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The Interplay of Organic Label, Natural Imagery, and Domestic Country-of-Origin Claim in Shaping Consumer Responses: Independent, Interactive, and Conditional Effects

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ABSTRACT

With sustainable consumption on the rise, firms are increasingly showcasing their environmental efforts. However, it is still unclear how effective different verbal and visual ‘green’ product cues are in influencing consumer preferences. Addressing this gap, this study examines the independent and interactive effects of an organic label, natural imagery, and a local origin claim on consumer responses to packaged milk. Furthermore, the role of three potential moderators (green product skepticism, consumer ethnocentrism, and environmental concern) is considered. A 2x4 experimental study was conducted with 178 consumers. Structural equation modeling results show that an organic label and natural imagery indirectly increase purchase intention through perceived product eco-friendliness, whereas a local origin claim has no effect. There is a marginally significant interaction between these three package cues. The favorable effect of natural imagery on product perceptions is attenuated by consumers’ green skepticism, and environmentally concerned consumers are more skeptical.

Keywords: *Green branding, Food marketing, Organic labels, Package design, Domestic country of origin, Consumer ethnocentrism, Green skepticism, Environmental concern*

INTRODUCTION

In times of accelerated climate change, consumers’ environmental awareness has been increasing and media coverage of ecological issues has become more widespread. In a survey conducted in Europe, 86% of consumers indicated that sustainable consumption is important or very important to them (KPMG, 2022). Against this background, firms are increasingly addressing their corporate social responsibility (CSR) efforts in their marketing communications, both in explicit and more subtle ways. Product packages have become one of the most important vehicles for communication and branding, and the arrangement of verbal and visual cues in package design defines how effectively they will be processed and recalled (Rettie & Brewer, 2000).

At the same time, consumers’ skepticism toward CSR claims has also been growing and brands are sometimes accused of ‘greenwashing’ (De Jong et al., 2018; Leonidou & Skarmetas, 2017;

Zhang et al., 2018). Consumers now expect more authenticity and transparency from firms' environmental efforts and include these considerations in their purchase decisions (Gazzola et al., 2020). This development is particularly pronounced for fast-moving consumer goods, of which consumers are more aware than of other product categories (Chitra, 2007). Nevertheless, these goods are still primarily characterized by low-involvement decision making directly at the point-of-sale, which entails that their package design has a strong impact on consumers' purchase decisions (Chrysochou & Festila, 2019). Since many consumers value sustainability but do not want to spend excessive time researching products, informational cues that can help them make informed purchasing decisions are highly appreciated and can increase the purchase likelihood of 'green' products (Shao et al., 2022; Takahashi, 2021). This can be explained by heuristic decision-making, which has been documented for visual, verbal, and even numerical (e.g., Bourdin & Vetschera, 2018; Bourdin et al., 2022) cues. Besides the selling price, even the slightest discernable design differences or green cues can therefore potentially have a large-scale impact on a product's attractiveness. Yet, one reason why purchase habits do not always reflect shoppers' desire for sustainable consumption is that they find it difficult to identify and evaluate environmentally friendly product options. Often, there are only a few clues as to what the environmental impact of a product is. To trigger eco-friendly purchases, the information conveyed about ethical product features should be comprehensible, meaningful, and credible (Osburg et al., 2017). Thus, deciding about which green attributes to highlight and how to best convey them (verbally and/or visually) in order to generate favorable product attitudes and trigger purchases represents a major managerial challenge for any consumer goods brand.

Furthermore, even for products of daily life (e.g., food), some consumers are more knowledgeable and involved than others. These individuals tend to be more sensitive and skeptical toward green brand claims because of their ability to accurately assess the credibility of the cues (Grebmer & Diefenbach, 2020). They also develop their product judgments based on active thinking about the issue or object-relevant information provided by the message, which entails a focus mainly on verbal stimuli, while less knowledgeable consumers are more vulnerable to be influenced by images. Brands that genuinely strive for having a positive environmental impact, leveraging these efforts in their positioning strategy, and thereby targeting green consumer segments, need to find the right balance between not providing enough transparent information and 'overdoing' it.

Against this background and to our surprise, the question of how strongly consumers infer a product's environmental friendliness from different types of verbal and/or visual package cues, and how these design elements interact, remains largely unexplored (Magnier & Schoormans, 2015). Moreover, the intervening role of product-related consumer attitudes and more stable consumer orientations has received little attention in the context of food. Addressing this research gap, we report the results of an experimental study in which we investigate the independent and interactive effects of an organic label, natural imagery, and a domestic country-of-origin claim on consumers' ecological product perceptions and intention to purchase packaged milk. Our proposed model also sheds light on the underlying psychological mechanism that determines the effectiveness of these green package cues by considering three consumer-specific moderators (green product skepticism, consumer ethnocentrism, and environmental concern).

CONCEPTUAL BACKGROUND AND HYPOTHESES

Green package cues: independent and interactive effects

Labels that attract consumers' attention, are easy to understand, and appear repeatedly across different products and brands are a simple method of communicating compliance with certain environmental or social standards (White et al., 2019). Firms place labels on their products with the intention of aiding consumer-decision making, e.g., by triggering the availability heuristic (consumers often form their product judgments based on the most easily accessible information), conforming to consumers' self-identity (by purchasing green products, individuals feel that they positively contribute to environmental protection; Antonetti & Maklan, 2014), or capitalizing on the green halo effect (increased perception of quality, taste or healthiness of green-labelled products; Amos et al., 2014; Sörqvist et al., 2015). Although labels are only as effective as the customer is willing to trust the company's promise – partly because customers usually do not receive clear information about the verification process – extant literature nevertheless suggests that “organic” and “natural” labels are generally well-received by customers and can strengthen product attitudes (e.g., Atkinson & Rosenthal, 2014; Teisl et al., 2008) and purchase intention (e.g., Panopoulos et al., 2022). Integrative literature reviews have identified a multitude of organic food consumption motives, including increased perceptions of healthiness and taste, environmental concern, more favorable beliefs with regard to animal welfare and food safety, sensory appeal, emotions, feelings of nostalgia, curiosity, and the belief that consuming organic products is fashionable and can help shape one's reputation and self-identity (see Aertsens et al., 2009; Hemmerling et al., 2015; Hughner et al., 2007; Kushwah et al., 2019; Rana & Paul, 2017). Building on these previous findings, we argue that an organic label is commonly associated with a reduced ecological footprint in consumers' minds.

H1: An organic label indirectly increases purchase intention through perceived product environmental friendliness.

Previous research suggests that the use of pictures (e.g., that display natural landscapes) in the design of food packages positively impacts perceived environmental harmlessness (Chrysochou & Festila, 2019). Pictorial information can be processed with low cognitive effort and conveys a symbolic or referential meaning. In addition to the content of an image, this is also true for the colors used in the image. For example, green evokes mental representations of nature because grass and leaves are green, and consumers therefore associate the color green with environmental friendliness, recyclable packaging, and natural ingredients (Wąsowicz et al., 2015). In a similar vein, low-saturation colors on products foster perceptions of eco-friendliness and trust, which favorably influences consumers' purchase intention (Pichierri & Pino, 2023). Schmuck et al. (2018) found that nature-evoking images on product packages activate an affective persuasive mechanism that appeals to consumers' affinity for nature and leads to more favorable brand evaluations and, by extension, a higher purchase likelihood.

H2: Natural imagery indirectly increases purchase intention through perceived product environmental friendliness.

A product's country-of-origin is another attribute that can guide consumers' evaluation of alternatives (see Verlegh & Steenkamp, 1999), even though consumers are often reluctant to admit this influence (Herz & Diamantopoulos, 2017). More specifically, the ecological image of a country affects both the perceived sustainability of products originating from that country as well as the perceived credibility of green brand claims pertaining to products from that country (Xiao & Myers, 2022). Therefore, implicit or explicit country-of-origin cues are sometimes placed prominently on the front side of product packages, either if a foreign country evokes positive associations in terms of quality, safety, and responsibility, or to emphasize that a product was produced locally. Indeed, besides exhibiting perceptual differences with regard to various foreign countries, consumers generally view products that were manufactured in their home country as being of superior quality compared to foreign-made products (Lang & Crown, 1993), consider them as less environmentally harmful due to shorter delivery routes (Herz et al., 2023; Thøgersen, 2011), or want to support domestic producers through their purchases (Schjøll, 2017).

Furthermore, drawing from social identity theory (Tajfel & Turner, 1979) and the notion of in-group favoritism (Fiske & Taylor, 1991), it is conceivable that products positioned as being embedded in the local society and acting as 'local heroes' are perceived as belonging to the 'in-group' by consumers and therefore more well-received than those with no distinctive global or local positioning (Bourdin et al., 2021).

For food products specifically, Mennecke (2007) found that the geographic origin is the most important decision criterion for consumers. A review of the literature on country-of-origin food labeling (see Newman et al., 2014) concluded that products labeled as domestic generally benefit from more favorable consumer perceptions and stronger preferences. Furthermore, a survey among 13,800 consumers in 17 European countries showed that 87% prefer food products that are sourced from their own country and 63% are convinced that purchasing domestic products has positive consequences on the environment (Consors Finanz, 2019).

H3: A local origin claim indirectly increases purchase intention through perceived product environmental friendliness.

Prior findings are inconclusive when it comes to the interplay of visual and verbal green brand messages on food packages. It is not yet clear how an ecological package design (e.g., depicting natural imagery) is perceived in the presence or absence of other environmental – sometimes verbal – cues, such as an organic label or a "Made in..." claim. While research by Spack et al. (2012) suggests that environmental imagery always heightens purchase intentions regardless of the presence and strength of an accompanying verbal argument, Parguel et al. (2015) found that the influence of environmental imagery is mitigated in the presence of other green cues. Grebmer and Diefenbach (2020) argue that consumers are less skeptical about verbally presented environmental information than about pictures, but that even highly involved consumers are more trusting when both verbal and non-verbal cues are jointly available. Magnier and Schoormans (2015) report positive outcomes for all types of consumers if a verbal eco-friendly claim is congruent with the product's visual appearance. In any case, the question whether different green cues are more effective in isolation or in combination deserves more attention. To the best of our knowledge,

there is only one study on interactive effects between country of origin and organic labels for food products (Xie et al., 2015), but there are no studies that have considered a three-way interaction between these two cues and a more subtle, implicit cue, namely the visual package design. Adopting a rather exploratory stance, we argue that the use of natural imagery on product packages unfolds its full potential (i.e., is more effective) when consumers can reassure themselves of the brand's implicit green claim through the presence of complementary verbal cues.

H4: The influence of natural imagery on perceived product environmental friendliness is reinforced in the simultaneous presence of an organic label and a domestic country-of-origin claim.

The moderating role of green skepticism, ethnocentrism, and environmental concern

Although eco-labels generally appear to have a positive impact on product evaluations, consumers are sometimes skeptical toward them (Delmas & Gergaud, 2021), particularly those developed by the firm or the industry itself rather than an established third-party certification body. Customers are more likely to buy products with eco-labels when they are familiar with the certifying institution and trust it (Gorton et al., 2021; Testa et al., 2015). This does not necessarily imply that unknown and/or self-developed labels (as is the case in our study) do not achieve the intended signaling value at all. Indeed, previous studies found positive outcomes even for generic labels not awarded by a specific certification agency (Rihn et al., 2019; Van Loo et al., 2011). In another study, self-developed corporate labels led to similar product attitudes than government-issued labels (Atkinson & Rosenthal, 2014). However, some customers might be more susceptible to be influenced by product labels, while others are more cautious and tend to question the use of labels, e.g., due to believing that the inflationary use of labels does not actually contribute to facilitating purchase decisions but instead constitutes a manipulative technique intended to confuse consumers (Langer et al., 2008; Riegler et al., 2022). We therefore hypothesize that the effectiveness of an organic label in enhancing green product perceptions is dependent on consumers' skepticism toward the green brand claims communicated on a product package.

In addition to organic labels, we also expect this moderating role of green skepticism in shaping consumers' green product perceptions when *natural imagery* is used in a package design. Some consumers might (consciously or unconsciously) view an ecological package design as a credible indicator of actual product eco-friendliness, while others might be more skeptical and assume that they are being misled by the brand. Parguel et al. (2015) refer to the use of nature-evoking advertising elements to artificially enhance a brand's ecological image as 'executional greenwashing' and show that some consumers are more prone to fall prey to it than others.

H5: The effect of (a) an organic label and (b) natural imagery on perceived product environmental friendliness is attenuated by green product skepticism.

A different picture emerges for domestic country-of-origin claims, for which we do not expect green product skepticism to act as a moderator in influencing consumer responses. Country-of-origin is an explicit, factual, and very salient product attribute that leaves little room for ambiguity and confusion when being cognitively processed by consumers (e.g., in contrast to labels, for

which the source and certification standards are often not immediately clear). Furthermore, it is not common for firms to blatantly lie about a product's origin – at least not when explicitly stated through a verbal “Made in...” claim rather than making vague geographical or cultural references. Therefore, when it comes to the effect of a local origin claim, another moderator potentially comes into play, namely consumer ethnocentrism. Ethnocentric consumers think that purchasing foreign products is wrong because it hurts the domestic economy and is unpatriotic (Shimp & Sharma, 1987). Thus, they are likely to appreciate products on which it is explicitly stated that they are produced locally more than products of unknown geographic origin or for which this information is difficult to retrieve. Indeed, in a study conducted in a country (Czech Republic) and a product category (yoghurt) that are relatively comparable to our study (Austria, milk), Orth and Firbasová (2003) found consumers' evaluations of products from different countries to be strongly dependent on their degree of ethnocentrism. By extension, we argue that consumers' strong implicit association of ‘local’ with ‘eco-friendly’ that has been documented in previous more general research (e.g., Campbell et al., 2015) is even more pronounced among ethnocentric consumer segments, because they always view local brands as the superior choice, regardless of other product attributes.

H6: The effect of a local origin claim on perceived product environmental friendliness is reinforced by consumers' ethnocentrism.

Although different green cues might enhance perceptions of a product's environmental friendliness depending on consumers' individual characteristics and attitudes, this might not always result in a desire to purchase the product. Some consumers might acknowledge that a product appears to be an eco-friendlier option than its competitors, but this alone might not be a strong driver of purchase intentions, e.g., because environmental considerations might not be a priority for them when evaluating product alternatives. Indeed, a study conducted by KPMG (2022) in four European countries shows that 14% of consumers do not consider sustainable consumption as relevant, e.g., because they feel that it would restrict their lifestyle, fail to see how they can personally contribute, or focus on other product characteristics. Thus, it appears that preferences and purchase decisions for green products depend on consumers' environmental concern, as suggested by research indicating that products labeled as ecological are only more likely to be purchased by consumers who attach importance to environmental aspects (Rex & Baumann, 2007). We therefore expect that the positive relationship between perceived product eco-friendliness and purchase intention as implied in *H1*, *H2*, and *H3* is accentuated for consumers who have a strong awareness of environmental issues and a positive attitude toward solving these problems and preserving the environment.

H7: The effect of perceived product environmental friendliness on purchase intention is reinforced by consumers' environmental concern.

Finally, while preferring eco-friendly products, highly environmentally conscious individuals also tend to be more skeptical and sensitive toward advertising in general (Shrum et al., 1995) and green marketing in particular (D'Souza & Taghian, 2005; Finisterra do Paço & Reis, 2012). Interestingly, they often have quality-related doubts toward green products and see them as inferior in terms of effectiveness (Lin & Chang, 2012). On the other hand, consumers with lower

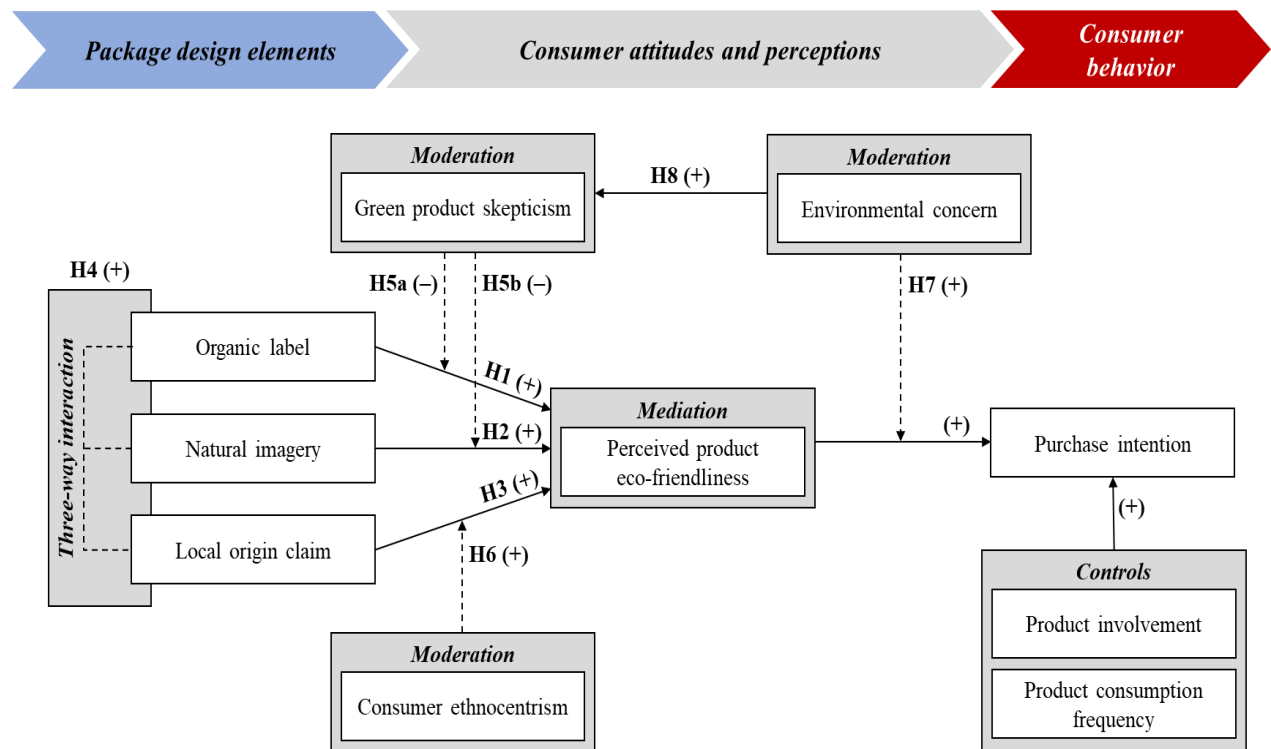
environmental concern are less suspicious of green brand cues, especially visual ones (Grebmer & Diefenbach, 2020; Magnier & Schoormans, 2015; Matthes & Wonneberger, 2014). We test if previous findings on the positive relationship between environmental concern and green product skepticism replicate in our study.

H8: Environmental concern is positively related to green product skepticism.

Product involvement and consumption frequency as controls

We test our hypothesized effects above and beyond the influence of product involvement and product consumption frequency, two covariates that we account for to enhance the robustness of our framework. First, product involvement refers to the relevance of a product category in satisfying the personal needs, values, and interests of a consumer (Zaichkowsky, 1985). It plays an important role in consumption decisions, because highly involved consumers engage in a more extensive information search and product evaluation process, and therefore tend to have considerable product knowledge (Laurent & Kapferer, 1985). In contrast, less involved consumers minimize complex processing, and instead rely on cognitive shortcuts. They unconsciously form their judgments with a minimum effort, and green package cues offer a basis for doing so (Maheswaran, 1994). The second variable we control for is consumers' consumption frequency of the stimulus product category (i.e., cow milk). If consumers rarely or never consume milk, their desire to purchase a particular milk product will be weak irrespective of what is communicated on the product package. The overall model is shown in Figure 1.

Figure 1. Conceptual Model



METHODOLOGY

Sample and Procedure

We recruited 178 Austrian consumers (57.3% female, $M_{AGE} = 40.2$, $SD = 14.8$) for a between-subjects online experiment. We adopted a 2 (conventional vs. ecological design) x 4 (no verbal cues vs. organic label vs. local origin claim vs. both organic label and local origin claim) full factorial design. Participants were randomly assigned to one of eight stimuli (i.e., images of milk packages) as shown in Figure 2. We used a self-developed organic label and “Made in Austria” claim to avoid confounding effects of prior knowledge about certification agencies, but we oriented ourselves on existing ones to arrive at a salient design that is easily recognizable and associated with its intended purpose (see Figure 3). After exposure to the stimulus milk package, respondents completed a questionnaire that assessed the dependent, moderator, and control variables, as well as socio-demographics.

Figure 2. Stimuli Used in the Eight Experimental Conditions

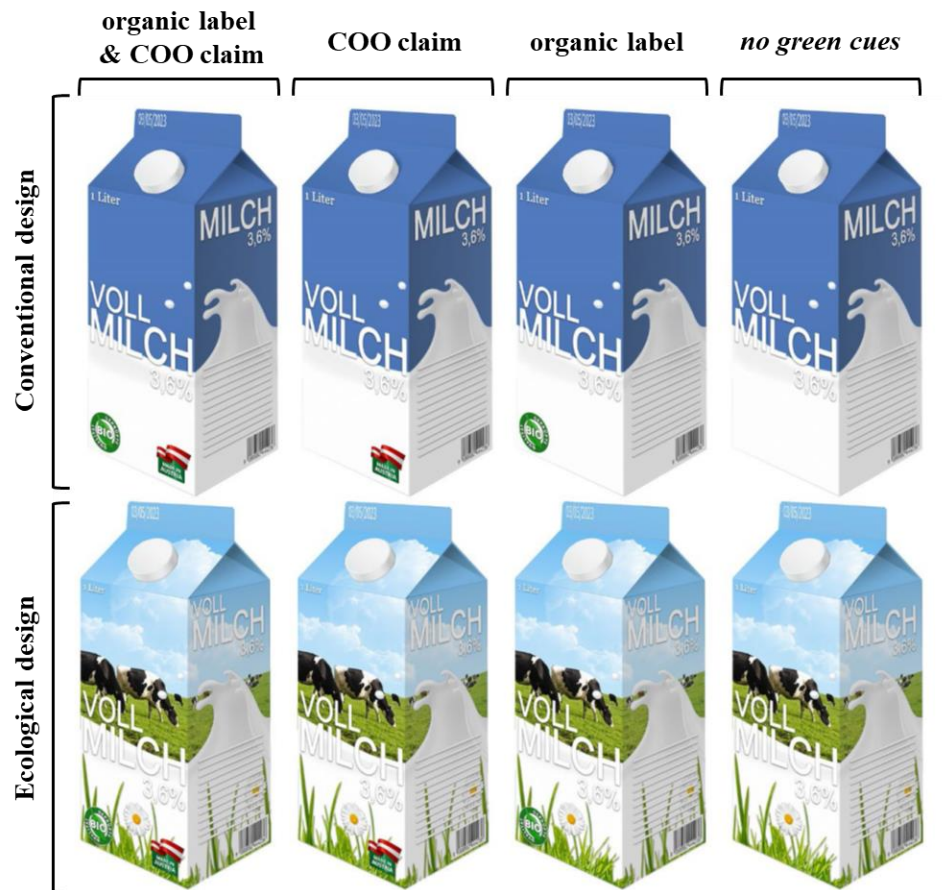


Figure 3. Organic Label and Domestic Country-of-Origin Claim Used in the Study



Measures

Perceived environmental friendliness was measured by a three-item scale inspired by Brown and Dacin (1997), and purchase intention by three items from Barber et al. (2012). Green product skepticism was captured by two self-developed items, environmental concern by the revised 15-item ‘New Ecological Paradigm’ scale (Dunlap et al., 2000), and consumer ethnocentrism by a five-item scale adapted from Shimp and Sharma (1987). As for the control variables, product involvement was measured with six items (Zaichkowsky, 1994) and product consumption frequency by a single question asking “How often do you consume cow milk?” with four answer categories ranging from “never” to “daily”.

We conducted a confirmatory factor analysis (CFA) using IBM SPSS Amos 28.0 to determine the psychometric properties of all multi-item measures. The measurement model’s fit was acceptable ($\chi^2 = 963.898$, $df = 512$, $RMSEA = .071$, $GFI = .747$, $CFI = .845$, $SRMR = .083$). Factor loadings, t -values, Cronbach’s alpha (α), composite reliability (CR), and average variance extracted (AVE) are reported in Table 1 and all indicated a sufficiently high level of reliability and convergent validity of the latent constructs, with the exception of environmental concern. Six items had factor loadings smaller than .4 and were therefore omitted in all subsequent analyses. One reason for this wide range of factor loadings within the 15-item scale could be that – consistent with the original scale (Dunlap et al., 2000) – every second item is reverse-scored. This might have led to biased responses among inattentive participants.

Table 1. Psychometric Properties of Multi-Item Constructs

Constructs and items			
<i>Perceived eco-friendliness (Brown & Dacin, 1997)</i>		$\alpha = .89$	CR = .89 AVE = .74
This product is ecologically friendly.			.909*
This product acts responsibly with respect to the environment.			.893*
This product makes a positive contribution to society.			.763*
<i>Purchase intention (Barber et al., 2012)</i>		$\alpha = .83$	CR = .83 AVE = .61
I would consider purchasing this product.			.807*
I intend to try this product.			.775*

I am interested in tasting this product.				.768*
<i>Green product skepticism</i>	$\alpha = .88$	CR = .89	AVE = .80	
This brand exaggerates how environmentally friendly its product actually is.				.835*
The environmental claims on this product package are deceptive.				.945*
<i>Consumer ethnocentrism (Shimp & Sharma, 1987)</i>	$\alpha = .89$	CR = .89	AVE = .63	
Austrians should not buy foreign products, this hurts domestic business and causes unemployment.				.873*
It is not right to purchase foreign products, because this puts Austrian people out of jobs.				.908*
A real Austrian citizen should always buy domestic products.				.805*
I always prefer domestic products over foreign ones.				.550*
We should purchase products manufactured in Austria, instead of letting other countries get rich off us.				.778*
<i>Environmental concern (Dunlap et al., 2000)</i>	$\alpha = .81$	CR = .82	AVE = .26	
We are approaching the limit of the number of people the earth can support. †				.333*
Humans have the right to modify the natural environment to suit their needs. (R)				.545*
When humans interfere with nature it often produces disastrous consequences.				.679*
Human ingenuity will ensure that we do NOT make the earth unliveable. (R) †				.313*
Humans are severely abusing the environment.				.770*
The earth has plenty of natural resources if we just learn how to develop them. (R) †				.053
Plants and animals have as much right as humans to exist. †				.375*
The balance of nature is strong enough to cope with the impacts of modern industrial nations. (R)				.536*
Despite our special abilities humans are still subject to the laws of nature.				.425*
The so-called "ecological crisis" facing humankind has been greatly exaggerated. (R)				.530*
The earth is like a spaceship with very limited room and resources.				.487*
Humans were meant to rule over the rest of nature. (R) †				.379*
The balance of nature is very delicate and easily upset.				.641*
Humans will eventually learn enough about how nature works to be able to control it. (R)†				.353*
If things continue on their present course, we will soon experience a major ecological catastrophe.				.727*
<i>Product involvement (Zaichkowsky, 1994)</i>	$\alpha = .90$	CR = .90	AVE = .61	
To me, cow milk is important/unimportant. (R)				.929*
To me, cow milk is boring/interesting.				.784*
To me, cow milk is relevant/irrelevant. (R)				.889*
To me, cow milk is exciting/unexciting. (R)				.452*
To me, cow milk is appealing/unappealing. (R)				.771*
To me, cow milk is worthless/valuable.				.771*

Notes: (R) denotes reverse-scored items. Column entries are standardized factor loadings. Product consumption frequency was measured with a single item.

* $p < .01$.

† Item was excluded in all subsequent analyses.

Following Fornell and Larcker (1981), discriminant validity among the constructs was established by ensuring that the square root of each latent variable's AVE was higher than its correlation with the other variables in the model (see Table 2).

Table 2. Discriminant Validity Assessment

Construct	<i>M (SD)</i>	1	2	3	4	5	6
1. Perceived eco-friendliness	3.59 (1.36)	.86					
2. Purchase intention	4.38 (1.79)	.48**	.78				
3. Green product skepticism	4.09 (1.46)	-.30**	-.21**	.89			
4. Consumer ethnocentrism	4.35 (1.45)	.16*	.14	-.10	.79		
5. Environmental concern	5.26 (.74)	-.26**	-.17*	.20**	.10	.60	
6. Product involvement	4.51 (1.48)	.28**	.49**	-.23**	.06	-.05	.78

Notes: All items were measured on seven-point scales. Bold numbers on the diagonal show the square root of the AVE for each construct. Numbers on the off-diagonal represent correlations. Product consumption frequency is not included because it is an ordinal variable.

** $p < .01$. * $p < .05$.

Common Method Variance

Given the relatively large number of questionnaire items in this study, we took several precautions to reduce common method variance (CMV) when designing the questionnaire. Following methodological recommendations (Chang et al., 2010; Podsakoff et al. 2003), participants were assured of the anonymity and confidentiality of their responses, informed that there are no right or wrong answers, and asked to answer as honestly as possible. Furthermore, response formats were varied by using both Likert and semantic differential scales, the mediator and outcome variable were placed in separate sections of the questionnaire, and the item order of multi-item constructs was randomized. To assess whether CMV might be a source of bias in our dataset, we performed two different *ex-post* statistical tests in addition to the aforementioned *ex-ante* procedural remedies. More specifically, we employed both Harman's single-factor test and a partial correlation technique.

We conducted Harman's single factor test using the traditional exploratory factor analysis (EFA) approach as well as the more recent CFA approach. The unrotated factor solution of an EFA including all questionnaire items not only yielded multiple factors, but it also revealed that one general factor would only account for 21.8% of the variance in the measures. For the CFA method, we modeled all manifest variables as reflective indicators of a single latent factor. The model fit turned out to be poor ($\chi^2 = 2099.097$, $df = 350$, $RMSEA = .169$, $GFI = .466$, $CFI = .331$, $SRMR = .182$). Taken together, these findings suggest that CMV is not the major source of variation in the

observed items. However, Harman's single factor test has been argued to suffer from insufficient sensitivity in detecting biases (Podsakoff et al., 2003).

Consequently, and in order to arrive at a specific estimate of CMV, we also employed a partial correlation technique. Because our questionnaire did not include a predefined marker variable, we used the second-smallest positive correlation between all indicators ($r = .003$) as a conservative estimate of CMV (Lindell & Whitney, 2001). We then computed adjusted zero-order correlations between the variables by partialling out the proxy for CMV from the uncorrected correlations. The differences between the original and CMV-adjusted correlations were negligible and no previously significant correlations became non-significant. This corroborates that our results are not substantially biased by CMV.

RESULTS

Approximately one third of participants (34.8%) indicated that they consume cow milk on a daily basis¹, 14.6% several times per week, 25.3% several times per month, and another 25.3% never consume milk. It was still decided to include the non-consumers in all analyses because our study focuses on perceptual differences between different combinations of green brand cues on product packages rather than on general attitudes towards dairy products.

Direct, Indirect, and Interactive Effects of Green Cues

In a first step, we estimated a structural equation model (SEM) without moderators to be able to investigate the unconditional direct and indirect effects of our three experimental manipulations. The base model showed reasonable fit ($\chi^2 = 161.078$, $df = 89$, $RMSEA = .068$, $GFI = .892$, $CFI = .950$, $SRMR = .097$).

Results indicated that an organic label marginally increases consumers' perceptions of the product's environmental friendliness ($\beta = .15$, $p = .06$) and that, in turn, environmental friendliness is a strong determinant of purchase intention ($\beta = .40$, $p < .01$). This leads to a positive indirect effect of organic label on purchase intention through perceived eco-friendliness ($\beta = .06$, $p = .04$), in support of *H1*. Given that the direct effect of label on purchase intention is non-significant, this is an indirect-only mediation (Zhao et al., 2010). Regarding the use of natural imagery (i.e., showing cows on a pasture), we found that such an ecological package design significantly increases eco-friendliness perceptions compared to a plain white and blue design ($\beta = .19$, $p = .01$) and, consequently, indirectly also increases purchase intention ($\beta = .08$, $p < .01$). This provides support for *H2*. The direct effect is negligible, rendering this an indirect-only mediation again. Finally, a local origin claim does not affect eco-friendliness perceptions and has neither direct nor indirect effects on purchase intention, implying that *H3* is not supported.

The reported effects hold while controlling for product involvement ($\beta = .29$, $p = .02$) and milk consumption frequency ($\beta = .31$, $p < .01$). All path estimates are reported in Table 3.

¹ This is consistent with a representative nation-wide study which found that 39% of Austrians consume milk daily (AgrarMarkt Austria, 2018).

Table 3. Path Estimates for Model without Moderators

Path	Direct effects β (<i>p</i>)	Indirect effects β (<i>p</i>)	Total effects β (<i>p</i>)
Organic label → Eco-friendly	.15 (.06)		
Natural imagery → Eco-friendly	.19 (.01)		
Local claim → Eco-friendly	.01 (.92)		
Eco-friendly → Purchase intention	.40 (< .01)		
Organic label (→ Eco-friendly) → Purchase intent.	-.05 (.45)	.06 (.04)	.01 (.93)
Natural imagery (→ Eco-friendly) → Purchase intent.	.05 (.44)	.08 (< .01)	.13 (.09)
Local claim (→ Eco-friendly) → Purchase intent.	-.05 (.48)	.00 (.92)	-.05 (.55)
Covariates:			
Product involvement → Purchase intent.	.29 (.02)		
Product consumption frequency → Purchase intent.	.31 (< .01)		

Note: Bold coefficients indicate statistical significance at the 5% level.

A three-way analysis of variance (ANOVA) of organic label, natural imagery, and local origin claim revealed a marginally significant interaction between these three factors in predicting perceived eco-friendliness ($F(7, 168) = 4.40, p = .06, \eta_p^2 = .02$). As anticipated in *H4*, planned contrasts showed that solely displaying natural imagery on the product led to lower product greenness ratings ($M = 3.49, SD = 1.38$) than when an organic label and a domestic “Made in...” claim were present in addition ($M = 3.81, SD = 1.58$).

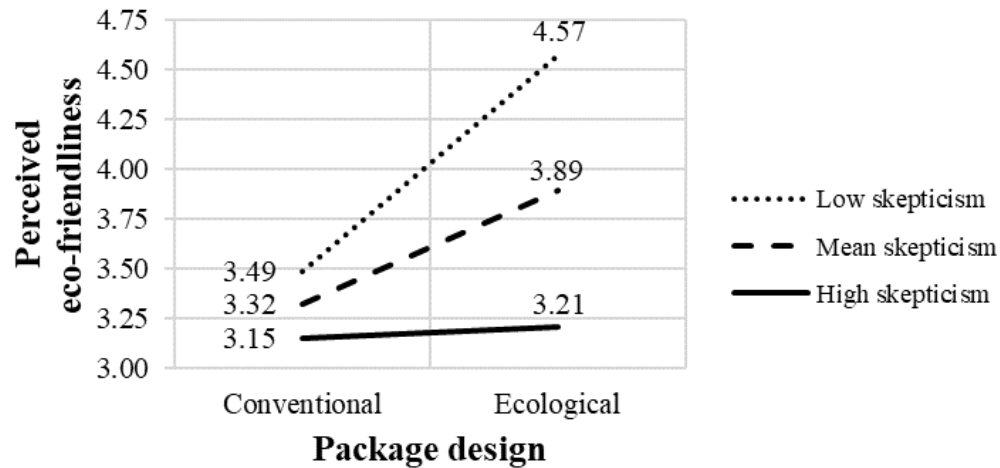
Consumer-specific Moderators

We sequentially added the hypothesized moderators to the base model, while noting the change in model fit at each step. Moderation effects were modelled using item parceling and residual-centering following Lance (1988). The error variances of the latent interactive variables were set to levels determined by the original variables’ reliabilities (Ping, 1995). This method provides unbiased estimates of interactive effects by minimizing multicollinearity concerns and safeguarding first-order effects (Little et al., 2006).

Specifying skepticism as a moderator of the relationships between organic label/natural imagery and perceived environmental friendliness led to a satisfying model fit ($\chi^2 = 197.258, df = 136, RMSEA = .051, GFI = .896, CFI = .962, SRMR = .058$) that is comparable to the base model, as indicated by the non-significant change in chi-square goodness of fit ($\Delta\chi^2 = 36.180, df = 47, p = .87$). Results showed that green skepticism does not moderate the effect of an organic label on environmental friendliness perceptions ($\beta_{\text{SKEPTICISM} \times \text{LABEL}} = .00, p = .99$), which entails that *H5a* is not supported. In contrast, skepticism dampens the positive relationship between natural imagery and perceived environmental friendliness ($\beta_{\text{SKEPTICISM} \times \text{IMAGERY}} = -.25, p < .01$), as anticipated in *H5b*. The conditional effects of natural imagery at low ($-1 SD$), mean (M), and high ($+1 SD$) values of skepticism suggest that the benefits of an ecological (vs. a conventional) package design are

almost non-existent for highly skeptical consumers, as shown in Figure 4. The moderation is significant for skepticism values up to 4.57 on the 7-point composite scale, which includes 66.5% of our participants. Furthermore, there are significantly positive *indirect* effects of natural imagery on purchase intentions for weakly and moderately skeptical consumers, making this a case of moderated mediation (index of moderated mediation = $-.22$, $SE = .10$, 95% CI $[-.42, -.04]$).

Figure 4. Interaction between Natural Imagery and Product Skepticism



In a next step, we investigated if a “Made in Austria” claim on the milk package is more well-received by highly ethnocentric Austrians. To this end, we added a second moderator (i.e., consumer ethnocentrism) to the previous model. However, model fit deteriorated significantly ($\Delta\chi^2 = 186.567$, $df = 111$, $p < .01$) and the interaction turned out to be non-significant ($\beta_{CET \times COO} = -.02$, $p = .84$). Therefore, *H6* is not supported.

After removing consumer ethnocentrism from the model (but keeping product skepticism), we tested whether environmental concern moderates the relationship between perceived product greenness and purchase intention. Specifying this moderation effect on the *b*-path of our model led to a significantly worse fit ($\Delta\chi^2 = 304.080$, $df = 217$, $p < .01$) and our findings did not suggest any moderation ($\beta_{ENV.CONCERN \times ECOFRIENDLY} = -.05$, $p = .37$). This implies that *H7* does not hold. Finally, as predicted in *H8*, environmental concern is positively related to green product skepticism ($\beta = .20$, $p < .01$).

DISCUSSION

Because consumers increasingly strive to engage in sustainable consumption, food packages now often depict visual and/or verbal cues that evoke association of eco-friendliness. To gain a better understanding of how consumers perceive this, we examined the influence of an organic label, natural imagery, and a domestic country-of-origin claim, as well as the interplay between those green cues, in shaping consumer responses to packaged milk. Our model also considered the role

of green skepticism, consumer ethnocentrism, and environmental concern as potential moderators. The results of our analyses extend the literature on green branding in several ways and yield actionable advice for practitioners working in product management, package design, and retailing.

THEORETICAL CONTRIBUTIONS

A key contribution of the present study is the three-way interaction analysis between green package cues that have mainly been studied in isolation or, on rarer occasions, in two-way interactions. Extending prior research, our findings indicate that the influence of natural imagery on perceived product greenness was reinforced in the presence of an organic label and a domestic country-of-origin claim, and that the three cues (marginally significantly) interact with each other. This corroborates the notion that an ecological product design implicitly serves as an associative claim (Chrysochou & Festila, 2019) and becomes more effective when additional credence attributes are communicated on the package.

Another finding is that products considered as eco-friendly are generally more likely to be bought, regardless of consumers' environmental concern. One possible explanation why environmentally conscious consumers are not more likely to buy green products is the gap between environmental attitudes and environmentally motivated buying decisions that has been observed and discussed in extant work (e.g., Carrington et al., 2010; Moser, 2015). Various causes for this attitude-behavior gap have been contemplated, e.g., that green products are not necessarily perceived as being of higher quality (Gleim & Lawson, 2014). In the context of our study, despite judging organic-labeled and nature-evoking milk as eco-friendly, consumers might not automatically associate this with higher functional performance (e.g., taste, texture) compared to conventional milk, which therefore does not translate into a stronger purchase intention.

MANAGERIAL IMPLICATIONS

Our findings show that both an organic label and the use of natural imagery in package design do not directly trigger purchase interest in a product, but only indirectly through more favorable beliefs regarding the product's ecological footprint. Therefore, when any of these two cues are used by firms, it is advisable to complement them with additional information to persuade consumers of the product's environmental merits. Merely adding *any* nature-evoking visuals or organic labels on a product in the hopes of increasing sales might backfire, because many consumers are confused regarding the distinction between food labeled as "organic" and "natural", and are not aware of the criteria that need to be fulfilled by producers to be awarded a label by any of the plethora of certification agencies (Gifford & Bernard, 2011; Kuchler et al., 2020). Furthermore, at best, consumers might know that organic standards prohibit the use of pesticides and genetically modified organisms, but might not be aware of the many other criteria that generally need to be met, such as those related to animal welfare, including the stipulated space per animal, soil conditions, or maximum duration of livestock transport (Harper & Makatouni, 2002). This highlights the importance of educating consumers about the most important sustainability standards that a product meets in order to foster transparency and thereby support consumers in making informed decisions. This can be implemented by adding a small infographic or a few bullet points of explanatory text on the back of the package, gluing a folded information

leaflet on the package, or displaying a QR-code that shoppers can scan for more information. First steps in this direction are already being implemented in practice. For example, the Austrian supermarket chain *Hofer* offers 450 products under its organic private label brand “Zurück zum Ursprung” (which translates to “back to the origin”), for all of which the product barcode can be scanned using any smartphone. This will then display the supply chain journey of each individual product (e.g., which regions and farmers each ingredient is from including pictures and videos of these farms, by which company and how were the raw ingredients further processed, where was the product packed, etc.). The brand’s slogan translates to “beyond organic” or more literally to “organic that goes further” (Hofer KG, 2023).

Somewhat surprisingly, our results suggest that a local origin cue does not increase perceived eco-friendliness. A tentative explanation is that Austria’s milk production is self-sufficient and virtually all brands of packaged cow milk originate from Austria. Therefore, consumers consider it as obvious that milk is always locally sourced, and a domestic country-of-origin claim might not receive much attention or add much value. Milk producers can instead use this space on the product package to highlight another attribute that might be associated with greenness and quality (e.g., a particular region within the country or an aspect related to the production process, the cows, or the nutritional value of milk). It must also be considered that Austria is a relatively small country that shares borders with eight countries. Consequently, geographical proximity between production and consumption – one of the drivers of consumers’ preferences for local food products (Fernández-Ferrín et al., 2018) – can also be ensured when Austrians buy products from neighboring countries. In other words, the mental association of product foreignness with long delivery routes might be weaker among Austrian consumers than, e.g., Australian or Canadian consumers. However, a different picture might emerge for packaged meat, e.g., because low-priced meat offered in Austrian supermarkets sometimes originates from Eastern European countries and because several scandals related to cross-country supply chains of meat production have been made public.

Interestingly, we also found that consumers’ environmental concern might be a double-edged sword from a firm’s perspective. While these individuals offer themselves as an attractive target group for green products, they appear to be more skeptical toward green brand claims. Due to their comparatively higher issue involvement and knowledge, they might tend to cautiously scrutinize products positioned as eco-friendly before lending credibility to the brand, which supposedly makes them less susceptible to greenwashing practices. For firms, this implies that only ‘true’ CSR efforts should be emphasized on product packages, because half-hearted attempts to convey sustainability will be identified and possibly exposed by those environmentally conscious consumers.

LIMITATIONS AND FUTURE RESEARCH

Our study has several limitations that warrant further research. First, in contrast to many other studies, we employed a generic self-developed label rather than an existing one. Although our intention was to eliminate prior associations with a specific certification agency, we retrospectively acknowledge that this might be a limitation, because trust in eco-labels has been found to be a strong determinant of pro-environmental consumer behavior (Taufique et al., 2017). If we had used a real-world label, past experiences made by consumers with that label – even if with different

product categories – might have led to a positive image transfer, which in turn might have resulted in a more pronounced indirect and possibly also a direct effect on purchase intentions.

Second, we did not indicate a price level for the stimulus product in our study. However, research has shown that the ‘green gap’ between environmental attitudes and purchases is mainly due to the higher prices of eco-friendly products (Gleim & Lawson, 2014) and that value-for-money is a strong determinant of purchase intentions for organic products (Konuk, 2018). Future studies should account for this aspect.

Third, future research could address calls to consider the cultural congruence between the stimulus product and the retail context (Bourdin et al., 2023). For example, in an ethnic supermarket positioned as selling a wide range of foreign and exotic products, domestic food products might actually attract less attention and a foreign country-of-origin claim could trigger positive reactions and product trial, especially among cosmopolitan consumers.

Lastly, we relied solely on self-reported answers, which arguably have shortcomings related to respondents’ lack of awareness, impression management, or articulation problems (Baumgartner & Weijters, 2019). We encourage researchers to study the role of different verbal and visual green cues on product packages using more objective methods such as eye tracking (to capture visual attention), automated facial expression analysis (Pezenka & Bourdin, 2021), or in field experiments that enable the assessment of consumers’ *actual* behavior, ideally in a setting that lets them choose among several alternatives to mirror real-world grocery shopping.

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