

A REVIEW OF GREENWASHING AND CIRCULAR INDUSTRIAL PRACTICES FROM CONSUMER'S PERSPECTIVE

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Abstract

Conscious consumers prefer green products and actively seek information about companies' circular practices. Demonstrating the role of consumers as key drivers of sustainable consumption is crucial for adequate supply chain management. Different industry branches have different potential for the application of circular processes such as reducing, reusing, and repairing. The paper is based on critical reviews of the relevant literature and aims to emphasize the biggest strengths and benefits for organizations from implementing circular strategies from the consumer's point of view. In this regard, effective transitioning towards sustainable supply chains involves tackling greenwashing. Therefore, it is important to understand to what extent industries are using greenwashing to mislead their stakeholders in the supply chain. It was possible to identify possible solutions to prevent greenwashing across four main dimensions: consumers, relationships between companies and suppliers, certification programs and reporting assessment; and corporate leadership. Due to the significance and validity of the research, the paper highlights the impact of sustainable consumption on the development of greenwashing practices.

Keywords: *Circular economy, Customers behavior, Sustainability, Greenwashing, Industry sector, Informational asymmetry*

Introduction

There is growth of the production and consumption of circular products. However, greenwashing is a marketing practice of presenting products as environmentally responsible without reasons, which can influence consumer perceptions and attitudes toward the consumption of circular products. In this regard, greenwashing tactics can increase consumer confusion. In the field of sustainability, circular consumption and greenwashing have gained significant attention. The recent study by the European Commission (2022) revealed that 80% of online shops, web pages, and advertisements searched contained green claims such as "green" or "friendly to nature", of which 55.45% were implicit (images, design, color suggesting environmental benefits), 35% were explicit (logos and labels), and about 21% were vague or general environmental claims.

By supporting sustainable businesses and circular consumption, consumers can proactively create more sustainable society. Understanding consumer attitudes to sustainability and sustainable behaviors is a major driver of changing consumer behavior. Despite consumers' willingness to make decisions with sustainability and the environment in mind, consumers often make a trade-off between managing higher prices and making sustainable lifestyle choices. Consumer spending accounts for over a quarter of all emissions and it is the single largest contributor to total greenhouse gas emissions. Some of the consumers most valued sustainable or ethical practices are producing sustainable packaging and products; Reducing waste in manufacturing processes; Committing to ethical working practices; Respect for human rights; Reducing carbon footprint. Some of the main reasons for not adopting a more sustainable lifestyle are high costs, a lack of interest in sustainability, and not having enough information (Deloitte, 2025).

First, this paper contributes to the literature on greenwashing by empirically examining how consumers' perceptions of greenwashing affect circular economy practices. While most previous research has predominantly focused on corporate behavior, this paper is focused to individual consumer perceptions and behaviors, thereby filling research gap. In this regard, accelerating the transition to a circular economy is a policy priority in Europe. With a circularity rate of 11.8% in 2023, Europe consumers have higher proportion of recycled materials than other world regions. Monitoring the circular economy involves tracking material flows environmental degradation. Undertakings and consumers are showing early signs of adopting new business models and consumption patterns, but linear business models continue to prevail (European Environment Agency, 2024). To reduce waste and maximize resource use, circular consumption involves strategies including repairing, recycling, and reusing. On the other hand, greenwashing refers to the practice of businesses using exaggerated or misleading environmental claims to take advantage of customers' growing environmental concerns. Green consumerism is now a politically and economically acceptable and ecologically benign presumption. However, the rise of greenwashing techniques is causing many to question the veracity of businesses' environmental promises (Lopes, Gomes, & Trancoso, 2023).

In according to the main purpose of the paper, paper is organized in the next interconnected sections. Besides Introduction, the second section is devoted to literature review, the third section is related to research results and discussion about the consumer behavior in environmental issues and circular economy. The last section gives concluding remarks and policy recommendations which can ensure adequate regulation in this area.

Literature review

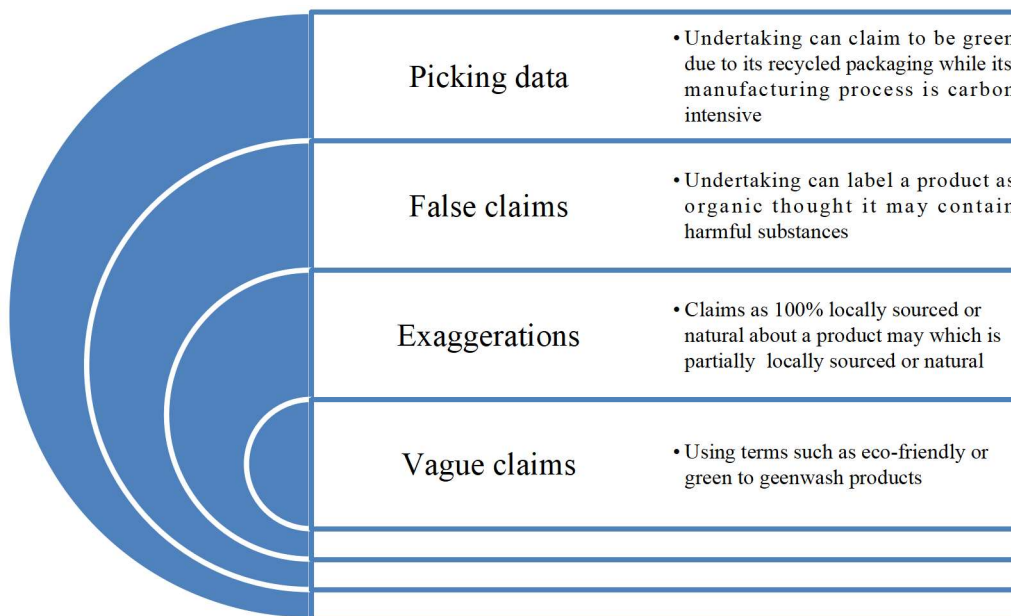
There is several monitoring frameworks currently focused on Europe's circular economy, including the European Commission's Circular Economy Monitoring Framework (CEMF) which provides effective understanding of macrophenomena (Eurostat). On one hand, knowledge creation and innovation are essential pillars to support circularity, so in 2023, almost 4000 scientific articles were published related to circular economy. This shows a growing level of research and innovation activity for circularity (European Environment Agency, 2024). Some studies investigate whether the phenomenon of environmental, social, and governance (ESG) issues has given rise to a new form of greenwashing in a broad sense, not limited to the environmental sphere, but also extended to social and governance issues. Whether companies engaged in the transition to sustainable and to circular models are actually focusing on concrete sustainable actions and less on distorted communication (Todaro, & Torelli, 2024).

On the other hand, a growing number of consumers are choosing sustainable solutions as environmental awareness grows. Due to this change in customer behavior, marketing and advertising campaigns that highlight how goods and services affect the environment have increased. But not all sustainability claims are as truthful as they appear. According to a 2020 European Commission investigation, 42% of online environmental claims were either misleading, inflated, or overstated (Carbon Train, 2024).

Environmentalist Jay Westerveld coined the phrase "greenwashing" in 1986 to describe a deceptive practice employed by undertakings to make their goods or services appear more environmentally friendly than they are. This is accomplished by using deceptive marketing techniques to appeal to customers who care about the environment. Therefore, greenwashing is a tactic used by undertakings to profit from the growing demand for eco-friendly goods. Greenwashing also happens when businesses highlight a product's sustainable features to draw attention away from their involvement in ecologically harmful activities. Greenwashing, fake green marketing, or eco-manipulation are terms that refer to the act of making exaggerated or false claims about the environmental benefits of a product or service (Savić, & Frfulanović, 2024). Greenwashing activities use information asymmetry and misleading buyers (Jakubczak & Gotowska, 2018).

There are several examples of greenwashing used by undertakings to encourage the consumption, such as (a) powerful images that companies use related to ecology and nature to convey that they are responsible and environmentally aware; (b) misleading labels claiming that products have environmental benefits; (c) certifications that do not exist on how the products are natural and sustainable; (d) red herrings to try to divert consumers' attention, highlighting aspects of the products as ethical and sustainable; and (e) approximate terminology with self-denomination by companies that their products are green (Safdie, 2023). Figure 1 shows different forms of greenwashing which are most found in industrial practice. It can be product oriented, process oriented, image oriented or can emphasize the environmental facts or combination of the mentioned phenomena.

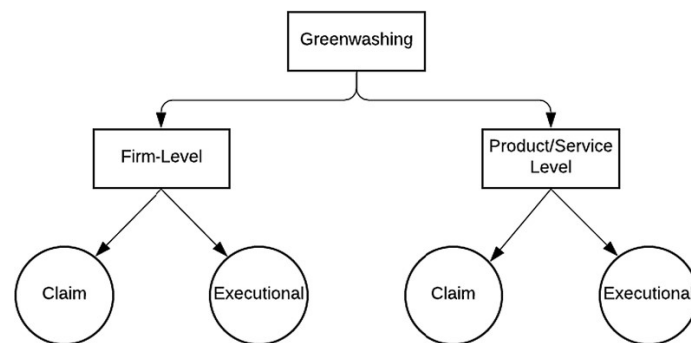
Figure 1. Types of greenwashing



Source: Authors illustration

Two different major classifications of greenwashing: Claim greenwashing and Executional greenwashing. Figure 2 shows the main classifications in the phenomenon of greenwashing.

Figure 2. levels of greenwashing implementation



Source: de Freitas Netto, S. V., Sobral, M. F. F., Ribeiro, A. R. B., & Soares, G. R. D. L. (2020). Concepts and forms of greenwashing: A systematic review. *Environmental Sciences Europe*, 32, 1-12.

Greenwashing refers to the practice of falsely promoting an organization’s environmental efforts or spending more resources to promote the organization as green than are spent to actually engage in environmentally sound practices. Recent researches show what extent greenwashing may endanger the industry in addressing challenges related to the implementation of more sustainable circular economy in the context of designing with intention of recycle, reduction of by-products, lower energy consumption, and wise purchase habits (Adamkiewicz, Kochańska, Adamkiewicz, & Łukasik, 2022). In other words, greenwashing is based on highlighting one good practice. Some studies on the consumption theory showed that there is a strong relation between consumption values and the green trust. Eco-labeling influenced the consumer perception as a mark of superior quality, higher value, and an indicator of a lifestyle (Zaidi, et al. 2019).

Greenwashing is more likely in the sectors of consumer staples, energy, industrial, information technology, materials, and utilities, all which impact environmentally sensitive areas. Greenwashing firms have a lower-weighted average cost of capital due to a higher debt-to-capital ratio. They are larger, have higher institutional ownership, and lower dividend yields. On the other hand, greenwashing firms have more ESG-related controversies that can hurt firm revenues and market value, they have higher unsystematic risk, and they have lower dividend yields and return on equity (Gregory, 2024). In greenwashing, there is a complicated link between customer intentions and behavior. Greenwashing positively affects consumers’ environmental concerns and their propensity to seek sustainable information. These positively impact consumer intentions toward circular consumption. The findings challenge the traditionally negative perception of greenwashing, suggesting its paradoxical contribution to promoting sustainability. Insights into consumer behavior related to sustainability has practical implications for policymakers in shaping effective circular economy strategies (Lopes, Gomes, & Trancoso, 2023). Some authors outline the predicted effects of greenwashing on green consumer confusion, green perceived risk, and green trust. Decrease in greenwashing and an increase in green initiatives and more transparent marketing are definitively beneficial to promote the customers’ green trust. Green marketing is more efficient and can encourage green consumption (Adamkiewicz, Kochańska, Adamkiewicz, & Łukasik, 2022).

Greenwashing poses a significant obstacle to consumer intentions. When perceived, it decreases purchase intention and creates a discrepancy between what customers intend to do and what they do. Greenwashing hurts consumers who care about the environment and are willing to pay more for goods (Testa, et al. 2021), whereas the suppliers who sell the goods

don't honestly address how the items affect the environment (Apaolaza, et al. 2023). Although consumers' determination to combat greenwashing has grown, the results have been unclear (Rotkirch, & Lenk, 2021). Greenwashing can have negative effects on both consumers and the environment, as it can lead to confusion and mistrust among consumers and encourage the production and consumption of products that are not sustainable. It is important for consumers to be aware of greenwashing and to look for evidence to support companies' environmental claims. Additionally, undertakings can take steps to be more transparent and honest in their ecological claims, build consumer trust, and promote truly sustainable practices (Savić, & Frfulanović, 2024).

Numerous studies analyze the direct and indirect practices of greenwashing in the fashion industry and its impact on consumers and highlight the existence of greenwashing in the industry's supply and consumption chain. Greenwashing has a disruptive impact on the fashion industry's supply chain. Some undertake resort to greenwashing by promoting a green image without making substantial environmental or social changes. Therefore, transparency and honesty in the industry's green marketing strategies is *conditio sine qua non* (Badhwar, et al. 2024). Braga, et al. (2019) found that when greenwashing is recognized in a product, its aspects of loyalty, satisfaction, and benefits are lost, and it becomes a product that causes confusion in the consumption of it. Bulut et al. (2021), show that the perception of greenwashing diminishes the effects of environmental concern on green behavior., while Zhang et al. (2018), claim that the perception of greenwashing has a direct negative effect on green purchasing intent.

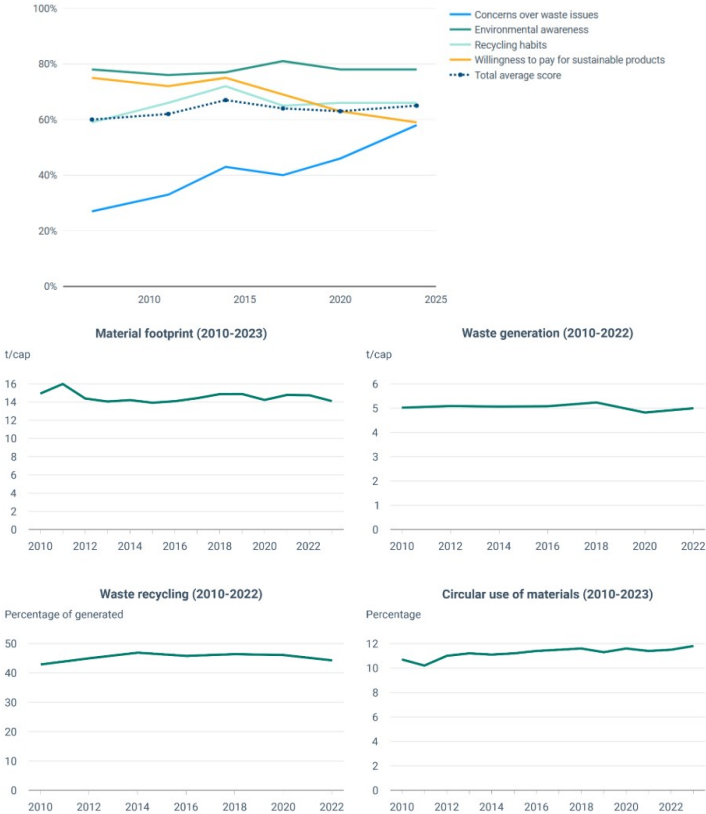
Research results and discussion

Some of the main motivations for greenwashing are: attracting eco-conscious consumers, enhancing brand image, competitive advantage which can lead to customer loyalty and increased market share, meeting regulatory and investor expectations, cost savings due to greenwashing, companies get an image of being environmentally conscious without any costs for implementing real environmental change, and mitigating negative publicity. Greenwashing occurs in a variety of sectors:

- Greenwashing, as used in the automotive industry, is the practice of deceiving consumers about the environmental benefits of cars by inflating efficiency or reducing environmental effect in marketing campaigns.
- When businesses significantly rely on fossil fuels while claiming to be ecologically benign by employing renewable energy sources, this is known as "greenwashing" in the energy sector.
- In the food industry, greenwashing refers to companies making misleading claims about their products, while ignoring sustainability issues in their supply chain. Single-use plastic is not sustainable due to it cannot be recycled 100%, and recycling can never make up for the volume of plastic produced.
- Greenwashing in fashion takes place when brands assert unfounded statements about the eco-friendliness of their clothing collections or methods, disregarding the environmental consequences of fast fashion and inadequate labor practices.
- Certain furniture companies practice greenwashing by misleadingly advertising the environmental advantages of their products, such as asserting the use of sustainable materials or techniques.
- In the banking sector, greenwashing happens when financial institutions promote "green" financial offerings or sustainability efforts while simultaneously funding industries that negatively impact the environment.

Monitoring changes in material flows and waste generation and management is key to assessing the impact that the circular economy has on the environment and consumer behavior. Figure 1 outlines the trends among EU citizens in environmental and circular economy efforts in Europe: the EU’s material footprint, waste generation, recycling of total waste and the circular use of materials.

Figure 1. Trends among European union consumer behavior in environmental issues and circular economy



Source: European Environment Agency (2024). Available at: <https://www.eea.europa.eu/en/analysis/publications/europes-circular-economy-in-facts>, Accessed on: 20th January 2025.

The material footprint reflects the resources needed to produce the goods and services Europeans consume. It stood at 14.1 tons per capita in 2023 while waste generation was at 5 tons in 2022. The results suggest that high numbers stem from an unsustainable use of resources. If the world consumes resources at the level of the EU, the capacity of the planet to provide these resources will be exceeded. On the other hand, resource productivity in the EU is increasing in 2022, for every kilogram of material consumed in the EU economy, 2.1€/kg worth of production activity was generated. This is more than 2.5 times the global average. The material footprint does not show dramatic changes over time so it can be concluded that circularity has not yet taken off. On the other hand, in the period from 2010 to 2023, the EU economy grew, meaning that we were able to produce more with a stable material input. If major mineral waste is excluded, the EU landfills only 306kg per person annually (2022) and it recycles almost half of the waste it generates. However, recycling is not enough to establish

circularity in Europe. Functional secondary markets are required so that secondary materials find their way back into manufacturing, thus offsetting primary resources.

Data supplied by all stakeholders in the recycling value chain needs to be trustworthy and validated to address the life cycle of waste generation, prevent contamination of recycled materials by hazardous substances, and protect recycling operations from legal risks, financial losses and reputational damage. Transparency in waste data is also a powerful tool against greenwashing (The [Global Waste Management Outlook 2024](#)). Moral hazard in greenwashing is exacerbated by the lack of stringent regulatory frameworks and enforcement mechanisms. When companies realize that the penalties for being caught are minimal or non-existent, they are emboldened to make false or exaggerated environmental claims. This behavior not only damages the reputation of individual brands but also erodes the credibility of the entire organic product industry (Srisathan, & Naruetharadhol, 2025). According to certain studies, a company's market power may be diminished if regulators uncover greenwashing and it becomes widely known.

Conclusion and policy recommendations

Customers should be educated in how to recognize greenwashing so that they can make informed decisions. Businesses that engage in greenwashing leverage the attitudes of customers who are fostering green consumption. The lack of information of consumers favors the development of disinformation practices regarding the alleged pro-ecological activity of companies. It can be concluded that the phenomenon of greenwashing is aimed against green consumption and thus against sustainable development.

Greenwashing is a persistent issue in today's markets. Together, consumers can play an instrumental role in building a more sustainable future by demanding transparency and accountability from companies. Advocating for genuine sustainability and making informed choices can contribute to a healthier planet. The Negative Impact of Greenwashing refers to: consumer distrust, Damage to Genuine Sustainability Efforts, Hindrance to Environmental Progress, regulatory and Legal Consequences. False or misleading environmental claims can lead to fines, penalties, and damage to the company's reputation.

Fundamental shifts in consumption patterns are needed through using low impact products and services or by switching to sharing and product-as-a-service models. Consumption culture is under the strong influence of marketing and needs to change. Consumers' choices are framed by current production systems. The recently adopted eco-design for sustainable products regulation (EU, 2024) is geared to promote safe and sustainable products and was designed for circularity from the outset. One of the main findings highlight the importance of consumer education to prevent misinterpretation of green-related terms and to promote sustainable consumption practices. The question is where the limit in environmental awareness and who should be responsible for it. Consumers and undertakings should work together for a more sustainable industry, and transparent and reliable certification schemes should serve as a guarantee of sustainability.

The objectives of the circular economy must be taken into consideration when enforcing competition law. Customizing competition strategy involves undertakings that use the circular economy approach rather than those that impose the linear economy approach. Competition authorities must exercise caution due to the possibility of greenwashing. In that case these undertakings couldn't have a circular economy friendly approach of the antitrust regulations. When regulators discovered greenwashing and this became public recognized, it can reduce market power and market share of the company (Liu, Wang, & Wang, 2025).

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