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Journal of Product & Brand Manag

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Journal:	*Journal of Product & Brand Management*
Manuscript ID	JPBM-09-2020-3091.R2
Manuscript Type:	Regular Paper
Keywords:	Sustainable luxury products, Perceived scarcity, Attitude-behavior relation, Product attitude, Willingness to pay, Sustainable marketing, Luxury branding

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ABSTRACT

Purpose – This study was designed to examine whether, and how, perceived product scarcity strengthens the attitude-behavior relation in the case of sustainable luxury products.

Design/methodology/approach – Three online studies were conducted to examine the moderating role of perceived product scarcity on the attitude-willingness to pay (WTP) relationship in the case of sustainable luxury products. A preliminary study (n = 208) examined the existence of an attitude-WTP gap toward a sustainable luxury product (i.e. a bag). Study 1 (n = 171) investigated the moderating effect of perceived scarcity induced by a limited quantity message on the relationship between consumer attitude and the WTP for a sustainable luxury product (i.e. a pair of shoes). Study 2 (n = 558) replicated these findings using a different product category (i.e. a wallet) while controlling for demographic variables and examined the moderating role of consumer characteristics on the scarcity effect.

Findings – Consumers' perceived scarcity for sustainable luxury products positively moderated the relationship between product attitudes and their WTP for the products. The moderating effect of perceived scarcity was significant for consumers regardless of their tendency toward socially responsible consumption and their preference for product innovativeness. Meanwhile, the scarcity effect was influenced by the consumers' attitude toward the brand of sustainable products.

Practical implications – This research provides empirical evidence for marketers with clear managerial implications concerning how to immediately promote consumers' acceptance of sustainable luxury products.

Originality/value – This study is the first to examine the role of scarcity strategy on strengthening the attitude-behavior relation for sustainable luxury products.

Keywords: Sustainable luxury products, Perceived scarcity, Attitude-behavior relation, Product attitude, Willingness to pay, Sustainable marketing, Luxury branding

Paper type: Research paper

Introduction

With consumer concerns around a host of environmental issues growing, many luxury fashion brands are turning their attention toward issues of environmental sustainability by promoting ethical and sustainable products and practices (e.g. Edinger-Schons *et al.*, 2018; Gurzki and Woisetschläger, 2017; Pino *et al.*, 2019). LVMH, the owner of luxury fashion brands such as Louis Vuitton and Christian Dior, has built a robust sustainability program called LIFE (LVMH Initiatives for the Environment) that focuses on the full life cycle of products from supply chain to production excellence to designing longer-lasting and repairable products (Winston, 2017). Meanwhile, Gucci offers an eco-friendly model of its sunglasses using 'liquid wood', promoted as a biodegradable alternative to plastic (e.g. De Angelis *et al.*, 2017; Dekhili *et al.*, 2019). Other luxury brands, such as Stella McCartney and Yves Saint Laurent, have also started to use eco-friendly raw materials in recent years.

While the market for sustainable luxury products has grown continuously to meet the need for green consumerism, previous studies have highlighted the difficulty associated with trying to integrate the concept of sustainability with that of luxury (e.g. Achabou and Dekhili, 2013; Beckham and Voyer, 2014; Dekhili *et al.*, 2019; Eastman *et al.*, 2021; Han *et al.*, 2017). Additionally, and importantly, a considerable body of research now indicates the existence of a large attitude-behavior gap in the case of sustainable luxury consumption (e.g. Bray *et al.*, 2011; Davies *et al.*, 2012; Joergens, 2006; Joy *et al.*, 2012). That is, while many luxury consumers show an increased interest in issues of sustainability as well as unethical behaviors by luxury brands, most of them still tend to be reluctant to purchase sustainable luxury products. Similarly, a number of studies have identified the above-mentioned attitude-behavior gap and emphasized that it represents one of the most important challenges to be addressed as far as the establishment of

sustainable luxury products is concerned (e.g. Beckham and Voyer, 2014; Dekhilli *et al.*, 2019). As yet, though, surprisingly little attention has been paid to how to close the attitude-behavior gap in the case of sustainable luxury consumption (Aagerup and Nilsson, 2016; Athwal *et al.*, 2019).

A number of previous sustainable luxury studies dealing with the attitude-behavior gap (e.g. Jain 2020, Zhang and Kim, 2013) have relied on the theory of planned behavior (Ajzen, 1991, 2020) while emphasizing the importance of consciousness for sustainability (e.g. how to perceive ethical norms and self-efficacy for sustainable behaviors) to reduce the attitude-behavior gap in sustainable luxury consumption. However, although consumers have gradually become interested in ethical values as a result of greater exposure to sustainable products, increasing the consumers' sustainable consciousness enough to trigger a social trend of sustainable luxury consumption likely requires sustained communicational efforts and a great deal of time for consumer education and persuasion. In addition and importantly, recent studies have revealed that although other factors (e.g. symbolic sustainable luxury consumption as a self-expression) beyond consumer's attitudes, values, and norms for sustainability may have significant effects on sustainable luxury purchase behaviors, the research findings are still very limited (Athwal *et al.*, 2019. Eastman *et al.*, 2021).

To fill the research gaps in the literature, this study focuses on product scarcity as a novel product/marketing factor and examines whether the perceived scarcity for sustainable luxury products influences the attitude-willingness to pay (WTP) relation for those products.

Across three experiments, we first confirmed the attitude-WTP gap for the sustainable luxury product indicating that although the consumer's attitude toward a sustainable luxury product is as favorable as that of a non-sustainable version of the same product, this attitude does not translate into an increased WTP for the product (Preliminary study). Importantly, we also demonstrate that the perceived scarcity induced by the limited quantity message (vs. no message)

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for the sustainable luxury product positively moderates the attitude-WTP relation for the products (Studies 1 and 2). Furthermore, we identify that the moderating effect of perceived scarcity holds when controlling for demographic variables (such as age, gender, education, and annual income) and regardless of the consumer's tendency toward socially responsible consumption and their preference for innovative products (Study 2).

The findings reported here contribute to the literature on sustainable luxury by demonstrating that adopting a scarcity strategy for sustainable luxury products can impact their acceptance by strengthening the attitude-WTP relation. While previous studies have mainly examined the influence of consumer factors (e.g. sustainability consciousness) on the attitude-behavior relation, our study provides evidence that product scarcity as one of product/marketing factors also has a crucial role in strengthening the relation for sustainable luxury products. In addition, our study suggests that product scarcity strategy may have an immediate effect for a wide array of consumers on the acceptance of sustainable luxury products without having to wait for the development of consumers' awareness concerning sustainability. Thus, our findings add new insight into the scarce literature on strengthening the attitude-behavior relation for sustainable luxury products and promoting sustainable luxury purchases.

Theoretical background

Luxury and sustainability

Although it is difficult to precisely define what luxury is, the literature describes it as something that is related to concepts such as excellence, exclusiveness, expensiveness, uniqueness, aesthetics, hedonism, and sensuality (e.g. Athwal *et al.*, 2019; Kapferer, 1998; Ko *et al.*, 2019; Vigneron and Johnson 2004). According to Ko *et al.* (2019), previous studies that have examined

luxury consumption have focused mainly on the following three aspects: (1) luxury status/value (e.g. examining how luxury consumption is influenced by personal and cultural values); (2) luxury consumer behavior (e.g. exploring potential motives for luxury consumption); and (3) luxury product/brand management (e.g. investigating how firms can manage luxury brands such as in terms of brand equity, pricing, segmentation strategies, and promotion). The primary interest of the present study falls into the research areas of luxury product/brand management and luxury consumption with a focus on sustainable luxury products.

Sustainability is defined as "an approach to business that considers economic, environmental and social issues in balanced, holistic, and long-term ways that benefit current and future generations of concerned stakeholders" (de Lange *et al.*, 2012, p. 151). Sustainability has become a much more mainstream issue in management, marketing, and consumer research in recent years (de Lange *et al.*, 2012; see Lunde, 2018 for a detailed review on sustainability in marketing). Sustainable marketing refers to the strategic creation, communication, delivery, and exchange of offerings that produce value through consumption behaviors and business practices while, at the same time, reducing environmental harm and ethically and equitably increasing the quality of life and well-being of all stakeholders involved (Lunde 2018).

Although no established definition for sustainable luxury exists, this concept can be understood as "returning to the essence of luxury with its ancestral meaning, to the thoughtful purchase, to the artisan manufacturing, to the beauty of materials in its broadest sense and to the respect for social and environmental issues" (Gardetti and Torres, 2013, p. 58). Whether sustainability is compatible with the concept of luxury is something of a controversial issue in the literature (e.g. Achabou and Dekhili, 2013; Kapferer and Michaut-Denizaeu, 2014). Some have argued that sustainability and luxury are compatible since the main constructs of luxury concepts

such as high quality, superior durability, and scarcity are favorable to encourage reasonable and moderate consumption and contribute to protecting the environment through the sustainable use of natural resources (e.g. Cervellon, 2013; Hennigs et al., 2013). Many other researchers, meanwhile, view luxury and sustainability as antagonistic concepts since luxury is associated with ostentation, affluence, personal satisfaction, and hedonism while sustainability is more related to ethics, restraint, moderation, and altruism (e.g. Beckham and Voyer, 2014; Davies *et al.*, 2012; De Angelis *et al.*, 2017; Dekihli *et al.*, 2019; Han *et al.*, 2017). Studies of luxury also point to the fact that the consumers of luxury products tend to have little interest in sustainable luxury and seldom associate those products with prestige and high quality (Achabou and Dekihli, 2013; Beckham and Voyer, 2014). Thus, while the need for luxury companies' compliance with the sustainability principles has increased along with the heightened social interest in green and ethical consumption, the conceptual incompatibility between luxury and sustainability makes it difficult to result in favorable consumer responses toward sustainable luxury products.

Attitude-behavior gap in sustainable consumption

Generally-speaking, attitudes, which refer to our overall evaluation of people, objects, or issues, are regarded and identified as a crucial predictor of actual behavior (e.g. Glasman and Albarracín, 2006; Tormala and Briñol, 2015). However, a considerable body of research has pointed to the existence of a large attitude-behavior gap in the domain of sustainable consumption (e.g. Auger and Devinney, 2007; Carrington, *et al.*, 2014; Dekhili *et al.*, 2019; Han *et al.*, 2017; Johnstone and Tan, 2015; Nguyen *et al.*, 2019; Park and Lin, 2020), suggesting purchase intentions toward sustainable products may not translate into actual purchasing behavior. In other words, although a growing number of consumers express a great deal of interest in, and positive attitudes

toward sustainable consumption, most consumers rarely translate their favorable attitudes toward sustainable products into actual purchase behavior.

The theory of planned behavior proposed by Icek Ajzen (Ajzen, 1991, 2020) is the most widely adopted theory for explaining sustainable purchase behavior (Biswas and Roy, 2015; Hanss *et al*., 2016). According to Ajzen (1991, 2020), sustainable behavior is predicted by the strength of behavior intention, which is determined not only by the attitude toward the behavior (i.e. the degree to which a person has a favorable or unfavorable evaluation of the behavior in question), but also by subjective norms (i.e. perceived social pressure to perform or not to perform the behavior), and perceived behavioral control (i.e. the perceived ease or difficulty of performing the behavior). This theory has been applied in broad areas of sustainable behaviors such as the purchase of groceries (e.g. Hanss et al., 2016; Vermeir and Verbeke, 2008), recycling (e.g. Kaiser and Gutscher, 2003), and behaviors for addressing air pollution (e.g. Kaiser *et al*., 1999). Some sustainable luxury consumption also adopted the framework (e.g., Jain, 2019, 2020; Zhang and Kim, 2013) to examine those factors affecting sustainable luxury purchase behavior. For example, Jain (2020) demonstrated that consumers' subjective norm and perceived behavioral control for luxury fashion goods were positively related to the purchase intentions for those goods. A line of sustainable studies based on the theory of planned behavior suggests that increasing the consumer's consciousness for sustainability is a critical factor contributing to reducing the gap and thus encouraging the purchase of sustainable products (e.g. Klöckner, 2013; Liu *et al.*, 2012; Nguyen *et al.*, 2019).

The attitude-behavior gap for sustainable consumption seems more prominent for fashion items than for dairy products (e.g. foods) since consumers tend to prioritize self-expressive value (e.g. fashionability) over sustainable value (e.g. eco-friendliness) in their purchase of fashion

products (Carrigan and Attalla, 2001; McNeil and Moore, 2015). Moreover, such an attitude-behavior gap is much greater in the luxury fashion sector as consumers expect that luxury (vs. non-luxury) fashion items have more prominent self-expressive value and are of superior quality (Acabou and Dekhili, 2013; Davis *et al.*, 2012; Joergens, 2006). Although many luxury consumers express an increased interest in social issues of sustainability and sustainable consumption, they nevertheless still tend to be reluctant to purchase high-priced sustainable luxury products (e.g. Beckham and Voyer, 2014; Cervellon, 2013; Dekhilli *et al.*, 2019; Kapferer and Michaut-Denizeau, 2014). In other words, even if consumers have a favorable attitude toward sustainable products, this does not seem to translate into a WTP for the products concerned (De Pelsmacker *et al.*, 2005; Ha-Brookshire and Norum, 2011; King and Bruner, 2000).

Given the above arguments, it was expected that the attitude-behavior gap would be larger for a sustainable (vs. non-sustainable) luxury product. More specifically, we expected that the influence of attitude toward a sustainable (vs. non-sustainable) luxury product on the WTP for the product will be weaker. Therefore:

H1: Product attribute (non-sustainable vs. sustainable) will moderate the relationship between attitude toward a luxury product and the WTP for the product.

Scarcity effect and luxury products

The value of a product is not only determined by the functional utility of its attributes, but also by the product's availability in the marketplace (Lynn, 1991). Scarcity can be defined as a real, or perceived, threat to the consumer's ability to meet his or her needs and desires due to the lack of access to goods, services, or resources (Hamilton *et al.*, 2019). Previous marketing studies

have revealed that scarcity messages for product promotion make the consumer feel that limited products are special and valuable, and thus, positively affect product evaluation and purchase intent (e.g. Goldsmith *et al*., 2020; Gupta and Gentry, 2019; Hamilton *et al.*, 2019; Wu and Lee, 2016; for a review, see Shi *et al.*, 2020). Marketers can increase the consumer's perception of product scarcity either by restricting the available quantity of products (e.g. limited edition) or by restricting the time available for purchasing the products (e.g. only available until…) (Aggarwal *et al.*, 2011; Gierl *et al.*, 2008; Jang *et al.*, 2015). While both types of scarcity may increase the consumer's positive responses (e.g. in terms of product evaluation, purchase intent) to target products, the effect on the consumer's response tends to be greater under conditions of quantity scarcity than under conditions of time scarcity (Aggarwal *et al.*, 2011; Jang *et al.*, 2015). The reason for this being that quantity scarcity messages are thought to create a greater sense of consumer competition (as compared to time scarcity messages) and therefore generate a more positive consumer response to target products (Aggarwal *et al.*, 2011).

Previous studies suggest that the effect of perceived scarcity on creating positive consumer responses (e.g. product attitude, perceived value, and purchase intent) is greater for luxury products than for non-luxury products (Gierl and Huettl, 2010; Jang *et al.*, 2015; Wu and Lee, 2016). For example, Gierl and Heuttl demonstrated that the effect of product scarcity due to limited supply on product attitude was larger for conspicuous products (e.g. a wristwatch) than for those that are less conspicuous (e.g. an electric iron). As mentioned above, the perceived scarcity of a product makes consumers feel that the product is somehow special and valuable (e.g. Aggarwal *et al*., 2011; Hamilton *et al.*, 2019). Relatedly, concepts such as excellence, exclusiveness, uniqueness are core constructs of luxury (e.g. Kapferer 1998; Vigneron and Johnson 2004) and consumers tend to associate scarcity cues with luxury and a high price (e.g. Hwang *et al.*, 2014; Wu and Lee 2016).

Taken together, these studies suggest that perceived product scarcity contributes to strengthening the attitude-behavior relation for luxury products. Although no previous study has examined the role of product scarcity in the context of sustainable luxury, Shin *et al.*'s (2017) findings may be taken to suggest that the effect of product scarcity on consumer responses to luxury products is prominent in sustainable luxury products. Shin and colleagues demonstrate that in a brand dilution condition (e.g. a luxury brand conducts a downward brand extension in order to capture a broader range of consumers), the limited edition product enhances consumer evaluations for the luxury brand. The situation of introducing a sustainable line of a luxury brand is similar to that of a downward brand extension as the sustainable line (e.g., a product made of recycled material) may end-up diluting the core constructs of luxury such as excellence and high quality. Therefore:

H2: Perceived scarcity for a sustainable luxury product will moderate the relationship between the product attitude and WTP for the luxury product.

Consumer variables as moderated moderators

Socially responsible consumption refers to "a person basing his or her acquisition, usage, and disposition of products on a desire to minimize or eliminate any harmful effects and maximize the long-run beneficial impact on society" (Mohr *et al.,* 2001, p. 47). Similarly, Webb *et al.* (2008) have suggested that socially responsible consumer behavior consists of the following three dimensions: (1) purchasing based on a firm's corporate social responsibility performance, (2) recycling, and (3) avoidance of and/or reduced use of products based on their environmental impact. As socially responsible consumers are expected to put greater value on environmentally-friendly products themselves than on marketing incentives (e.g. price discount) for the products

(Roberts, 1995; Webb *et al.*, 2008), it is expected that the effect of perceived scarcity for a sustainable luxury product on the attitude-WTP relation will be weaker for consumers with a high (vs. low) tendency to engage in socially responsible consumption. Therefore:

H3: The consumers' tendency toward socially responsible consumption will moderate the moderating effect of perceived scarcity for a sustainable luxury product on the relationship between product attitude and the consumer's WTP for the product.

Consumer innovativeness is defined as a "predisposition to buy new and different products and brands rather than remain with previous choices and consumer patterns'' (Steenkamp *et al.*, 1999, p. 56). Consumer innovativeness is positively related to the concepts of novelty-seeking and the need for uniqueness (Roehrich, 2004). Exclusive, rare, and unique products from luxury brands are used to meet the consumers' need for uniqueness (Tian *et al.*, 2001). Additionally, a strong need for uniqueness is associated with a higher tendency to adopt new products and brands (e.g. Snyder, 1992, Snyder and Fromkin, 1977). Thus, we expected that consumers with high (vs. low) neophilia may perceive sustainable luxury products to be more valuable in terms of satisfying their needs for novelty seeking and uniqueness. This leads to:

H4: Consumer innovativeness will moderate the effect of perceived scarcity for a sustainable luxury product on the relationship between the product attitude and WTP for the product.

Brand attitude refers to an individual's overall evaluation of a brand (Mitchell and Olson, 1981). The consumers' attitude toward a brand is a key component of brand equity and largely

influences the perceived value of a brand (Aaker and Jacobson, 2001). Research on luxury brands has shown that the attitude toward luxury brands not only positively influences the perceptions of functional value (e.g. perceived quality) but also symbolic value (e.g. value for those seeking status) for the brands and the increased value perceptions succeed in influencing the purchase intention toward the brands (Chattalas and Shukla, 2015; Salehzadeh and Pool, 2017). It was therefore expected that the consumers' brand attitude and the perceived scarcity of the product might interact to determine the overall perception of the value of the product and thus that the interaction may influence the attitude-behavior relation for the product. Accordingly:

H5: Brand attitude will moderate the effect of perceived scarcity for a sustainable luxury product on the relationship between the product attitude and WTP for it.

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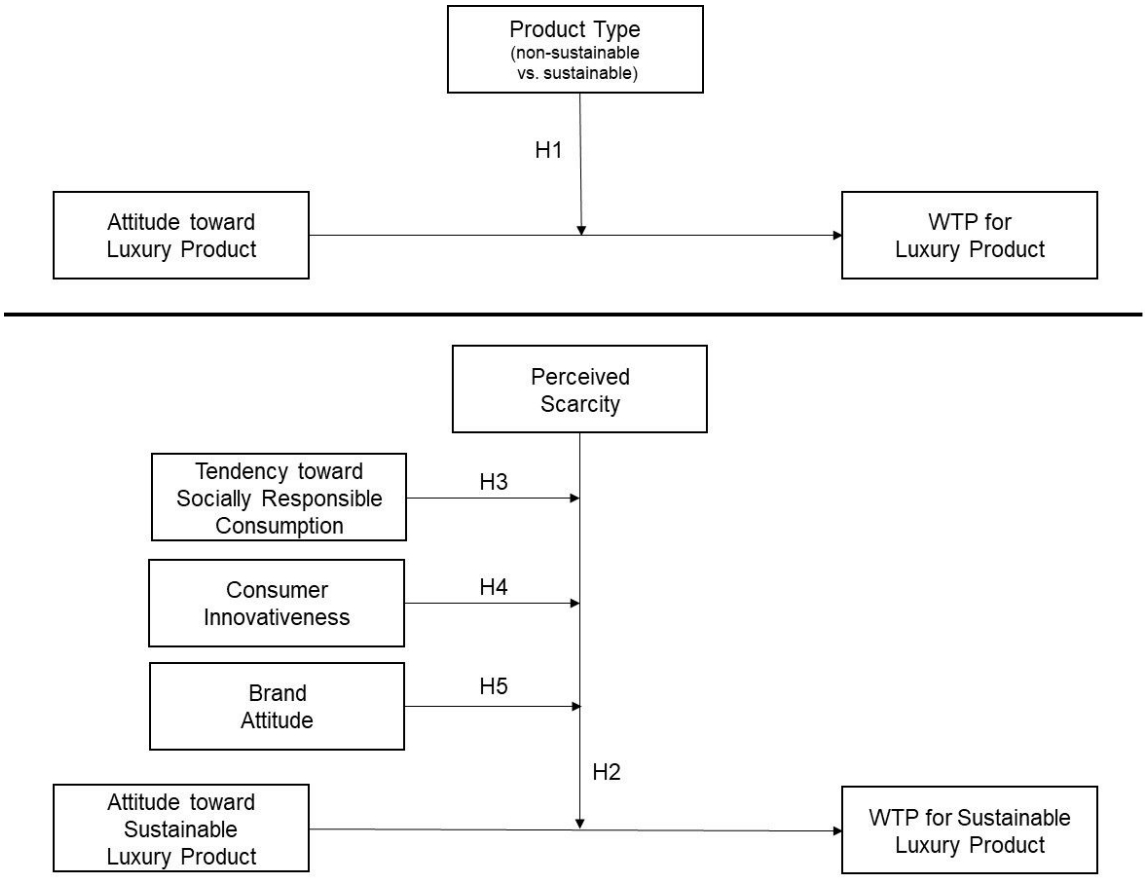

Figure 1. Research Model. The upper model illustrates the moderating role of product type (non-sustainable vs. sustainable) on the attitude-WTP relation for a luxury product. The lower model illustrates the moderating role of perceived scarcity on the attitude-WTP relation for a sustainable luxury product and consumer variables that are expected to moderate the effect of perceived scarcity on the attitude-behavior relation.

Preliminary study

A preliminary study was conducted in order to establish the existence of an attitude-behavior gap for a sustainable luxury product. Specifically, we investigated whether and how the

use of recycled leather (vs. the finest quality leather) for a luxury bag would affect the consumer's response to the bag.

Methods

The participants in all three studies were recruited online from the Yahoo Crowd Sourcing service. To examine the influence of using sustainable materials on the consumer responses to the luxury bag, two fictitious versions of the product flyer for a Louis Vuitton bag were created: one non-sustainable (i.e. made of leather) and the other sustainable (made of recycled leather) conditions of the bag (see Figure 2).

We chose Louis Vuitton as a luxury brand for all of the product stimuli used here. One reason for this being that as Louis Vuitton is the most valuable and famous global brand in the luxury sector (Interbrand, 2020), most consumers were expected to recognize it as a representative luxury brand. The other reason is that, as mentioned above, LVMH is a leader in the luxury category with its robust sustainability program (Winston, 2017).

The environmental dimension was used to manipulate sustainability in all three of the studies reported here. Since exceptional quality is a major motivation for the consumption of luxury products (Kapferer and Michaut-Michaut, 2015; Vigneron and Johnson, 2004), poor perceived quality for eco-friendly luxury can be a major reason for a reluctance to buy sustainable luxury products (Dekhili *et al.*, 2019). Thus, it was expected that the perceived luxury-sustainability contradiction would be greater for sustainable luxury products that are associated with environmental sustainability (e.g. using recycled materials) than for those products that are related to the social dimension of sustainability, such as, for example, labor conditions. Thus, we judged the environmental dimension as appropriate for examining the attitude-behavior gap and its solution for the sustainable consumption of luxury.

In this preliminary study, a business bag was chosen because most luxury brands provide such items as one of their main product lines and because bags are suitable for manipulating sustainability in terms of the product materials used.

A one-factor (luxury brand conditions: non-sustainable vs. sustainable) between-participants experimental design was used. Two hundred and eight participants were recruited for the preliminary study[1]. Females comprised 26% of the respondents, who ranged in age from 24 to 65 years with a mean of 47.2 years. The participants were randomly assigned to either condition. The participants first had to view the product flyer carefully. They were then asked to rate perceived quality, product attitude, and their WTP for the luxury bag. Perceived quality was measured on a 7-point scale (1 = overall poor quality, 7 = overall excellent quality) that was adapted from Han (1990). Product attitude was measured with four 7-point bipolar scales (unfavorable−favorable; negative−positive; bad−good; dislike very much−like very much; $\alpha = .96$) adapted from Hagtvedt and Patrick (2008). WTP was measured using an open-ended question ("What is the highest price you would be willing to pay for this product?) adapted from Simonson and Drolet (2004). The participants had to indicate their WTP for the bag in JPY. As a manipulation check, the participants had to rate the perceived eco-friendliness of the bag with a 7-point item (1 = not at all eco-friendly, 7 = very eco-friendly). As an attention check, they were also required to choose the correct answer indicating the material used for the bag (1 = leather, 2 =

[1] Note that *a priori* power analyses using G*power 3.1 (Faul *et al.*, 2007) for all experimental designs indicated that the number of recruited participants in all three studies was sufficient to detect a medium effect size with 80% power at an alpha level of .05 (as recommended for behavioral studies, Cohen, 2013).

recycled leather). Finally, the participants reported their brand awareness of Louis Vuitton (yes or no), age, and gender.

Figure 2. The product stimuli used in the preliminary study (translated from the Japanese). The stimulus on the left was used for the non-sustainable luxury condition while the sustainable luxury condition is shown on the right.

Results

Four of the participants (1.9%) failed the attention check, and were thus eliminated from the analysis. The final number of participants for the analysis was 204. As a manipulation check, we first ran an ANOVA (Analysis of Variance) for the perceived eco-friendliness of the bag. The result revealed that the perceived eco-friendliness was higher in the sustainable condition than in the non-sustainable condition ($M_{\text{sustainable}} = 5.23$, $SD = 1.20$ vs. $M_{\text{non-sustainable}} = 4.02$, $SD = 1.06$ vs.; $F(1, 202) = 52.42$, $p < .001$, $\eta_p^2 = .21$), as expected. Thus, it can be concluded that the product type manipulation was successful.

Two ANOVAs were then conducted with the luxury brand condiion (non-sustainable vs. sustainable) as an independent variable and the perceived quality of, and attitude toward the product as the dependent variables. The results indicated that, while the perceived quality of the

bag was significantly lower in the sustainable condition than in the non-sustainable condition ($M_{non\text{-}sustainable}$ = 5.66, SD = 1.03 vs. $M_{sustainable}$ = 5.12, SD = 1.18; $F(1, 202) = 12.09$, p = .001, η_p^2 = .06), the participants' attitude toward the bag did not differ between the two conditions ($M_{non\text{-}sustainable}$ = 4.70, SD = 1.29 vs. $M_{sustainable}$ = 4.75, SD = 1.11; $F(1, 202) = 0.09$, p = .771, η_p^2 = .00).

To test the moderating role of product type (non-sustainable vs. sustainable) on the attitude-WTP relation for the luxury bag, a moderation analysis was conducted using Model 1 of the PROCESS macro (Hayes, 2018) with 5,000 bootstrap samples. As expected, the results revealed that the product type (coded as 0 = non-sustainable, 1 = sustainable) negatively moderated the influence of the product attitude on WTP for the bag (b = −13148.58, SE = 5898.56, t = −2.23, p = .027, 95% CI [−24779.94, −1517.23]). The results of the conditional effects analysis indicated that product attitude significantly increased the participant's WTP for the bag in the non-sustainable condition (b = 19972.97, SE = 3845.52, t = 5.19, p < .001, 95% CI [12390.00, 27555.94]) but not in the sustainable condition (b = 6824.38, SE = 4472.70, t = 1.53, p = .129, 95% CI [−1995.31, 15644.08]). Thus, H1 (the moderating effect of product type on the attitude-WTP relation for the luxury product) was supported.

Discussion

Consistent with previous studies in the luxury category (e.g. Achabou and Dekhili 2013; Wang *et al.,* 2017), the results of the preliminary study confirmed that the perceived quality of the sustainable luxury product was lower than that of the non-sustainable product. Meanwhile, the participants' attitude toward the sustainable product was as favorable as that of the non-sustainable bag. This suggests that consumers hold a relatively favorable attitude toward the sustainable luxury bag. However, as expected, the results revealed that the influence of the product attitude on WTP

for the luxury product was moderated by the product attribute. That is, in the non-sustainable condition, the product attitude positively impacted consumers' WTP for the luxury product. However, when it comes to a sustainable luxury product, that attitude did not significantly influence the participants' WTP for the product. Thus, the results of the preliminary study confirm that an attitude-behavioral gap does indeed exist in the context of sustainable luxury consumption. In the next study, we examined the role of perceived scarcity in filling the attitude-behavior gap in the case of a sustainable luxury product.

Study 1

The purpose of Study 1 was to investigate whether and how the attitude-behavior gap found in the preliminary study can be reduced by appealing to product scarcity in the advertising of a sustainable luxury product.

Method

To examine the influence of perceived product scarcity on the attitude-WTP relation for a sustainable luxury product, two versions of a fictitious flyer for a pair of Louis Vuitton women's shoes were created: sustainable (the use of recycled leather) and sustainable with limited quantity message (the use of recycled leather and only 100 pairs of shoes are available for sale) conditions (see Figure 3). We chose shoes because most luxury brands provide shoes as one of their major product lines and certain of those brands (e.g. Stella McCartney) have also start to produce shoes that are environmentally sustainable.

Figure 3. The product stimuli used in Study 1 (translated from the Japanese). The flyer on the left represents the sustainable luxury condition whereas the flyer on the right represents the sustainable luxury available in only a limited quantity.

A pretest was performed to check the manipulation of product scarcity by the limited quantity message. Female participants (n = 102; M_{age} = 42.4 years) were randomly allocated to either condition and asked to rate the perceived availability of the product using a 7-point item adapted from Eisend (2008): ("How available do you think the advertised product is?"; 1 = insufficient, 7 = sufficient). The result of an ANOVA revealed that the perceived availability of the product was significantly lower for the sustainable message with limited quantity condition than that of the sustainable message ($M_{\text{limited availability}}$ = 2.64, SD = 1.36 vs. $M_{\text{no limitation}}$ = 3.55, SD = 1.43; $F(1, 100) = 10.72$, $p = .001$, $\eta_p^2 = .10$).

In the main study, a one-factor (brand conditions: sustainable luxury vs. limited quantity sustainable luxury) between-participants experimental design was used. One hundred and seventy-one female participants were recruited for Study 1. The respondents ranged in age from 25 to 69 years with a mean age of 45.4 years. The participants were randomly assigned to either the sustainable condition or the sustainable condition with the limited quantity message. They were

first asked to view the product flyer carefully and required to rate perceived quality, product attitude (α = .96), and WTP for the luxury shoes with the same measurement scales as used in the preliminary study. The participants also rated the perceived scarcity of the luxury product with one 7-point item ("How scarce is the product?"; 1 = not at all scarce, 7 = very scarce) adapted from Chen and Sun (2014) with slight modification. Finally, the participants reported their awareness of the Louis Vuitton brand (yes or no), their age, and their gender.

Results

Six participants (3.5%) reported being unaware of the Louis Vuitton brand, leaving 165 participants available for analysis. The result of an ANOVA indicated that the perceived quality of the shoes was no different as a function of the condition ($M_{\text{no limitation}}$ = 4.87, *SD* = 1.09 vs. $M_{\text{quantity limitation}}$ = 5.07, *SD* = 1.07; $F(1, 163) = 1.360$, $p = .245$, $\eta_p^2 = .01$). Meanwhile, an ANOVA for perceived scarcity indicated that perceived scarcity for the sustainable product was higher in the limited quantity condition than in the no limit message condition ($M_{\text{limited availability}}$ = 5.07, *SD* = 1.23 vs. $M_{\text{no limitation}}$ = 4.62, *SD* = 1.20; $F(1, 163) = 5.646$, $p = .019$, $\eta_p^2 = .03$). Thus, the manipulation of scarcity was successful.

To test a moderating role of perceived scarcity on the attitude-WTP relation for the sustainable luxury shoes, a moderation analysis with the PROCESS macro was performed (see Figure 4). As expected, the results revealed a significant interaction between attitude and perceived scarcity on the WTP for the sustainable luxury product (b = 2128.63, *SE* = 1026.42, t = 2.07, p = .040, 95% *CI* [101.64, 4155.63]). The results of the conditional effects indicated that, when product scarcity was perceived to be low (−1 *SD*), the product attitude did not influence the participant's WTP for the shoes (b = 1470.21, *SE* = 2070.29, t = 0.71, p = .479, 95% *CI* [−2618.22,

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5558.63]). By contrast, the product attitude increased the participant's WTP for the luxury shoes when perceived scarcity was high (+1*SD*) (b = 6710.80, SE = 1597.63, t = 4.20, p < .001, 95% CI [3555.79, 9865.80]). Thus, H2 (the moderating effect of perceived scarcity for a sustainable luxury product on the attitude-WTP relation for the product) was supported.

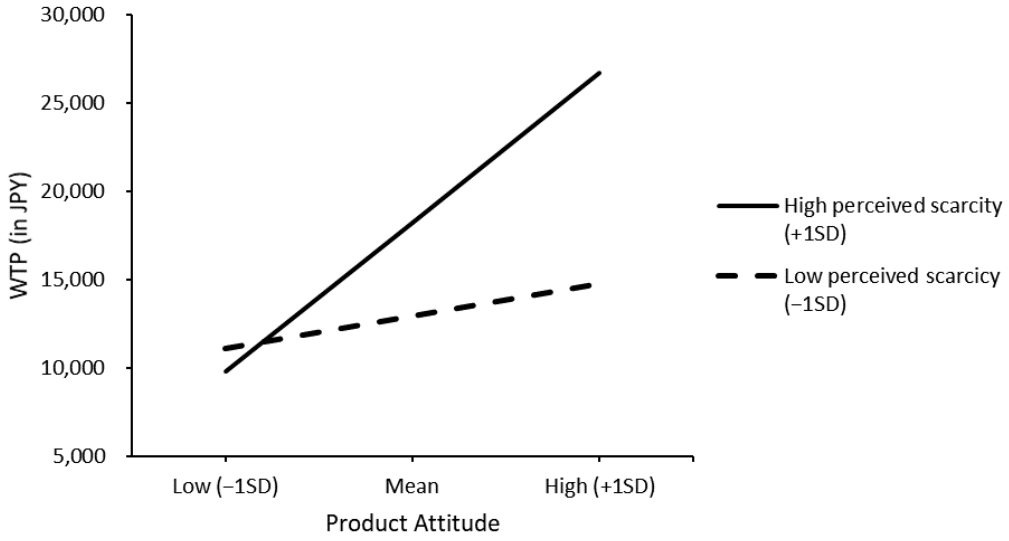

Figure 4. The moderating effect of perceived scarcity on the attitude-WTP relation for the sustainable luxury shoes in Study 1.

Discussion

The results of Study 1 revealed that consumer's perceived scarcity for the sustainable luxury product positively moderated the attitude-WTP relation for the product. When the perceived scarcity for the sustainable luxury product was low, the consumer's attitude toward the product did not translate into a WTP for the product. In contrast, when the perceived scarcity was high, the product attitude was significantly reflected in people's WTP for the product. Accordingly, Study

1 provides initial evidence that consumers' perceived scarcity for a sustainable luxury product contributes to strengthening the attitude-behavior relation in terms of their consumption behavior.

Study 2

The purpose of Study 2 was two-fold. One aim was to replicate the moderating effect of perceived scarcity on the attitude-WTP relation for a sustainable luxury product using a different product while controlling for demographic variables. The other aim was to investigate the moderating role of consumer characteristics in the scarcity effect on the attitude-WTP relation.

Method

The procedure was similar to that of Study 1. To examine the moderating effect of product scarcity on the attitude-WTP relation for a sustainable luxury product, two versions of a fictitious flyer for a Louis Vuitton long wallet were created: sustainable (the use of recycled leather) condition and sustainable condition with limited quantity message (the use of recycled leather and only 100 items are available for sale) (see Figure 5). This product was chosen since the majority of luxury brands provide wallets, the majority of which are made of leather.

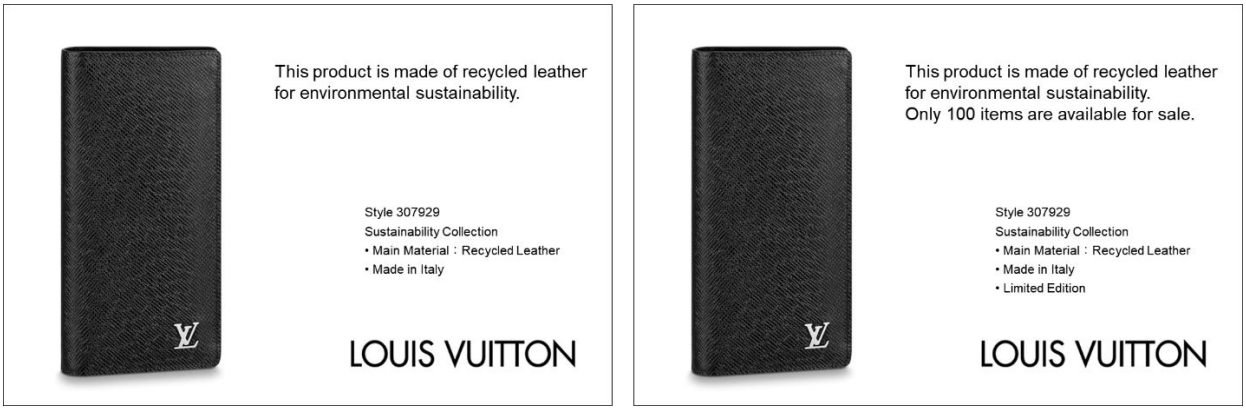

Figure 5. The product stimuli used in Study 2 (translated from the Japanese). The stimulus on the left constitutes the sustainable luxury condition whereas the stimulus on the right was used in the sustainable luxury with limited quantity condition.

A one-factor (luxury brand condition: sustainable vs. sustainable with limited quantity message) between-participants experimental design was used. Five hundred and fifty-eight participants were recruited. Females comprised 43% of the respondents. Respondents ranged in age from 20 to 65 years with a mean of 45 years. The participants were randomly assigned to either condition. They first carefully viewed the product flyer and, as a manipulation check, rated the perceived availability of the product with the same item used in Study 1. Subsequently, they rated perceived quality, product attitude (α = .89), and WTP for the luxury wallet with the same measurement scales as used in both the preliminary study and Study 1. The participants also rated the perceived scarcity of the luxury product with three 7-point items adapted from Chen and Sun (2014) with slight modifications ("This product is scarce", "It is difficult to acquire the product", "The number of products available is very limited"; 1 = totally disagree, 7 = totally agree; α = .92).

The participants also rated their own tendency toward socially responsible consumption, consumer innovativeness, and their brand attitude toward Louis Vuitton. The tendency toward socially responsible consumption was measured by seven 7-point items ("I avoid buying from companies that harm endangered plants or animals", "Whenever possible, I walk, ride a bike, car pool, or use public transportation to help reduce air pollution", "I avoid using products that pollute the air", "I avoid buying those products that pollute the water"; "I make an effort to avoid those products and services that cause environmental damage", "I avoid buying products that are made from endangered animals", "I limit my use of energy such as electricity or natural gas to reduce

my impact on the environment; α = .90) adapted from Webb *et al.* (2008). Consumer innovativeness was measure with four 7-point items ("I am more interested in buying new than known products", "I like to buy new and different products", "I am usually among the first to try new products", "I know more than others about the latest new products"; 1 = strongly disagree, 7 = strongly agree; α = .87) adapted from Sharma (2010). The brand attitude was measured with three 7-point bipolar items (bad-good, unpleasant-pleasant, worthless-valuable; α = .93) adopted from Low and Lamb (2000). Finally, the participants answered two attention check items ("What was the brand of the advertised product?", "Was the number of the advertised product limited?) and reported their awareness of the Louis Vuitton brand (yes or no). The participants also reported their age, gender, education, and annual income.

Results

Fifty-two participants (9.3%) reported being unaware of Louis Vuitton and/or failed to the attention check items, leaving 506 participants for analysis (see Appendix 1 for detailed demographic profiles of the respondents). Two ANOVAs were performed on the perceived quality and the perceived availability of the product. The ANOVA for perceived quality revealed no significant difference between the two conditions ($M_{\text{no limitation}} = 5.30$, $SD = 1.04$ vs. $M_{\text{limited availability}} = 5.18$, $SD = 1.11$; $F(1, 504) = 1.62$, $p = .204$, $\eta_p^2 = .00$). Meanwhile, the result of the ANOVA for the availability indicated that the perceived availability of the product was significantly lower for the sustainable with limited quantity condition than for the sustainable condition without the limited message ($M_{\text{limited availability}} = 2.17$, $SD = 1.36$ vs. $M_{\text{no limitation}} = 3.61$, $SD = 1.29$; $F(1, 504) = 150.38$, $p < .001$, $\eta_p^2 = .23$). Therefore, the manipulation of scarcity was successful.

In the main analysis, we first conducted a moderation analysis with the PROCESS macro to test the moderating effect of perceived scarcity on the attitude-WTP relation for the sustainable

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luxury wallet (see Figure 6). The results replicated the findings of Study 1 and revealed a significant interaction between attitude and perceived scarcity on people's WTP for the wallet (b = 2308.90, SE = 833.50, t = 2.77, p = .006, 95%CI [671.32, 3946.49]). The results of the conditional effects analysis revealed that the coefficient was almost 2.2 times greater when the perceived scarcity was high (+1SD) (b = 11566.66, SE = 1727.95, t = 6.69, p < .001, 95%CI [8171.75, 14961.57]) than when it was low (−1SD) (b = 5314.16, SE = 1631.19, t = 3.26, p = .001, 95% CI [2190.35, 8518.97]). Additionally, and importantly, the moderating effect of perceived scarcity on the attitude-WTP relation for the wallet was also significant (b = 2598.71, SE = 808.92, t = 3.21, p = .001, 95% CI [1009.39, 4188.03]) when age (p = .003), gender (p = .514), education (p = .445), and income (p < .001) were included in the moderation analysis as covariates. Thus, H2 (the effect of perceived scarcity for a sustainable luxury product on the attitude-WTP relation for the product) was again supported.

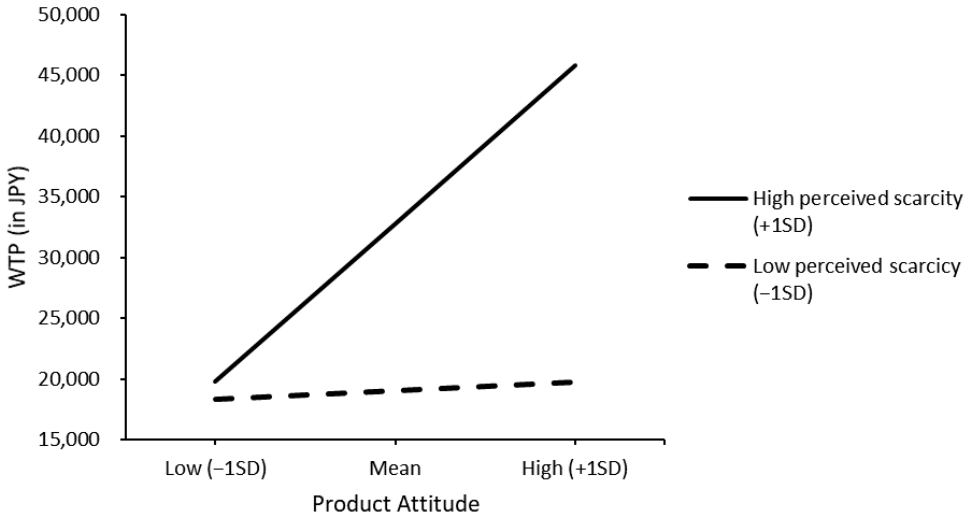


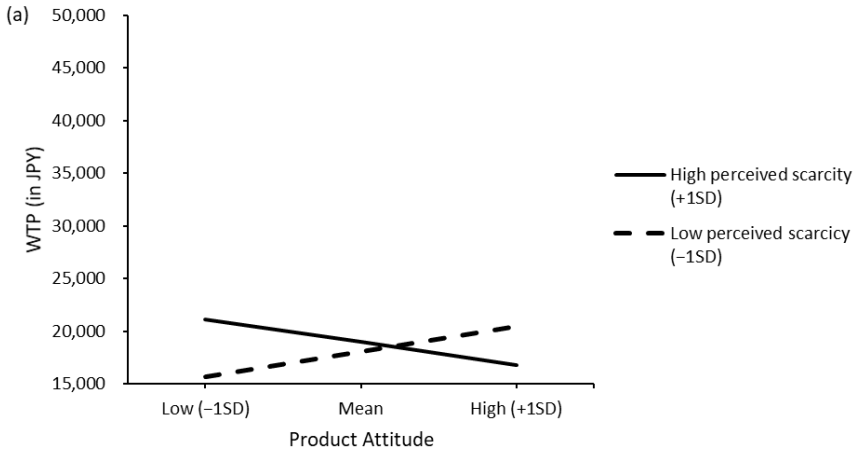
Figure 6. The moderating effect of perceived scarcity on the attitude-WTP relation for the sustainable luxury wallet in Study 2.

To examine whether the consumer's tendency toward social responsibility consumption influences the moderating effect of perceived scarcity on the attitude-WTP for the wallet, a moderated moderation analysis (Model 3 of the PROCESS SPSS macro) was performed. The results indicated no significant three-way interaction between product attitude, perceived scarcity, and the consumer tendency on the WTP for the sustainable luxury product (b = 204.74, SE = 750.22, t = 0.27, p = .785, 95%CI [−1269.25, 1678.74]). Thus, H3 (the moderating role of consumer's tendency toward socially responsible consumption on the effect of perceived scarcity on the relationship) was rejected.

In order to test whether consumer innovativeness moderates the effect of perceived scarcity on the relationship, a moderated moderation analysis was conducted. The results revealed no three-way interaction between product attitude, perceived scarcity, and consumer innovativeness on the WTP for the sustainable luxury product (b = 451.18, SE = 661.18, t = 0.68, p = .495, 95%CI [−847.88, 1750.23]). Accordingly, H4 (the moderating role of consumer innovativeness for the effect of perceived scarcity on the relationship) was not supported.

The other moderated moderation analysis was performed to investigate the role of brand attitude toward Louis Vuitton for the scarcity effect on the attitude-WTP relation for the product. The results revealed a significant three-way interaction between product attitude, perceived scarcity, and brand attitude on people's WTP for the sustainable luxury product (b = 2020.20, SE = 724.92, t = 2.79, p = .006, 95% CI [595.93, 3444.47]) (see Figure 7). The results of the conditional interaction between the attitude and the perceived scarcity indicated that when the level of brand attitude was low (−1SD), the interaction did not influence the participant's WTP for the sustainable luxury wallet (b = −1501.45, F(1, 498) = 1.04, p = .308). By contrast, the interaction between the product attitude and the perceived scarcity significantly increased the participant's

WTP for the product when the level of brand attitude was high (+1*SD*) (b = 2985.20, F(1, 498) = 7.22, p = .008). In addition, the three-way interaction was still significant (b = 2241.13, *SE* = 697.60, t = 3.21, p = .001, 95% *CI* [870.50, 3611.76]) after controlling for age (p = .004), gender (p = .600), education (p = .654), and income (p < .001). Therefore, H5 (the moderating role of brand attitude on the effect of perceived scarcity for a sustainable luxury product on the relationship) was supported.



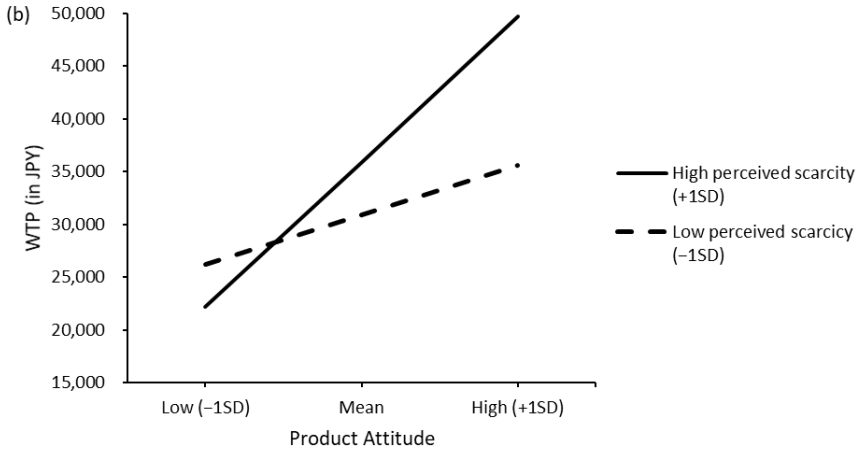


Figure 7. Moderated moderation results in Study 2. Note: Graph (a) indicates the attitude-scarcity interaction on WTP for the sustainable luxury wallet when attitude toward the brand was low (−1*SD*). Graph (b) highlights the interaction on WTP for the wallet when the attitude toward the brand was high (+1*SD*).

Discussion

The results of Study 2 replicated the moderating effect of perceived scarcity found in Study 1 using a different product category (i.e. a wallet) while controlling the demographic variables of age, gender, education, and annual income. The results of Study 2 also indicated that perceived scarcity for sustainable luxury is effective for consumers regardless of the latter's tendency toward socially responsible consumption and their preference for product innovativeness. Meanwhile, the results revealed that the effect is greater for those consumers who have a more (vs. less) favorable brand attitude toward the product.

General discussion

In line with growing concerns over environmental issues and the rise of green consumerism, more and more major luxury fashion brands are turning their attention toward environmental sustainability and have explored ways of developing sustainable luxury products. However, a number of previous studies in the domain of ethical and sustainable consumption context have highlighted the existence of a major attitude-behavior gap and suggested that figuring out how to reconcile this discrepancy is one of the key issues to be addressed to establish sustainable luxury products (e.g., Achabou and Dekhili 2013; Beckham and Voyer 2014; Dekhili *et al.*, 2019). The research reported here is, to the best of our knowledge, the first to demonstrate empirically that

scarcity strategy for a sustainable luxury product can effectively strengthen the attitude-behavioral relation for the product.

The results of the preliminary study revealed that, consistent with the findings of previous studies (e.g., Newman *et al.*, 2014; Wang *et al.*, 2017), the perceived quality of the sustainable luxury product was lower than that of the non-sustainable version of the same product. Meanwhile, the results also revealed that the attitude toward the sustainable version of the product was as favorable as that of the non-sustainable version. Importantly, however, we confirmed the existence of the attitude-WTP gap for the sustainable luxury product indicating that consumers' attitude toward the product did not significantly influence their WTP for the product.

Study 1 demonstrated that the perceived scarcity induced by the limited quantity message for the sustainable luxury product positively moderated the attitude-behavior relation. When the perceived scarcity for the sustainable luxury product was low, the consumer's attitude toward the product did not appropriately translate into WTP for the product. In contrast, when the consumer's perceived scarcity was high, the attitude toward the product was significantly converted into a WTP for the product.

Study 2 replicated the moderating effect of perceived scarcity found in Study 1 with a different product while controlling demographic variables (i.e. age, gender, education, and annual income). Thus, taken together, the results of Studies 1 and 2 suggest that the effect of perceived scarcity on strengthening the attitude-behavior relation for sustainable luxury products is robust. In addition, and importantly, the results of Study 2 also revealed that the perceived scarcity for the sustainable luxury product was effective for consumers regardless of their tendency toward

socially responsible consumption and their preference for innovativeness, while the effect was greater for consumers who have a more (vs. less) favorable brand attitude.

Implications

Our study extends prior research on sustainable luxury by investigating the role of product scarcity in strengthening the attitude-behavior relation for sustainable luxury products. Although a number of previous studies have pointed out the existence of the huge attitude-behavior gap in sustainable luxury consumption (e.g. Davis *et al.*, 2012; Dekhilli *et al.*, 2019), to date, it is largely unknown how to reduce the gap and promote the consumption effectively.

Some sustainable luxury studies (e.g. Jain, 2020; Zhang and Kim, 2013) based on the theory of planned behavior (Ajzen, 1991, 2020) suggest that increasing consumer's sustainability consciousness is a fundamental solution to promoting sustainable luxury consumption. However, increasing the consciousness enough to result in a social diffusion of sustainable luxury consumption would require great effort and time for consumer education and persuasion. In addition, although recent studies have started to reveal that other factors, which are beyond consumer sustainability consciousness (e.g. the need for symbolic sustainable luxury consumption as self-expression), also largely impact the adoption of sustainable luxury products (e.g., Dekhili *et al.*, 2019; Eastman *et al.*, 2021), the research is still in its infancy.

While previous studies have suggested the influence of consumer factors (e.g. sustainability consciousness, self-expressive value of sustainable luxury consumption) on consumer acceptance of sustainable luxury products, our study provides evidence that product scarcity as one of the product/marketing factors also has a significant effect on the acceptance of those products. In addition, our study demonstrates that the scarcity effect holds for consumers

regardless of their level of sustainability consciousness, preference for product innovativeness, and demographic characteristics. These findings may suggest that product scarcity has an immediate effect on a wide range of consumers without having to wait for the maturity of the consumers' awareness of sustainability issues. Thus, our findings contribute to the scarce literature on strengthening the attitude-behavior relation for sustainable luxury products and promoting sustainable luxury purchases.

This research provides clear managerial implications for marketers who are interested in developing and promoting sustainable luxury products. Introducing a product scarcity strategy would be a promising means to immediately and effectively motivate consumers to purchase sustainable luxury products. The scarcity effect is expected to hold for a wide range of consumers independent of their demographic characteristics and consumption tendencies (e.g. awareness of sustainability issues). Meanwhile, the current study demonstrates that a brand attitude toward a sustainable luxury product moderates the scarcity effect on the attitude-behavior relation. Therefore, the product scarcity strategy would be more effective for consumers with higher attitude for the brand of a sustainable luxury products than those with lower attitude.

Limitations and future research directions

The present study has some limitations that should be noted. First, although our study demonstrates that a strategy of scarcity can be a useful way in which to stimulate sustainable luxury consumption, our findings were obtained particularly from consumer responses for sustainable luxury products that are related to the environmental dimension (i.e. such as using recycled leather) while controlling the presented brand (i.e. Louis Vuitton). Therefore, to generalize the findings, future studies should examine the scarcity effect on sustainable luxury products in various luxury

brands across other relevant dimensions of sustainability (e.g. animal welfare, labor conditions, fair trade). Second, while our study investigated the moderating role of consumer characteristics (e.g. sustainability consciousness, brand attitude) on the scarcity effect for sustainable luxury products, the role of product/brand characteristics (e.g. product type, the level of brand awareness) was not examined. For example, product types (e.g. conspicuous vs. non-conspicuous, symbolic vs. functional, hedonic vs. utilitarian) are expected to moderate the scarcity effect (Shi *et al.*, 2020). Thus, it would be intriguing and important to examine whether and how product/brand characteristics moderate the moderating effect of product scarcity on consumer responses in the area of sustainable luxury.

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Appendix 1. Demographic profile of the final respondents in Study 2.

	Frequency	Percent
Gender of respondent		
Male	279	55.1
Female	227	44.9
Total	506	100
Age of respondent		
20 - 29 years	28	5.5
30 - 39 years	108	21.3
40 - 49 years	206	40.7
50 - 59 years	137	27.1
60 years and above	27	5.3
Total	506	100
Highest education level		
Junior high school	5	1.0
High school	122	24.1
Undergraduate	361	71.3
Postgraduate	18	3.6
Total	506	100
Household income (JPY)		
Less than 2.5 Million (M)	117	23.1
2.5M - less than 5M	159	31.4
5M - less than 8M	125	24.7
8M - less than 10M	61	12.1
10M and above	44	8.7
Total	506	100

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Manuscript ID: JPBM-09-2020-3091.R1
Title: The effect of perceived scarcity on strengthening the attitude-behavior relation for sustainable luxury products

We would like to thank the editors and the reviewer for their supportive and constructive comments concerning our research. We have carefully read each comment and taken all of them into full consideration. The manuscript has now been thoroughly revised based on each of the comments; responses are provided below, and revised content is highlighted in blue in the manuscript itself. We believe that your constructive comments have enabled us to improve the quality of the manuscript significantly. We trust that you will also now be satisfied with this second revision.

Responses to Guest Editors:

Comment 1: The reviewer recognizes that your manuscript has improved considerably but still expresses some serious concerns primarily in relation to your manuscript's contribution. Therefore, I invite you to respond to the reviewer's comments and revise your manuscript. Please note that resubmitting your manuscript does not guarantee eventual acceptance, and that your resubmission will be subject to re-review before a decision is rendered.

Response 1: We appreciate all of the insightful and constructive comments you and the reviewer provided. We have incorporated these suggestions into the revised paper, and we believe its quality has been significantly improved as a result.

Comment 2: You will need to proof-read your manuscript thoroughly (or have some one proof-read and do some final editing for you). You also need to make sure that all citations, references, and formatting follow the journal's guidelines.

Response 2: We thoroughly proof-read our manuscript. We also went through the manuscript following the journal's guidelines.

Manuscript ID: JPBM-09-2020-3091.R1
Title: The effect of perceived scarcity on strengthening the attitude-behavior relation for sustainable luxury products

We are thankful to the reviewer for supportive comments on this work. We have read each comment carefully and taken all of them into full consideration. The manuscript has

been revised based on each comment; responses are provided below, and revised content is highlighted in blue in the manuscript.

Responses to Reviewer 1:

Comment 1: It becomes evident that the quality of the paper has considerably improved, based on the revision. Despite these improvements, however, I am still not convinced about the novelty and relevance of the three contributions outlined in the introduction. While amendments have been made, a more comprehensive rewrite of the initial paragraphs is needed to justify the study. If the contribution centers around the role of factors through which the attitude – behaviour gap can meaningfully be addressed in the context of sustainable luxury, the introduction needs to clarify in a better way a) what is known about the attitude – behaviour gap both in the luxury and the sustainability-oriented literature, b) what is still yet to be explored at the interface between these two areas, and – importantly – c) why it is relevant to investigate this.

Response 1: Thank you for these comments. Following your advice, we have reorganized and refined the contributions that are outlined in the Introduction. In this revision, we now spell out how our theoretical approach to address the attitude-behavior gap in sustainable luxury consumption is different from that of previous studies and how this approach can help to further understand and address the gap in sustainable luxury consumption.

Comment 2: The literature review has improved, and now gives a more comprehensive overview on what we know about the interrelationship between luxury and sustainability. The role of scarcity in the context of luxury could been pointed out more clearly, though. Also, the literature review could still be better intertwined with the intended contributions.

Response 2: Thank you for the comments. As the reviewer suggested, in this revision, we more clearly highlight the role of scarcity in the context of luxury by introducing the findings of Shin *et al.* (2017) and clarify how the findings can be applied to the context of sustainable luxury (see p. 10). We have also spelled out that the theory of planned behavior has been applied to most of the sustainable and sustainable luxury studies to explain and address the attitude-behavior gap (see p. 7). In doing so, our literature review now becomes more closely related with the contributions of our study.

Comment 3: Pre-study still has the stimulus design issue I pointed towards in the first review round, so differences in terms of the perceptions of the scenarios might not necessarily be solely be the result of manipulating the product sustainability, but also of product quality (due to mentioning "finest" in the first scenario). Therefore the study would need to be re-run.

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Response 3: Thank you for pointing this out. Following your advice, we re-ran the preliminary study with the revised stimuli. As shown in Figure 2 (see p. 16), the material information indicated in the non-sustainable luxury condition was changed from previously "made of the finest leather" to now "made of leather". We also included the manipulation check items about the material used for the bag and the perceived eco-friendliness of the bag and confirmed that the manipulation of sustainability was successful.

Comment 4: For Study 1, the result of the manipulation check as assessed to the scarcity question (p 22/23) needs to be reported; if the manipulation worked in the pre-test this does not necessarily mean that it was successful in the main study as well.

Response 4: We reported the question at the end of the Method section (see p. 20) and indicated the result of the manipulation check in the first paragraph of the Results section (see p. 20).

Comment 5: In relation to Study 2, the conceptual model summarizing the set of hypotheses to be tested in the study is conceptually confusing. In particular it seems to suggest mediating effects stemming from scarcity via uniqueness and urgency to buy to then moderate the attitude-WTP link. To test an underlying mechanism, a mediation test is the most feasible way. As stated in the lower part of the conceptual model, the mediation would relate to uniqueness/urgency to buy as mediators of the relationship between scarcity and the link between attitude and WTP. I am not aware of a way to empirically test such as design and would also question the appropriateness of conceptualising mechanisms that underly a moderation variable.

Response 5: Thank you for pointing this out. We admit that some parts of the research model were conceptually confusing. To address this issue, we have reorganized the research model (see p. 13). We renumbered hypotheses H7 to H9 as H3 to H5. In addition, considering your comments about the conceptual problems of the mechanism hypotheses, we removed the previous hypotheses H3 to H6 from the model and deleted the related results from the manuscript accordingly. Through this reorganization, we believe we are now able to present our findings more clearly and parsimoniously.

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