

CONSUMER PERSPECTIVES ON SUSTAINABLE PACKAGING: PREFERENCES, WILLINGNESS TO PAY, AND THE RETAIL RESPONSE

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Abstract

Growing environmental concerns are increasingly shaping consumer behavior, prompting the retail sector to adopt more sustainable packaging strategies. This paper analyzes consumer preferences for key sustainable packaging attributes – reusability, recyclability, and biodegradability – and explores factors influencing their willingness to pay price premiums for such important features. Through a systematic literature review, the study identifies significant gaps in consumer awareness and understanding, highlighting how clear labeling, trustworthy eco-certifications, and effective communication all play a critical role in shaping purchasing decisions. Although experimental data are not yet available, the findings emphasize the growing importance of transparent marketing and consumer education in closing the attitude – behavior gap. Retailers face the challenge of balancing sustainability goals with economic viability, requiring strategic approaches that effectively align consumer expectations with environmental objectives. This paper offers practical insights to guide future empirical studies and to assist businesses and policymakers in integrating sustainable packaging successfully within commercial operations.

Key words: sustainable packaging, consumer behaviour, sustainable development, willingness to pay (WTP)

JEL Code: D12, Q56, M31

Introduction

The retail landscape is undergoing a profound transformation as environmental concerns increasingly shape consumer behavior. Packaging, often perceived as a significant contributor to waste, has become a focal point for both criticism and innovation. For instance, research by (Jambeck et al., 2015) estimated that in 2010 alone, 192 coastal nations collectively generated approximately 275 million metric tons (MT) of plastic waste, with between 4.8 and 12.7 million metric tons of plastic waste entered the ocean, a significant portion of which originates from packaging. Consumers are increasingly demanding eco-friendly packaging solutions, prompting retailers to navigate the complex interplay between sustainability, consumer

preferences, and economic viability (Boz et al., 2020). Green-motivated consumers are accelerating the shift toward sustainable packaging, compounded by shrinking non-renewable reserves, soaring energy prices, and overflowing landfills (Nordin & Selke, 2010). Studies such as (Singh & Pandey, 2018) explore the various determinants or variables that influence the willingness-to-pay for green packaging. Retailers are responding by adopting various marketing strategies to engage customers in sustainable consumption (Bălan, 2020). However, according to study by Olson E.L (as cited in (Boz et al., 2020)) this growing consumer interest in sustainability does not always translate into actual purchasing behavior, as there are often barriers such as a lack of understanding, higher prices, or perceived inconvenience associated with sustainable packaging options.

In the recent years, governments, manufacturers, and consumers have shown an increasing interest in making packaging more sustainable (Oloyede & Lignou, 2021). The growing emphasis on Environmental, Social, and Governance (ESG) factors in business operations and investment decisions underscores the importance of eco-friendly packaging. Retailers must carefully balance consumer demands for sustainability with the economic realities of their business in order to develop and market packaging solutions that are both environmentally responsible and commercially viable. Retailer's greatest motivation for packaging redesign is economic gains, which co-generate environmental (Gustavo et al., 2018). Studies also found that consumers' willingness to pay a premium for sustainable packaging is influenced by various factors, including their perceptions of the environmental impact of packaging, the perceived benefits of sustainable packaging, and the transparency of sustainability claims (Boz et al., 2020) (Nordin & Selke, 2010) (Seo et al., 2016).

This paper aims to identify consumer perspectives on sustainable packaging through a systematic literature review. It analyzes key attributes influencing consumer preferences – such as reusability, recyclability, and biodegradability – assesses factors affecting willingness to pay for sustainable packaging, and explores the challenges retailers face in balancing sustainability goals with economic viability. By synthesizing existing research, the paper provides a foundation for future empirical studies and offers practical insights to inform packaging strategies in the retail sector.

Key attributes of sustainable packaging such as reusability, recyclability, and biodegradability play a significant role in shaping consumer purchasing decisions. In the retail sector, understanding willingness to pay for these sustainable packaging features is essential, as it helps

determine the presence and extent of price premiums consumers associate with them (Singh & Pandey, 2018). Retailers are increasingly incorporating sustainable packaging into their operations, driven by a desire to meet evolving consumer expectations, enhance brand image, and comply with increasingly stringent environmental regulations (Gustavo et al., 2018). However, many struggle to strike the right balance between sustainability and profitability.

1 Sustainable Packaging : History, Trends, Practices and the Shift Toward Circularity

Sustainability has become a central focus in packaging, with many product-based companies using packaging as the primary means to demonstrate their commitment to sustainable practices to consumers and society (Nordin & Selke, 2010). As per Brundtland Commission formed in 1987, sustainable development was defined as ‘development that meets the needs of the present, without compromising the ability of future generations to meet their own needs’ (Basiago, 1995). For packaging, this involves aligning business strategies with the overarching goals of sustainable development, incorporating social and environmental considerations across every stage of a product/package system’s life cycle and supply chain (Nordin & Selke, 2010).

The journey towards sustainability in retail is not a recent phenomenon but rather a gradual evolution shaped by historical events, changing consumer attitudes, and increasing environmental awareness. The concept of sustainability has deep historical roots and has a longer history than the English term itself. While "sustainability" did not appear in early English texts, the idea was already present in other languages. The German word *Nachhaltigkeit*, which roughly translates to "lasting-ness," is often considered one of the earliest expressions of the concept, with documented usage dating back as early as 1650s (Warde, 2011).

Early 20th century witnessed the early seeds for change and the concept of reducing packaging waste emerges, driven primarily by cost considerations. Companies explore light weighting and downsizing packaging to minimize material usage. However, the concept of sustainable packaging gained more prominence in the latter half of the 20th century as environmental concerns and conservation efforts gained traction among consumers and policymakers (Escursell et al., 2021). In the 1960s-70s, the environmental movement gains momentum, raising public awareness about pollution, resource depletion, and the impact of consumerism. This era witnesses the emergence of early recycling programs and the first Earth Day in 1970. By the 1980s-90s, environmental concerns become more mainstream and

consumers start to demand more sustainable solutions from businesses. Companies begin to explore greener packaging alternatives, driven both by consumer demand and regulatory pressure. The EU Directive on Packaging and Packaging Waste (94/62/EC) (European Parliament, 1994) introduced various measures to reduce packaging waste and promote recycling practices. Its initial targets aimed to recover between 50% and 65% of total packaging waste and to recycle 25% to 45% of packaging materials by the year 2001 (Escursell et al., 2021). Sustainable practices have accelerated in the new millennium, with the introduction of standards, certifications, and a proliferation of sustainable packaging innovations.

The concept of the circular economy gains traction, promoting closed-loop systems that minimize waste and maximize resource utilization. Packaging waste is a significant environmental issue. According to US Environmental Protection Agency, over 80 million tons of packaging were generated in 2018, with about two-thirds of this total consisting of plastic or paper materials. While a portion of this packaging is recycled, a large amount is still disposed of in landfills. In 2018 alone, 10.09 million tons of plastics packaging and 6.44 million tons of paper packaging were landfilled, together making up 11% of all landfilled in the United States. According to Eurostat in 2022 the total volume of packaging waste generated was estimated at 83.4 million tonnes. This is 186.5 kg per inhabitant in the EU (varying from 78.8 kg per inhabitant in Bulgaria and 233.8 kg per inhabitant in Ireland). The evolving landscape underscores the urgency for the retail industry to address sustainability challenges and meet the growing expectations of consumers.

The sustainable packaging literature has largely focused on the technical and economic aspects of achieving packaging sustainability, such as adopting more efficient production processes, utilizing renewable materials, and minimizing waste (Nordin & Selke, 2010). While these factors are crucial, consumer acceptance is equally important for the long-term success of sustainable packaging initiatives. As the final decision-makers, consumers play a pivotal role in determining the commercial viability of sustainable packaging (Nordin & Selke, 2010).

However, research suggests that consumer understanding and attitudes towards sustainable packaging are often inconsistent and lack clarity. Consumers may have difficulty comprehending the concept of sustainability, leading to terminological gaps and inconsistencies in their preferences (Lindh et al, 2016, as cited in (Herbes et al., 2020)). Beyond the general lack of consumer awareness, a range of factors have been identified as influencing consumer perceptions and behaviors towards sustainable packaging. (Martinho et al., 2015) have

examined several key factors that shape consumer perspectives on sustainable packaging. These include: (1) satisfaction with packaging features, (2) environmental awareness, (3) demographics, and (4) attitudes and behaviors.

2 Exploring Consumer Perceptions, Perspectives and Attitudes to Sustainable Packaging

Sustainability in the packaging industry has become a critical priority, as consumers and regulators increasingly demand more eco-friendly solutions. While the technical and logistical aspects of sustainable packaging have been extensively studied, the consumer perspective is equally crucial for long-term success (Nordin & Selke, 2010). Consumer attitudes and behaviors are the ultimate arbiter of the commercial viability of sustainable packaging (Nordin & Selke, 2010). Understanding the factors that shape consumer perceptions and purchase decisions around sustainable packaging is therefore vital for companies seeking to effectively market and price their products.

However, the existing literature suggests that there are significant gaps in our understanding of consumer perspectives on sustainable packaging. Consumers often have limited awareness of the environmental impact of packaging and may rely on their own lay beliefs rather than objective information when evaluating sustainability (Steenis et al., 2017). This disconnect between consumer perceptions and the actual environmental benefits of sustainable packaging presents a challenge for companies seeking to drive its adoption. This highlights the need for companies to better educate consumers on the environmental benefits of sustainable packaging in order to bridge this gap. There is often a lack of clarity about what is truly sustainable, leading to consumers receiving conflicting information and being confused by labeling and insufficient guidance (Boz et al., 2020). Compliance and regulation can also play a role, as mandatory requirements for sustainable packaging may force consumer adoption regardless of their personal preferences (Oloyede & Lignou, 2021). A study emphasizes that simply using sustainable materials isn't enough. Factors like clear labeling, on-pack information about environmental benefits, and consumer education play a crucial role in purchase decisions (Boz et al., 2020). The key to success lies in understanding the complex interplay of factors that influence consumer attitudes and behaviors towards sustainable packaging, and then strategically aligning pricing, marketing, and education efforts to meet evolving consumer demands (Nordin & Selke, 2010).

Consumers tend to perceive sustainable packaging as an effective means of reducing waste and minimizing the environmental impact of product packaging (Nordin & Selke, 2010). However, the literature also reveals that consumer perceptions and attitudes can be influenced by various factors, such as the perceived costs, convenience, and availability of sustainable packaging alternatives. A survey conducted by Raymond on consumers' intentions to contribute to a healthier environment through their understanding of sustainable packaging deliberately avoided using the term “sustainable packaging” due to widespread consumer unfamiliarity and misconceptions. The research found that consumers from all age groups generally lacked comprehensive knowledge of the full scope of sustainability and tended to equate sustainable packaging solely with recyclable packaging while most participants acknowledged the importance of recycling packaging, many had limited or no awareness of which packaging materials are actually recyclable (Nordin & Selke, 2010).

Consumer motivation for sustainable packaging can also vary based on demographic factors such as age, income, and education. For instance, younger and older consumers may show different levels of willingness to pay for sustainable packaging, indicating that motivation is not uniform across all consumer groups (Boz et al., 2020). A global survey indicated that many consumers are becoming more conscious of sustainability and are willing to act on environmental concerns (Nordin & Selke, 2010).

Overall, perceptions and attitudes toward sustainability and sustainable packaging are generally positive, but gaps in knowledge and understanding of terminology contribute to an attitude – behavior gap, making it challenging for companies to drive meaningful consumer action.

3 Willingness to Pay (WTP): Unpacking the Price Premium for Sustainability

Existing studies have shown while there is a general trend towards increased interest in sustainable packaging, the actual WTP is complex and influenced by a variety of factors. Thereby, retailers need to carefully consider these factors when developing pricing strategies for packaging options. For example, if the design did not meet their expectations, consumers were not willing to pay more for sustainable packaging (Oloyede & Lignou, 2021). The study by (Singh & Pandey, 2018) explored the relationship between environmental concern, knowledge of green packaging, and beliefs about its benefits with consumer attitudes towards paying a price premium. It found a positive link between these beliefs and willingness to pay more for green packaging. Additionally, knowledge about green packaging was shown to

significantly influence positive beliefs, suggesting it plays a crucial role in shaping consumer attitudes. Further, the study identified six factors which included epistemic value, functional value, economic value, symbolic value, altruistic value and biospheric value that can enhance consumer perception and willingness to pay more for environmentally friendly products.

(Wensing et al., 2020) study indicates that consumers are generally willing to pay a price premium for bio-based plastic packaging compared to conventional packaging. For instance, consumers who were grouped in DCE questions only, showed an average WTP of 22.8% more for bio-based plastic packaging. This willingness to pay reflects consumers' recognition of the environmental benefits associated with bio-based products. The research found that the WTP for bio-based packaging varied significantly across different nudging treatments. This suggests that certain nudging strategies can effectively enhance consumers' willingness to pay for eco-friendly packaging.

Clear and trustworthy communication about the environmental benefits of sustainable packaging can be crucial. Eco-labels and sharing information about environmental sustainability play a vital role in influencing consumer behavior. (Bastounis et al., 2021) found that consumers are willing to pay a premium for eco-labeled foods, especially those with organic certifications. This highlights the importance of transparent labeling and providing accessible, credible information to guide purchasing decisions.

4 Gaps in the Literature and Directions for Future Research

The literature review reveals several important gaps in the current understanding of consumer perspectives on sustainable packaging and price premiums.

To begin with, although studies show positive consumer attitudes towards sustainable packaging, there's a lack of research precisely quantifying the price premiums consumers are willing to pay across different product categories, packaging attributes, and consumer segments (Nordin & Selke, 2010). This gap hinders businesses from accurately pricing eco-friendly packaging options and understanding the potential return on investment for sustainable packaging innovations.

Additionally, the existing research has tended to treat sustainable packaging as a single, unified concept, without sufficient examination of how consumer responses may vary based on specific packaging attributes or product categories (Seo et al., 2016). For example, consumers

may be willing to pay more for packaging made from recycled materials, but not for packaging labeled as "environmentally-friendly" without clear supporting evidence. More research is needed to understand how the specific sustainability features of packaging, as well as the product context, influence consumer willingness to pay a premium. A nuanced understanding of these variations is essential for tailoring packaging solutions and marketing messages to specific consumer segments and product categories (Popovic et al., 2019).

Furthermore, the literature review suggests that consumer behavior does not always align with their stated attitudes and preferences regarding sustainable packaging (Popovic et al., 2019). While many consumers express concern for the environmental impact of packaging, a significant proportion are unwilling to pay more for eco-friendly options. Understanding the underlying drivers, barriers, and decision-making processes that lead to this attitude-behavior gap is crucial for developing effective strategies to bridge it.

Finally, much of the existing research is concentrated in developed Western markets, with less attention to how cultural contexts and economic conditions shape consumer perspectives on sustainable packaging and price premiums in other regions. Understanding how factors such as environmental consciousness, disposable income, and social norms vary across different markets is crucial for developing globally-relevant strategies and solutions.

The existing research primarily relies on self-reported consumer attitudes and intentions, which may not accurately reflect their actual purchasing behavior. Observational studies and experimental research designs can provide more robust and nuanced understanding of how consumers respond to sustainable packaging in real-world contexts (Michaud & Llerena, 2011).

Conclusion

Consumers generally hold positive attitudes toward sustainable packaging but often face knowledge gaps and confusion concerning terminology, recyclability, and actual environmental benefits. Willingness to pay a premium for sustainable packaging varies widely, influenced by factors such as consumer awareness, trust in eco-labels, and transparent communication of environmental benefits. Retailers encounter challenges in reconciling profitability with sustainability and must prioritize effective consumer education and clear labeling to encourage adoption of eco-friendly packaging. This paper underscores the crucial role of strategic marketing and transparency in bridging the attitude-behavior gap. While awaiting empirical

validation, these findings provide a valuable theoretical framework for stakeholders aiming to advance sustainable packaging adoption globally.

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