

Marketing Circular Economy Practices and Consumer Perception of Recycled Products from Nigerian Manufacturers: Extended Triple Bottom Line Approach

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Abstract The research focused on analyzing the impact of marketing circular economy practices and recycled products from Nigerian FMCG producers. Survey was the research design for the study as questionnaire was used in gathering data from the respondents and a total of one hundred and seventy-nine copies of questionnaires (179) were inputted for analysis. Data analysis was conducted using PLS-SEM for the study. Accordingly, the findings of the study showed that Eco-Branding Appeal positively affect Perceived Environmental Benefit, but not significantly with positive path coefficient ($\beta = 0.073$), with statistical insignificant effect ($t = 1.032$, $p = 0.302$), while Reverse Logistic Ease was positively significant on Perceived Environmental Benefit ($\beta = 0.354$, $t = 4.799$, $p < 0.001$) which indicates that customers have an easier time identifying the environmental benefits of recycled products when they have access to simple recycling and returning procedures. The study concluded that although green branding affects consumers' perception of the convenience of reverse logistics, but in practical term, it does not convince them of actual environmental benefits as consumers are naturally skeptical of sustainability claims made through marketing, and perceive functional sustainability infrastructure as proof of organisational integrity. The research further recommended that among others that the company should combine eco-branding with transparency of operations, by explaining how return and recycling policies are turned into concrete environmental results, closing the gap between brand love and perceived benefit.

Keywords: Consumer Perception, Eco-Branding Appeal, Eco-Labeling Trust and Literacy, Marketing Circular Economy Practices, Perceived Environmental Benefit, Reverse Logistic Ease

1 Introduction

A worldwide shift toward a circular economy from the existing linear one is considered as a major change of paradigm in the modern business world and environmental management. The CE is an economic system that aims to eliminate waste and pollution, keep products and material in use, and regenerate natural systems (Zhang et al., 2019). In contrast to the traditional linear economy with “take-make-dispose” model, the circular economy model is based on a closed-loop system where materials are reused continuously (Geissdoerfer et al., 2017). This shift is crucial, especially for the third world countries like Nigeria where rapid growth in industry and urbanization had led to increased pollution of the environment and problems of waste disposal had become enormous (Oluwatayo & Ojo, 2024).

As the largest economy in Africa, Nigeria is confronted with a series of unparalleled environmental challenges. Lagos State alone produces about 13,000 tons of waste every day, but the infrastructure for managing waste is insufficient and the capacity for recycling is very limited (Rasmeni & Madyira, 2019). The industrial sector is still predominantly linear, leading to excessive strain on resources and lost business potential. Recent findings, however, indicate that companies in Nigeria are starting to adopt recycling and reuse principles, reflecting an increased recognition of circular economy concepts (Oliveira Neto et al., 2024). Promoting circular economy practices offers a distinct possibility for Nigerian producers to set their products apart, enhance brand equity and satisfy evolving consumer expectations. This entails the tactical communication of business operations spanning the circular economy spectrum from recycling to upcycling, remanufacturing to take-back initiatives (Muposhi & Nyagadza, 2025). When marketed well, these initiatives have the potential to shape consumer attitudes, lead to the adoption of products, and contribute to gaining a competitive edge. Consumer opinion is vital to the success of recycled products. It is the way consumers

perceive, interpret and evaluate circular economy products and associated marketing claims, for instance, quality perceived, environmental benefits, and value etc. (Sun et al., 2018) The consumer attitude toward recycled products was found to be positively affected by environmental awareness, perceived product quality, trust in green claims and social norms (Ramzan, 2023). In Nigeria, where environmental awareness is on the rise but still scarce, knowledge on how consumers perceive and react to marketing communication of recycled products will assist in promoting the products in the market.

The interaction between marketing circular economy practices and consumer perception is not straightforward. Good marketing informs consumers, bad marketing can lead to them doubting or greenwashing (Meng & Leary, 2021). This complexity is further intensified in Nigeria as cultural orientations and economic limitations significantly influence how consumers respond (Muposhi & Nyagadza, 2025). This research is based on the Theory of Planned Behavior (Ajzen, 1991), the Signaling Theory (Spence, 1973), and the Value-Belief-Norm Theory (Stern et al., 1999) models for analyzing the impact of marketing on consumer perception (Paul et al., 2016). Limited availability of materials also hinders the Nigerian manufacturing firms, driving them to consider recycled materials (Orji et al., 2022). The informal waste sector employs approximately 80,000 people in Lagos, providing workforce for recycling (Adeniran & Shakantu, 2022). As Nigeria balances economic growth with sustainability, communicating circular economy benefits is essential. This study provides empirical evidence on marketing circular economy practices and consumer perception in Nigerian manufacturing.

2 Literature Review

2.1 Marketing Circular Economy Practices

Conventional green marketing has been criticized for being too focused on green products at the point-of-sale, whereas marketing circular economy practices (MCEP) reposition marketing as a key structural driver that governs resource recovery, material lifetimes closing, and directing the entire consumer relationship through closed-loop supply chains (Nurmatriani & Susanto, 2026; Ogiemwonyi, 2025). The circular economy has attracted significant interest from researchers, policymakers, and practitioners due to increasing concerns about environmental damage, resource scarcity, climate change, and non-sustainable consumption styles. Instead of promoting consumption and replacing goods, as traditional marketing often does, circular marketing advocates responsible consumption, longer product lifespans, reparability, sharing, refurbishing and recycling. This is a marketing strategy that is consistent with and supports sustainability goals and can be utilized to ensure that customers still derive value and profits remain sustainable (Henriques et al., 2023).

Marketing circular economy is recognized in recent literature as a key enabler in the shift from a linear to circular economy, by helping shape consumer perceptions and behaviors before, during, and after consumption. Practices associated with marketing the circular economy are: eco-labelling, sustainable product design, green advertising, take-back schemes, product- service systems, collaborative consumption, resale solutions and consumer education programmes for reuse and recycling. These tactics allow companies to gain leverage among environmentally aware consumers while contributing to sustainable practices (Paiva, 2025).

2.2 Eco-Branding Appeal

The increasing implementation of CE principles has largely impacted modern branding and marketing. In this regard, eco-branding attractiveness is the degree to which a brand is appealing due to its environmental responsibility, sustainability orientation, and commitment to circular economy principles, such as reuse, recycling, remanufacturing, resource efficiency, waste reduction, and sustainable consumption. Eco-branding appeal is activated when a consumer feels the brand is environmentally friendly and in line with circular economy principles, positively contributing to attitudes, trust, loyalty, and purchase intentions (Gutentag et al., 2024). As companies are embedding sustainability more and more in their business models, eco-branding is an effective platform for communicating circular economy strategies and differentiating brands in competitive markets (Leenders et al., 2024).

An important contributor to the attractiveness of eco-branding in circular economy marketing is being able to communicate brand characteristics that are perceived as sustainability-oriented. Consumers are paying more attention to the environmental performance of the brand along with recycled content, use of eco-friendly packaging, use of renewable resources, application of carbon reduction and waste reduction, and so on (Yuan et al., 2024). Circular economy behaviors allow a concrete demonstration of care for the environment and makes eco-brands more credible and attractive. Studies show that environmental sustainability improves brand image and positively affects consumer attitudes towards products related to circular business models (Yang et al., 2024).

2.3 Reverse Logistic Ease

The importance of Reverse Logistic Ease (RLE) has been widely acknowledged in the Marketing Circular Economy Practices (MCEPs) literature due to its influential effects on product returns, recycling, refurbishment, remanufacturing, reuse, and waste recovery (Choi et al., 2024). 3.4 Reverse Logistic Ease Convenience on consumers and firms in reverse logistic ease is the ease with which the consumers and the companies can return used, defective, expired, recyclable or end-of-life products into the supply chain to the extent that they can get a value from it and can contribute to sustainable resource management (Jain et al., 2024). In circular economy models, reverse logistics is the process that circular economy companies use to keep products and materials flowing back from consumers, instead of discharging them as waste, to manufacturers, retailers or recycling centers. As a result, reverse logistic ease has become another element of circular marketing strategies focused on the sustainability and responsibly consumption (Raji, 2024).

From the viewpoint of environment, reverse logistic ease has an important impact on reducing waste and preserving resources. Organizations can reduce landfill waste and environmental pollution by improving the ease of product returns and thereby increasing collection rates for recyclable and reusable materials (Jayarathna et al., 2024). Circular marketing literature tends to highlight the environmental advantages of returning products, compelling customers to engage in recovery networks. These programs promote sustainable consumption and raise environmental consciousness in the community. Studies show that successful reverse logistics are necessary and groundwork to realize circular economy objective of waste reduction and resource productivity (Sonar et al., 2024).

2.4 Consumer Perception

Consumer perception is the outcome of how people process (either consciously or unconsciously) the information that they receive about various products or organizations and perceive, evaluate, and make decisions regarding products, services, brands, and corporate-related activities (Lopez & Legardeur, 2024). With respect to circular economy marketing consumer perception is the perception that consumers have towards the actions of an organization (in terms of sustainability, recycling, reuse, remanufacturing, waste minimization, resource efficiency, eco-branding, production and consumption practices that are eco-friendly (Vaz & Rodriguez, 2023). Modern research infers that circular economy marketing has a strong impact on consumer perception (Yang et al., 2024) as it affects their perception of environmental responsibility, product value, brand trust and business sustainability (Javed & Javed, 2023; Parise et al. 2023).

Consumer perception can be also affected by green communication and sustainability messages. Promotional material including environmental benefits, waste reduction success stories, recycling efforts, and sustainable sourcing policies influence cognitive and emotional consumer evaluations of the brand (Ostrowska & Krul, 2024). Good sustainability communication leads to increased circular economy awareness as well as more favourable consumer opinions. Evidence shows that value-driven green advertising has a strong effect on consumer attitudes and buying intentions through increasing perceived environmental and emotional value (Ungerma et al., 2024). As a result, brand communication is a particularly powerful instrument with which to shape consumers' perceptions in circular economy settings (Zhang et al., 2024).

2.5 Perceived Environmental Benefit

It relates to a consumer's beliefs about the extent to which a product, service, brand or organization is associated with positive environmental outcomes (Adebayo, 2026). Such results are waste reduction,

resource conservation, pollution prevention, recycling, carbon emission reduction, sustainable production and environmental protection (Sairanen et al., 2024). In the context of circular economy marketing, perceived environmental benefit is the consumers' perception on the contribution of circular activities to environmental sustainability. As a result, it is often regarded as a critical factor of consumer perception as it affects consumer attitudes, trust, purchase intentions, brand loyalty, and sustainable consumption behavior (Yang et al., 2024).

From a behavioral viewpoint, perceived environmental benefit also plays a mediating role in the relationship between circular economy behaviors and sustainable consumption behaviors. Green consumers are more likely to participate in recycling and product return schemes and in reuse schemes as well as purchase circular products (Vehmas et al., 2024). Perceptions of positive environmental effects are positively correlated with support for sustainable brands and involvement in circular schemes. As a result, perceived environmental benefit has been investigated as a psychological process for how marketing circular economy strategies affects consumer opinions and actions (Corsini et al., 2024).

2.6 Eco-Labeling Trust and Literacy

Trust and literacy for eco-labels have recently been identified as pivotal elements in shaping consumer perception in the context of Marketing of Circular Economy Practices (MCEPs). With increasing circular economy practices like recycling, reusing, remanufacturing, reducing waste, and sustainable manufacturing being adopted by companies, ecological labels have emerged as key marketing instruments to transfer environmental facts to consumers. Trust in eco-labeling is the level of confidence that consumers have in the trustworthiness, dependability, and genuineness of environmental labels; while literacy in eco-labeling is the capacity of consumers to comprehend, analyze, and utilize information from eco-labels in the purchasing process. Overall, these ideas shape the consumer perception and reaction to CE products and sustainability-oriented marketing instruments (Fröberg et al., 2024).

Trust is a foundational aspect of eco-labels that deliver positive effects. Consumer confidence in the ecolabelling is essential as it is difficult to independently validate environmental claims. Based on signaling theory, consumers also consider credible signals, such as third-party verified environmental certification labels, when evaluating the sustainability of products and brands (Houf et al., 2024). When consumers have confidence in eco-labels, they are more likely to view products as having some level of environmental responsibility and to hold positive attitudes towards sustainable brands. On the other hand, doubt about the trustworthiness of eco-labels can decrease favorable consumer evaluations and circular economy marketing strategies may become less effective. A growing number of studies show that trust in sustainability labels has a strong positive influence on consumer assessments of green products and their intentions to adopt sustainable consumption behavior (Zhou et al., 2024).

2.7 Underpinning Theory

Among the Theories of Planned Behavior, Signaling and Value-Belief-Norm, Signaling Theory has the closest alignment with the research as all of the main constructs are dealing with the communication, processing, and evaluation of environmental information between companies and consumers.

Signaling Theory, a theory of information economics originally proposed by Michael Spence (1973), organizations can signal an information asymmetry that exists between them and consumers (sellers and buyers) the credible information (signals) itself and that has the goal of reducing information asymmetry between these two parties. In sustainability and circular economy environments, signals are such as eco-labels, green certifications, sustainable packaging, eco-branding messages, recycling schemes and return logistics activities. Consumers use these signals to develop views about a firm's commitment to the environment, as well as the sustainability of its products. Therefore, the attractiveness of eco-branding, the trust of eco-labeling, and the perceived environmental benefits can be regarded as signaling representations (Damberg et al., 2024).

3 Methodology

Employing a quantitative cross-sectional survey design, the present study investigated the relationship between marketing circular economy practice elements and consumer attitude toward recycled products from

Nigerian manufacturers. The respondents were consumers who purchase FMCG products regularly from Victoria Island and Surulere metropolis of Lagos state. The sample size was decided using the statistical power analysis (pw) due to the necessity of the sufficient statistical power of Structural Equation Modeling-Partial Least Squares (SEM-PLS), resulting to 179 respondents. The power analysis was calculated with a minimal effect size of 0.30, a significance level of 0.05, and a statistical power of 0.80, which are typical levels for behavioral research, and has an aim to minimize Type II errors. Multistage sampling method was taken. Firstly, through purposive sampling the large FMCG retailers and distribution center where consumers could be accessed without difficulty were identified. Then, a systematic random sampling was employed to draw customers from these shops at a specific time interval to represent the population and avoid sampling bias.

The data were collected by a developed structured questionnaire in accordance with constructs and variables for Marketing circular economy practices, eco-branding appeal, reverse logistic ease, consumer perception, perceived environmental benefit, eco-labeling trust and literacy which was adopted from the existing literature. The questionnaire consisted of Closed-Ended Questions utilizing a five-point Likert Scale ranging from Strongly Disagree (1) to Strongly Agree (5). Prior to the actual study, a pilot study was conducted to assess the instrument's clarity and reliability. The collected data were analyzed by Structural Equation Modeling-Partial Least Squares (SEM-PLS) using the SmartPLS software as it is suitable for any model complexity and any distributional shape. Reliability and convergent validity were evaluated through the indicators loadings, Cronbach, Composite Reliability (CR) and average variance extracted (AVE), while the discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT). To assess the structural model, path coefficients, coefficient of determination (R^2), effect size (f^2) and the procedure of bootstrapping were used, which made it possible to test the study hypotheses about the influence of marketing circular economy practices and consumer perception of recycled products on the consumer.

Hypothesis One: Eco-branding Appeal has no significant relationship with Eco-labelling Trust and Literacy

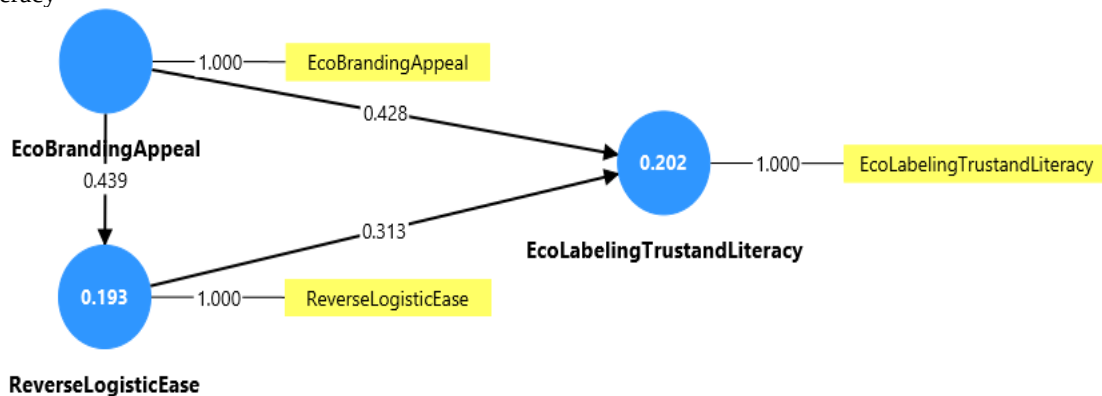


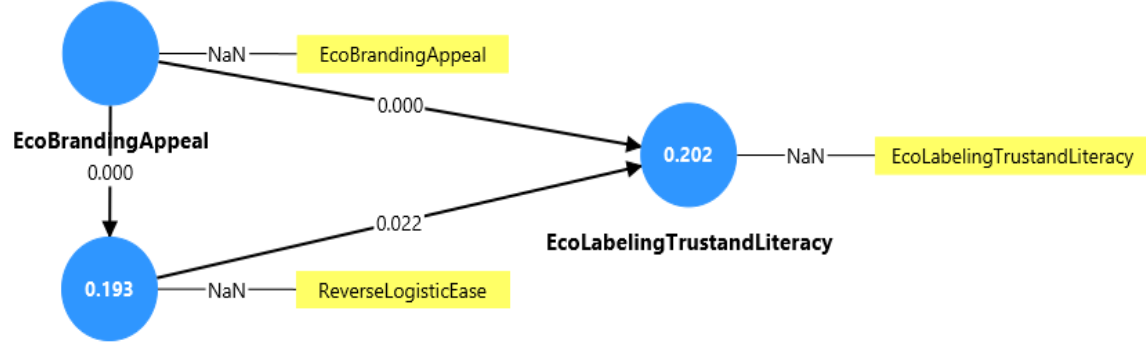
Figure 4.1 Measurement Model (Algorithm testing)
 Source: PLS-SEM Output (2026)

The analysis was conducted at the structural level to test the following hypotheses between Eco-Branding Appeal, Reverse Logistic Ease, and Eco-Labeling Trust and Literacy. The values displayed on the structural paths represent the path coefficients (β), while the values within the endogenous constructs indicate the coefficient of determination (R^2). The results demonstrate that Reverse Logistic Ease attains an R^2 of 0.193, suggesting that Eco-Branding Appeal accounts for 19.3% variance of the Reverse Logistic Ease. This suggests that consumers' perceptions of environmentally responsible brands contribute meaningfully to their perceptions of the convenience and accessibility of product return and recycling systems.

Similarly, Eco-Labeling Trust and Literacy reaches an R^2 of 0.202, suggesting that Eco-Branding Appeal and Reverse Logistic Ease in tandem account for 20.2% of the variance in Eco-Labeling Trust and Literacy. This size of explanatory power means that they are significant predictors for consumers' trust and knowledge of environmental labels. In addition, Eco-Branding Appeal is positively linked to Reverse Logistic Ease ($\beta = 0.439$). As a result, the more consumers view a brand as being environmentally responsible, the more they consider the recycling, recovering, and product-return system as easy to use and efficient. The relatively large coefficient underlines the importance of sustainability-based brand in predicting consumer assessment of CE practices.

The result also shows that Eco-Branding Appeal has a positive effect on Eco-Labeling Trust and Literacy ($\beta = 0.428$). This implies that good and trustworthy environmental labelling and branding can increase the confidence of consumers in the eco-labels, as well as literacy on product information related to sustainability.

Consumers have a tendency to trust the environmental messages from brands when they generalize about the trustworthiness of the eco-label. Also, Reverse Logistic Ease has a positive effect on Eco-Labeling Trust and Literacy with path coefficient $\beta = 0.313$. These findings suggest that consumers who view the product return and recycle procedures as easy to complete have more trust in environmental labels and they pay attention to sustainability information presented on the environmental labels. The fact indicates meaningful sustainability actions make environmental communications more believable.



ReverseLogisticEase
Figure 4.1.11Structural Model (Bootstrapping @5000) Eco Labeling Trust and Literacy

Source: PLS-SEM Output (2026).

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Eco Branding Appeal -> Eco Labeling Trust and Literacy	0.359	0.360	0.069	5.187	0.000
Eco Branding Appeal -> Reverse Logistic Ease	0.439	0.440	0.072	6.080	0.000
Reverse Logistic Ease -> Eco-Labeling Trust and Literacy	0.155	0.155	0.067	2.297	0.022

Source: PLS-SEM Output (2026)

In order to test the model, significance levels of hypothesized relationship Eco-Branding Appeal, Reverse Logistic Ease and Eco-Labeling Trust and Literacy was verified by bootstrapping in SmartPLS. The results are reported with path coefficients (β), t-statistics, and p-values. The result shows that Eco-Branding Appeal had a positive and significant impact on Eco-Labeling Trust and Literacy ($\beta = 0.359$, $t = 5.187$, $p < 0.001$). This finding indicates that consumers who find environmental-friendly brands to be a good-looking and believable are more likely to get increased trust in eco-labels and have better knowledge of environment-related information through labels (Wan et al., 2014). The size of the path coefficient reflects a moderate positive correlation between two latent constructs. In the same vein, Eco-Branding Appeal has a positive and significant impact on Reverse Logistic Ease ($\beta = 0.439$, $t = 6.080$, $p < 0.001$). This is the highest relationship in the model. This indicates that positive image of environmentally friendly products is linked with positive perceptions of returns, recycling and recuperating product. Customers that value a company's sustainability-focused branding are also more likely to view its reverse logistics systems as reachable and easy to use.

The results also show a positive effect of RLE on ELTL ($\beta = 0.155$, $t = 2.297$, $p = 0.022$). As a p-value is less than 0.05, the relationship is significant. This result also suggests that consumers who view product return and recycle schemes as easy are more confidence in eco-labels and more literate on the environmental information that they contain. Though not as strong as some of the other effects in the model, this effect remains meaningful and explains some of the variance in ELTAL.

Hypothesis Two: Reverse Logistic Ease has no significance effect on Perceived Environmental Benefit

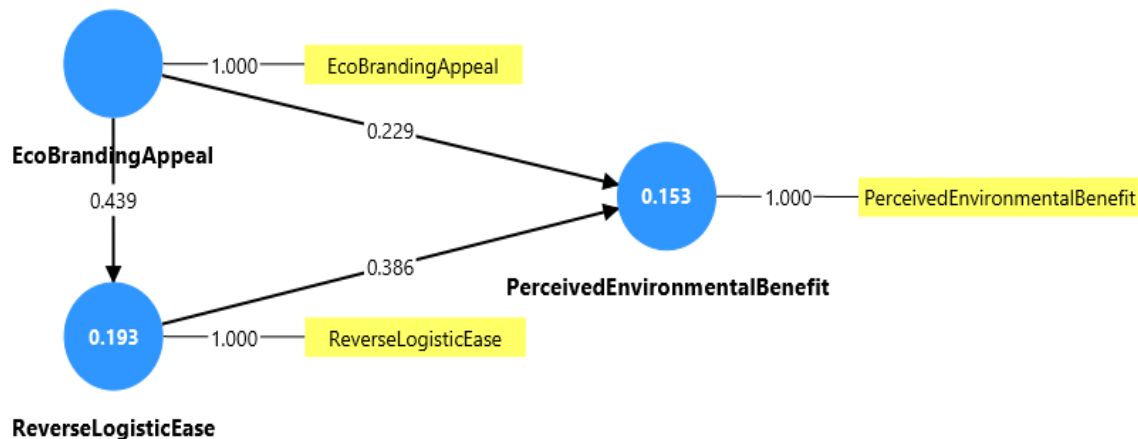


Figure 4.2 Measurement Model (Algorithm testing)

Source: PLS-SEM Output (2026)

The structural model tests the effect of Eco-Branding Appeal and Reverse Logistics Ease on Perceived Environmental Benefit. The values in the paths are standardized path coefficients (β), the values in the endogenous constructs are the R2. The R2-values suggest that Appeal to Eco Brand accounts for 19.3% of the variance in Reverse Logistic Ease) and that Reverse Logistic Ease has an R2 of 0.193. This indicates that positive attitudes towards environmentally friendly brands have an impact on consumers' perception of the accessibility and comfortable use of the recycling and product return system.

The model also indicates that Perceived Environmental Benefit accounts for 15.3% of the variance in consumers' perception of environmental benefits ($R^2 = 0.153$) and that Eco-Branding Appeal and Reverse Logistic Ease are significant predictors of Perceived Environmental Benefit. This degree of explanation indicates both variables play a role in shaping perceptions of environmental benefit, though there are possibly other constructs not incorporated in the model that also have an influence on consumer judgment. For the direct effects, Eco-Branding Appeal has a strong positive effect on Reverse Logistic Ease ($\beta = 0.439$). This result suggests that consumers who have positive attitudes toward environmentally responsible brands tend to perceive the product recovery, recycling and returning procedures as easily accessed and convenient. The size of the coefficient indicates a moderate positive association between the two constructs.

Results also indicate a positive effect of Eco-Branding Appeal on PEB ($\beta = 0.229$). This indicates that favorable evaluations of environmentally responsible brands enhance the perceived environmental benefits of recycled products and circular economy efforts. Customers of brands that promote sustainability are also more likely to believe in the environmental benefits of the activities they are engaged in.

In the same way, Reverse Logistic Ease positively influences Perceived Environmental Benefit ($\beta = 0.386$). This is the stronger one out of the two predictors of PEB. The finding suggests that customers more readily attribute environmental good to a systems whenever established systems of product recovery and returning also are perceived as convenient and easy to use. Convenient reverse logistics system seems to help consumers build more confidence about the environmental friendliness of circular economy practices, either.

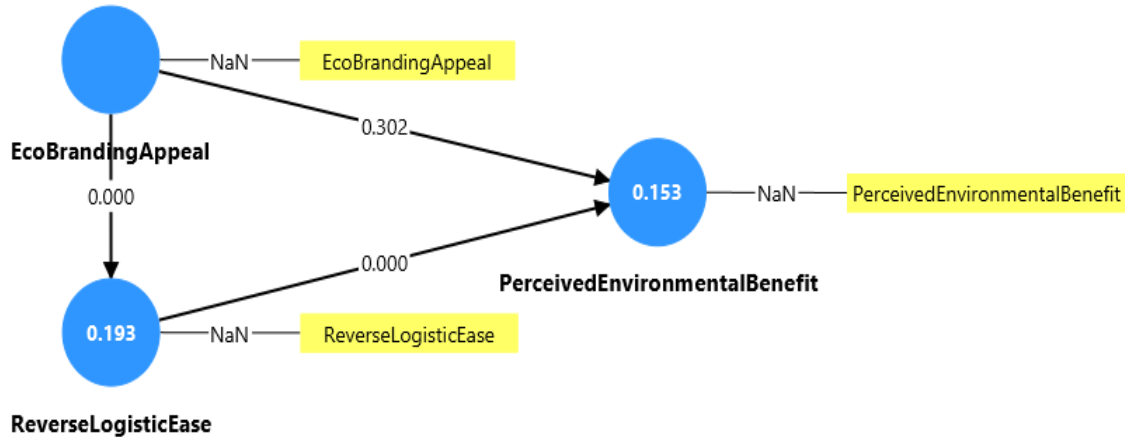


Figure 4.2.1 Structural Model (Bootstrapping @5000) Perceived Environmental Benefit

Source: PLS-SEM Output (2026).

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Eco Branding Appeal -> Perceived Environmental Benefit	0.073	0.076	0.071	1.032	0.302
Eco-Branding Appeal -> Reverse Logistic Ease	0.439	0.440	0.072	6.080	0.000
Reverse Logistic Ease -> Perceived Environmental Benefit	0.354	0.353	0.074	4.799	0.000

Source: PLS-SEM Output (2026)

To investigate the relationships between Eco-Branding Appeal, Reverse Logistic Ease, and Perceived Environmental Benefit, the structural model was tested with the bootstrapping procedure in SmartPLS. The importance of the relationships was tested by path coefficients (β), t-statistics, and p-values. The finding shows that Eco-Branding Appeal has no statistically significant effect on Perceived Environmental Benefit ($\beta = 0.073$, $t = 1.032$, $p = 0.302$). The relationship is not significant since the p-value is above the 0.05 significance level. This means that although consumers associate environmental responsibility with brand attractiveness, this does not necessarily strengthen their beliefs in the environmental benefits of recycled products. As a result of this, Eco-Branding Appeal is not adequate to change consumers' views on environmental benefits. It also shows that Eco-Branding Appeal has a direct positive and significant impact on Reverse Logistic Ease ($\beta = 0.439$, $t = 6.080$, $p < 0.001$). The path coefficient signifies a moderate positive association between the two constructs. The finding further suggests that consumers who consider brands to be environmentally friendly, tend to agree that product return, recycling, and redemption processes are simple and easy to use. This strong t-statistic validates the strength of this relationship.

Furthermore, RLE has a positive and significant impact on PEB ($\beta = 0.354$, $t = 4.799$, $p < 0.001$). This finding suggests that consumers who consider recycling and product return programs to be easy to participate in have a greater opportunity to identify the environmental benefits associated with circular economy activities. The positive coefficient shows that consumers' perception to the environmental value is increased by the enhancement of the reverse logistics system.

Hypothesis	Path	β	t-value	p-value	Decision
H1:	Eco-Branding Appeal → Perceived Environmental Benefit	0.073	1.032	0.302	Not Supported
H2:	Eco-Branding Appeal → Reverse Logistic Ease	0.439	6.080	0.000	Supported
H3:	Reverse Logistic Ease → Perceived Environmental Benefit	0.354	4.799	0.000	Supported

4 Discussion of Findings

This research analyzed the associations between Eco-Branding Appeal, Reverse Logistic Ease, and Perceived Environmental Benefit within the domain of marketing circular economy practices and consumer perception of recycled products using the case of products from the Nigerian FMCG manufacturers. The result showed that Eco-Branding Appeal positively affect Perceived Environmental Benefit, but not significantly. The path coefficient was positive ($\beta = 0.073$), but the effect was not statistically significant ($t = 1.032$, $p = 0.302$). This result indicates that consumer preference for environmentally friendly brands does not always lead to greater perception of environmental benefits. Even if consumers admire brands that run marketing on their various sustainability efforts, such admiration may not be enough to persuade consumers to understand the real environmental benefits of recycled products. This means that branding without clear environmental activity may weakly influence consumers' judgement on the environmental outcome of products. The result also revealed that Eco-Branding Appeal significantly and positively predicts Reverse Logistic Ease ($\beta = 0.439$, $t = 6.080$, $p < 0.001$). This shows that consumers, who have positive opinions about environmentally responsible brands, are more likely to perceive that the product return, recycling and recovery procedures are easy to access and convenient to use. This confirms the assumption of Signaling Theory which argues that consumers depend more on organizational signals to judge sustainability efforts of organizations. By using strong environmental branding, companies can develop positive views that facilitate consumer willingness to participate in circular economy initiatives, including product returns and recycling programmes.

Also, Reverse Logistic Ease was positively significant on Perceived Environmental Benefit ($\beta = 0.354$, $t = 4.799$, $p < 0.001$). This result indicates that customers have an easier time identifying the environmental benefits of recycled products when they have access to simple recycling and returning procedures. The result underlines the significance of reverse logistics in circular economy. Consumers infer that a company that provides a convenient return and recycle process has a sincere environmental concern, which further increases their perception of environmental benefits from such projects.

In sum, the results suggest that Reverse Logistic Ease is a vital mechanism by which sustainability-related branding activities can positively influence perceptions of the environment. Although eco-branding positively influences consumers' perception of the reverse logistics system, it has no significant effect on the perception of the environmental advantages. This implies that customers consider real sustainability actions to be more important than environmental communication only.

5 Conclusion

This study finds that although green branding affects consumers' perception of the convenience of reverse logistics, but in practical term, it does not convince them of actual environmental benefits. These results are in line with Signaling Theory, as Nigerian FMCG consumers are naturally skeptical of sustainability claims made through marketing, and perceive functional sustainability infrastructure as proof of organisational integrity. For practitioners, this study suggests that managers can earn their consumers' trust more by focusing on ensuring logistics operations are ready rather than by the promotional message, by providing convenient collection points and well-organized recycling schemes, than by creating green brands with messages of similar strength alone.

6 Recommendations

1. Focus on tangible investments in the reverse logistics system rather than just the branding, have easy-to-use return processes, clearly visible collection points and efficient recycling to back environmental claims.
2. Combine eco-branding with transparency of operations, by explaining how return and recycling policies are turned into concrete environmental results, closing the gap between brand love and perceived benefit.
3. Utilize reverse logistics as a signal tool by develop high visibility, end-user-friendly recovery programs that truly reflect commitment by the company to the environment to the consumers in Nigerian.

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