

A Work Project, presented as part of the requirements for the Award of a Master's degree in  
Management from the Nova School of Business and Economics.

THE EFFECTS OF PERCEIVED BARRIERS TO SUSTAINABLE CONSUMPTION ON  
CONSUMERS' WILLINGNESS TO PAY FOR SUSTAINABLE APPAREL

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10/01/2025

## **Abstract**

In the fashion industry, consumers' intentions to purchase sustainable apparel often fail to translate into behavior. While qualitative studies highlight barriers that limit consumers to act on their intentions, limited quantitative research has explored their impact. This study builds on this foundation by examining how consumers' willingness to pay (WTP) for sustainable apparel is influenced by their perceptions of six barriers. Data from 163 valid responses were analyzed using conjoint analysis and linear modeling. Results show that price perception and social norms significantly affect WTP, while knowledge moderates the effects of perceived consumer effectiveness (positively) and availability (negatively) on WTP.

**Keywords:** Consumer behavior; Sustainability; Sustainable fashion; Willingness to pay; Conjoint analysis

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

## 1 Introduction

In the past decade, growing concerns over climate change and social challenges have led to increased awareness of the importance of making sustainable consumption choices (Wiederhold and Martinez 2018, 419). This is what we refer to as sustainable consumer behavior, which aims to reduce adverse environmental impacts and resource utilization across the product lifecycle (White, Habib and Hardisty 2019, 24). However, despite these positive attitudes toward sustainability, a significant gap persists between consumers' expressed intentions and their actual purchasing behavior. For instance, a survey showed that while 65% of respondents reported intentions to buy from sustainable brands, only 26% did so in practice (White, Hardisty and Habib 2019, 127). This gap is commonly referred to as the “attitude-behavior gap”, which is one of the greatest challenges faced by those promoting sustainable consumption (Prothero, et al. 2011, 32).

Researchers, such as Fishbein and Ajzen, have long studied the role of attitudes in shaping behavior with their influential attitude-behavioral models. They argue that an individual's behavior can be predicted by their intention, which is influenced by their attitude, perceived social norms, and behavioral control (Fishbein and Ajzen 1975; Ajzen 1991). However, while these models provide a foundation for understanding consumer behavior, more recent studies argue that they do not fully capture the complexities of sustainable decision-making (Bangsa and Schlegelmilch 2020; Wiederhold and Martinez 2018).

This complexity is evident in the fashion industry, as fashion and sustainability are contradicting in the nature of each concept: the fashion industry being known for its rapid turnover, environmental damage, social issues and hedonistic consumers, while the other emphasizes ethical considerations and minimizing environmental impact (Lundblad and Davies 2015, 149). While numerous studies have tried to explain the attitude-behavior gap within the fashion industry, the literature presents conflicting arguments regarding the

underlying reasons for this discrepancy. Some researchers argue that sustainability is not as important to consumers as they claim, suggesting that sustainability concerns may be more of a stated preference than a genuine driver of behavior (Rausch, Baier and Wening 2021) or a secondary evaluation (Schuitema and de Groot 2015). On the other hand, studies also defend the notion that consumers genuinely care about sustainability but face various barriers that prevent them from acting on their initially stated attitudes (Wiederhold and Martinez 2018; Johnstone and Tan 2015; Gleim, Smith, Andrews and Cronin 2013; Sheoran and Kumar 2022). While such barriers certainly exist according to the consumers themselves, there remains a gap in the literature whether reducing these barriers actually increases the likelihood of them buying sustainable products in market-like settings, or not. Furthermore, considering sustainable fashion products tend to be marked up 150 to 210 percent higher than conventional fashion products (Gerhardt, Plack and Drost 2020), understanding how consumers' willingness to pay (WTP) is impacted by such barriers is crucial, as it has been shown to be a good predictor of consumer demand (Miller, et al. 2011).

This study aims to fill this gap by answering the following research question: *“How is consumers’ willingness to pay for sustainable apparel affected by their perceptions of barriers to sustainable consumption?”*. After reviewing existing literature on the influence of sustainable attributes on consumers’ decision-making and the barriers to sustainable consumption, the methodology used in this study will be explained, followed by the presentation of results. Finally, the theoretical contributions and practical implications will be discussed, along with the limitations and suggestions for future research.

## **2 Literature Review**

For the purpose of this work project, sustainable consumer behavior will be referred to as “[...] actions that result in decreases in adverse environmental impacts as well as decreased utilization of natural resources across the lifecycle of the product, behavior, or service”

(White, Habib and Hardisty 2019, 24). According to White, Habib and Hardisty (2019), while conventional consumer decision-making is often driven by a desire to secure immediate benefits for the self, sustainable decision-making emphasizes the importance of considering the long-term benefits for others and our earth. While the definition focuses on environmental sustainability, it is understood that it also can have social and economic levels to it (White, Habib and Hardisty 2019, 24). This consumption model has particularly grown over the past decade, with increased awareness and concerns about climate change and social challenges (Wiederhold and Martinez 2018, 419).

Within the fashion industry, existing literature presents mixed views on what constitutes sustainable fashion. Henninger, Alevizou and Oates (2016) note in their study that there is no unified definition of sustainable fashion, as its interpretation is highly context-dependent and subjective. For instance, some define it in terms of environmental impact, while others emphasize social and ethical dimensions, such as fair labor practices, or both (Henninger, Alevizou and Oates 2016). Given the absence of a universally accepted definition, in this study, sustainable fashion will be understood as encompassing practices and products that aim to reduce environmental harm and have a positive impact on society, in line with previous literature on this topic (van Doorn, Risselada and Verhoef 2021; Luchs, Naylor, Irwin and Raghunathan 2010; Phipps, et al. 2013). This includes any initiatives that brands undertake to position themselves as sustainable, whether through environmentally friendly materials, ethical labor practices, or other sustainability-focused attributes.

## **2.1 Importance of sustainable apparel attributes in consumer decision-making**

When consumers are shopping, product-specific attributes are critical decision-making factors. These attributes influence how consumers weigh trade-offs between different aspects of a product, helping them decide what offers the best value for them (Zeithaml 1988, 14). Numerous studies have explored how product attributes affect consumer decision-making in

the context of sustainability, due to the key role of sustainable attributes in communicating a product's environmental and social aspects (Bangsa and Schlegelmilch 2020, 2). The findings reveal that sustainable attributes can be of great significance throughout consumers' decision-making process, from information search to product choice (Bangsa and Schlegelmilch 2020, 11).

According to a study by Rausch, Baier and Wening (2021), they conclude that one of the most important sustainable apparel attributes in influencing consumer decision-making are the social aspects of a garment, such as fair wages and working conditions. These aspects contribute to shaping consumer attitudes, which, as shown by Ha-Brookshire and Norum (2011) to positively influence their WTP for sustainable apparel as well.

Moreover, attributes related to environmentally friendly sourcing, such as the use of organic or recycled materials, have also been found to play a role in shaping consumer preferences. For instance, a study by Ellis, McCracken and Skuza (2012) found that consumers were willing to pay up to 25% more for t-shirts made of organic cotton. Similarly, Achabou and Dekhili's (2013) study on consumer preferences for luxury apparel, found that organic cotton has a positive influence on consumer decisions. However, recycled materials were viewed less favorably, mainly due to concerns about quality.

To reduce the information complexity in a decision-making process, the literature suggests brands to utilize third-party sustainability labels to make it easier for consumers to identify sustainable products (Connell 2010, 284). In the context of food products, Sirieix, Delanchy, Remaud, Zepeda and Gurviez (2013) discovered that while consumers generally view fair-trade and organic labels favorably, they tend to approach less familiar or more generalized sustainability claims with greater skepticism. In the apparel industry, Hustvedt and Bernard (2010) demonstrated that consumers are willing to pay more for apparel featuring labor-related labels, particularly in contexts where economic incentives encourage the

expression of their true valuation. This suggests that sustainability labels are more effective when tied to specific, recognizable claims, which is also reflected in consumers' WTP.

While sustainable apparel attributes have shown to be important considerations, they also need to be looked at in comparison to conventional attributes to understand their relative importance. There is a great consensus within literature that the physical aspects of a garment, such as color, pattern, and design, have the most significant impact on consumers decision-making (Rausch and Kopplin 2021; Eckman, Damhorst and Kadolph 1990; Zhang, Li, Gong and Wu 2002). Furthermore, the garment's quality (Rausch, Baier and Wening 2021), fit and comfort (Zhang, Li, Gong and Wu 2002; Rausch, Baier and Wening 2021) has also shown to be important factors when purchasing apparel products. In addition to these intrinsic attributes, extrinsic factors, such as brand (Jegethesan, Sneddon and Soutar 2012; Carrigan and Attalla 2001) and price (Lou and Xu 2024; Jegethesan, Sneddon and Soutar 2012; Abreu, Ferreira and Silva 2022) are also critical purchasing criteria for consumers. Despite the influence of sustainable attributes in consumers' decision-making process, when faced with trade-offs between these and conventional attributes, the latter often holds greater weight in purchasing decisions (Rausch, Baier and Wening 2021; Schuitema and de Groot 2015). However, as revealed by Bangsa and Schlegelmilch (2020, 11), existing literature presents mixed results regarding which attributes are considered the most important across product categories, suggesting that the importance of sustainable attributes is context dependent.

## **2.2 Barriers to sustainable consumption**

Despite the rise of sustainable options in the marketplace (Frey, et al. 2023), several barriers ostensibly limit consumers from making sustainable purchasing decisions. These barriers, identified across multiple qualitative studies, encompass economic, psychological, and practical factors. Common obstacles include the higher perceived cost of sustainable products, perceived consumer effectiveness, skepticism regarding sustainability claims, social

norms, lack of knowledge, and limited availability of sustainable options (Wiederhold and Martinez 2018; Johnstone and Tan 2015; Gleim, Smith, Andrews and Cronin 2013; Sheoran and Kumar 2022). While these qualitative studies have provided valuable insights into these barriers, a gap remains in quantitatively examining their impact on consumer behavior. Albeit the study by Gleim, Smith, Andrews and Cronin (2013) is the first of its kind to conduct a cluster analysis on consumers' perception of barriers to sustainable consumption, revealing significant differences in consumers' perceptions and purchase intentions between clusters. However, their study relies on stated purchasing intentions, which can be unreliable in the context of sustainable consumer behavior, where social desirability bias can lead consumers to overstate their sustainability intentions (Bangsa and Schlegelmilch 2020, 10). This study will build on this foundation to explore the relative influence of each barrier on consumers' WTP. Each barrier will now be examined individually to develop hypotheses (see Appendix A for research model).

**Price:** One of the most critical barriers is the higher perceived price of sustainable products (Sheoran and Kumar 2022, 31). Sustainable products often come at a premium price due to the increased cost of sourcing ethically produced materials, ensuring fair labor practices, and implementing environmentally friendly manufacturing processes (Lou and Xu 2024, 399). For most consumers, price is a decisive criterion, and the cost difference between sustainable and conventional products can deter them from choosing the more sustainable option (Wiederhold and Martinez 2018, 424). It therefore may seem that consumers do not perceive the higher price associated with sustainable products as justified by their sustainable attributes. Thus, the following hypothesis can be formulated:

**H<sub>1</sub>:** *Lower perceived value for money for sustainable products reduces consumers' WTP.*

**Perceived consumer effectiveness (PCE):** Moreover, the perception that individual actions cannot make a meaningful difference, further discourages consumers from buying

sustainable products (Gleim, Smith, Andrews and Cronin 2013, 46). When consumers feel that their individual choices are insignificant to make a difference to greater sustainability issues, studies show that they may be less motivated to change their purchasing behavior (Johnstone and Tan 2015, 323). This lack of motivation can perpetuate unsustainable consumption, as individuals may default to conventional products, believing that their efforts will not help to achieve the desired outcome (Ellen, Wiener and Cobb-Walgren 1991, 105). To see if this perception also affects WTP, the following hypothesis is formulated:

*H<sub>2</sub>: Lower PCE reduces consumers' WTP.*

**Trust:** Various psychological barriers have also been shown to limit consumers from adopting sustainable options. One major issue is skepticism regarding sustainability claims. Consumers are often exposed to misleading or exaggerated environmental claims, a practice known as greenwashing (Delmas and Burbano 2011, 66). For instance, a commission study conducted by the Consumer Protection Cooperation Network (CPC) in 2020 revealed that 42% of environmental claims made by European e-commerce stores were inaccurate, deceptive or unfounded (European Commission 2020). It is therefore unsurprising that consumers, such as those in the study by Wiederhold and Martinez (2018), expressed skepticism toward retailers' sustainability claims, with a feeling that they were merely used for marketing purposes. Such skepticism has shown to lead to consumer confusion and high perceived risk associated with the product, which negatively affects trust (Chen and Chang 2013, 498). This distrust may also make consumers question the effectiveness of the product, potentially influencing WTP and interacting with the effect of PCE. To examine whether trust directly affects WTP and if it possibly also moderates the relationship between PCE and WTP, the following hypotheses are formulated:

*H<sub>3a</sub>: Lower trust in sustainability claims reduces consumers' WTP.*

*H<sub>3b</sub>: Trust moderates the effects of PCE on WTP.*

***Social norms:*** Additionally, studies also show that social norms can be a barrier for some consumers. Individuals tend to be influenced by what is considered common practice, and if sustainability is not prioritized within their social circles, they may be less inclined to adopt sustainable purchasing habits (Johnstone and Tan 2015; Sheoran and Kumar 2022; Gleim, Smith, Andrews and Cronin 2013). However, social norms can also work the other way. For instance, Goldstein, Cialdini and Griskevicius (2008) found that hotel guests were more likely to demonstrate pro-environmental behavior when informed that the majority of previous guests in their room had done the same. Similarly, consumers may be motivated by seeing their peers adopt sustainable products, but if such behaviors are absent, social norms may hinder sustainable purchasing decisions. To explore if social norms also impact WTP, the following hypothesis is formulated:

***H4:*** *Lower importance of sustainability within social circles reduces consumers' WTP.*

***Lack of availability and knowledge:*** Practical barriers such as limited availability and lack of knowledge can also hinder sustainable consumption. Consumers report that sustainable options are not readily available to them (Lundblad and Davies 2015, 157), leading them to choose conventional options out of convenience (Wiederhold and Martinez 2018, 425). Additionally, the lack of knowledge about sustainable products is a key barrier. In prior studies, consumers state that they understand little about sustainable products and are unaware of the environmental impact of their purchases or the benefits of choosing more sustainable options (Gleim, Smith, Andrews and Cronin 2013; Wiederhold and Martinez 2018; Sheoran and Kumar 2022). This information gap may not only diminish the perceived value of sustainable options, but also likely makes it harder for consumers to identify the sustainable options among competing products. For instance, Gleim, Smith, Andrews and Cronin (2013) observed that clusters with higher levels of knowledge had, amongst others, higher perceptions of availability and purchasing intentions. Furthermore, previous research

has also shown that PCE is positively affected by knowledge (Wang, Ma and Bai 2019, 9), suggesting that consumers who are more knowledgeable about sustainable products feel that the impact of their actions are greater than those with lower level of knowledge. These findings indicate that knowledge may play a more complex role by influencing other barriers, as also suggested by Gleim, Smith, Andrews and Cronin (2013, 57). This study will explore these relationships further by examining whether knowledge moderates the effects of availability and PCE on WTP. Thus, the following hypotheses are formulated:

*H<sub>5</sub>: Lower perceived availability of sustainable products reduces consumers' WTP.*

*H<sub>6a</sub>: Lower perceived knowledge about sustainable products reduces consumers' WTP.*

*H<sub>6b</sub>: Knowledge moderates the effects of perceived availability on WTP.*

*H<sub>6c</sub>: Knowledge moderates the effects of PCE on WTP.*

Table 1: Overview of barriers for sustainable consumption

<b>Barrier</b>	<b>Description</b>	<b>Sources</b>
Price	Consumers perceive sustainable products to be more expensive, which can deter purchases due to the premium price associated with sustainable practices.	(Sheoran and Kumar 2022; Wiederhold and Martinez 2018; Lou and Xu 2024)
Perceived consumer effectiveness (PCE)	A sense of powerlessness or belief that individual actions will not make a significant impact on sustainability-related issues, reducing motivation to buy sustainable products.	(Gleim, Smith, Andrews and Cronin 2013; Johnstone and Tan 2015; Wiederhold and Martinez 2018; Ellen, Wiener and Cobb-Walgren 1991)
Trust	Concerns about greenwashing lead consumers to distrust sustainability claims, feeling they may be exaggerated or used for marketing purposes.	(Delmas and Burbano 2011; Wiederhold and Martinez 2018; Gleim, Smith, Andrews and Cronin 2013)
Social norms	The influence of social groups can affect behavior, which may discourage sustainable consumption if it is not important to peers.	(Johnstone and Tan 2015; Sheoran and Kumar 2022; Gleim, Smith, Andrews and Cronin 2013)
Availability	Limited access to sustainable products makes it difficult for consumers to make sustainable choices, leading them to default to conventional products.	(Lundblad and Davies 2015; Wiederhold and Martinez 2018)
Knowledge	Consumers lack sufficient information about sustainable products or their benefits, which makes it harder for them to identify and choose sustainable options.	(Gleim, Smith, Andrews and Cronin 2013; Wiederhold and Martinez 2018; Sheoran and Kumar 2022)

### **3 Method**

#### **3.1 Data collection and descriptive statistics**

To analyze the effects of perceived barriers on consumers' WTP for sustainable apparel, an online questionnaire was developed with Sawtooth Software's web-based survey platform, Discover. Before proceeding with data collection for the main study, a pretest of the questionnaire was conducted with both academics and non-academics to assess the clarity, structure, and ease of completion. After minor adjustments, the final questionnaire was distributed using convenience sampling. The survey targeted general consumers over the age of 18, as the broader perspectives of consumers were considered relevant for this study. Data was collected through social media, forums, survey exchange websites, and personal network. This approach was chosen due to limited time and budget constraints, which made the use of more sophisticated sampling techniques not feasible (e.g., consumer panels).

The questionnaire was open for responses over a period of two weeks (September 30 to October 14, 2024), during which 249 consented to participate in the survey. 86 responses were too incomplete for further analysis and were excluded. Additionally, 20 respondents had minor missing values for the barrier measures. To address these, multiple imputation were conducted using IBM SPSS Statistics 29 to estimate and replace missing values, ensuring that the responses could still be included. Thus, a total of 163 responses was considered valid. According to Orme (2019), the sample size for conjoint studies usually ranges from 150 to 1,200 respondents. While the sample size for this study is on the lower end of this range, it was considered acceptable for the purpose and limits of this study.

The demographic characteristics of the sample are presented in Appendix B. The sample had a balanced gender distribution, with 51% identifying as male and 49% as female. The majority of respondents (78.1%) were aged between 18 and 34. Additionally, 85% held a bachelor's degree or higher, 48.8% were employed full-time, and 35.6% were students. In

terms of household income, 32.5% of respondents earned below 30,000 euro, 28.1% earned between 45,000 and 75,000, and 22.5% earned more than 90,000 euro annually. 23 countries were represented, with 57.8% of respondents from Norway, 10.2% from Germany, 8.2% from the United States, and 6.8% from Portugal.

## **3.2 Measures**

### **3.2.1 Choice-based conjoint analysis**

To measure consumers' WTP for sustainable apparel products, a choice-based conjoint analysis was conducted in the first part of the survey. This multivariate technique simulates a purchasing situation, frequently used by researchers and practitioners to understand how consumers value different aspects of a product or service (Wang, et al. 2022, 660). The tradeoffs respondents make between price and other attribute levels allow for converting the additional utility a consumer gains from a specific level into a monetary value, making it a popular technique to estimate WTP (Sichtmann, Wilken og Diamantopoulos 2011, 635). Studies have also shown conjoint to be effective in addressing social desirability bias to gather more honest responses in surveys (Horiuchi, Markovich and Yamamoto 2022). Given the goals of this study and the presence of the attitude-behavior gap associated with sustainable consumer behavior, this technique was considered suitable for this study.

The conjoint analysis utilized five key attributes selected based on the literature review, with attribute levels adapted from previous research on sustainable consumer behavior. These attributes, along with their corresponding levels, are presented in Table 2. To make the task more realistic, the scenario presented to respondents was framed as a decision about purchasing a sweater. A combination of both sustainable and conventional attribute levels was included, with the aim of replicating the tradeoffs consumers would make between these in real purchasing scenarios. The number of tasks was set to 11 with three options in

each in addition to a none option, as recommended by Discover based on the number of attributes and levels included.

*Table 2: Selected attributes for conjoint analysis*

<b>Attribute</b>	<b>Levels</b>	<b>Sources</b>
Price	<ul style="list-style-type: none"> <li>• 45 Euro</li> <li>• 60 Euro</li> <li>• 75 Euro</li> <li>• 90 Euro</li> </ul>	Based on average price from Statista Market Insights (2023)
Brand	<ul style="list-style-type: none"> <li>• Unknown brand</li> <li>• Popular brand</li> <li>• Premium brand</li> </ul>	Adapted from Abreu, Ferreira and Silva (2022)
Style	<ul style="list-style-type: none"> <li>• Classic/Timeless</li> <li>• Comfortable</li> <li>• Fashionable</li> </ul>	Adapted from Jegethesan, Sneddon and Soutar (2012)
Material	<ul style="list-style-type: none"> <li>• Standard materials</li> <li>• Organic materials</li> <li>• Recycled materials</li> </ul>	Adapted from Achabou and Dekhili (2013)
Sustainability label	<ul style="list-style-type: none"> <li>• Fair trade certified</li> <li>• No label</li> </ul>	(De Pelsmacker, Driesen and Rayp 2005)

The price attribute was based on average market prices gathered from Statista Market Insights (2023) and refers to the cost of the garment, displayed in euros. Based on feedback in the pretest, the interval between each level was set to be 15 euro to represent realistic price points. The levels for the brand attribute were adapted from Abreu, Ferreira and Silva (2022) and aim to indicate the brand's familiarity and perceived value. An unknown brand is considered to be unfamiliar to most consumers, a popular brand is widely recognized, and a premium brand is associated with higher quality. The style attribute, adapted from Jegethesan, Sneddon and Soutar (2012), describes the design of the garment. Classic garments are timeless and never go out of style, comfortable styles prioritize comfort and ease of movement, while fashionable styles reflect current trends. The material attribute was adapted from Achabou and Dekhili (2013) and represents the type of fabric used. Organic materials are considered to be more environmental-friendly, while recycled materials reuse fabrics to reduce waste, as opposed to standard materials. Finally, the sustainability label attribute was gathered from De Pelsmacker, Driesen and Rayp (2005) and indicates whether the sweater is

fair trade certified, ensuring ethical working conditions and fair wages for workers. The respondents were provided with these descriptions of each attribute level to ensure clarity and understanding before starting the conjoint task, as suggested by respondents in the pretest.

### **3.2.2 Perception of barriers**

To measure the respondent's perception of barriers to sustainable consumption, the respondents were presented with a series of statements in the second part of the survey. All statements were measured on a seven-point Likert-scale, where respondents were asked to share their level of agreement with each statement (1 = strongly disagree to 7 = strongly agree). These were all gathered from validated scales used by Gleim, Smith, Andrews and Cronin (2013) in their study, of which they adapted from reputable sources to fit into a sustainability context. Only minor adjustments to these were made for this study. The price perception scale, which evaluates the perceived value of sustainable products, originated from Dodds, Monroe and Grewal (1991). The trust scale, measuring organizational trust, originated from Morgan and Hunt (1994). Social norms were assessed using items from Spangenberg, Sprott, Grohmann and Smith (2003). The PCE scale originated from Webster (1975), measuring consumers perceived effectiveness in their sustainability choices. The perceived availability of sustainable products was measured using items from Yoo, Donthu and Lee (2004), and the knowledge scale, assessing respondents perceived expertise with sustainable products, originated from Sharma and Patterson (2000).

To assess the reliability of the scales used in the questionnaire, Cronbach's Alpha was computed for each variable. Cronbach's Alpha values higher than 0.70 are generally considered acceptable for internal consistency (Taber 2018, 1278), of which all variables met. Appendix C provides a summary of the reliability results, items and the sources for each scale.

## 4 Results

### 4.1 Preliminary analysis

Using the integrated hierarchical bayes utility estimation in Discover, the part-worth utilities for each attribute level were computed for each respondent based on their choices in the conjoint tasks. As shown in Table 3, price emerged as the most important attribute. This was followed by brand and style, where premium and popular brands were favored over unknown brands, and classic/timeless were preferred over fashionable or comfortable styles. While sustainability-related attribute levels (i.e. fair-trade certification and organic- and recycled materials) were favored over the non-sustainable level (i.e. no label and standard materials), the relative importance of the label and material attribute was less substantial compared to price, brand and style.

Table 3: Relative importance and part-worth utilities

Attribute	Relative importance	Level	Part-worth utilities		
			Mean	Male	Female
Price	40.20 %	45 Euro	75.34 (5.58)	65.29 (8.77)	85.15 (7.30)
		60 Euro	41.11 (1.80)	38.90 (2.89)	42.88 (2.31)
		75 Euro	-18.95 (2.26)	-13.83 (3.50)	-23.61 (2.97)
		90 Euro	-97.50 (4.15)	-90.37 (6.61)	-104.42 (5.33)
Brand	19.81 %	Premium	39.06 (2.57)	45.68 (4.16)	31.84 (2.83)
		Popular	11.72 (1.50)	12.24 (2.00)	11.02 (2.33)
		Unknown	-50.78 (2.96)	-57.92 (4.41)	-42.86 (3.93)
Style	14.03 %	Classic/Timeless	18.81 (2.98)	22.86 (4.24)	14.88 (4.46)
		Fashionable	-4.39 (2.57)	-5.86 (3.79)	-3.49 (3.67)
		Comfortable	-14.42 (2.30)	-17.00 (3.57)	-11.39 (3.07)
Label	13.02 %	Fair trade certified	26.14 (2.58)	19.35 (3.83)	32.86 (3.51)
		No label	-26.14 (2.58)	-19.35 (3.83)	-32.86 (3.51)
Materials	12.94 %	Organic	20.79 (2.52)	21.23 (3.68)	20.76 (3.63)
		Recycled	-3.29 (2.19)	-8.26 (2.87)	0.57 (3.44)
		Standard	-17.50 (2.35)	-12.97 (3.41)	-21.33 (3.28)

Note: Standard error of mean in parentheses. Mean is computed for the entire sample, including respondents with missing gender data.

Using the individual part-worth utilities, the marginal willingness to pay for each sustainable attribute level was estimated for each respondent. An algebraic approach was applied to convert part-worth utilities into monetary values (Demirciftci, Belarmino and Raab 2024, 384). The first step involved calculating the utils per euro, which is the rate at which

changes in utility translate into monetary values. The difference between the two price points corresponding to the highest and lowest utility values was divided by the utility difference between these price points (1)

$$(1) \text{ Utils per Euro}_i = \frac{|P_{Max \text{ Utility},i} - P_{Min \text{ Utility},i}|}{U_{Max \text{ Utility},i} - U_{Min \text{ Utility},i}}$$

where  $P_{Max \text{ Utility},i}$  is the price level with the maximum utility for respondent  $i$ ;  $P_{Min \text{ Utility},i}$  is the price level with the minimum utility for respondent  $i$ ;  $U_{Max \text{ Utility},i}$  is the maximum utility value of the price attribute for respondent  $i$ ; and  $U_{Min \text{ Utility},i}$  is the minimum utility value of the price attribute for respondent  $i$ . For example, for respondent one, the utility for the price attribute is highest at 113.57 for the 45 euro level and lowest at -131.86 for the 90 euro level. To calculate utils per euro for this respondent, we take the price difference (45 euro) and divide it by the utility difference (245.43), resulting in a value of 0.18.

Next, the WTP for the sustainable attribute levels was estimated by calculating the difference in utilities between the sustainable attribute level and the corresponding non-sustainable level, and then multiplying this by the utils per euro for each individual respondent obtained earlier (2)

$$(2) \text{ WTP}_i = (U_{Sustainable,i} - U_{Non-Sustainable,i}) \times \text{Utils per Euro}_i$$

where  $U_{Sustainable,i}$  is the utility value for the sustainable attribute level for respondent  $i$ ; and  $U_{Non-Sustainable,i}$  is the utility value for the non-sustainable attribute level for respondent  $i$ . For example, to calculate the WTP for organic materials for respondent one, the utility values for organic and standard materials are used. Their utility for organic materials is 19.58 and for standard materials it is 4.71. Using the second formula, we calculate WTP as the difference between these utilities (14.87) multiplied by the utils per euro value of 0.18 obtained above, resulting in a WTP estimate of approximately 2.72 euro for organic materials using non-

rounded utilities. This same approach was applied to estimate WTP for recycled materials and fair-trade certification. Across the sample, respondents are on average willing to pay an additional 8.95 euro for organic materials, 3.75 euro for recycled materials, and 12.64 euro for a fair trade label, compared to their corresponding non-sustainable level.

#### 4.2 Perception of barriers' effect on willingness to pay

Table 4 below presents the correlation matrix, along with the means and standard deviations for the WTP estimates and the other study variables. All correlations are significant, except for WTP\_Organic and bTrust, as well as WTP\_Recycled and bAvailability.

Table 4: Means, standard deviations and correlations amongst study variables

Variable	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
WTP_Organic (1)	8.95	15.87	1								
WTP_Recycled (2)	3.75	13.41	.54**	1							
WTP_Label (3)	12.64	19.72	.59**	.58**	1						
bPrice (4)	4.17	.98	.17*	.24**	.38**	1					
bTrust (5)	3.86	1.14	.13	.20**	.28**	.56**	1				
bSocialNorm (6)	4.74	1.17	.27**	.30**	.30**	.39**	.40**	1			
bPCE (7)	4.75	1.38	.20*	.27**	.30**	.47**	.50**	.59**	1		
bAvailability (8)	4.14	1.15	.17*	.13	.25**	.28**	.21**	.31**	.23**	1	
bKnowledge (9)	3.42	1.27	.18*	.16*	.22**	.37**	.30**	.30**	.32**	.46**	1

\*\* Correlation is significant at the 0.01 level (2-tailed), \* Correlation is significant at the 0.05 level (2-tailed).

To further investigate how consumers' perceptions of barriers influence their WTP for sustainable apparel, a linear model was applied using R. Data was structured in long format to accommodate all three WTP estimates in a single model, with dummy variables indicating each sustainability attribute type (is\_Organic, is\_Recycled, and is\_Label). The WTP estimates served as the dependent variable, while perceptions of the barriers were the primary independent variables along with the interaction effects of interest. Mean-centering was applied to the barriers to reduce possible multicollinearity in interaction terms, allowing clearer interpretation of the main effects by setting each variable's mean to zero, making coefficients reflect deviations from the average. Additionally, gender was included as a

control variable. The model was specified with Gender = Male and is\_Label serving as the reference.

When building the model, variables were added incrementally, starting with a baseline model with gender and dummy variables, followed by the barriers, and finally the interactions. Model fit improved with each step, as indicated by decreasing AIC, BIC, and increasing log-likelihood (see Appendix D for details).

The regression output presented in Table 5, shows that the model accounts for 19 percent of the total variance observed in WTP ( $\text{Adj. } R^2 = .190$ ) with a significant overall F-test ( $F = 10.2, p < .001$ ). The only barriers significantly influencing WTP were the perception of price and social norms, which had a positive and significant effect ( $B = 2.227, p = .025$  and  $B = 1.874, p = .017$ ), therefore  $H_1$  and  $H_4$  are supported. The other barriers, including PCE, trust, availability, and knowledge, did not show any significant effects on WTP, thus  $H_2, H_{3a}, H_5$  and  $H_{6a}$  can be rejected. However, it is noted that  $H_5$  can be supported with a 90% confidence interval, as availability is marginally significant ( $B = 1.359, p = .066$ ).

Regarding the interaction terms, we can observe a positive significant interaction between knowledge and PCE ( $B = 1.244, p < .001$ ) and a negative significant interaction between knowledge and availability ( $B = -1.589, p < .001$ ), of which knowledge moderates the effects of both perceived availability and PCE on WTP (see Appendix E and Appendix F for visualization of interactions). Therefore,  $H_{6b}$  and  $H_{6c}$  are supported. However, no significant interaction was observed between PCE and trust, thus  $H_{3b}$  can be rejected.

A difference in WTP for organic and recycled materials compared to fair trade labels can also be observed, with respondents expressing significantly lower WTP for organic ( $B = -3.633, p = .037$ ) and recycled materials ( $B = -9.017, p < .001$ ). However, no significant difference was observed between male and female respondents. Variance inflation factors (VIF) were also analyzed for all predictors with all being below 2.3, showing that

multicollinearity was not a concern in the model. Table 6 further provides a summary of the results of this study.

Table 5: Regression model of barriers affecting WTP for sustainable apparel

Predictors	B	SE	$\beta$	t	Sig.	VIF
(Intercept)	12.200	1.519		8.032	.000***	
Gender (Female)	1.582	1.534	.046	1.031	.303	1.174
is_Organic	-3.633	1.734	-.100	-2.095	.037*	1.333
is_Recycled	-9.017	1.734	-.249	-5.201	.000***	1.333
bPrice	2.227	.991	.125	2.248	.025*	1.808
bPCE	.215	.783	.017	.274	.784	2.285
bTrust	.646	.836	.043	.773	.440	1.767
bSocialNorm	1.874	.782	.129	2.397	.017*	1.681
bAvailability	1.359	.737	.092	1.844	.066 .	1.430
bKnowledge	.991	.715	.074	1.386	.167	1.651
bPCE * bTrust	.024	.499	.003	0.048	.961	1.576
bPCE * bKnowledge	1.244	.375	.148	3.321	.001***	1.157
bAvailability * bKnowledge	-1.589	.429	-.172	-3.701	.000***	1.252
<b>R<sup>2</sup> = .211</b>		<b>Adj. R<sup>2</sup> = .190</b>		<b>F = 10.2 (p = .000***)</b>		

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05 and . p < 0.1

Table 6: Results of hypotheses

Hypotheses	Results
<b>H<sub>1</sub></b> Lower perceived value for money for sustainable products reduces consumers' WTP.	Supported
<b>H<sub>2</sub></b> Lower PCE reduces consumers' WTP.	Rejected
<b>H<sub>3a</sub></b> Lower trust in sustainability claims reduces consumers' WTP.	Rejected
<b>H<sub>3b</sub></b> Trust moderates the effects of PCE on WTP.	Rejected
<b>H<sub>4</sub></b> Lower importance of sustainability within social circles reduces consumers' WTP.	Supported
<b>H<sub>5</sub></b> Lower perceived availability of sustainable products reduces consumers' WTP.	Rejected
<b>H<sub>6a</sub></b> Lower perceived knowledge about sustainable products reduces consumers' WTP.	Rejected
<b>H<sub>6b</sub></b> Knowledge moderates the effects of perceived availability on WTP.	Supported
<b>H<sub>6c</sub></b> Knowledge moderates the effects of PCE on WTP.	Supported

## 5 Discussion

### 5.1 Theoretical contributions

While numerous studies have explored possible barriers to sustainable consumer behavior, prior research has primarily focused on qualitative assessments of consumer attitudes toward sustainability to identify them. Although these undoubtedly offer valuable insight to literature, a gap in how the perception of these barriers influences WTP in realistic, market-like settings was identified. Thus, by being the first study to combine a conjoint

analysis with a quantitative measure of barriers, this study makes several contributions to literature.

The results reveal only two significant main effects on barriers influencing consumers' WTP. Firstly, consumers' price perception is a significant predictor of WTP, of which respondents who perceived sustainable products as offering good value for money showed a higher WTP than those with lower perceptions. This aligns well with previous research which suggests that the higher price associated with sustainable products are the most critical barrier for consumers, where the price often is not justified by the garment's sustainable attributes (Sheoran and Kumar 2022; Wiederhold and Martinez 2018; Lou and Xu 2024). Similarly, social norms are also a significant predictor of WTP, of which respondents with social circles valuing sustainability and encouraging sustainable behavior report a higher WTP compared to those without such influences. This suggests that social norms can be a barrier for those whose social circles may not be concerned about sustainability, aligned with prior research (Johnstone and Tan 2015; Sheoran and Kumar 2022). While both findings being consistent with previous research, these results provide additional insight by showing that the effect of these barriers also extends to impact consumers' WTP as well.

In contrast, while trust is also considered to be a barrier to some consumers, trust was not a significant predictor for WTP in this study. This provides a different view from Wiederhold and Martinez (2018) and Gleim, Smith, Andrews and Cronin's (2013) findings, where skepticism regarding sustainability claims deterred consumers from purchasing sustainable apparel. A possible explanation for this discrepancy could be that lack of trust may be more targeted toward specific brands. For instance, in Wiederhold and Martinez (2018, 425) study, one participant did particularly not take claims from large fast fashion retailers seriously. However, this could not be examined with how the questionnaire was designed in this study. Overall, the findings still suggest that consumers' trust in firms offering

sustainable products does not significantly impact WTP in general. Additionally, no significant interaction between trust and PCE on WTP was observed, indicating that consumers' perceived effectiveness in contributing to sustainability-related issues through their purchases remains consistent, regardless of their level of trust in the firms providing these products.

As for PCE, availability and knowledge, this study provides some interesting findings. While neither of the barriers had any significant main effects on consumers' WTP for sustainable apparel, providing an alternative perspective to previous research (Lundblad and Davies 2015; Wiederhold and Martinez 2018; Gleim, Smith, Andrews and Cronin 2013; Sheoran and Kumar 2022), the results reveal that knowledge instead moderates both perceived availability and PCE's effect on WTP.

The negative coefficient for the interaction between knowledge and availability suggests that as consumers' knowledge of sustainable products increases, the positive impact of availability on WTP decreases. As seen in Appendix F, knowledgeable consumers are willing to pay slightly more when availability is low, likely perceiving scarcity as enhancing value or reflecting higher prices due to limited supply. This aligns with previous research where product scarcity has shown to increase consumers' WTP (Sun and Teichert 2024, 102). In contrast, the interaction plot shows that less knowledgeable consumers may rely more on availability, with their WTP increasing as perceived availability improves. This is likely due to a lack of experience and motivation to find and purchase these products otherwise when availability is low, thus impacting their WTP differently from more knowledgeable consumers. This provides a more nuanced understanding of Gleim, Smith, Andrews and Cronin's (2013) observation, who observed that clusters with higher levels of knowledge exhibited, amongst others, higher perception of availability and purchase intention for sustainable products.

Knowledge is also shown to positively moderate the effect of PCE on WTP, meaning that knowledgeable consumers who believe their actions make a difference are likely to pay more for sustainable apparel. This suggests that knowledgeable consumers with high PCE may feel more empowered to make sustainable choices, as they are confident that their choices have a positive contribution to sustainability-related issues. This sense of perceived effectiveness, combined with their knowledge, likely reinforces their motivation to purchase sustainable apparel, thus increasing WTP. Conversely, for less knowledgeable consumers, as seen in Appendix E, PCE appears to have a negative effect on WTP as it increases. This may indicate that, while they believe in their ability to make a difference in sustainability-related issues in general, this belief does not extend to their purchasing decisions for sustainable apparel, perhaps due to a lack of understanding or familiarity with such products. These results build on Wang, Ma and Bai (2019), who found that green product knowledge positively impact PCE, highlighting also its moderating role between PCE and WTP.

The moderation effect that knowledge has on both PCE and perceived availability demonstrates that the barriers do not only act in isolation, but also interact with each other. This moves this study beyond the static view of consumers' WTP, offering additional new insights, of which, as pointed out by Bangsa and Schlegelmilch (2020, 10) has been missing in existing literature.

## **5.2 Practical implications**

This study provides several actionable insights for practitioners aiming to promote sustainable products effectively.

Firstly, the perception of price and value for money significantly affects consumers' WTP for sustainable apparel. Prices need to align with the perceived value of the sustainable attributes offered. The results reveal that the average consumer is willing to pay a maximum of 8.95 euro for organic materials, 3.75 euro for recycled materials, and 12.64 euro for a fair

trade label on a sweater. Pricing beyond this may negatively impact demand, as consumers might not perceive the additional cost as justified by its attributes, despite their positive attitudes toward sustainability.

Secondly, beyond addressing pricing, it is also essential to focus on the conventional attributes of sustainable products, as they remain the most important factors driving consumer decisions. The conjoint analysis reveals that labels and material choice are less important compared to price, brand, and style, consistent with previous research (Rausch, Baier and Wening 2021; Schuitema and de Groot 2015). Sustainable products should not compromise on such attributes that are important for consumers' choices, as it may negatively affect the overall perceived value of the product. Therefore, practitioners should ensure that sustainable products satisfy consumers' expectations for conventional attributes while incorporating sustainability as an added value, in alignment with their WTP.

Thirdly, despite social norms being a barrier for some consumers, it can be used to nudge consumers towards making more sustainable choices (White, Habib and Hardisty 2019, 24-25). People are usually a part of multiple social groups with different ways of behaving based on the context we are in (Champniss, Wilson and Macdonald 2015). While their closest social circles, such as family and friends, may not prioritize sustainability, practitioners can still use social norms to encourage sustainable consumer behavior. For example, one study found that informing online shoppers that other consumers were buying sustainable products increased the number of shoppers making at least one sustainable purchase by up to 65% (Demarque, et al. 2015, 172). This highlights the positive impact social norms can have when tied to a specific context, which may be effective for practitioners.

Finally, considering that knowledge moderates the effects of both perceived availability and PCE on WTP, practitioners should focus on educating consumers about sustainable products. Educational efforts could highlight what to look for in sustainable

products, where to find them, and the tangible impact their choices can have. Such efforts may empower consumers and enhance their WTP for sustainable options, thus leading to more purchases.

### **5.3 Limitations and suggestions for future research**

Despite providing valuable insights into the relationship between consumers' WTP for sustainable apparel and their perceptions of barriers to sustainable consumption, this study has limitations that should be acknowledged.

A limitation of this study is the use of convenience sampling and a relatively small sample size for a conjoint study, which may have limited the representativeness of broader consumer segments. By using this method of sampling, there was limited control over who responded to the questionnaire, which has skewed the results. Future research could address this by employing more sophisticated sampling techniques and gathering larger, more representative samples. Additionally, this study focuses exclusively on the apparel industry, limiting the generalizability of the findings to other industries. Future studies could examine if the effect of barriers on WTP varies across different industries, providing a broader contribution to literature. Moreover, given the importance of knowledge in this study, future research could also explore its interactions further, as well as other possible interaction beyond knowledge.

Additionally, while the conjoint analysis simulates purchasing decisions in this study, it may not capture all factors influencing a real decision, such as product appearance, tactile qualities, customer reviews, and additional costs (e.g., shipping fees). Incorporating these elements in future research could offer a more comprehensive understanding of the decision-making process. Furthermore, the algebraic approach used to estimate respondents WTP, which, while effective, tends to overestimate WTP as it does not account for competitive alternatives or the option to opt out of a purchase. According to Orme (2019), incorporating

market competition into WTP calculations, by simulating a realistic marketplace with similar products, leads to more accurate and applicable results. Future research could employ methods like Sampling of Scenarios (SOS) to simulate competitive market conditions, providing more reliable estimates of WTP.

Finally, this study does not capture the full picture of sustainable consumption. For instance, buying organic or sustainability certified apparel may have a limited positive impact if a consumer purchases new items more frequently compared to someone who prioritizes durability or secondhand apparel. Factors like purchase frequency and post-purchase behavior (e.g., product usage, disposal, or recycling) are also important in evaluating the sustainable aspects of a purchase. Future research could explore these dimensions for a more complete understanding of sustainable consumer behavior and the effect of the barriers.

## **6 Conclusion**

Multiple qualitative studies have identified various barriers that limit consumers' ability to purchase sustainable products, providing an explanation for the well documented attitude-behavior gap within literature. This study builds on this foundation, using conjoint analysis to explore how consumers' WTP for sustainable apparel is affected by their perceptions of these barriers. Results show that, while most barriers had limited main effects, price perception and social norms emerged as significant predictors of WTP. Additionally, consumers' knowledge about sustainable products moderates the effects of both perceived availability and PCE on WTP. The negative interaction between knowledge and availability indicates that knowledgeable consumers exhibit slightly higher WTP when availability is low, while less knowledgeable consumers' WTP increases when availability is greater. In contrast, the positive interaction between knowledge and PCE indicates that knowledgeable consumers are willing to pay more when their PCE is high compared to when it is low. For less knowledgeable consumers, however, higher PCE appears to negatively affect their WTP.

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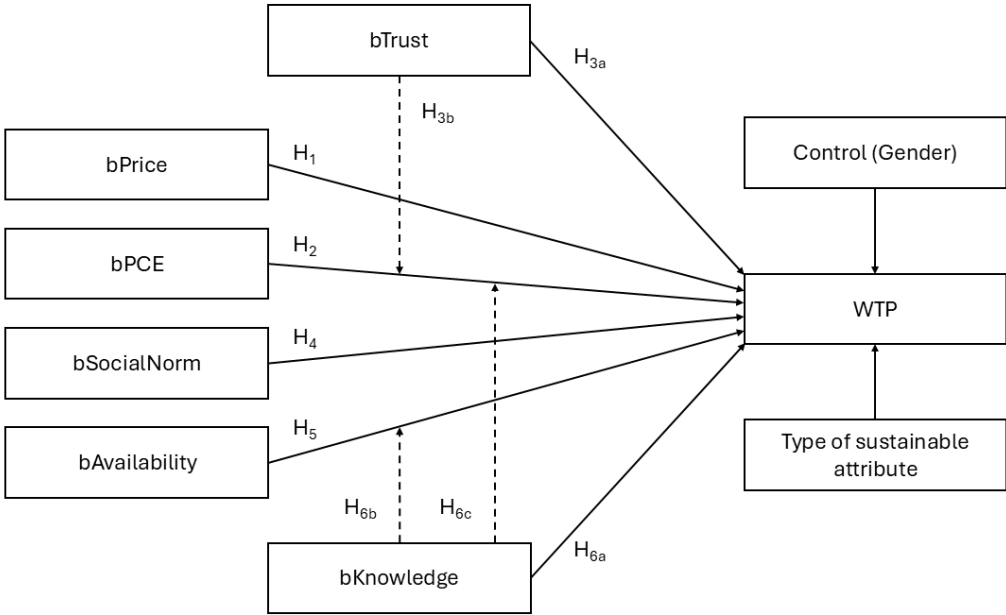
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**Appendix A: Research model**



## Appendix B: Descriptive statistics of sample

Demographic Variable	Frequency	Percentage
Gender		
Male	80	51.0
Female	77	49.0
Total	157	100.0
Age		
18-24	64	40.0
25-34	61	38.1
35-44	16	10.0
45-54	13	8.1
55-64	5	3.1
65+	1	0.6
Total	160	100.0
Education		
High school	23	14.4
Bachelor's degree	83	51.9
Master's degree	53	33.1
Other	1	0.6
Total	160	100.0
Employment		
Full-time	78	48.8
Part-time	11	6.9
Contract or temporary	9	5.6
Retired	2	1.3
Unemployed	1	0.6
Student	57	35.6
Unable to work	1	0.6
Other	1	0.6
Total	160	100.0
Income		
Less than 15.000 Euro	26	16.3
15.000 – 30.000 Euro	26	16.3
30.000 – 45.000 Euro	14	8.8
45.000 – 60.000 Euro	24	15.0
60.000 - 75.000 Euro	21	13.1
75.000 - 90.000 Euro	13	8.1
More than 90.000 Euro	36	22.5
Total	160	100.0
Nationality		
Armenia	1	0.7
Austria	1	0.7
Bangladesh	1	0.7
Belgium	1	0.7
China	1	0.7
Colombia	1	0.7
Denmark	2	1.4
Finland	1	0.7
France	1	0.7
Germany	15	10.2
India	2	1.4
Italy	3	2.0
Madagascar	1	0.7
Netherlands	2	1.4

Nigeria	1	0.7
Norway	85	57.8
Philippines	1	0.7
Poland	1	0,7
Portugal	10	6.8
Singapore	1	0.7
South Africa	1	0.7
Sweden	1	0.7
United Kingdom	1	0.7
United States	12	8.2
Total	147	100.0

Note: The total across variables varies as some were missing, thus the percentages are of the valid responses.

## Appendix C: Measurement of barriers, scale sources and reliability results

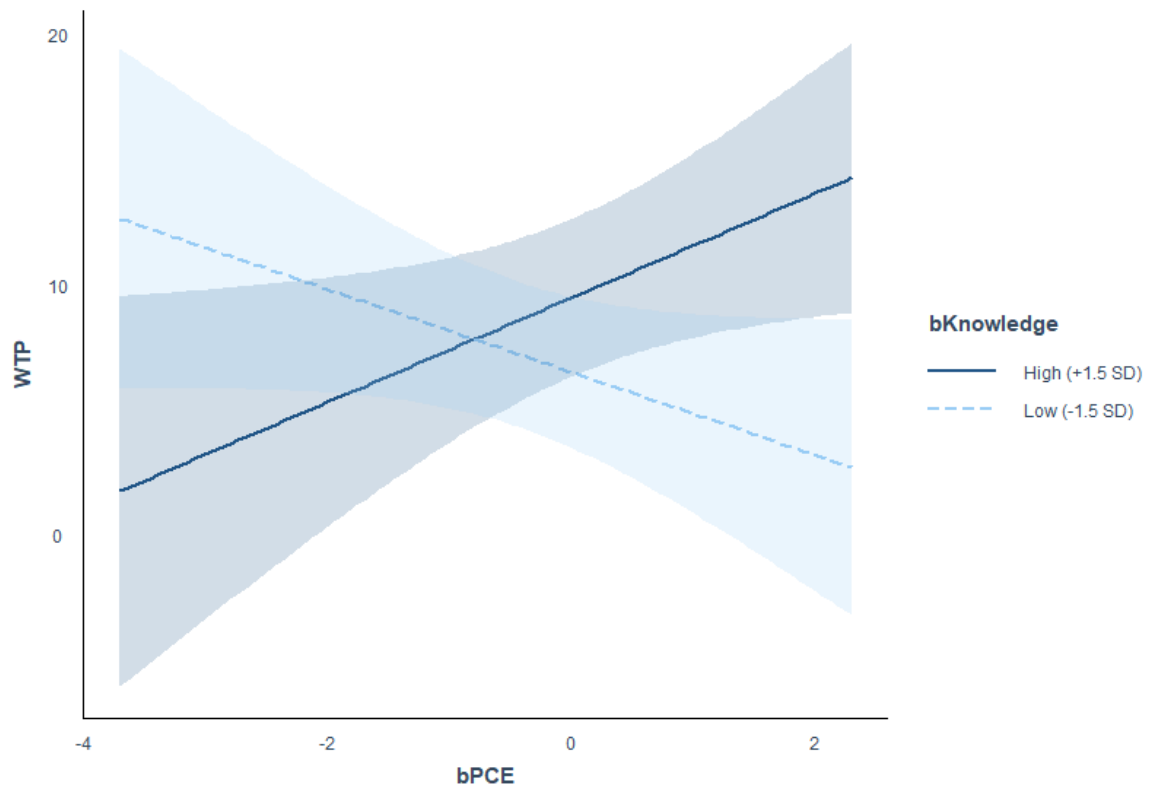
Measure	Items	Sources	Cronbach's Alpha
bPrice	<ul style="list-style-type: none"> <li>Based on the price, sustainable products are very economical.</li> <li>Sustainable products are good value for money.</li> <li>Sustainable products are a good buy.</li> <li>I do consider the price for sustainable products to be acceptable.</li> <li>Sustainable products are a bargain.</li> <li>The value of sustainable products is a bargain.</li> </ul>	Adapted by Gleim, Smith, Andrews and Cronin (2013) from Dodds, Monroe and Grewal (1991)	.767
bTrust	<ul style="list-style-type: none"> <li>Firms that produce sustainable products can be depended on to do what is right.</li> <li>Firms that produce sustainable products are competent.</li> <li>Firms that produce sustainable products can be trusted at all times.</li> </ul>	Adapted by Gleim, Smith, Andrews and Cronin (2013) from Morgan and Hunt (1994)	.722
bSocialNorm	<ul style="list-style-type: none"> <li>People I know buy sustainable products.</li> <li>People I know are concerned about issues related to the environment.</li> <li>People I know think it's important to buy sustainable products.</li> <li>People I know recycle those items that can be recycled.</li> </ul>	Adapted by Gleim, Smith, Andrews and Cronin (2013) from Spangenberg, Sprott, Grohmann and Smith (2003)	.780
bPCE	<ul style="list-style-type: none"> <li>It is worthwhile for the individual consumer to do something about pollution.</li> <li>When I buy products, I try to consider how my use of them will affect the environment.</li> <li>Since one person can have an effect on pollution, it makes a difference what I do.</li> </ul>	Adapted by Gleim, Smith, Andrews and Cronin (2013) from Webster (1975)	.795
bAvailability	<ul style="list-style-type: none"> <li>I can easily determine where I can purchase sustainable products.</li> <li>Buying sustainable products is convenient.</li> <li>Sustainable products are easy to find.</li> <li>I know where to find sustainable products.</li> <li>Sustainable products are readily available.</li> </ul>	Adapted by Gleim, Smith, Andrews and Cronin (2013) from Yoo, Donthu and Lee (2004)	.854
bKnowledge	<ul style="list-style-type: none"> <li>I have a great deal of knowledge about sustainable products.</li> <li>I consider myself an expert on sustainable products.</li> <li>I have a great deal of experience with sustainable products.</li> <li>I generally know more than my friends about sustainable products.</li> </ul>	Adapted by Gleim, Smith, Andrews and Cronin (2013) from Sharma and Patterson (2000)	.864

## Appendix D: Model building and fit statistics

<b>Model</b>	<b>Components</b>	<b>AIC</b>	<b>BIC</b>	<b>LL</b>
M1	Gender + Dummies	3986.125	4006.899	-1988.062
M2	M1 + Barriers	3943.814	3989.518	-1960.907
M3	M2 + Interactions	3924.870	3983.038	-1948.435

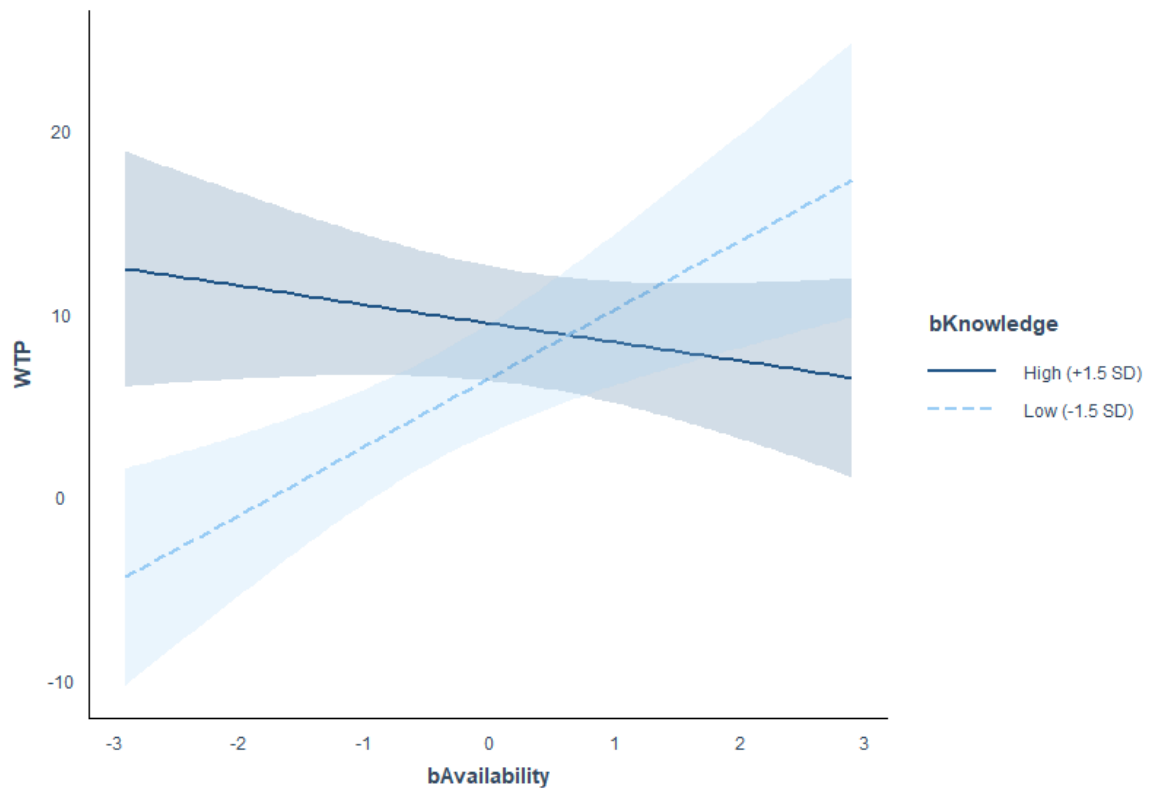
Note: Dummies refers to is\_Organic and is\_Recycled

## Appendix E: Interaction between Knowledge and PCE on WTP



Note: High and low knowledge levels were defined as +/- 1.5 standard deviations. The shaded parts represent 95 percent confidence intervals.

## Appendix F: Interaction between Knowledge and Availability on WTP



Note: High and low knowledge levels were defined as  $\pm 1.5$  standard deviations. The shaded parts represent 95 percent confidence intervals.

## Appendix G: Questionnaire design

### (1/3) CONJOINT

In the next section, you will be asked to imagine that you are purchasing a sweater.

For each task, you'll see three different sweater options with different features. Your goal is to choose the one you would most likely buy.

There are 11 tasks in total, and you'll select one option in each. If none fits your criteria, you also have a 'none' option.

These are the features you will be presented with:

- **Price:** The cost of the sweater, ranging from 45 to 90 Euro.
- **Brand:** An unknown brand is unfamiliar to most consumers, a popular brand is widely recognized, and a premium brand is associated with higher quality.
- **Style:** Classic garments are timeless and never go out of style, comfortable prioritize comfort and ease of movement, while fashionable reflect current trends.
- **Material:** Organic materials are more environmental-friendly and recycled materials helps reduce waste, as opposed to standard materials.
- **Sustainability label:** A fair-trade label ensures ethical working conditions and fair wages for workers.

**Imagine you are in the market for a new sweater and these were the only options, which one would you choose? (pick only one)**

*Example of Conjoint task*

#### TASK 1/11

Price	45 Euro	60 Euro	75 Euro
Brand	Unknown brand	Popular brand	Premium brand
Style	Classic/Timeless	Comfortable	Fashionable
Material	Standard materials	Organic materials	Recycled materials
Sustainability label	Fair trade certified	No label	Fair trade certified
	Select	Select	Select

None, I wouldn't choose any of these.

Select

## (2/3) STATEMENTS

In the next section, you will be asked to rate various statements based on your own perception. **This part is not related to the previous scenario.**

There will be **five pages** of statements. Try to answer as honestly as possible.

### Statements (7-point Likert scales):

- Price
  - Based on the price, sustainable products are very economical.
  - Sustainable products are good value for money.
  - Sustainable products are a good buy.
  - I do consider the price for sustainable products to be acceptable.
  - Sustainable products are a bargain.
  - The value of sustainable products is a bargain.
- Trust
  - Firms that produce sustainable products can be depended on to do what is right.
  - Firms that produce sustainable products are competent.
  - Firms that produce sustainable products can be trusted at all times.
- Social Norms
  - People I know buy sustainable products.
  - People I know are concerned about issues related to the environment.
  - People I know think it's important to buy sustainable products.
  - People I know recycle those items that can be recycled.
- PCE
  - It is worthwhile for the individual consumer to do something about pollution.
  - When I buy products, I try to consider how my use of them will affect the environment.
  - Since one person can have an effect on pollution, it makes a difference what I do.
- Availability
  - I can easily determine where I can purchase sustainable products.
  - Buying sustainable products is convenient.
  - Sustainable products are easy to find.
  - I know where to find sustainable products.
  - Sustainable products are readily available.
- Knowledge
  - I have a great deal of knowledge about sustainable products.
  - I consider myself an expert on sustainable products.
  - I have a great deal of experience with sustainable products.
  - I generally know more than my friends about sustainable products.

### **(3/3) DEMOGRAPHICS**

#### **What is your gender?**

- Male
- Female
- Prefer not to say

#### **What is your age?**

- Under 18
- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65+ years old

#### **What is the highest degree of school you have completed?**

- Primary school
- High school
- Bachelor's degree
- Master's degree
- Doctoral degree
- Other

#### **What is your employment status?**

- Full-time
- Part-time
- Contract or temporary
- Retired
- Unemployed
- Student
- Unable to work
- Other

#### **What is your annual household income?**

- Less than 15,000 Euro
- 15,000 – 30,000 Euro
- 30,000 – 45,000 Euro
- 45,000 – 60,000 Euro
- 60,000 – 75,000 Euro
- 75,000 – 90,000 Euro
- More than 90,000 Euro

#### **What is your nationality? (Country)**

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