The price of sustainability: Understanding sustainable consumption

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The price of sustainability: Understanding sustainable consumption

This study examines the drivers of sustainable purchase (willingness-to-pay) based on a multi-dimensional concept of sustainability.

Consumption and sustainability aspects were examined in a survey-based experiment using two different product categories (chocolate, fashion).

Factor analysis reveal social and ecological sustainability as two dimensions pertinent to sustainability attitude and consumption, as predicted by sustainability involvement, category involvement, and demographics. Findings reveal (1) an attitude behaviour-gap and (2) higher perceived importance for social than for ecological aspects. There were both similarities and differences in willingness-to-pay for different products.

This study identifies key drivers of sustainable purchase based on a multi-dimensional measure of sustainability to be employed for sustainability pricing.

Keywords: sustainable consumption, sustainable purchase, willingness-to-pay

Track: Pricing & Promotions

1. Introduction

Today's consumers are increasingly aware of the detrimental effects of consumption. Hence, the demand for sustainable products such as food and fashion is rising and has seen a further boost throughout Corona pandemic (HDE, 2021). During the pandemic, half of all consumers were willing to pay up to 20% more for sustainable products than before (McKinsey, 2021). Therefore, research on sustainable consumption needs to be updated to keep track of associated changes in consumer needs, attitudes and behaviour.

The concept of sustainable consumption (SC) has an ecological connotation but other aspects of sustainability (e.g. social, economic) remain largely neglected (Quoquab & Mohammad, 2020). Moreover, research on SC focuses largely on the behavioural aspect at the expense of attitudinal and/or cognitive aspects (Quoquab & Mohammad, 2020).

For a transformation towards more sustainability, sustainable products must be attractive to consumers in terms of features and price. This is also a prerequisite and goal of effective sustainability marketing by brands that create value through sustainable products. Only through proper management of prices can sustainable products obtain a competitive advantage (Ingenbleek, 2014). Strategic pricing for sustainable products thus requires precise knowledge of the sustainability factors that encourage the purchase of such products. Yet existing measures of sustainability attitudes and/or relevant attributes often reflect only the environmental aspect, rarely considering other sustainability-relevant aspects (Quoquab & Mohammad, 2020). This study aims to elucidate the dimensionality of sustainability in order

- To identify sustainable production conditions relevant to SC

  RQ1. What are consumption-relevant sustainability dimensions?
- To examine the attitudinal and contextual drivers of SC

  RQ2. What is the impact of sustainability-related attitudes and contextual factors on WTP for (a) food and (b) fashion products?
- To study the relationship between sustainability-related attitudes and SC

  RQ3: To what extent do various sustainability attitudes translate into WTP?

2. Literature review

2.1 Sustainable consumption

The concept of sustainable consumption (SC) is rooted in the environmental paradigm (Hornibrook, May & Fearne, 2015) claiming for a consumption style that reduces waste and protects natural resources. There are also more holistic conceptualizations of SC that embrace

all aspects of consumption including its environmental and social impact. For example, Quoquab and Mohammad (2020) view SC a multidimensional construct embracing three aspects (satisfying basic human needs, taking a life-cycle approach, care for environmental well-being, quality of life and care for the future generation) (Hornibrook *et al.*, 2015).

2.2 Predictors of sustainable consumption

In SC, consumers show an attitude-behaviour or intention-purchase gap (Park & Lin, 2020). Various factors are found to encourage or impede pro-social/-environmental consumption and thus may explain the attitude-behaviour gap, i.e. product factors, individual psychological factors (e.g. environmental concern, attitude, norms), cognitive factors (e.g. green perceived value, perceived quality, environmental knowledge or green perceived risk), and socio-contextual factors (e.g. subjective norm) (Park & Lin, 2020; Zhuang, Luo & Riaz, 2021).

Evidence on demographics is mixed. Whilst richer and more highly educated people generally show a higher WTP for ethical goods (Vecchio & Annunziata, 2015), the role of gender remains unclear (Park, 2018). Moreover, whilst organic food purchase as well as WTP for sustainable products is found to be positively related with age by some (e.g. Vecchio & Annunziata, 2015), more recent studies find a negative relationship (Li & Kallas, 2021).

In terms of product characteristics, perceived performance risk is an issue as sustainability claims likely entail perceptions of lower quality (van Doorn, Verhoef & Risselada, 2020). Symbolic factors do play a role (Park & Lin, 2020) whilst consumers face the value tradeoff in making sustainable or fashionable choices (e.g. Bray *et al.*, 2011).

Also the physical context may either impede or encourage SC based on situational factors such as lack of information (negative) or sustainable promotions (positive) (Minteer, Corley & Manning 2004). Besides, consumers may be hesitant to purchase green products given perceived risks regarding availability and price (Kim & Rha, 2014). A premium price may not be justified by the functional product performance or for others may be unaffordable.

Notably, most studies view green purchase as a proxy for SC behavior, whilst predictors of SC understood more holistically remain unexplored (Quoquab & Mohammad, 2020). This calls for a re-examination of the determinants of SC in its various aspects.

2.3 Willingness to Pay

Research on willingness-to-pay (WTP) for sustainability finds that across categories, 60% of consumers are willing to pay a premium (Tully & Winer, 2014). Meta-analyzes find the accepted premium to be on average 30%, to be lower for durable goods than for non-durable

goods, and to be higher for organic attributes compared to other sustainable attributes (Li & Kallas, 2021). In fashion however, recent evidence points to a higher importance of social vs. organic sustainability (Park, 2018). Also for food such as chocolate, fairtrade labels may elicit higher WTP than ecological labels (Vecchio & Annunziata, 2014).

Overall, consumers say being willing to pay a premium for sustainability, but when tested often still choose the cheaper mainstream alternative (Ingenbleek, 2014).

2.4 Price perceptions

When forming price perceptions, consumers compare the price of a product with that of similar products in the assortment (external reference prices) and with the acceptable price range held in memory (internal reference prices) (Ingenbleek, 2014). Such comparisons are foundational for evaluating prices as high or low, and fair or unfair (Xia, Monroe & Cox, 2004). In a food context, where purchase decisions are made relatively fast, consumers tend to rely on internal reference prices being strongly rooted in memory and thus difficult to change, especially if product involvement is high (Mazumdar, Raj, & Sinha, 2005; Ingenbleek, 2014).

3. Method

3.1 Sample

The survey was conducted in January 2021 among n = 808 consumer panellists residing in Germany. The representative sample included 405 male and 403 female respondents aged between 18 and 69 from varied socioeconomic backgrounds. The majority had a household net income of 2,600 € or higher and a high level of education.

3.2 Measures

From previous studies (e.g. Ha-Brookshire & Norum, 2011), nine items were taken as measures of attitude and WTP, covering sustainability aspects such as child labor, working conditions, local economy or fairtrade as well as environmental sourcing, raw materials, recycled packaging, transport and ban of pesticides (Tab. 1), and measured on a 5-point Likert scale.

To identify the common factors of the items, exploratory factor analysis was run with principal axis analysis extraction and varimax rotation. The visual inspection of the screeplot upon the elbow criterion and the Kaiser's criterion of eigenvalues > 1 indicated a two-factor solution. The dimensions could be labelled as social sustainability (e.g. 'payment of fairtrade minimum price') and environmental sustainability (e.g. 'The packaging is made from recycled materials'). There was high internal consistency of the subscales ($\alpha > .6$).

Tab. 1 Exploratory factor analysis: Item factor loadings

			Factor loading	
	M	*SD*	1	2
Social sustainability attitude (α = .79)	4.42	.55		
1. There is a ban on exploitative child labor in the manufacturing process.	4.71	0.67	.088	.608
2. Attention is paid to regulated working conditions.	4.42	0.66	.328	.694
3. The manufacturer supports the local economy during production and provides secure jobs.	4.22	0.76	.367	.603
4. Payment of fairtrade minimum price.	4.35	0.72	.385	.634
Ecological sustainability attitude (α = .81)	4.18			
5. Raw materials for production come from environmentally friendly cultivation and natural resources are protected.	4.17	0.79	.737	.275
6. On-site production is ensured exclusively with green electricity and self-generated energy	4.40	0.69	.624	.362
7. The packaging is made from recycled materials.	4.23	0.80	.676	.271
8. The transport of the required raw materials, as well as the delivery of the chocolate to the retailer is emission-free and thus CO2 neutral.	3.59	1.00	.548	.132
9. During production, attention is paid to a ban on hazardous pesticides and no genetically modified seeds are used.	4.52	0.69	.407	.407
Eigenvalue			4.262	1.111
Variance explained			47.351	12.344

Note. N = 808.. 1 – strongly disagree; 5 – strongly agree; Principal factor analysis with varimax rotation and Kaiser normalization. The rotation of items converged in 3 iterations.

3.3 Design and procedure

The study measured WTP using multiple price list (MPL) method being a common stated preference approach in research on sustainable / organic products (Katt & Meixner, 2020). Participants were presented with one product from a fictitious brand of two different categories (sweater, chocolate), at a given price point, followed by a similar product being sustainably produced in some aspect (e.g. at fairtrade price, without child labour) on each of which a certain value between seven price points (from 1.09€ to 6.54€ for chocolate; from 29.99€ to 44.99€ for the sweater) was to be placed. The nine items on sustainable production conditions were presented again to be rated by personal relevance. Also measured were category involvement upon interest in various topics of life, i.e. fashion, health or cooking, and sustainability involvement upon frequency and extent of information-seeking on sustainable brands.

4. Results

4.1 Descriptive analysis

Descriptive analysis showed that respondents held rather strong sustainability attitudes with more consistency in attitudes for the social (M = 4.22 to M = 4.71) than for the ecological dimension (M = 3.59 to M = 4.42). Overall, social sustainability items were rated as more relevant (M = 4.42, SD = .72) than ecological sustainability (M = 4.18, SD = .59).

It was found that the production conditions eliciting the lowest WTP as measured by the percentage of respondents selecting the lowest two price points were recycled materials (83.5% / 63.4%), sustainable sourcing (78.7% / 57.3%), and transport (74.6% / 52.2%). Regarding the selected price points, the pattern of responses was largely similar for both product categories. However, whilst for both categories, responses skewed towards the lower price intervals, this tendency was particularly pronounced for chocolate.

Overall, there was a higher relative WTP for sustainable products for the sweater than for chocolate based on the frequencies of selections for lower vs. higher price options. Accordingly, the mean WTP for sustainable chocolate was higher than for the sweater, i.e. 2.84 € (45.0 ppt) vs. 3.44 € (51.1 ppt). Moreover, the mean absolute and relative price premium for both products was somewhat higher for the socially vs. ecologically sustainable attributes, i.e. 0.09 € (8.4%) higher for chocolate and 0.70 € (2.3%) higher for the sweater.

A screeplot further showed a positive albeit not completely linear relationship between social/ecological attitude and associated WTP. An increase in attitude did not correspond to a similar increase in WTP.

4.2 Regression analysis

A series of ordinary least square regressions were computed to test the influence of various predictors of sustainability WTP, i.e. sustainability attitudes (social, ecological), sustainability involvement (knowledge of brands' sustainability, info seeking level of brands' sustainability), product involvement (interest in health / in cooking / in fashion), as well as demographic variables (gender, age, education level, income).

For sustainable chocolate, there was a collective significant effect of age (β = - .260, p < .001), past knowledge (β = -.176, p = .001), info seeking level (β = .117, p = .022), social attitude (β = .108, p = .001), and interest in health (β = .093 p = .005) on WTP, $F(5, 805)$ = 40.142, p < .001, R^2 = .195. Yet, ecological attitude turned not significant (β = .514, p = .558).

Examining both dimensions separately yielded two similar regression models: WTP for socially / ecologically sustainable chocolate was significantly predicted by age (β = - .255, p < .001 / β = - .251, p < .001), past knowledge (β = -.239, p < .001 / β = .162, p = .00), social / ecological attitude (β = .140, p < .001 / β = .07, p = .04), and interest in health (β = .10, p = .00 / β = .089, p < .001) and info seeking level of sustainability (β = .132, p = .00) (F_{soc}(4, 803) = 44.758, p < .001, R^2 = .18 / F_{eco}(5, 802) = 38.341, p < .001, R^2 = .19).

For sustainable fashion, there was a collective significant effect of past knowledge (β = .236, p < .001), social attitude (β = .136, p = .001), income (β = .115, p < .001), ecological attitude (β = .102, p < .017), education (β = .087, p = .009) and age (β = - .074, p < .001) on WTP, F(6, 801) = 25.988, p < .001, R^2 = .157. Examining both dimensions separately produced two largely similar regression models. WTP for socially / ecologically sustainable fashion was significantly predicted by past knowledge (β = .226, p < .001 / β = .243, p < .001), social attitude (β = .225, p < .001 / β = .204, p < .001), income (β = .104, p = .00 / β = .118, p < .001), age (β = - .091, p = .00) and education (β = .081, p = .015 / β = .094, p = .004) (F_{soc}(5, 802) = 28.828, p < .001, R^2 = .157 / F_{eco}(4, 803) = 38.786, p < .001, R^2 = .158). Yet age was not significant for ecologically sustainable fashion (p > .05).

5. Discussion

5.1 Theoretical implications

This study examines the drivers of WTP for two product categories (chocolate, fashion) including sustainability attitude, involvement and demographics. Whilst previous research has largely focused on ecological aspects (Quoquab & Mohammad, 2020), both ecological and social aspects were identified as two relevant dimensions of attitudes both in terms of attitude and WTP for sustainability with social aspects being of higher importance to consumers.

After controlling for demographics and involvement in sustainability and in health, it was found that (1) social but not ecological attitude were significant drivers of WTP for sustainable chocolate, and that (2) WTP for sustainable fashion was significantly affected by social attitude but less so by ecological attitude. Yet, sustainability involvement was among the strongest drivers of SC across categories.

For demographics, age negatively predicted WTP for sustainable chocolate but not for sustainable clothes. It might be that older generations may hold higher internal reference prices for clothes with environmental credentials. In line with previous evidence, income positively affected WTP but only for sustainable fashion and not for chocolate. It is

reasonable that a higher base price requires higher purchasing power, whilst a lower base price as for chocolate can still be affordable even to financially constrained consumers. Education positively predicted WTP for sustainable fashion but not for chocolate. Overall, a price can be justified upon information and knowledge about sustainability in general and specific for the product (category) (Mazumdar et al., 2005), which may require a solid education. The higher an absolute price premium, the more may it be weighed against the expected socio-ethical benefits. Hence, a higher WTP is elicited for a higher priced fashion item than for a cheaper food item that may be more readily accepted irrespective of education.

In terms of category differences, WTP for sustainable chocolate vs fashion was lower in *absolute figures* (1) measured by the overall price given a lower base price and (2) measured by the reported frequencies of choices for the lower price options; (3) but WTP was higher in *relative figures*, with an accepted price premium ranging between 57% and 65% for sustainable chocolate (vs. 12% / 14% for fashion). This is reasonable as a relatively high price premium on a comparatively lower priced confectionary (vs. fashion) item may be considered still affordable upon consumers' internal reference price. For a more highly priced fashion item, consumers may tolerate only a minor increase in price for sustainable credentials, not least due to other considerations such as quality or fashionability.

As for the link between attitude and behaviour, an increase in attitude did not yield a similar increase in WTP, revealing an attitude-behaviour gap (Park & Lin, 2020).

5.2 Limitations

Study limitations for once concern the experimental approach. First, with the employed MPL method, there is the concern that the generated price valuations are rather imprecise (Andersen *et al.*, 2006). Second, as findings may not generalise to other products from the same category (Vecchio & Annunziata, 2015), exploring more various products within and across categories is crucial. Third, the description of production conditions was presented not as in a real-life purchase situation, calling for field experiments to enhance external validity.

In the regression models, there was still a large amount of unexplained variance. Whilst this study included attitudinal as well as socio-demographic predictors, literature indicates the importance of intrapsychic factors (e.g. Lin & Park, 2020; Zhuang *et al.*, 2021). Moreover, including involvement-related constructs such as sustainability awareness or orientation may add the individual consumer perspective (Bray *et al.*, 2011). Moreover, as SC may vary by consumer segments (Park, 2018), segmentation studies are a future avenue.

5.3 Management implications

Knowing about the two identified dimensions of sustainability (social, ecological) is crucial for strategic sustainability management. Moreover, the finding that social sustainability is of higher importance also in terms of marketing effectiveness (e.g. revenue) is informative to pricing management. Social sustainability should still be fostered if applicable to the industry.

By studying the approximate value for a sustainability price premium accepted by consumers, this study reveals the drivers of WTP for sustainable food products (chocolate) and sustainable fashion (sweater). In some categories such as confectionary, marketing products as sustainable allows for a higher price margin and thus may generate higher revenue. Nevertheless, brands in any industry can capitalize on consumers' respective WTP for sustainability as long as prices are set accordingly taking into account relevant SC drivers.

As for demographic factors, WTP was higher among younger consumers in the case of sustainable chocolate and among consumers of higher income in the case of sustainable fashion. These insights may inform a targeted sustainability marketing and pricing strategy.

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