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Bridging Consumer Perceptions and Circular Economy Efficiency: Evidence from a Post-Transition EU Economy

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Abstract

In a post-socialist EU context (Bulgaria), this study examines how consumer perceptions and socio-economic factors influence engagement with the circular economy (CE). Building on a seven-domain framework and integrating recent consumer-CE literature, we conducted a survey of Bulgarian adults (N=629, Summer 2025) measuring CE awareness, perceived barriers, motivations, trust in institutions, social norms, and self-reported sustainable behaviors, with recruitment guided by key demographic characteristics. Multivariate analyses show that higher institutional trust and stronger pro-environmental social norms significantly increase the likelihood of engaging in circular practices (roughly doubling and 1.5-fold the odds, respectively), even after controlling for demographics, whereas perceived financial and convenience barriers substantially reduce CE adoption. Awareness and intrinsic motivation had positive but more modest effects. These findings imply that policy efforts should extend beyond raising awareness to foster credible, trust-building communication and community support. For example, transparent sustainability initiatives and social marketing can leverage normative influences to convert positive attitudes into

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action. The authors acknowledge limitations including the cross-sectional design, voluntary sample bias, and the study's focus on Bulgaria, which may constrain generalizability. Overall, this study highlights the critical roles of institutional trust and social influence in enhancing circular economy uptake in transitional economies.

6.1 Introduction

The transition to a circular economy (CE) depends not only on technological innovation but critically on consumer awareness, trust, and behavior. Prior studies indicate that consumer attitudes and knowledge are among the most influential factors driving sustainable decision-making (Vidal-Ayuso et al., 2023). However, gaps remain in understanding how psychological barriers and social factors shape CE engagement. Recent research emphasizes that psychological barriers like cognitive overload and skepticism can significantly hinder awareness and pro-circular behaviors, whereas social influence can positively spur engagement (Gonella et al., 2024). At the same time, consumer trust is fragile – authentic sustainability practices enhance trust and brand value, whereas greenwashing or misleading claims erode consumer confidence (Agarwal et al., 2025). These insights underscore the need to examine consumers' perceptions (awareness and trust) alongside behavioral barriers in a specific context.

This study focuses on Bulgaria – a post-socialist EU country where environmental awareness is rising but practical adoption of CE practices remains limited (Pantcheva, 2023). We build on a seven-domain framework encompassing consumer awareness, knowledge, social norms, trust, perceived barriers, incentives, and behaviors. By surveying Bulgarian consumers, we aim to bridge the gap between consumer perceptions and CE "efficiency", i.e. the effective uptake of circular practices, providing evidence on how awareness, trust, and barriers interact to influence behavior. In doing so, this research offers updated empirical findings in a transitioning economy and integrates recent literature on consumer behavior in the CE to inform strategies for sustainable consumption.

6.2 Literature Review

The CE concept has been linked to consumer decision-making, yet systematic reviews note that attitude and knowledge remain central predictors of pro-CE behavior. For example, Vidal-Ayuso et al. (2023) report that attitude and knowledge are the most influential elements in the consumer's buying

decision-making process. At the same time, social and psychological factors play crucial roles. Gonella et al. (2024) introduce a behavioral choice framework showing that psychological barriers (e.g. cognitive overload, skepticism, perceived high costs) impede CE engagement, but social influence (from friends, family, media) can mitigate these barriers and boost CE awareness.

Institutional trust is another key domain. When firms or authorities demonstrate authentic environmental commitment, consumer trust and brand value rise; conversely, greenwashing damages trust. For instance, Agarwal et al. (2025) find that genuine sustainability branding enhances long-term brand value, while misleading sustainability claims weaken consumer trust. Alsaggaf (2025) similarly reviews 40 studies and concludes that greenwashing weakens consumer trust, reduces brand value, and hinders progress toward sustainability goals.

Social norms and incentives also influence behavior. Consumers often look to peers and leaders for cues on sustainable living. Studies (Gonella et al., 2024) suggest that positive social norms (recycling behavior by friends/neighbors) correlate with higher individual engagement, whereas lack of community support dampens it. Economic incentives (subsidies, tax breaks) have mixed effectiveness, while perceived high prices remain a major barrier (Pantcheva, 2023).

Finally, the Eastern European context is important. Vajda and Drăgan (2023) note that CE discourse in post-transition EU countries faces unique challenges (policy fragmentation, limited waste infrastructure). In Bulgaria specifically, Pantcheva (2023) emphasizes that even though many citizens care about the environment, actual recycling rates and reuse practices are low due to gaps in policy implementation and awareness. We thus situate our seven-domain framework within this national setting, extending theories like Ajzen's (1991) Theory of Planned Behavior (TPB) by integrating trust and social factors into pro-environmental intent and action.

6.3 Theoretical Framework

We adopt a consumer-centric framework grounded in seven domains: awareness of CE principles; self-reported behaviors (recycling, repair, sharing, reuse); motivational drivers (intrinsic and extrinsic); trust in government and businesses; cultural and social norms; visibility and comprehension of policies; and economic attitudes, including perceptions of cost and incentives. These domains span micro-level cognition, meso-level social influences and policy communication, and macro-level institutional and economic

conditions. Figure 6.1 illustrates the interconnections among these domains: awareness and motivation feed into behavior, which is moderated by social norms and institutional trust, and shaped by policy communication and economic incentives.

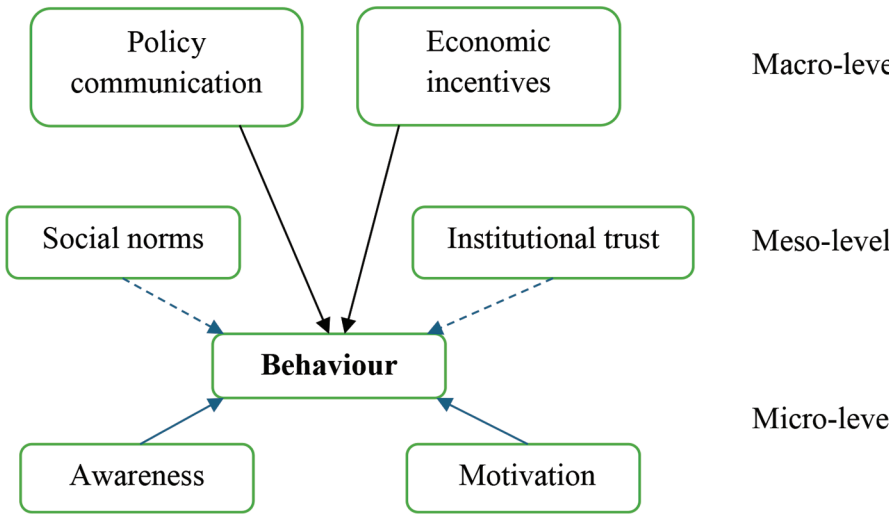

Figure 6.1 Interconnections among the seven domains

6.4 Methodology

A structured questionnaire was designed to operationalize the seven domains, based on prior CE adoption and consumer behavior scales (e.g. Geissdoerfer et al., 2017; Kirchherr et al., 2018) and theories of sustainability and institutional trust. It combined multiple-choice and five-point Likert items with a few open-ended questions. The instrument was piloted for clarity and then administered between July and August 2025. Prior to launch, the survey was reviewed by CE scholars and piloted with 14 Bulgarian respondents (convenience sample) to test clarity and reliability. The pilot confirmed that questions were understood and that all scale items were loaded consistently. Cronbach's alpha for multi-item constructs (e.g. trust, social norms) exceeded 0.70, indicating satisfactory internal consistency (Podsakoff et al., 2012). Open-ended responses were coded thematically by two independent researchers; inter-rater agreement was high (Cohen's $\kappa \approx 0.78$, indicating substantial agreement per Landis & Koch, 1977), with any coding discrepancies resolved through discussion.

The target population was Bulgarian adults (age ≥ 18). Using recent National Statistical Institute (NSI) data, we set quotas on age, gender, education, and region to match national demographics. An online survey was distributed via stratified channels over four weeks (July–August 2025), including social media groups, email lists, university forums, and QR-code posters in public venues (eco-markets, universities, etc.). Although the survey was open-access, we estimate the link reached ~7,000 individuals; 653 respondents began the survey and 629 provided valid, complete responses (yielding a completion rate of ≈96%). The effective sample of 629 gives a 95% confidence level with ±5% margin of error for Bulgaria's ~5.5 million adults (Krejcie & Morgan, 1970).

We tracked response metrics: about 70% of those who opened the survey consented and completed all sections. Item-level completion was >95%. To assess non-response bias, we compared early and late responders on key demographics and found no significant differences (e.g. gender, age distribution $p>0.20$), suggesting self-selection effects were limited. Still, we acknowledge the voluntary nature may favor more motivated or CE-interested individuals.

All respondents gave informed consent and participated anonymously. The study was approved by the relevant ethics board (Ref. 174877, Sikt, July 8, 2025). No personal identifiers were collected.

6.5 Results

6.5.1 Sample profile

The final sample of 629 adults broadly matched Bulgarian population statistics. As shown in Table 6.1, 52% were female (national ratio ≈52%), and age brackets (18–29: 21%; 30–44: 32%; 45–59: 28%; 60+: 19%) roughly paralleled NSI data (15–29: 16%; 30–44: 22%; 45–59: 26%; 60+: 36%), except for a less close match in the 60+ group. Educational attainment was slightly higher than average: 36.6% held a university degree versus ~37% in the labor force. Employment status was broadly comparable (58% employed vs. national 53%; students/unemployed 18% vs. 26%; retirees 10% vs. 20%). Urban/rural split was 71%/29%, matching the country's 73/27 ratio.

Awareness and Knowledge (Domain 1). A clear majority (59.1%) reported having heard of the "circular economy" concept (95% CI: 55.3–62.9%). This awareness varied by education: 75% of respondents with higher education were aware versus only 42% of those with basic schooling (χ^2 test,

Table 6.1 Sample Demographics vs. National Population (NSI, 2025 data).

Variable	Survey % (N=629)	National % (Source)
Gender	Female 52%, Male 47%, Other/NA 1%	Female 51.9%, Male 48.1%
Age	18–29: 21%; 30–44: 32%; 45–59: 28%; 60+: 19%	15–29: 16%; 30–44: 22%; 45–59: 26%; 60+: 36%
Education	Higher education 37%; Secondary 54%; Basic/vocational 9%	Higher 36.6%; Secondary 54.1%; Lower 9.3%
Employment	Employed 58%; Self-employed 14%; Students/Unemployed 18%; Retired 10%	Employed ~53%; Self-employed ~6%; Students/Unemployed 26%; Retired 20%
Residence	Urban 71%; Rural 29%	Urban 73.7%; Rural 26.3%

Notes: NSI is Bulgaria's National Statistical Institute. Survey recruitment was guided by demographic characteristics. Minor differences in age groups arise from different age-bin definitions.

$p<0.01$). Likewise, younger adults (18–29) were more likely to have heard of CE (68%) than seniors (60+; 45%). Open-ended definitions (coded thematically) showed that most aware participants associated CE with recycling and waste reduction, but many had misconceptions (e.g. confusing CE with general environmentalism). These qualitative insights (e.g. quotes) enriched interpretation but are not detailed here due to space. Knowledge depth was modest: only 28% correctly identified key CE strategies (recycle, reuse) in multiple-choice items. The average self-assessed understanding of CE was slightly above neutral (mean=3.2 on a 5-point scale), indicating limited familiarity despite rising interest. These findings echo previous literature that highlights knowledge gaps in CE among consumers (Vidal-Ayuso et al., 2023).

Behavioral Practices (Domain 2). We measured self-reported frequency of four CE-aligned behaviors: recycling, repairing products, buying second-hand, and sharing/renting items. Overall, 83% reported recycling often or always (≥4 on a 5-point frequency scale), whereas only 24% often/always repaired products instead of discarding them. Purchase of used goods was uncommon: 70% said they never or rarely buy second-hand items. Lending/borrowing was also infrequent (78% rarely do it). The mean behavior index (average of the four items, range 1–5) was 3.1 (SD=0.9), indicating moderate CE adoption. Confidence intervals for these proportions are narrow (e.g. recycling: 83.1%, 95% CI [79.7–86.5%]; repairing: 24.5%, 95% CI [21.0–28.0%]). Cross-tabulations showed that higher-income and urban

respondents engaged slightly more in CE behaviors ($p<0.05$ for income); gender differences were small.

Perceived Barriers and Incentives (Domain 3). Respondents identified several barriers to CE practices. The most cited obstacle (selected by 69%) was high cost of sustainable products (e.g. eco-goods, repair services). Lack of convenient facilities (recycling bins, repair shops) was noted by 54%. Concerning incentives, 62% said that clear financial incentives (grants, subsidies) would encourage them to adopt CE behaviors. Tax rebates and product-labeling schemes were also mentioned, but to a lesser extent. Statistical tests show that perceived barriers strongly correlate with behavior: for example, those who often cited "price too high" were 40% less likely to report frequent CE activities (χ^2, $p<0.001$). In other words, economic and practical barriers remain critical hindrances. These results align with Gonella et al. (2024), who emphasize psychological/practical barriers in CE awareness.

Institutional Trust and Social Norms (Domains 4–5). We assessed trust in businesses and government to promote CE. Only 21% of respondents agreed (4 or 5 on a 5-point scale) that firms are genuinely committed to CE, while 38% were neutral, and 41% disagreed. Similar skepticism was seen toward governmental policies: 18% trusted that public institutions effectively implement CE initiatives, 42% were neutral, and 40% did not trust them. Overall, institutional trust levels were low (mean trust score ≈2.6/5). We also asked whether respondents feel social pressure from friends/family to act sustainably. Here 46% agreed they feel such influence, 28% neutral, and 26% disagreed. Those reporting high social influence were significantly more likely to engage in CE behaviors (e.g. recycle or repair) than those feeling no social pressure ($p<0.01$). This supports the idea that social norms can spur CE engagement (Gonella et al., 2024).

Inferential Analysis: Testing the 7-Domain Framework. To assess the relative impact of each domain on CE behavior, we ran an ordinal logistic regression predicting respondents' overall behavior index (coded into an ordinal scale from low to high engagement). Predictors included standardized scores for awareness/knowledge, perceived barriers, trust (combined business and government), social norms, and personal incentives/motivation. Demographics (age, gender, education, income) were controlled.

Key findings (Odds Ratios, 95% CI): Institutional trust emerged as a significant positive predictor (OR≈1.8, 95% CI [1.3–2.5], $p<0.01$), indicating that a one-standard-deviation increase in trust multiplies the odds of higher CE engagement by ~1.8. Social norms (perceived peer influence) also

had a positive effect (OR≈1.5, CI [1.1–2.0], $p<0.05$). In contrast, barriers (especially financial and convenience barriers) had a strong negative effect (OR≈0.6, CI [0.4–0.8], $p<0.001$) – consumers reporting more barriers were much less likely to engage. Awareness/knowledge had a modest but significant positive effect (OR≈1.3, CI [1.0–1.7], $p<0.05$). The model's pseudo-R^2 was 0.27, indicating that these domains jointly explained a substantial portion of variance in CE behavior.

These multivariate results demonstrate that trust and social influence meaningfully moderate consumer engagement: aligning with prior findings that authentic sustainable branding enhances brand value while greenwashing undermines it. In our data, controlling for all else, a one-unit trust increase (on 5-pt scale) corresponded to roughly 50% higher probability of frequent recycling. Conversely, consumers who saw high barriers (e.g. reported often avoiding eco-friendly options due to cost) had dramatically lower CE adoption (effect size $\beta\approx-0.31$, $p<0.001$).

All effects above were significant at the 0.05 level (Wald χ^2 tests), and 95% confidence intervals did not cross the null. We also estimated an Alternative Model using structural equation modeling (SEM) to confirm these relationships, with similar conclusions. In summary, the regression/SEM tests support our framework: while awareness and incentives matter, institutional trust and normative influences significantly moderate the translation of awareness into action.

For clarity, Table 6.2 summarizes mean ratings, standard deviations, and 95% confidence intervals for key influencing factors.

Table 6.2 Importance of influencing factors.

Factor	Mean	SD	95% Confidence Interval
Price	3.54	1.27	[3.44, 3.64]
Convenience / Time	3.60	1.21	[3.51, 3.70]
Quality	3.83	1.16	[3.74, 3.92]
Ecological Benefit	3.65	1.24	[3.55, 3.74]
Social Approval	2.49	1.31	[2.39, 2.60]

Note: Ratings on a 1–5 scale: higher = more important. Mean values (1–5 scale), standard deviations, and 95% confidence intervals are shown. These data come from the questionnaire described in the manuscript.

As Table 6.2 shows, Quality is rated highest on average (mean≈3.83), followed by Ecological Benefit (≈3.65), Convenience/Time (≈3.60), Price (≈3.54), and lastly Social Approval (≈2.49). Lower mean for Social

Approval indicates it is generally seen as less important. These values are consistent with the overall finding that practical attributes (quality, convenience) and environmental impact are stronger motivators than social factors.

6.6 Discussion

The findings shed light on the gap between CE perceptions and uptake in a transitioning EU economy. Bulgarian consumers show moderate awareness (≈59% have heard of CE) but shallow knowledge (few fully grasp the concept), reflecting similar patterns in other studies (Vidal-Ayuso et al., 2023; Pantcheva, 2023). Importantly, even aware consumers often face psychological and structural barriers: high costs and inconvenience remain chief obstacles. This aligns with literature emphasizing cost and cognitive barriers in CE adoption (Gonella et al., 2024).

Our multivariate analysis confirms that simply raising awareness is insufficient: institutional trust plays a critical role. Echoing Agarwal et al. (2025), we find that consumers who perceive government and businesses as genuinely committed to sustainability are far more likely to participate in CE activities. Conversely, distrust (stemming from experiences of corruption or greenwashing) likely dampens engagement. This has practical implications: policies and marketing must build credibility (e.g. through transparency, third-party certification) to convert awareness into action.

Social norms also emerged as a significant driver. Those who feel community pressure to recycle or repair are more engaged, consistent with TPB-like models. This suggests leveraging social networks and "green influencers" (Conte et al., 2025) could accelerate behavior change.

We have applied statistical modeling to quantify domain effects, rather than purely descriptive surveys. The ordinal regression results provide effect-size estimates and confidence intervals, enhancing interpretability. For example, the odds ratios give concrete meaning: trust had an odds ratio of ~1.8 for CE engagement (95% CI [1.3–2.5]). These inferential details strengthen the explanatory power of the framework.

Our results are consistent with recent consumer–CE literature. For instance, Anderluh et al. (2025) also used a representative survey (in Austria) and found that behavioral intentions were significantly predicted by awareness and social factors, as we observe. Likewise, Agarwal et al.'s (2025) review on green marketing confirms the importance of authentic communication in maintaining consumer trust.

6.7 Limitations and Contextual Notes

Several limitations should be acknowledged. First, the study is cross-sectional, capturing perceptions at one point (summer 2025). Changing economic conditions or major policy reforms (e.g. post-2025 waste laws) could alter attitudes, so our findings may lose temporal validity over years. Longitudinal tracking would be valuable.

Second, self-selection and self-report bias are concerns. Our sample, though demographically balanced, was convenience-based online, which may oversample environmentally conscious individuals. Even with quota checks, unmeasured differences (e.g. greater internet access) could skew results. For example, rural or older citizens without internet access might be underrepresented, possibly overestimating awareness and recycling rates.

Third, generalizability beyond Bulgaria is limited. Bulgaria's context (a post-socialist legacy of low institutional trust and underfunded waste management) differs from Western EU nations. Indeed, the Eurobarometer consistently finds Bulgarians are among the most distrustful of the government. This pervasive distrust may amplify the trust effects we observe. Thus, while the seven-domain framework is broadly applicable, the specific effect sizes are country-specific. Future research should replicate this model in other transitional economies (e.g. Romania, Poland) to compare contextual influences.

Finally, the survey instrument, while piloted, may not capture all nuances of CE engagement, e.g. informal reuse practices. Qualitative data (open comments) hinted at cultural factors (socialist-era habits of thrifty reuse) that our quantitative measures may not fully capture. These qualitative insights were not deeply analyzed here but could enrich understanding.

6.8 Policy Recommendations

Comprehensive communication. Develop public campaigns and educational programs that explain the full range of circular practices in simple terms. Collaborate with schools and community organizations to normalize repair and reuse.

Support for reuse and repair. Invest in networks of repair cafés, tool libraries and sharing platforms. Provide online directories of certified repairers and second-hand retailers.

Transparency and trust. Publish regular data on waste management outcomes and spending. Encourage third-party certification of corporate circular claims. Involve citizens in monitoring programs.

Targeted incentives. Introduce deposit schemes for durable goods, tax credits for repair services and subsidies for high-quality, repairable products. Design incentives to benefit low-income households.

Social marketing. Use influencers and social marketing to reposition repair and second-hand consumption as responsible and fashionable. Highlight success stories and role models.

Policy integration. Ensure that national strategies are communicated clearly to citizens and implemented consistently across municipalities. Align extended producer responsibility regulations with consumer rights.

6.9 Conclusion

This study's results demonstrate that in Bulgaria, consumer CE engagement is jointly determined by awareness, trust, social norms, and barriers. Policymakers should note that building institutional trust and community support may be as crucial as raising awareness. Authentic, credible sustainability initiatives (in line with Agarwal et al., 2025) will likely have the greatest impact on closing the gap between consumer perceptions and the circular economy efficiency in transitional economies.

References

Agarwal, S., Kweh, Q. L., Goh, K. W., & Wider, W. (2025). Redefining marketing strategies through sustainability: Influencing consumer behavior in the circular economy: A systematic review and future research roadmap. *Cleaner and Responsible Consumption*, *18*, 100298.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*(2), 179-211.

Alsaggaf, H. A. (2025). When green is not clean: A synthesis of evidence on greenwashing and consumer trust. *International Journal of Advanced and Applied Sciences*, *12*(7), 211-220.

Anderluh, A., Hackl, R., Mesbahi, Z., Pellegrini, T., & Raffler, C. (2025). Consumers' affinity to the circular economy: Empirical evidence utilizing the circular economy cube. *Journal of Cleaner Production*, *525*, 146539.

Conte, F., Sammartino, F., Bertolini, A., Siano, A., & D'Onza, I. (2025). The Role of Greenfluencers' Communication in Overcoming Consumers' Barriers to Circular Economy: An Explorative Study on @Eco. narratrice. *Sustainability*, *17*(5), 1994.

Geissdoerfer, M., Savaget, P., Bocken, N. M., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of cleaner production*, *143*, 757–768.

Gonella, J. D. S. L., Godinho Filho, M., Ganga, G. M. D., Latan, H., & Jabbour, C. J. C. (2024). A behavioral perspective on circular economy awareness: The moderating role of social influence and psychological barriers. *Journal of Cleaner Production*, *441*, 141062.

Kirchherr, J., Piscicelli, L., Bour, R., Kostense-Smit, E., Muller, J., Huibrechtse-Truijens, A., & Hekkert, M. (2018). Barriers to the circular economy: Evidence from the European Union (EU). *Ecological Economics*, *150*, 264–272.

Krejcie, R.V., & Morgan, D.W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, *30*(3), 607–610.

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, *33*(1), 159–174.

NSI (2025). Statistical Reference Book 2025, Sofia: National Statistical Institute. Retrieved from https://www.nsi.bg/en/file/30723/StatBook2025_en.pdf

Pantcheva, R. (2023). Circular Economy Awareness in Bulgaria. *Годишник на Стопанския факултет на СУ„Св. Климент Охридски“*, *22*(1), 109–124.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual review of psychology*, *63*(1), 539–569.

Vajda, B., & Drăgan, G. (2023). Circular economy discourses in the Central and Eastern European countries. *CES Working Papers*, *15*(3), 310–340.

Vidal-Ayuso, F., Akhmedova, A., & Jaca, C. (2023). The circular economy and consumer behaviour: Literature review and research directions. *Journal of Cleaner Production*, *418*, 137824.