber groups, social media distribution, and face-to-face interviews. Ethical standards, including informed consent for inclusion in the study and data anonymization, were rigorously followed. The collected data underwent additional processing to ensure confidentiality and to comply with data ethical guidelines.

3.2 Hypotheses development

Transitioning to a CE in emerging contexts such as Albania demands more than policy change or business innovation, it requires alignment with consumer awareness, motivation and behavior (Snezana et al., 2025). However, as noted by Bhar (2023); Saravanan (2024), generic behavioral models may fail to account for the socio-cultural and infrastructural constraints that shape decision-making. Building on this contextual insight, this study formulates four hypotheses grounded in literature that explores the interplay between demographic traits, CE-related behaviors and motivational drivers. Prior research has established that awareness of CE principles tends to correlate with socioeconomic status. João

et al. (2025); De et al. (2025) emphasize that individuals with higher education and formal labor participation often have greater access to sustainability narratives and institutional touchpoints that foster environmental literacy. In the Albanian context, where CE knowledge is still emerging, such links may be even more pronounced. Thus, we hypothesize

- (H1) Full-time employment and higher education levels are positively associated with knowledge and engagement in CE practices.

Gender may influence how individuals conceptualize CE practices. As noted by Dionizi and Kercini (2025), generational exposure to environmental discourse shapes whether recycling, waste reduction, or product durability are seen as central to sustainability. Similarly, Akomea-Frimpong et al. (2024) found significant gendered differences in CE engagement in resource-limited contexts. This leads to the second hypothesis:

- (H2) Gender differences influence motivations and perceived barriers to adopting CE behaviors.

The concept of sufficiency has gained attention in CE literature (Megha, 2024; Bocken et al., 2022; Gossen et al., 2023). However, evidence suggests that sufficiency practices are unevenly adopted, particularly in emerging economies where economic precarity constrains choice (De et al., 2025; Snezana et al., 2025). Building on this, we test the hypothesis:

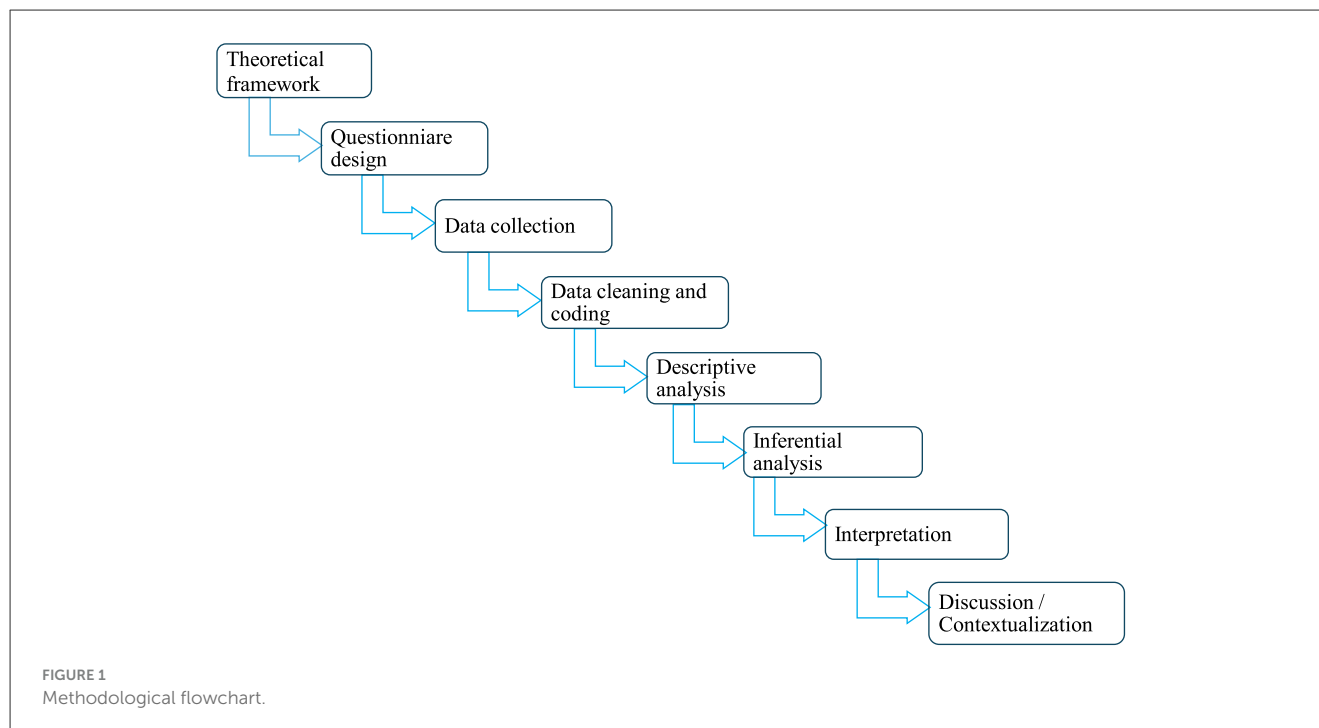
- (H3) Economic incentives and awareness campaigns significantly impact willingness to adopt sufficiently driven practices.

Certain CE behaviors may be strongly influenced by structural, infrastructural, or contextual barriers rather than by individual socio-demographic traits. Existing literature suggest that in emerging economies, where infrastructural systems for waste management, repair culture, or product lifecycle support are underdeveloped, behavioral participation may be constrained regardless of consumer readiness or awareness (Akomea-Frimpong et al., 2024; Saravanan, 2024; Trigkas et al., 2025; Mont et al., 2022). Hence, we hypothesize:

- (H4) Demographic variables have limited predictive power for certain CE behaviors, suggesting contextual or structural limitations.

3.3 Questionnaire design

The questionnaire was divided into two sections. The first section included demographic questions (age, gender, education, income, employment). While for the second part, the questionnaire was designed based on the key behavioral theories: (a) Theory of Planned Behavior (TPB): provided constructs on attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991; Naskar and Lindahl, 2025); (b) Value-belief-norm



(VPN) Theory: introduced ethical and normative drivers of behavior (Stern et al., 1999; Kirchherr et al., 2018); (c) Social practice Theory: helped frame routine behaviors as socially and materially embedded (Hargreaves, 2011; Singh and Giacosa, 2018); (d) Sufficiency principle: guided questions on consumption moderation and mindful use (Bocken et al., 2022; Kropfeld and Reichel, 2019). Variables were grouped into five latent constructs:

- Knowledge (KN)—2 items
- Behavior (BH)—5 items
- Influences (IN)—5 items
- Practices (PC)—3 items
- Preferences (PF)—2 items

Each construct was measured using a 5-point Likert scale (Strongly disagree = 1; Disagree = 2; No comment = 3; Agree = 4; Strongly agree = 5). We have also constructed a latent variable labeled CE (Circular Economy) as shown in Figure 2. The sample size of 250 respondents meets the requirements of the SEM model (Hair, 2011; Hair et al., 2021). The figure is obtained by using Stata SEM builder.

The SEM analysis provides strong empirical support for the theoretical assumptions underpinning the study. Specifically, knowledge (KN), behavior (BH), and practices (PC) emerged as statistically significant predictors of circular economy (CE) readiness, with knowledge and practices exerting the strongest effects. This confirms that consumers' cognitive understanding of CE concepts and their concrete sufficiency-driven practices are the primary determinants of readiness. The significant role of knowledge suggests that awareness campaigns and educational interventions can directly strengthen CE readiness, underscoring the importance of informational tools and communication strategies in emerging economies. Behavioral engagement, though

weaker in effect compared to knowledge and practices, still highlights the role of everyday actions—such as recycling and donating goods—as enablers of CE participation. Practices, particularly sufficiency-oriented consumption (buying only what is needed, valuing necessity over desire), proved to be highly influential, showing that moderation in consumption is not just an ethical stance but a measurable behavioral driver of readiness.

Interestingly, influences (IN) and preferences (PF) did not significantly predict CE readiness in the SEM results, despite their theoretical relevance. This gap indicates that stated motivations (e.g., environmental concern, social responsibility) and expressed preferences for incentives may not translate into measurable readiness unless supported by enabling infrastructure and socio-economic conditions. This finding aligns with the “intention-behavior gap” documented in sustainability research (De et al., 2025) and reinforces the idea that values and preferences alone are insufficient in contexts where structural and cultural barriers persist.

Taken together, the SEM results highlight a hierarchy of readiness determinants, where concrete knowledge and practiced behaviors outweigh abstract preferences or influences. This has important implications for CE policy and business interventions in Albania: strategies should prioritize strengthening consumer knowledge and enabling sufficiency-oriented practices, while recognizing that motivational appeals alone may not yield significant behavioral change.

3.4 Statistical methods

We used regression analysis to explore the impact of socio-demographic characteristics on key behaviors and attitudes.

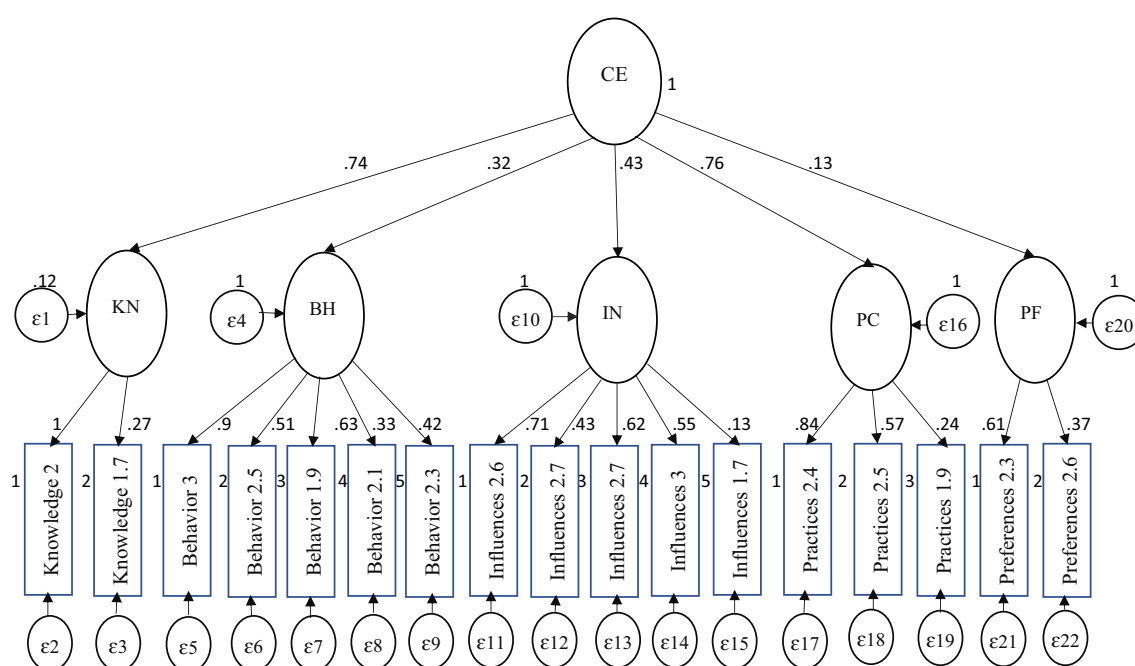


FIGURE 2
SEM model results.

All analysis was conducted in Stata. The structural equation model (SEM) is used as the statistical framework for this study, which utilizes the survey investigation method of a questionnaire. Multidimensional relationships among a large number of variables in the model have been investigated using structural linear models (SEM). SEM illustrates the relationships among latent variables. SEM integrates various methods, including factor analysis, multivariable regression, and correlation analysis (between network diagram segments), which allows us to examine the complex relationships within the model. To implement the SEM model, we conducted data cleaning, scale testing and exploratory factor analysis (EFA). And SEM was employed in this study because it enables the analysis of complex and multidimensional relationships that cannot be fully captured by traditional techniques. Many of the central constructs in the research (knowledge, behavior, influences, practices, and preferences) are latent in nature. This means that they are not directly observable but are inferred from multiple questionnaire items. SEM is particularly suited for this purpose, as it incorporates measurement error and thereby produces more reliable estimates than single-item indicators. Another advantage of SEM is its ability to estimate several dependent and independent relationships simultaneously. This is essential in the context of consumer readiness for the circular economy, which is shaped by a network of interrelated factors rather than by isolated linear effects (Lacej and Kalaj, 2015). Furthermore, the method aligns well with the theoretical foundations of the study. Behavioral frameworks such as TPB (Ajzen, 1991; Naskar and Lindahl, 2025) and VBN theory (Stern et al., 1999; Kirchherr et al., 2018) emphasize interconnections between attitudes, norms,

values, and behaviors. SEM makes it possible to test these theoretical pathways directly to verify whether the data supports the proposed relationships. Equally important is the capacity of SEM to distinguish between direct and indirect effects. So, the model allows us to examine whether knowledge exerts a direct influence on readiness for the CE, as well as to identify more complex pathways, such as the role of socio-demographic characteristics operating through knowledge and behavior before shaping readiness outcomes. This holistic perspective provides a nuanced understanding of consumer decision-making in sustainability contexts.

To ensure the robustness of the findings, the measurement model was evaluated through indices such as composite reliability, average variance extracted (AVE), and overall model fit statistics. These tests confirmed that the constructs were adequately represented and that the hypothesized relationships were supported by the data, thereby strengthening the credibility of the analysis. Finally, the sample of 250 respondents satisfied established guidelines for SEM (Hair, 2011; Hair et al., 2021), providing sufficient statistical power to estimate multiple constructs and pathways with confidence.

3.5 Sample profile

The sample was predominantly composed of students and young adults, with balanced gender representation and a wide range of income and education levels. Table 1 presents the full breakdown.

TABLE 1 Research sample characteristics.

Variable	Categories	Percentage(%)
Gender	Male	14.2
	Female	83.3
	Prefer not to respond	2.5
Age	Below 18	5
	18–24	67.5
	25–34	10
	35–44	9.2
	45–54 Over	5
	55	3.3
Education	8–9 years	1.7
	High school	51.6
	Bachelor's degree	21.7
	Master's degree	19.2
	Doctorate degree	5.8
Occupation	Full-time	30
	Part-time	6.7
	Unemployed	3.3
	Student	57.5
	Retired	2.5
Income level	Below 40,000 ALL	21.7
	40,001–80,000 ALL	29.2
	80,001–1,20,000 ALL	31.6
	1,20,001–1,60,000 ALL	10
	Above 1,60,000 ALL	7.5

4 Results and discussions

The regression analysis (Table 2) revealed important socio-demographic patterns shaping consumer knowledge and behavior regarding the CE. Employment status emerged as a strong predictor of awareness: individuals working full-time consistently reported higher familiarity with CE concepts, suggesting that active participation in the labor market provides exposure to sustainability discourses.

Age and gender also played a role. Older respondents tended to associate CE more with recycling, whereas younger individuals emphasized resource minimization, reflecting generational differences in environmental framing. Women more frequently linked CE to recycling compared to men, a finding that aligns with eco-gender gaps observed in resource-limited contexts (Akomea-Frimpong et al., 2024). Behavioral outcomes (Table 3) reflected similar socio-demographic stratification. Donation practices (BH3) were more common among men and those in full-time employment, while sufficiency-oriented consumption (BH4) was positively associated with both higher education and employment.

By contrast, recycling and waste sorting behaviors (BH1, BH2, and BH5) showed no significant demographic associations,

indicating that systematic and infrastructural barriers, rather than individual traits, may constrain these practices (Akomea-Frimpong et al., 2024; Rexhepi Mahmutaj et al., 2025; Trigkas et al., 2025). This illustrates how certain pro-environmental intentions remain unrealized when enabling structures are absent, reinforcing the persistence of an intention-behavior gap. Motivational drivers (Table 4) of CE engagement provided further nuance. Respondents employed full-time were more likely to report environmental care (IN1) as a motivating factor, while men, highly educated participants, and those in employment emphasized economic savings (IN2) as central to their decision-making. Employment status also correlated with perceptions of CE as a civic duty (IN3), suggesting that formal labor participation enhances normative commitments to sustainability (De et al., 2025; João et al., 2025).

Practicality (IN4) was valued particularly by men and employees, highlighting the importance of convenience for behavioral adoption. Barriers (IN5) differed along educational lines: respondents with higher education cited infrastructural deficiencies, while those with lower education more often emphasized financial constraints. This divergence underscores how knowledge can sharpen expectations for enabling environments, while economic precarity continues to hinder behavioral change. Further insights were provided by the analysis of sufficiency-oriented practices. Both valuing necessity over desire (PC1) and prioritizing sufficiency (PC2) were significantly associated with higher income and employment, suggesting that socio-economic security enables individuals to embrace consumption moderation as a normative orientation (Bhar, 2023). Preferences for sufficiency incentives (PC3) did not vary significantly by demographic traits, indicating motivational levers may cut across social groups but require contextual adaption to translate into practice (De et al., 2025). Intervention-related preferences revealed that full-time employees were more supportive of awareness campaigns (PF1), highlighting the latent demand for informational tools, while no demographic group dominated in terms of preferred incentives (PF2), where opinions were spread across financial discounts, reward points, and recognition. These findings reinforce the role of occupational and income structures not only in shaping current CE behaviors, but also in determining receptivity to future interventions.

Before estimating the SEM, the measurement model was validated (Table 5). All constructs reached acceptable levels of composite reliability (CR > 0.7) and satisfied discriminant validity criteria (Peterson, 1994; Peterson and Kim, 2013).

The SEM results (Table 6) confirmed that knowledge, behavior, and practices significantly predicted CE readiness, though with varying magnitudes. Knowledge and sufficiency-oriented practices exerted the strongest effects, while influences and preferences did not reach statistical significance. This hierarchy of effects demonstrates that concrete cognitive and behavioral engagement is more decisive than stated values or preferences, echoing earlier findings on the intention-behavioral gap in sustainability contexts (Bosone et al., 2022).

All the results mentioned above provide empirical support for the study's hypotheses, while also offering deeper insights. H1 is supported: educational and employment enhance CE awareness and practice, functioning as proxies for exposure to sustainability narratives. H2 receives partial support: while women emphasize

TABLE 2 Knowledge (KN) on CE practices.

	How well are you acquainted with the concept of CE (KN 1)		Which of the practices do you connect mostly with CE (KN 2)	
Variables	coefficient	p-value	coefficient	p-value
Age	0.054	0.475	0.473	0.004***
Gender	−0.169	0.225	0.606	0.043**
Education	−0.111	0.208	−0.307	0.102
Occupation	0.101	0.019**	0.155	0.088*
Income	0.008	0.858	0.131	0.188
Constant	1.984	0***	0.437	0.521

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE 3 Engagement behavior (BH) on CE activities.

	Recycling of household waste (BH 1)		Repairing instead of replacing (BH 2)		Donating what is no longer needed (BH 3)		Buy what's just needed (consume reduction) (BH 4)		The organic waste is put on: recycling bins at home, recycling community centers, don't recycle (BH 5)	
Variables	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
Age	−0.139	0.336	0.044	0.723	0.026	0.85	−0.126	0.315	−0.127	0.305
Gender	−0.527	0.051*	−0.436	0.063*	−0.712	0.007***	−0.442	0.059*	−0.285	0.217
Education	0.19	0.261	0.124	0.399	0.21	0.2	0.367	0.013**	0.262	0.072*
Occupation	0.137	0.096*	0.076	0.286	0.275	0.001***	0.282	0***	0.081	0.25
Income	0.013	0.887	−0.004	0.963	−0.044	0.613	0.149	0.057*	−0.019	0.804
Constant	2.895	0***	1.978	0***	1.311	0.029**	0.537	0.315	1.678	0.002***

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE 4 Influences (IN) mostly to be involved in CE practices.

	Care for the environment (IN1)		Economic savings (IN2)		Social responsibility (IN3)		Practicality (IN4)		The obstacles to adopt CE practices (lack of infrastructure, lack of awareness, cultural impediments, time limitation, economic limitation)(IN5)	
Variables	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Age	0.078	0.223	−0.049	0.503	0.076	0.314	0.054	0.468	−0.37	0.063*
Gender	−0.218	0.068*	−0.4	0.004***	−0.198	0.16	−0.408	0.004***	−0.234	0.523
Education	0.128	0.088*	0.225	0.009***	−0.024	0.783	0.115	0.187	0.488	0.036**
Occupation	0.09	0.014**	0.085	0.043**	0.085	0.048**	0.095	0.026***	0.21	0.063*
Income	0.001	0.972	0.037	0.415	0.047	0.313	0.055	0.233	−0.063	0.609
Constant	0.653	0.018**	1.008	0.002***	1.16	0***	1.191	0***	1.734	0.041**

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

environmental motives and men highlight economic or practical ones, behavioral outcomes were often similar, suggesting gendered differences in motivation more than in action. H3 is only partly confirmed: incentives and campaigns are perceived as important but not strongly stratified by demographics, pointing to their universal appeal as policy levers. H4 is strongly supported: recycling and waste sorting behaviors show no demographic

differentiation, underlining how structural barriers overshadow individual readiness (Rexhepi Mahmutaj et al., 2025).

Beyond the hypotheses, the findings highlight broader patterns of consumer readiness in Albania. Sufficiency-oriented behaviors, while aligned with cultural traditions of reuse, appear to be easier to adopt when supported by socio-economic stability. This resonates with social practice theory, which emphasizes the embedding

TABLE 5 Results of testing composite reliability.

	CR (composite reliability)	AVE(average variance extracted)	MSV (maximum shared variance)
Knowledge (KN)	0.848	0.543	0.481
Behavior (BH)	0.829	0.572	0.401
Influences (IN)	0.705	0.464	0.553
Practices (PC)	0.773	0.501	0.361
Preferences (PF)	0.709	0.462	0.481

TABLE 6 Results of impact assessment of relationships.

Circular economy	Estimates	p-Values	Results
Knowledge (KN)	0.74	0.001	Not rejected
Behavior (BH)	0.32	0.000	Not rejected
Influences (IN)	0.43	0.762	Rejected
Practices (PC)	0.76	0.002	Not rejected
Preferences (PF)	0.13	0.258	Rejected

of practices in cultural and material contexts (Hargreaves, 2011; Gobbo, 2022). The dual legacy of Albania’s post socialist transition, shifting from scarcity-driven sufficiency to liberalized consumerism, creates opportunities to revitalize older practices through intergenerational learning (Dionizi et al., 2025). The results also confirm the importance of differential communication. While green-motivated consumers may respond to identity and value-based messages, benefit- motivated consumers require economic and practical incentives (Gossen et al., 2023; Eg et al., 2025).

Finally, the study underscores the role of local governance and context-sensitive interventions (Dawkins et al., 2023; Axelsson et al., 2023). Municipal actors and NGOs already active in awareness campaigns, can leverage the preference for informational tools to build legitimacy and increase uptake. Businesses too, must move beyond offering “green” products toward participatory models such as repair services, leasing, or take-back schemes, aligning consumer constraints and values (Chevrollier et al., 2025; João et al., 2025). Aligning such practices with global sustainability frameworks, particularly the SDGs, may enhance credibility and open opportunities for internationalization. The integration of statistical results with theoretical discussion demonstrates that fostering CE readiness in Albania requires attention to both structural barriers and socio-demographic stratification. Employment and education provide important entry points, but lasting change will depend on enabling infrastructures, sufficiency-oriented norms, and participatory models that co-create value with consumers.

5 Conclusion

The findings of this study underline the significance of the CE in the Albanian and broader Western Balkan context, where historical legacies, infrastructural constraints, and the

aspiration for EU integration converge. Albania’s post socialist transition has generated both opportunities and challenges. While traditional practices of reuse and sufficiency resonate with the principles of circularity, fragmented infrastructure and limited policy enforcement continue to hinder their systematic adoption. Against this backdrop, understanding consumer readiness becomes crucial for shaping effective interventions and policies. Methodologically, the study combined a structured survey with 250 respondents in North Albania and advanced statistical techniques, including regression analysis and SEM. This approach allowed for the assessment of complex relationships between socio-demographic traits, behavioral constructs, and readiness for circular practices. The integration of behavioral theories provided a robust framework for interpreting results, confirming that consumer behavior in sustainability contexts cannot be fully understood through linear models alone.

The results point to knowledge and sufficiency-oriented practices as the most decisive drivers for readiness. Respondents who reported higher awareness of CE concepts and those who prioritized moderation in consumption were more likely to engage in circular practices. Employment status, education, and income further reinforced these outcomes, suggesting that socio-economic positioning enhances both the resources and the awareness necessary to participate. At the same time, the absence of significant effects for motivational influences and preferences illustrates a persistent intention-behavior gap, where values and stated aspirations do not translate into measurable engagement. This gap reflects the broader structural barriers in Albania, including weak recycling infrastructure and limited institutional support, which remain stronger determinant of action than individual readiness alone. These findings have important implications for policymakers, businesses, and educators. Policymakers must address structural barriers by investing in enabling infrastructures and designing interventions that make sufficiency practices feasible across socio-economic groups. Businesses can move beyond offering green alternatives by engaging consumers as co-creators through service-based models such as repair, leasing, and tack-back schemes. Educators and awareness campaigns should prioritize CE literacy, recognizing that knowledge is not merely a background factor but a primary driver of readiness. By combining infrastructural investments with behavioral interventions, actors across quadruple helix can accelerate Albania’s transition toward a more sustainable economy.

The analysis, however, must be read with caution. The sample is geographically concentrated in the North and overrepresents

younger respondents, which may limit representativeness across Albania. Self-reported survey data carry risks of social desirability bias, and the cross-sectional design prevents conclusions about causality. These limitations do not diminish the value of the findings but point to the need for more diversified and longitudinal research to strengthen the evidence base. Looking ahead, future research would benefit from longitudinal designs that trace changes in behavior over time, particularly as Albania advances its EU integration and sustainability agendas. Expanding to other regions of Albania and the wider Western Balkans would enable comparative perspectives, while qualitative methods could capture the cultural and social dynamics that underpin customer decisions. By broadening the methodological lens, future research will be able to offer even more nuanced guidance for interventions. The study demonstrates that Behavioral readiness for the CE in Albania is determined not only by individual knowledge and practices but also by the broader structural environment. Advancing CE adoption will require a dual approach through building enabling infrastructures and institutions and simultaneously fostering sufficiency-oriented behaviors and knowledge. Only through this integration can Albania and the Western Balkans achieve meaningful progress toward sustainability.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

BD: Conceptualization, Funding acquisition, Investigation, Methodology, Project administration, Writing – original draft. EK: Formal analysis, Methodology, Resources, Software, Writing – original draft. AA: Validation, Visualization, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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