

Green consumer behaviour in purchasing, using, and disposing of food, clothes, and mobile phones

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Abstract:

This study examines green consumer behavior across three product categories—food, clothing, and mobile phones—by exploring the full consumption cycle: purchasing, usage, and disposal. Research on green consumption that accounts for product category-specific differences remains largely underexplored. A total of 537 respondents were recruited through an online survey. The results reveal that there is a discrepancy between consumers' pro-environmental beliefs and their actual behavior throughout the consumption cycle, and that barriers to purchasing and disposing of products in an environmentally friendly way vary across product categories. Price is a more significant obstacle for sustainable food purchases, while habitual behaviors more strongly hinder green practices in mobile phone use. Clothing falls in between, with mixed influences from both price and habits. By recognizing the barriers associated with different product types, policymakers and marketers can design more effective interventions to encourage green consumer behavior.

Keywords: Green behavior, product category-specific difference, consumption cycle

Track: Sustainability, CSR and Marketing

1. Introduction

Green consumption behavior refers to a holistic approach to consumption that seeks to minimize the negative environmental impact across the entire lifecycle of products—spanning purchase, use, and disposal. As global environmental challenges such as climate change, resource depletion, and pollution intensify, consumers are becoming increasingly aware of their role in contributing to or mitigating these issues (Frey et al., 2023; Gulati, 2022; Marcus & Roy, 2019; Trudel, 2019; Yuriev et al., 2020). This heightened awareness has led to environmental concern becoming an important factor influencing consumer decisions at every stage of product interaction. Extant literature on green consumption has predominantly focused on the purchasing phase (Nittala & Moturu, 2021), this narrow focus overlooks the broader behavioral spectrum that encompasses how products are used and disposed of. To address this gap, the present study adopts the three-stage framework proposed by Geiger et al. (2018), which conceptualizes green consumption behavior as an integrated process involving not only the purchase but also the use and disposal of products. Research suggested that sustainable consumption cannot be achieved through isolated actions at the point of purchase alone; instead, it requires consistent environmentally conscious behavior during usage and responsible disposal practices (Schaefer & Crane, 2005; White et al., 2019). By adopting this comprehensive perspective, the study aims to provide a more nuanced understanding of how consumers engage with environmental considerations throughout the product lifecycle. The current study investigates the following research questions:

- How important do consumers think it is for the environment that they consider environmental concerns when purchasing, using, and disposing of food, clothes, and mobile phones?
- To what extent do consumers take environmental concerns when purchasing, using, and disposing of food, clothes, and mobile phones?
- What are the consumers' perceived main barriers to acting green when purchasing, using, and disposing of food, clothes, and mobile phones?

2. Methodology

2.1 Measurement instrument

The data used in this paper were obtained as part of a large survey of sustainable consumption. The survey consists of three main parts. The first part contains questions

regarding respondents' socio-demographical backgrounds, including gender, age, education, and household income. The second part consists of questions about consumers' environmental concern and green considerations in purchasing, using, and disposing food, clothes, and mobile phones. Two questions serve as the basis and are adjusted to suit measurements across consumption phases and product categories: 1) *How important do you think it is for the environment that consumers choose the most environmentally friendly alternative when purchasing food?* and 2) *To what extent do you consider choosing the most environmentally friendly alternative when purchasing food?* The two questions were measured on five-point scales ranging from 1 = *No importance at all* to 5 = *Very high importance* and 1 = *Not at all* to 5 = *To a very large extent*, respectively. The third part contains questions measuring perceived barriers to green consumption. These items were developed by first reviewing existing literature (Chen, 2020; De Silva et al., 2021; Ivanova et al., 2019; Marde & Verite-Masserot, 2018; Quoquab et al., 2019; Whitmarsh & O'Neill, 2010) and then asking undergraduate students in a quantitative data analysis class at the University of Southern Denmark to list potential barriers to green consumption related to the purchasing and disposal of food, clothes, and mobile phones. Since extant research on motivations and barriers to green consumption is mainly conducted at a general level (e.g., social norms and consumer efficacy), it was deemed necessary to collect more specific insights. After evaluating all the listed barriers, we identified 15 barriers to sustainable purchasing and eight barriers to sustainable disposal (see Table 3 and Table 4).

2.2 Sampling and profile of respondents

Data were collected through convenience sampling. Invitations to participate in the study were disseminated by asking all undergraduate students in a quantitative data analysis class at the University of Southern Denmark to share a link to the online survey via email and through their social media platforms. A total of 537 responses were usable for the present study. The sample is skewed toward female respondents (63.7% of the total sample). Most participants have completed or are currently pursuing a short or medium-length higher education (52.7%), are in the 18–29 age range (56.5%), and report lower income levels (46.2% earning below 300,000 DKK). This reflects the fact that the survey link was distributed by first-year university students via their social media channels (see Table 1).

Table 1. Profile of survey respondents (N = 537)

	n	%
<i>Gender</i>		
Female	342	63.7
Male	195	36.3
<i>Age</i>		
18-29 year-old	309	56.5
30-49 year-old	97	18.1
50-59 year-old	83	15.5
60+	48	8.9
<i>Education</i>		
Upper secondary/high school	134	25.0
Short or medium-cycle higher education (2- 4 years)	285	52.7
Long-cycle higher education (5 years or more)	113	21.0
Don't want to tell	7	1.3
<i>Household income</i>		
Less than 100.000 DKK	119	22.1
100.000 – 299.999 DKK	129	24.1
300.000 – 499.999 DKK	77	14.4
500.000 – 999.999 DKK	105	21.4
1000.000 DKK or more	55	10.2
Don't know or would not answer	42	7.8

3. Results

Table 2 displays mean scores for consumers' perceived importance of considering environmental concerns when purchasing, using, and disposing of food, clothes, and mobile phones, as well as the extent to which they consider these concerns in their behavior. Although the two scales—importance and self-reported consideration—are not directly comparable, it is noteworthy that the mean scores for the perceived importance of all consumers acting sustainably are generally higher than the mean scores for respondents' considerations. This pattern may partly be explained by the presence of barriers that hinder consumers from acting in line with their values, even when they place importance on green consumption.

To detect significant differences across product categories, we conducted a series of paired t-tests comparing mean score pairs across product types. The results show that mean scores for mobile phones are significantly lower than those for food and clothes in terms of purchasing and usage, but not for disposal. These findings suggest that while consumers generally believe everyone should act in environmentally friendly ways when buying and using products, they do not always apply the same standards to their behavior. However, this

discrepancy is less evident in the context of disposal, where respondents' considerations align more closely with their ideals for all consumers. This indicates the presence of certain barriers to green consumption behavior, which will be discussed in the following section.

Table 2. Environmental concern and considerations when purchasing, using, and disposing food, clothes, and mobile phones

	Food		Clothes		Mobile	
<i>Purchase</i>	Mean	SD	Mean	SD	Mean	SD
a. How important do you think it is for the environment that consumers choose the most environmentally friendly alternative when purchasing ...? ¹⁾	3,41 ^a	,90	3,42 ^a	,99	3,00 ^b	1,15
b. To what extent do you consider choosing the most environmentally friendly alternative when purchasing ²⁾	2,92 ^a	1,02	2,41 ^b	1,13	1,55 ^c	,91
<i>Usage</i>						
c. How important do you think it is for the environment that consumers take sustainable considerations into account when preparing/using... ¹⁾	3,23 ^b	,93	3,37 ^a	,91	2,86 ^b	,99
d. To what extent do you consider sustainability when you consume/use.... ²⁾	2,66 ^a	1,05	2,74 ^a	1,01	2,02 ^b	,98
<i>Disposal</i>						
e. How important do you think it is for the environment that consumers dispose of their in a sustainable way? ¹⁾	3,35 ^b	,98	3,64 ^a	,95	3,62 ^a	,99
f. To what extent do you dispose of your in a sustainable way? ²⁾	3,48 ^b	1,21	3,80 ^a	1,09	3,45 ^b	1,24

¹⁾ Measured on a 5-point scale ranged from 1 = no importance at all to 5= very much importance

²⁾ Measured on a 5-point scale ranging from 1 = not at all to 5= to a very large extent

Means with different superscripts are significant from one another (p<.05).

Table 3 displays the mean scores and standard deviations for consumers' perceived barriers to purchasing sustainable options in food, clothes, and mobile phones.

Table 3. Perceived barriers for purchasing food, clothes, and mobile phones¹⁾

	Food		Clothes		Mobile	
	Mean	SD	Mean	SD	Mean	SD
a. It is too expensive to choose sustainable over unsustainable ... ²⁾	3,40 ^a	1,07	2,81 ^b	1,19	2,41 ^c	1,10
b. It is too difficult to assess which ... are the most sustainable	3,22 ^c	1,04	3,38 ^b	1,08	3,76 ^a	1,19
c. The quality of sustainable ... is too poor	2,09 ^b	,95	1,95 ^c	,92	2,43 ^a	1,08
d. Sustainable ... often has a shorter lifespan	2,66 ^a	1,07	1,82 ^b	,91	2,55 ^a	1,13
e. The range of sustainable ... too limited	2,65 ^c	1,01	2,87 ^b	1,13	3,11 ^a	1,23
f. Prefer to buy what I usually do, even if it's less sustainable	2,79 ^c	1,11	3,16 ^b	1,20	3,75 ^a	1,29
g. Hard to change my ... habits	2,63 ^c	1,10	2,88 ^b	1,27	3,57 ^a	1,34
h. Doubt whether the product is as sustainable as it is claimed	2,82 ^b	1,08	2,80 ^b	1,16	2,93 ^a	1,17
i. Have built up preferences for some non-organic ...	2,21	1,16				
j. Thinking that sustainability claims are just a marketing trick to sell the product	2,42	1,11				
k. It gives a better feeling to get something completely new			3,00 ^a	1,35	3,08 ^a	1,38
l. Because second-hand/refurbished ... do not give the same status as new ... in my social circle			1,64 ^a	,99	1,62 ^a	,98
m. Because second-hand and/or ...made of recycled material do not have the same quality as new ...			2,33 ^b	1,13	2,96 ^a	1,26
n. Because second-hand clothes are not as modern as new clothes			2,38 ^b	1,26		
o. Second-hand/refurbished mobile phones do not have the same features as newly produced mobile phones					2,97 ^a	1,31

¹⁾ For each statement, consumers are asked to indicate to what extent they perceive it as a barrier to acting green when purchasing food, clothes, and mobile phones.

²⁾ Each statement is asked three times where ... is replaced with food, clothes, and mobile phone, respectively Measured on a 5-point scale ranging from 1 = not at all to 5= to a very large extent.

Means with different superscripts are significant from one another (p<.05).

The first eight barriers listed are common across all product categories. The next two are specific to food, followed by three that are shared by clothes and mobile phones, and two that are unique to clothes and mobile phones, respectively.

To detect significant differences, we conducted a series of paired t-tests comparing mean score pairs of product categories. The results in Table 3 highlight how perceived barriers vary across the three product types. Several noteworthy differences emerged, such as respondents perceiving sustainable food options to be relatively more expensive than sustainable clothing or mobile phone options. Additionally, respondents believe that sustainable options for food and mobile phones tend to have a shorter lifespan. Since mobile phones exhibited the most pronounced differences in Table 2, we decided to delve deeper into the interpretation. The barriers to sustainable mobile phone consumption can be divided into two categories. First, consumers face **market-related barriers**. Consumers find it difficult to find a sustainable mobile phone (statement ‘e’, MEAN 3.11 compared to 2.87 and 1.65 for food and clothes, respectively) to use available information to assess which phones are truly sustainable (statement ‘b’, MEAN 3.76 compared to 3.22 and 3.38 for food and clothes, respectively). Respondents also believe that the range of sustainable mobile phones is limited, reflecting a lack of trust in or availability of sustainable alternatives. Second, **habitual behavior** acts as a barrier. Consumers report that they tend to stick with what they usually buy, especially in the context of mobile phones (statement ‘g’, MEAN 3.57 compared to 2.63 and 2.88 for food and clothes, respectively), and that their existing habits influence their purchasing decisions (statement ‘f’, MEAN 3.75 compared to 2.79 and 3.16 for food and clothes, respectively). These findings make intuitive sense: compared to buying food or clothing, switching to a different kind of mobile phone often involves a steeper learning curve, such as adapting to a new operating system, making habit a stronger barrier in this product category.

Table 4 displays the mean scores for consumers’ perceived barriers to disposing of food, clothes, and mobile phones. The first four barriers are common across all three product categories, followed by two that are specific to clothing and two specific to mobile phones. To detect significant differences, we conducted a series of paired t-tests comparing mean score pairs across product categories. The results show that barriers to disposal vary across the three product categories. For example, respondents perceive it as more difficult to dispose of food in a sustainable way (statement ‘a’, MEAN 2.49 compared to 1.88 and 1.85 for food and clothes, respectively). Overall, respondents reported **lower barriers to**

sustainable disposal than they did for sustainable purchasing. Two findings are particularly noteworthy. First, food is perceived as the most difficult of the three categories to dispose of sustainably. Second, in the context of mobile phones, **keeping the device as a backup** and **privacy concerns** are perceived as the most significant barriers to sustainable disposal.

Table 4. Perceived barriers for disposing food, clothes, and mobile phones

	Food		Clothes		Mobile	
	Mean	SD	Mean	SD	Mean	SD
a. It is too difficult	2,49 ^a	1,30	1,88	1,13	1,85	1,13
b. I don't know how to do it	1,86 ^a	1,06	1,53 ^b	,90	1,84 ^a	1,16
c. We don't have a waste sorting scheme at my residence, all wastes end up in one garbage bin.	1,95 ^a	1,42	1,73 ^b	1,22	1,78 ^b	1,06
d. Because I do not understand why I should do that	1,68 ^a	1,01	1,37 ^b	,785	1,48 ^b	,84
e. There is no incentive for me to do it			1,73	1,07		
f. It is not possible for me to donate to a place that is close to where I live			1,47	,87		
g. I keep the used mobile phones as a reserve					2,67	1,34
h. I am afraid of the security of data saved in my used mobile phone					2,41	1,41

¹⁾ For each statement, consumers are asked to indicate to what extent they perceive it as a barrier to acting green when disposing of food, clothes, and mobile phones.

Measured on a 5-point scale ranging from 1 = not at all to 5= to a very large extent.

Means with different superscripts are significant from one another ($p < .05$).

4. Discussion

The results show that consumers do care about sustainability across all three product categories. However, there is a clear discrepancy between how important consumers believe it is in general to choose the most sustainable products and the extent to which they consider sustainability when purchasing and using products. This discrepancy is especially pronounced for mobile phones, which is also the category where sustainability is considered the least in the purchasing and usage phases.

As hinted at in the results section, we argue that this gap is rooted in the barriers presented later. The findings also indicate that consumers are more environmentally conscious during the disposal phase of consumption than during the purchasing and usage phases. There may be several contributing factors to this. In a Danish context, this pattern might be explained by public awareness campaigns focused on the sustainable disposal of items, particularly clothing and mobile phones. These campaigns could help explain why environmental consideration during disposal is significantly higher across all product categories than during purchase and use.

This may change over time, as current public campaigns are aiming to promote more sustainable usage practices, such as shifting electricity consumption to periods with surplus (and thus greener) electricity. Initiatives like "washing in the moonlight" may increase consumer awareness of how specific usage behaviors can impact the environmental footprint of products. Table 2 and Table 3 show that consumers want to act sustainably but often lack the options or information necessary to make sustainability a salient factor in their purchase decisions, especially when it comes to mobile phones. The results also show that consumers tend to be habitual in their mobile phone consumption and are generally reluctant to switch from what they have previously used.

When comparing these findings to the oligopolistic structure of the smartphone market (Bernhardt & Taub, 2015; Maradin et al., 2020), it becomes clear that limited competition restricts consumer choice. If sustainability is not a core element of the dominant producers' products, consumers have little to no opportunity to choose a sustainable smartphone. This has contributed to the growth of a second-hand mobile phone market, although that lies outside the scope of this paper.

5. Future research

Future research should explore whether perceived barriers result in alterations in purchasing, usage, and disposal behaviors, identifying which barriers consumers overcome and which lead them to opt for less sustainable choices. This investigation would be of interest to both academics and practitioners, as it would elucidate the tipping point for green consumption within specific product categories. Additionally, future research should examine the barriers to green purchasing, usage, or disposal across other product categories, as this will contribute to a more comprehensive understanding of green consumption and inform strategies to assist consumers in their decision-making processes.

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