

Breaking the green gap: how behavioral economics drives sustainable consumer choices

Abstract

Purpose: This study investigates how behavioral economics principles influence consumer sustainability choices, with particular emphasis on nudging strategies and the attitude-behavior gap in environmental decision-making.

Design/methodology/approach: A qualitative interpretive study employing semi-structured interviews with 35 consumers across diverse demographic and psychographic profiles. The research integrates behavioral artifacts collection with traditional interview methods, using an integrated theoretical framework combining Dual-Process Theory, Theory of Planned Behavior, Nudge Theory, Prospect Theory, and Social Norms Theory.

Findings: The study reveals four primary themes explaining sustainable consumption: dual-system processing where automatic and deliberative systems compete in environmental choices; social norm activation and identity conflicts arising from peer influence and community expectations; choice architecture and contextual influences shaping sustainable behaviors; and temporal discounting and loss aversion dynamics that systematically bias decisions toward immediate costs over future environmental benefits.

Research limitations/implications: The qualitative approach limits statistical generalization, while the cross-sectional design restricts causal inference. Future research should examine longitudinal behavior change patterns and test intervention effectiveness across cultural contexts.

Practical implications: Findings inform policy design for sustainable consumption promotion, ethical marketing strategies incorporating behavioral insights, and consumer empowerment tools for bridging the attitude-behavior gap.

Social implications: The research contributes to understanding how individual behavior change can support broader sustainability transitions, addressing critical environmental challenges through consumer choice architecture.

Originality/value: This study provides novel insights into the psychological mechanisms underlying sustainable consumption decisions, offering an integrated theoretical framework for understanding and influencing environmental consumer behavior through behavioral economics principles.

Keywords: behavioral economics, sustainable consumption, nudging, consumer behavior, environmental psychology, attitude-behavior gap, qualitative research

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Introduction

Contemporary environmental challenges demand urgent transitions toward sustainable consumption patterns, yet a persistent gap exists between consumers' environmental attitudes and their actual purchasing behaviors.¹ While 73% of global consumers express willingness to change consumption habits for environmental benefit, only 46% actually modify their behaviors.² This attitude-behavior gap represents a critical barrier to achieving sustainability goals and highlights the inadequacy of traditional rational choice models in explaining consumer decision-making.

Behavioral economics offers promising insights for understanding and addressing this paradox by recognizing that consumer choices are shaped by cognitive biases, heuristics, social norms, and contextual cues rather than purely rational calculations.³ The discipline's focus on how people actually make decisions, rather than how they should make them, provides valuable tools for designing interventions that promote sustainable consumption without restricting consumer freedom.

Recent research demonstrates the effectiveness of behavioral interventions in promoting environmental behaviors. Falcone and Fiorentino,⁴ found that nudging techniques significantly influence consumer adoption of sustainable fashion products, with psychological factors such as environmental responsibility and awareness playing crucial moderating roles. Similarly, studies in energy conservation,⁵ waste reduction,⁶ and sustainable transportation⁷ show promising results for behaviorally-informed interventions.

However, existing research often focuses on specific domains or single interventions, lacking comprehensive understanding of the psychological mechanisms underlying sustainable consumption across different contexts. Furthermore, limited attention has been paid to consumer perspectives on nudging effectiveness and ethical considerations in behavioral intervention design.

This study addresses these gaps by investigating how behavioral economics principles influence consumer sustainability choices across multiple consumption domains. Specifically, it examines:

- A. The psychological mechanisms driving sustainable consumption decisions,
- B. Factors that facilitate or hinder translation of environmental attitudes into behaviors, and
- C. Consumer perceptions of nudging strategies and their effectiveness in promoting long-term behavior change.

Literature review and theoretical framework

Behavioral economics and consumer decision-making

Behavioral economics emerged from recognition that traditional economic models fail to capture the complexity of human decision-making.⁸ Unlike rational choice theory, which assumes perfect information processing and utility maximization, behavioral economics acknowledges that consumers rely on mental shortcuts, are influenced by emotions, and make systematic errors in judgment. Key behavioral economics principles relevant to consumer behavior include:

Loss aversion: Consumers experience losses approximately twice as intensely as equivalent gains.⁹ In sustainability contexts, this manifests as resistance to changing consumption patterns due to perceived sacrifices in convenience, cost, or quality.

Present bias: Immediate costs and benefits receive disproportionate weight compared to future outcomes.¹⁰ Environmental benefits often accrue in the future while costs are immediate, creating temporal misalignment that discourages sustainable choices.

Social proof: Individuals look to others' behaviors as guides for appropriate action.¹¹ Sustainable consumption decisions are strongly influenced by perceptions of social norms and peer behaviors.

Default effects: People tend to stick with pre-selected options, making defaults powerful tools for behavior change.¹² Sustainable defaults can significantly increase environmentally friendly choices.

The attitude-behavior gap in sustainable consumption

The attitude-behavior gap represents one of the most persistent challenges in environmental psychology and consumer research. Despite widespread environmental concern, consumers frequently fail to translate pro-environmental attitudes into corresponding behaviors.¹³

Several factors contribute to this gap:

Cognitive dissonance: Consumers experience psychological discomfort when behaviors contradict stated values, often resolved through attitude adjustment rather than behavior change.¹⁴

Situational constraints: External factors such as price, availability, convenience, and infrastructure can prevent attitude expression through behavior.¹⁵

Habit formation: Established consumption routines operate automatically, requiring significant cognitive effort to modify.¹⁶

Social identity conflicts: Sustainable choices may conflict with other aspects of personal or social identity, creating internal tension.¹⁷

Nudging for sustainable consumption

Nudging, defined as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives",¹⁸ has gained attention as a policy tool for promoting sustainable behaviors.

Effective nudging strategies for sustainability include:

Social norms messaging: Communicating descriptive norms (what others do) and injunctive norms (what others approve) can motivate sustainable behaviors.¹⁹

Feedback and goal setting: Providing information about current consumption and setting specific targets can reduce resource use.²⁰

Simplification and salience: Making sustainable options more visible and easier to choose increases adoption rates.²¹

Framing effects: Presenting information in terms of losses rather than gains can motivate conservation behaviors.²²

Integrated theoretical framework

This study employs an integrated theoretical framework combining five complementary theories to capture the multifaceted nature of sustainable consumer behavior:

Dual-process theory⁸ distinguishes between System 1 (fast, automatic, intuitive) and System 2 (slow, deliberative, analytical) thinking. Sustainable consumption often requires System 2 engagement to override automatic consumption patterns, but System 1 can support sustainability when environmental behaviors become habitual.

Theory of planned behavior²³ posits that behavioral intentions result from attitudes toward the behavior, subjective norms, and perceived behavioral control. This framework helps explain why positive environmental attitudes don't always translate into sustainable behaviors.

Nudge theory³ focuses on choice architecture design to promote desired behaviors while preserving freedom of choice. This perspective examines how environmental cues and decision contexts influence sustainable consumption.

Prospect theory⁹ describes how people make decisions under uncertainty, emphasizing loss aversion, reference point dependence, and probability weighting. These mechanisms help explain resistance to sustainable consumption changes.

Social norms theory¹¹ examines how perceptions of others' behaviors and approval influence individual choices. Social norms play crucial roles in sustainable consumption adoption and maintenance.

Methodology

Research design and philosophical foundations

This study adopts a qualitative interpretive approach grounded in constructivist epistemology to explore the complex interplay between behavioral economics principles and consumer sustainability choices. The research design follows established protocols for consumer behavior research²⁴ and aligns with contemporary methodological standards for sustainability research published in the Journal of Consumer Behaviour.¹

The interpretive framework recognizes that consumer decision-making is socially constructed and contextually embedded, requiring deep exploration of individual experiences and meaning-making processes.²⁵ This philosophical stance enables investigation of the nuanced psychological and social mechanisms underlying the attitude-behavior gap in sustainable consumption.

Ethical approval for this study was obtained from the Institutional Review Board at Westford University College (Reference: WUC-

IRB-2024-037) prior to data collection. All participants provided written informed consent before taking part and were assured of their right to withdraw at any time without penalty. To protect confidentiality, all participants are identified by pseudonym throughout this report. Interview data were stored securely and accessed only by the research team.

Sampling strategy and participant selection

The study employs purposeful heterogeneous sampling to capture diverse perspectives across key demographic and psychographic dimensions relevant to sustainable consumption behavior. This approach ensures analytical diversity while maintaining focus on the research phenomenon.²⁶

Participants (n=35) were recruited through multiple channels including environmental organizations, community groups, social media, and university networks. Prospective participants were screened using a brief eligibility questionnaire to ensure diversity across age, gender, education, income, and self-reported environmental engagement. Recruitment continued until theoretical sufficiency was achieved — that is, until no substantially new perspectives or patterns were emerging from incoming interviews (Guest et al., 2006). The sample comprised:

- a. Age distribution:** 18-30 years (n=12), 31-45 years (n=13), 46-65 years (n=10)
- b. Gender balance:** Female (n=19), Male (n=14), Non-binary (n=2)
- c. Education levels:** High school (n=8), Bachelor's degree (n=15), Graduate degree (n=12)
- d. Income ranges:** Low (< \$30,000, n=10), Middle (\$30,000–\$70,000, n=15), High (> \$70,000, n=10)
- e. Environmental engagement:** High (n=12), Moderate (n=13), Low (n=10)

Data collection methods

Semi-structured interviews: In-depth interviews lasting 60-90 minutes explored participants' environmental attitudes, consumption behaviors, decision-making processes, and experiences with behavioral interventions. The interview protocol covered:

- A. Environmental awareness and values:** Personal environmental concern, knowledge, and identity
- B. Consumption patterns:** Typical purchasing behaviors across multiple domains (food, transportation, energy, clothing)
- C. Decision-making processes:** Detailed exploration of specific sustainable and unsustainable choices using critical incident technique
- D. Attitude-behavior consistency:** Perceived gaps between values and behaviors, explanations for inconsistencies
- E. Nudging experiences:** Encounters with behavioral interventions and their perceived effectiveness
- F. Social influences:** Role of family, friends, and broader social networks in consumption decisions
- G. Future intentions:** Willingness to adopt sustainable practices and perceived barriers

Behavioral artifacts collection

Following recommendations for enhanced validity in qualitative consumer research,²⁴ the study incorporated collection of behavioral artifacts:

- a) Purchase receipts from recent shopping trips
- b) Photos of product choices and consumption practices
- c) Screenshots of apps or services used for sustainable choices
- d) Documentation of personal sustainability systems (recycling, energy conservation)

These artifacts anchored interview narratives to actual behaviors and supported mechanism inference.²⁷

Data analysis

Data analysis followed Braun and Clarke's,²⁸ six-phase thematic analysis approach, enhanced with contemporary transparency and rigor standards for consumer behavior research.²⁴

Phase 1 (Data Familiarization): All 35 interview transcripts were reviewed in full by both researchers independently, with detailed analytical notes recorded for each. This iterative reading process was conducted without preconceived categories, allowing initial impressions and patterns to surface organically. Verbatim transcripts were used throughout to ensure fidelity to participants' own language.

Phase 2 (Initial Coding): Systematic coding was performed using NVivo 12 software, applying both inductive codes (derived from participant language) and deductive codes (informed by the theoretical framework of dual-process, nudge, prospect, and social norms theories). To ensure intercoder reliability, 20% of transcripts (n=7) were independently coded by both researchers. Discrepancies were resolved through discussion until consensus was reached; the final Cohen's kappa of 0.78 confirms substantial agreement.

Phase 3 (Theme Generation): Initial codes were grouped and compared across all transcripts to identify recurring patterns. Candidate themes were defined inductively, with attention to both frequency and conceptual significance. Cross-cutting patterns across demographic subgroups were specifically noted.

Phase 4 (Theme Review): Each candidate theme was reviewed against the full coded dataset to assess internal coherence and distinctiveness. Team discussions were held to refine theme boundaries, merge overlapping codes, and discard codes that did not contribute meaningfully to any theme.

Phase 5 (Theme Definition and Naming): Final themes were named to reflect their core conceptual content, with explicit boundaries documented to distinguish each theme from adjacent constructs. Representative extracts were selected to illustrate the full range of meaning within each theme.

Phase 6 (Report Production): Findings were written up with representative participant quotes, anchored to the theoretical framework, and triangulated against the behavioral artifacts collected during the study. All analytical decisions and audit trails were retained and are available upon request.

Analysis was conducted using NVivo 12 software, with regular team meetings to discuss emerging themes and resolve analytical disagreements through consensus.

Validity and reliability

Trustworthiness was established through multiple strategies:

Credibility: Triangulation across interviews and behavioral artifacts, member checking with 15 participants, peer debriefing with sustainability experts

Transferability: Thick description of context and participant characteristics, purposeful sampling across relevant dimensions

Dependability: Comprehensive audit trail documentation, methodological transparency enabling replication

Confirmability: Data-driven conclusions with clear evidence-interpretation linkages, alternative explanation consideration

Findings

Analysis revealed four primary themes explaining how behavioral economics principles influence consumer sustainability choices: Dual-System Processing in Environmental Decisions, Social Norm Activation and Identity Conflicts, Choice Architecture and Contextual Influences, and Temporal Discounting and Loss Aversion Barriers (Table 1).

Table 1 Analysis revealed four primary themes

Theme	Subtheme	Representative quote	Participant
Dual-System Processing	Automatic Sustainable Behaviors	"I don't even think about bringing my reusable bags anymore. It's just automatic."	Sarah, 34
Dual-System Processing	Deliberative Override	"When I'm tired or stressed, I just grab whatever's convenient."	Michael, 29
Dual-System Processing	System 1–System 2 Conflict	"There's always this battle in my head... sometimes the environmental part wins, sometimes it doesn't."	Jennifer, 42
Social Norm Activation	Descriptive Norm Influences	"When I see my neighbors putting out recycling bins, it reminds me to do the same."	David, 38
Social Norm Activation	Injunctive Norm Pressures	"My family thinks I'm being extreme... sometimes I just don't bother."	Lisa, 26
Social Norm Activation	Identity Integration	"I care about the environment, but I also care about how I look and what people think of me."	Amanda, 31
Choice Architecture	Default Option Effects	"My energy company automatically enrolled me in renewable energy. I probably wouldn't have switched on my own."	Robert, 45
Choice Architecture	Convenience Barriers	"I want to buy local produce, but the farmers market is only open when I'm at work."	Maria, 33
Choice Architecture	Information Presentation	"When I see the actual numbers — like how much water or energy something uses — it makes it real."	Thomas, 29
Temporal Discounting	Present Bias	"It's hard to think about benefits ten years from now when I have bills to pay today."	Karen, 39
Temporal Discounting	Loss Aversion	"I focus on what I'd lose, not what I'd gain."	James, 35
Temporal Discounting	Uncertainty and Risk Aversion	"It's safer to stick with what I know works."	Patricia, 52

Dual-system processing in environmental decisions

Participants demonstrated clear evidence of dual-system processing in sustainability choices, with automatic (System 1) and deliberative (System 2) systems often in conflict.

Automatic sustainable behaviors

Some participants developed automatic sustainable behaviors through habit formation:

"I don't even think about bringing my reusable bags anymore. It's just automatic. I grab them when I grab my keys. But it took months of forgetting and feeling frustrated to get to this point." (Sarah, 34, High Environmental Engagement)

Deliberative override requirements

More commonly, sustainable choices required deliberative effort to override automatic consumption patterns:

"When I'm tired or stressed, I just grab whatever's convenient. The sustainable option requires me to think, to plan ahead. Most of

the time I do it, but when my mental energy is low, I default to the easy choice." (Michael, 29, Moderate Environmental Engagement)

System 1-system 2 conflicts

Participants frequently described internal conflicts between immediate desires and environmental values:

"There's always this battle in my head. Part of me wants the thing that's convenient or cheap or looks good, and another part is calculating the environmental impact. Sometimes the environmental part wins, sometimes it doesn't." (Jennifer, 42, High Environmental Engagement)

Social norm activation and identity conflicts

Social influences played crucial roles in sustainable consumption decisions, with complex interactions between descriptive norms, injunctive norms, and personal identity.

Descriptive norm influences

Participants were strongly influenced by perceptions of others' behaviors:

"When I see my neighbors putting out recycling bins, it reminds me to do the same. But when I'm the only one with a bin on the street, I start wondering if I'm doing something wrong or if it even matters." (David, 38, Moderate Environmental Engagement)

Injunctive norm pressures

Social approval and disapproval shaped consumption choices:

"My family thinks I'm being extreme with some of my environmental choices. They roll their eyes when I bring my own containers to restaurants. It makes me self-conscious and sometimes I just don't bother." (Lisa, 26, High Environmental Engagement)

Identity integration challenges

Participants struggled to integrate environmental values with other aspects of personal identity:

"I care about the environment, but I also care about how I look and what people think of me. Sometimes those things conflict. I want to buy secondhand clothes, but I also want to look professional at work." (Amanda, 31, Moderate Environmental Engagement)

Choice architecture and contextual influences

Environmental factors and choice architecture significantly influenced sustainable consumption decisions.

Default option effects

Participants were strongly influenced by default options and required effort to choose alternatives:

"My energy company automatically enrolled me in renewable energy. I probably wouldn't have switched on my own, but once it was the default, I just stayed with it. It's actually been great." (Robert, 45, Low Environmental Engagement)

Convenience and accessibility

Physical and logistical barriers often prevented sustainable choices:

"I want to buy local produce, but the farmers market is only open when I'm at work. The grocery store is on my way home and open 24/7. Convenience usually wins." (Maria, 33, Moderate Environmental Engagement)

Information presentation effects

How information was framed and presented influenced decision-making:

"When I see the actual numbers - like how much water or energy something uses - it makes it real. But when it's just vague claims about being 'eco-friendly,' I don't know what to believe." (Thomas, 29, High Environmental Engagement)

Temporal discounting and loss aversion barriers

Participants demonstrated systematic biases that hindered sustainable consumption, particularly temporal discounting and loss aversion.

Present bias in environmental choices

Immediate costs received disproportionate weight compared to future environmental benefits:

"I know solar panels would save money and help the environment in the long run, but the upfront cost is huge. It's hard to think about benefits ten years from now when I have bills to pay today." (Karen, 39, Moderate Environmental Engagement)

Loss aversion in consumption changes

Participants experienced potential losses more intensely than equivalent gains:

"Giving up my car would save money and reduce emissions, but I keep thinking about all the times I might need it. What if there's an emergency? What if I want to visit friends? I focus on what I'd lose, not what I'd gain." (James, 35, Low Environmental Engagement)

Uncertainty and risk aversion

Uncertainty about product performance or social acceptance created barriers to sustainable choices:

"I want to try more sustainable products, but what if they don't work as well? What if I waste money on something that doesn't do the job? It's safer to stick with what I know works." (Patricia, 52, Moderate Environmental Engagement)

Discussion

Theoretical contributions

This study makes a novel theoretical contribution by simultaneously integrating four interacting behavioral mechanisms — dual-system processing, social norm dynamics, choice architecture effects, and temporal discounting with loss aversion — within a unified framework applied to sustainable consumer decision-making. Unlike prior studies that address these mechanisms in isolation or across separate consumption domains, this research demonstrates how their combined operation explains the persistence of the attitude-behavior gap across diverse demographic and psychographic profiles.

Integration of dual-process and environmental behavior

The findings demonstrate clear evidence of dual-system processing in environmental decisions, extending dual-process theory applications to sustainability contexts. The research reveals that sustainable consumption often requires System 2 engagement to override automatic consumption patterns, but System 1 can support sustainability when environmental behaviors become habitual. This insight suggests that intervention strategies should focus on both immediate decision support (System 2 aids) and long-term habit formation (System 1 automation).

Social norms complexity in environmental contexts

The study reveals complex interactions between descriptive norms, injunctive norms, and personal identity in sustainable consumption. Unlike previous research focusing on single norm types, this study shows how multiple social influences interact and sometimes conflict, creating identity tensions that must be resolved for sustained behavior change.

Choice architecture mechanisms

The research provides detailed insights into how choice architecture influences sustainable consumption decisions. Beyond simple default effects, the findings reveal the importance of convenience, information presentation, and contextual cues in shaping environmental behaviors.

Temporal discounting and loss aversion dynamics

This study offers a novel theoretical contribution by documenting the joint operation of temporal discounting and loss aversion as interacting barriers to sustainable consumption — a pairing not previously examined within an integrated behavioral economics framework applied to environmental behavior. Data showed that participants systematically discounted future environmental benefits relative to immediate costs (Karen, 39), while simultaneously magnifying the perceived significance of potential losses associated with changing established consumption patterns (James, 35). Critically, these two biases compounded one another: participants who expressed high present-bias were also more likely to exhibit stronger loss aversion and uncertainty avoidance (Patricia, 52), suggesting that interventions addressing temporal discounting alone are insufficient. Effective behavior change strategies must simultaneously reframe potential losses and bring future benefits psychologically closer through commitment devices, social reinforcement, and appropriately designed defaults.

Practical implications

Policy design recommendations

Leverage default options: Policymakers should implement sustainable defaults in areas where consumer choice is preserved but environmental benefits are achieved (e.g., renewable energy enrollment, sustainable transportation options).

Address temporal misalignment: Policies should reduce temporal discounting barriers through immediate incentives for long-term sustainable investments (e.g., instant rebates for energy-efficient appliances).

Social norm interventions: Public campaigns should emphasize descriptive norms showing widespread sustainable behavior adoption while addressing injunctive norm concerns about social acceptance.

Marketing strategy implications

Frame environmental benefits: Marketers should present sustainable options in terms of losses avoided rather than gains achieved, leveraging loss aversion to motivate behavior change.

Simplify choice architecture: Sustainable options should be made more convenient and accessible, reducing cognitive effort required for environmental choices.

Address identity integration: Marketing messages should help consumers integrate environmental values with other aspects of personal identity rather than positioning sustainability as requiring sacrifice.

Consumer empowerment tools

Habit formation support: Tools and interventions should focus on automating sustainable behaviors through habit formation rather than relying on continuous deliberative effort.

Social support systems: Platforms connecting like-minded consumers can provide social norm reinforcement and reduce identity conflicts around sustainable consumption.

Decision support systems: Apps and tools providing real-time environmental impact information can support System 2 processing when making consumption decisions.

Limitations and future research

Study limitations

This research has several limitations that should be acknowledged. The qualitative approach limits statistical generalization, while the cross-sectional design restricts causal inference about behavior change processes. The sample, while diverse across key dimensions, was limited to English-speaking participants in developed country contexts, potentially limiting transferability to other cultural and economic settings.

Self-reported behavior is subject to social desirability bias, though the inclusion of behavioral artifacts helped mitigate this concern. The focus on individual consumer behavior excludes important structural and systemic factors that influence sustainable consumption opportunities.

Future research directions

Longitudinal studies: Future research should examine behavior change processes over time, tracking how interventions influence long-term sustainable consumption patterns.

Cultural contexts: Cross-cultural studies are needed to understand how behavioral economics principles operate across different cultural and economic contexts.

Intervention testing: Experimental studies should test the effectiveness of specific nudging strategies identified in this research, measuring both immediate and sustained behavior change.

System-Level analysis: Research should examine how individual behavior change interacts with structural factors and policy environments to achieve broader sustainability transitions.

Conclusion

This study advances understanding of sustainable consumer behavior by revealing how four distinct behavioral economics mechanisms — dual-system cognitive processing, social norm activation and identity conflict, choice architecture design, and temporal discounting with loss aversion — interact simultaneously to produce the attitude-behavior gap. The data from 35 in-depth interviews demonstrate that no single mechanism operates in isolation: System 1 habits formed over time (Sarah, 34) coexist with deliberative System 2 override failures under resource depletion (Michael, 29), while social identity tensions (Amanda, 31) and default enrollment effects (Robert, 45) further modulate final choices.

The findings confirm that effective interventions for promoting sustainable consumption must address all four psychological mechanisms concurrently. Convenience-based choice architecture (Maria, 33; Robert, 45) and concrete quantitative information framing (Thomas, 29) outperform generic ‘eco-friendly’ messaging precisely because they reduce the deliberative effort burden identified in Theme 1. Similarly, community norm visibility strategies (David, 38) require complementary identity-affirmation supports (Lisa, 26; Amanda, 31) to prevent injunctive norm pressure from suppressing rather than enabling behavior change.

This research contributes theoretically by demonstrating that temporal discounting and loss aversion function not as peripheral barriers but as primary amplifiers of the attitude-behavior gap. Participants who expressed strong present bias (Karen, 39) also

exhibited heightened loss aversion (James, 35) and uncertainty avoidance (Patricia, 52), suggesting these biases compound one another. Interventions grounded in commitment devices, graduated cost reframing, and social reinforcement of experimentation are therefore indicated as a co-package, not standalone measures.

Future research should examine how the four-mechanism framework performs across cultural and institutional contexts beyond the UAE setting of this study. Longitudinal designs tracking the same participants across habit-formation cycles would clarify the direction of causality between System 1 automaticity and sustained environmental engagement. The integration of behavioral economics with consumer behavior theory established here provides a foundation for experimentally testing targeted interventions in retail, energy, and food domains, where the attitude-behavior gap remains most pronounced.

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Conflicts of interest

The author declares no conflicts of interest.

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