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## RESEARCH ARTICLE

# Leveling up on labels? Consumer preferences for firm-level eco-labels as substitutes for or complements to product-level eco-labels

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## Abstract

Eco-labels can inform consumers about the environmental impact of their purchase decisions, but preferences for different types and combinations of labels—especially the under-researched concept of firm-level eco-labels—are poorly understood. Furthermore, the effectiveness of displaying one versus more labels on products remains unclear, as does the impact of consumers' specific shopping goals and the availability of information about the labels' meaning. Relying on discrete choice experiments and with theory on consumers' attributions and goal pursuit as its starting point, this paper tackles the questions, “How do consumers respond to different types and combinations of eco-labels, and how does information about the labels' meaning and specific shopping goals impact revealed label preferences?”. The results establish firm-level eco-labels as important supplements to or replacements for (some) product-level eco-labels and have implications for firms' decisions on which labels to feature on products as well as legislators' efforts to stimulate responsible consumption.

## KEYWORDS

consumer choice, CSR communication, eco-label business strategy, eco-label policy, eco-labels, firm-level eco-labels, responsible consumption

## 1 | INTRODUCTION

Eco-labels are a widely used form of communication about firms' corporate social responsibility (henceforth “CSR”), intended to inform consumers about the environmental impact of their purchase decisions (Gosselt et al., 2019). For example, firms invest in eco-friendly modes of production which they expect will boost consumer evaluations, improve relations with investors or regulators, and overall maximize business benefits from contributing to societal goals (Du et al., 2010; Mickels, 2009; Öberseder et al., 2011; Pomeroy & Johnson, 2009; Rangan et al., 2015; Romani et al., 2016). For these outcomes to be achieved, however, stakeholders must be made aware

of firms' CSR commitment (Du et al., 2010; Morsing et al., 2008; Tata & Prasad, 2015), and consumers must be informed in a way that actually leads to responsible buying behavior (Dupré, 2005; Hosta & Zabkar, 2021). Eco-labelling of products is therefore strategically important for firms, as it can help generate the rewards needed to justify and enable continued CSR investments.

Research on consumer responses to eco-labels has typically focused on product-level labels; these are eco-labels attributed to the characteristics of the specific products they are placed on and are known to positively influence brand attitude, brand credibility, and willingness-to-pay (D'Souza et al., 2021; Nyilasy et al., 2014; Saphores et al., 2007). Hundreds of product-level labels are externally certified

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(henceforth “external labels”) across 25 industry categories (Atkinson, 2014; Delmas & Lessem, 2017). In addition, internal product-level labels have proliferated; these are developed by firms on their own and lack external verification (Gosselt et al., 2019). Regulators are particularly concerned about the latter labels, noting their contribution to “misleading environmental claims,” “premature failures of goods,” and “non-transparent and unreliable sustainability labels” (EC, 2022a, 2022b, p. 1). The high number of certified product-level labels might also in itself confuse consumers (Brécard, 2014; International Food Information Council, 2020), making research on the relative effectiveness of these labels important.

In addition to product-level labels, however, firm-specific labels have emerged as an alternative means to communicate about CSR to consumers. Such labels can be featured in product promotions but reflect assessments or claims about a company or brand as a whole. Therefore, they allow for big-picture evaluations that could help distinguish good companies (i.e., those deeply committed to CSR) from just good product marketing (Honeyman & Jana, 2019; Kim et al., 2016). Notably, firm-level labels need not necessarily replace product-level labels but can be used in addition. For example, product-level label research already suggests that internal and external product-level label combinations might be effective (Gosselt et al., 2019). Interestingly, both internal and external firm-level labels lack research attention with respect to consumer responses. This means that environmentally focused firms, as well as regulators, have limited guidance on which labels to promote. What is known, however, is that some businesses remain strategically silent about their firm-level certifications out of concern for backfiring effects (i.e., hypocrisy and greenwashing accusations; see Carlos & Lewis, 2018). Additionally, scholars suggested that mixing labels on products might further muddy the waters caused by label proliferation and thereby lead to consumer dissatisfaction (Langer et al., 2007). Still, consumers' preferences regarding the number of labels on products remain unclear, as does the effect of product-level and firm-level label combinations (Sigurdsson et al., 2022).

In the current work, we consider consumer preferences for different types (external and internal, product and firm level), numbers (1–4), and combinations (e.g., external firm-level and internal product-level) of eco-labels to get wiser on firm-level labels' relative effects. Furthermore, we investigate label preferences under varying conditions, with limited versus full information about the labels' meaning and guided by high and low specificity of purchasing goals. Our empirical focus is on detecting revealed preferences (i.e., choice) and, in our second study, also willingness-to-pay (WTP) for different types and combinations of eco-labels. Our starting point for outlining predictions is recent eco-label literature relying on attribution theory as well as theory on consumers' goal pursuit; this as consumers' evaluations of firms' CSR commitments are known to involve attributional processes (Du et al., 2010; Gosselt et al., 2019) and as goals held focal during shopping can influence which information is used as a basis for attributions (Gollwitzer, 1990; Harris et al., 2018). We test the predictions by means of two choice-based conjoint experiments using shampoo and sunscreen products. Overall, we focus on addressing the

questions, “How do consumers respond to different types and combinations of eco-labels, and how does information about the labels' meaning and specific shopping goals impact revealed label preferences?”

While we could not find support for all our predictions about firm-level eco-labels, our study results clearly establish firm-level eco-labels as effective add-ons to and—depending on circumstances—alternatives to product-level eco-labels. Our study participants consistently preferred eco-labels over no eco-labels and showed increasing preferences as more labels were added. Notably, having limited versus full information about the eco-labels' meaning, and having specific versus less specific shopping goals, impacted preferences for internal versus external labels and product-level versus firm-level labels.

Overall, our combined study results lend support to the overall positive effects of eco-label(s) on consumer response (Gosselt et al., 2019; Nyilasy et al., 2014; Parguel et al., 2011) while providing novel insights about the repertoire and relative impacts of the labels that firms can use – among them the overlooked concept of firm-level eco-labels. Moreover, our efforts heed recent calls to investigate combinations of eco-labels (Sigurdsson et al., 2022) and not just eco-labels displayed on a product in isolation. We challenge prior research which found that confusion and dissatisfaction among consumers increased as more labels were added (Langer et al., 2007) as we specify that, with choice as the dependent variable, more labels were preferred in our study context—a preference that increased when participants had full information about labels' meanings. We discuss implications for eco-label research, for firms, and for the current work of legislators to regulate the use of eco-labels (EC, 2022a, 2022b).

In the next section, we introduce the key concepts and literature informing our work before we outline predictions. We then present the methodology and results of our Study 1, including a preliminary discussion. Thereafter, we introduce, report on, and preliminary discuss our Study 2. We then summarize with a general discussion where we reflect on our results as a whole and end with outlining concrete implications of our work as part of the conclusions.

## 2 | LITERATURE BACKGROUND

Eco-labels indicate the environmental performance of products, brands, and/or producers (Gosselt et al., 2019; Yokessa & Marette, 2019) without compromising consumers' freedom of choice. Therefore, eco-labels are considered important tools for promoting more ethical consumption (Thøgersen et al., 2010). By removing information asymmetries (Delmas & Lessem, 2017) and reducing consumers' search costs (Grunert & Wills, 2007), they can ensure better-informed purchasing decisions (Iraldo et al., 2020) and help firms match products to consumer preferences (Delmas & Lessem, 2017).

External eco-labels are assessed and verified by third parties and are typically accredited by the International Organization for Standardization (ISO). Thus, they are assumed to provide consumers with seemingly objective information (Delmas & Lessem, 2017; Nyilasy et al., 2014) and ensure a certain degree of credibility (Iraldo



et al., 2020). By contrast, internal eco-labels display “information designed and distributed by the company itself” (Morsing & Schultz, 2006, p. 171). Such labels are frequently used in product marketing (Rashid, 2009) and have also, when used by retailers to complement or replace an already certified label, been referred to as sustainability tags (Sigurdsson et al., 2022).

## 2.1 | Product-level eco-labels

Most eco-labels, whether internal and external, refer to specific products within specific product categories (Gosselt et al., 2019). External product-level labels, such as the “Fairtrade” and the “EU eco-label,” identify overall environmental preferences of a product within a product category based on life cycle considerations (Global Eco-labelling Network, 2004; Iraldo et al., 2020). Internal product-level labels have often focused on simplified descriptions of products and their features, such as “100% natural” or “refillable.”

Product-level eco-labels have been widely researched over the past few years (Chen et al., 2018; Delmas & Lessem, 2017; D'Souza et al., 2021; Iraldo et al., 2020) with many studies showing their overall positive effects on consumer evaluations (e.g., Gosselt et al., 2019; Nyilasy et al., 2014; Parguel et al., 2011) but with some questions remaining regarding consumers' abilities to distinguish between internal versus external labels. For example, the Fair Trade Max Havelaar label for coffee and Nespresso's self-developed “AAA Sustainable Quality” label were found to have similar effects on consumer preferences (Dekhili & Achabou, 2014) while a study comparing the Marine Stewardship Council's official label and a self-made green label with the words “environmentally sustainable” saw a 30% higher willingness-to-pay for fish filets marked by the self-made label (Sigurdsson et al., 2022).

Some scholars have identified an upside to the lack of consumer distinction between external and internal labels, in that self-developed labels represent a relatively cheap way to stimulate sustainable purchasing behavior (Sigurdsson et al., 2022). Others raised concerns about greenwashing, implying that internal labels can distort attention away from more sustainable choices (Brécard, 2014). To address such concerns, the European Commission aims to prohibit the use of non-verified labels (EC, 2022b). Legislators have taken action also in the United States. California's ban on labeling plastic as “biodegradable”—costing WalMart over \$900,000—is one well-known example (ACDA, 2017; Nehf, 2018).

## 2.2 | Firm-level eco-labels

In addition to product-level eco-labels, there are firm-level eco-labels. Such labels provide information about a firm or brand rather than specific product or service in isolation. Just like product-level eco-labels, firm-level eco-labels can become accredited by individual third-party organizations, each with their own standards (Ecolabel Index, 2021). An increasingly well-known example is the B Corp certification, which

signals a firm or brand's commitment to managing social and environmental impacts “with the same rigor as financial ones” (see Vargas, 2023), thereby committing to “the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose” (Bcorporation.net, 2021). Another example is the Dow Jones Sustainability Index, which firms can disclose to gain reputational benefits (Carlos & Lewis, 2018).

Just like product-level eco-labels, firm-level eco-labels are not necessarily externally validated. For example, the cosmetics company Lush uses the self-developed label of “Fighting Animal Testing” in its communication and promotions. Although this label allows for making some inferences about the product it accompanies, it goes beyond product-specific information as it represents a commitment of Lush across its entire operations. Thus far, investigations of consumers' evaluations of firm-level labels (whether internal or external) have been missing from the eco-label literature, and internal firm-level labels appear to have dodged any research attention. The effects of firm-level labels, compared to or combined with product-level eco-labels, are therefore also poorly understood.

The lack of research attention to firm-level eco-labels is unfortunate, as these are being used by firms and might increase in popularity alongside legal risks associated with some product-level eco-labels. For example, toilet paper products from the company The Cheeky Panda have for the past years featured the “FSC” label (external product-level) in combination with a label signaling the paper rolls are “ultra-sustainable, hypoallergenic, protecting rainforests” (internal product level). The Good Roll, another toilet paper company, has used a label signaling “100% tree-friendly” (internal product-level), the EU's official eco-label (external product level), and the German “Blauer Engel” label (external productlevel). Interestingly, both these companies are certified B-corporations (Burger-Helmchen & Siegel, 2020) and have occasionally used this external firm-level label to promote their products as well. Regrettably, extant eco-label research will struggle to answer should these companies—or legislators—wonder about the potential of replacing internally developed product-level labels with externally certified firm-level labels such as B Corp. Not only is there a lack of guidance on general preferences for different numbers and various combinations of firm-level versus product-level eco-labels; insights about these labels' relative impact in different purchasing settings are missing as well.

## 3 | HYPOTHESES DEVELOPMENT

Attribution theory (Heider, 1958; Kelley, 1973) investigates the lay causal explanations people give when confronted with others' behavior in social environments (Nyilasy et al., 2014). Research has revealed that attributional processing takes place when consumers evaluate corporations (Weiner, 2000) and suggested that perceived intrinsic motives result in a more favorable response than extrinsic motives (Becker-Olsen et al., 2006; Kim & Choi, 2018; Rifon et al., 2004). As eco-labels can be seen as signals of corporations' or brands'

commitments to social responsibility (Nyilasy et al., 2014) and it is well-established that attributional processes are present in consumer evaluations of businesses' CSR actions (Du et al., 2010; Ellen et al., 2006; Vlachos et al., 2009), the theory offers an appropriate starting point for predicting consumer response to eco-labels (Gosselt et al., 2019).

In this paper, however, we relax the assumption made in much prior research that consumers are inherently skeptical toward firms' CSR claims and thus tend to attribute such claims to extrinsic motives and instrumental ends (Carlos & Lewis, 2018; De Vries et al., 2015; Parguel et al., 2011). Instead, we expect that consumers' starting assumptions when considering eco-labels will rather be intrinsic motives on the end of the firms displaying such labels. Furthermore, we expect consumers to be tolerant of the co-existence of firms' intrinsic and extrinsic motivations (Ginder et al., 2021) and only lower their evaluations when perceived extrinsic motivations *undermine* perceived intrinsic motivations. Examples of the latter are when a company promotes an eco-label in reaction to being involved in a CSR scandal (Groza et al., 2011) or when a company poses as if being only intrinsically motivated when extrinsic motivation is also present (De Vries et al., 2015).

We ground the abovementioned expectations in recent eco-label research, which noted that consumers' evaluations of eco-labels might be more naïve than previously understood (Ginder et al., 2021; Gosselt et al., 2019). In essence, when eco-labels are presented to consumers in an ordinary shopping context without attention to scandals, we expect consumers to interpret eco-labels as more or less substantial commitments to CSR rather than look for cues about hypocrisy. After all, any voluntary disclosure of an eco-label can be seen as evidence that a firm is committed to CSR beyond what is required by law and thus above the minimum industry standard. Such signals are, as evidenced by prior eco-label research, generally well received by consumers (Gosselt et al., 2019; Nyilasy et al., 2014; Parguel et al., 2011). As our first hypothesis, we therefore expect that:

**H1.** Consumers will generally prefer a product with any eco-label over the same product with no eco-label.

This having been said, it should be taken into account that consumers are rarely just comparing one product with no eco-label with essentially the same or a similar product with one eco-label. Rather, consumers are regularly exposed to multiple product alternatives with different eco-labels, which could trigger deliberation on each label's relative merits. Consumers might then consider the motives of the producers "behind" the products and labels, not to detect greenwashing and hypocrisy but to identify the most socially responsible choice alternative. In line with ideas put forward in extant eco-label research, consumers will seek to determine whether the social responsibility associated with the product is broad or pertaining to a marginal issue (Gosselt et al., 2019; Parguel et al., 2011). The core rationale, relying on Kelley's (1973) covariation model (Sjovall & Talk, 2004), is that social responsibility will be seen as more intrinsic and be more appreciated when it (i) goes beyond what is generally expected in the

industry (low consensus), (ii) regards a broad rather than narrowly defined issue and can thus be repeated across situations (low distinctiveness), and (iii) is sustained over time (high consistency).

Firm-level eco-labels stand out especially with regard to their associated broadness of the CSR commitment (i.e., low distinctiveness), as such labels pertain to a firm or brand as a whole rather than CSR attributes of specific products (Honeyman & Jana, 2019; Kim et al., 2016). For example, becoming a B Corporation can be seen as a way to publicly commit to being a virtuous brand (Kim et al., 2016); this signals a commitment over time (high consistency) rather than just good marketing (Honeyman & Jana, 2019). Based on this rationale, firm-level eco-labels might generally trigger attributions of high intrinsic motives which translate to high appreciation of the firm's products (De Vries et al., 2015; Schons & Steinmeier, 2016; Sjovall & Talk, 2004). It is worth noting that we still assume relatively quick judgments of consumers (Sigurdsson et al., 2022), focused on identifying the degree of firms' commitment to CSR. In sum, due to the associated broader and more substantial CSR commitment of firm-level eco-labels compared to product-level eco-labels, we expect that:

**H2a.** Consumers will generally prefer a product with a firm-level eco-label over the same product with a product-level eco-label.

Firm-level labels can, like product-level labels, be self-developed by the firm or certified by an external party. Following our line of argumentation thus far, pursuing external certification can be seen as a comparatively bigger commitment and investment to CSR than developing an internal label, thus placing a given firm further above what is generally expected in the industry (i.e., low consensus). Compared to an internal firm-level eco-label, which could be quickly put together and dropped again, using an external firm-level label implies a more long-term commitment and can thus signal a relatively higher repetition of CSR-actions across time (i.e., high consistency) on the end of the firm. Thus, albeit we expect consumers to appreciate both internal and external firm-level labels, we suggest that external firm-level eco-labels will be preferred as these labels indicate a comparatively more substantial commitment to CSR (Groza et al., 2011; Weiner, 2000). In sum:

**H2b.** Consumers will generally prefer a product with an external firm-level eco-label over the same product with an internal firm-level eco-label.

### 3.1 | Combinations of different types of eco-labels

Rather than picking one label over another, firms could try to combine different labels to trigger purchasing decisions in their favor. Current eco-label literature provides limited guidance in this regard, in part because eco-label combinations are not well researched and in part because firm-level eco-labels have not been considered among



combinatory options. However, Gosselt et al. (2019) studied the use of an external product-level label (with positive or negative valence) as an add-on to an internal product-level claim and found effects mainly related to the external label. Building on this and consistent with our reasoning so far, we expect an external firm-level label to be an even more effective add-on to an internal product-level label, as it indicates a comparatively more intrinsic and substantial commitment to CSR. However, there is also the option to instead combine an internal and an external firm-level label, and this should be the preferred option given our reasoning in the preceding hypotheses. Thus, we expect that:

**H3a.** Consumers will generally prefer a product with a combination including an external firm-level label over the same product with other label combinations.

**H3b.** Consumers will generally prefer a product with a combination including both an external and internal firm-level label over the same product with other label combinations.

Using more than one label per product increases the amount of information a consumer must consider before making an informed decision. We should here recall that prior eco-label studies suggest that consumers dedicate limited resources to such decisions (Gosselt et al., 2019; Sigurdsson et al., 2022). Thus, we should also consider that consumers' sensitivity to the content of each eco-label could diminish as the number of labels increases; this as the total number and combinations of labels requiring consideration might exceed the resources consumers are able or willing to dedicate to distill the labels' meaning. If this holds true, consumers will be prone to view differences in eco-labels between choice alternatives as a sign of variety rather than quality discrepancies (Brécard, 2014). However, no matter which two labels are combined on a product, one label could reinforce the effect of the other label placed on that product by simply making the general message of eco-friendliness more pronounced in the eyes of consumers. This leads to the expectation that:

**H3c.** Consumers will generally prefer a product with two eco-labels compared to the same product with one eco-label.

However, it should not be taken for granted that keeping on adding more labels will result in more positive effects on consumers' preferences. Just as consumers' attention to quality differences between choice alternatives might diminish when the amount of labels increases, their ability to determine a potential added value of another label to a given choice alternative could diminish as well. If no added value is perceived, suspicions might arise about window-dressing and greenwashing. Still, sticking with the assumption that consumers are relatively naïve when considering labels, we can expect that:

**H3d.** Consumers will generally prefer more rather than fewer eco-labels on the same product.

### 3.2 | The influence of label information and goal specificity

Apart from a lack of time or interest (Sigurdsson et al., 2022), a lack of information could hamper consumers' abilities to pick eco-labels reflecting their true preferences (Lee et al., 2020). Scholars noted that consumers prefer more information than most eco-labels offer (Atkinson & Rosenthal, 2014). Furthermore, perceived rather than actual familiarity could be sufficient for an effect of a label on willingness-to-pay (Sigurdsson et al., 2022), suggesting that consumers might pick a label due to a familiarity bias despite not knowing its true meaning. This suggests that:

**H4a.** Perceived label familiarity is positively associated with label preference.

If provided with explicit descriptions of different labels' meaning, however, consumers should find it less challenging and costly to infer a labels' relative value (Gosselt et al., 2019; Lee et al., 2020). Taken together, this informs the expectations that:

**H4b.** Consumers' preferences for a firm-level over a product-level eco-label depend on the information available to them about the labels' meaning.

**H4c.** Consumers' preferences for an external over an internal eco-label depend on the information available to them about the labels' meaning.

In addition to consumers' familiarity with labels and their meaning, their consumption goals are known to influence what information they seek out and value (Gollwitzer, 1993; Kopetz et al., 2012; Locke & Latham, 2002). Goals exist on a continuum from abstract to very concrete (Lee & Ariely, 2006; Trope & Liberman, 2003), with the goal(s) held focal in a given situation being most influential on behavior (Harris et al., 2018). Overall, theory and empirical evidence on consumers' goal pursuit suggests that when shoppers have a very specific consumption goal in mind, they will dedicate attention to a relatively narrow set of product attributes that directly support or fulfill this goal (Büttner et al., 2013; Fujita et al., 2007; Gollwitzer, 1990; Lee & Ariely, 2006). Shoppers holding less specific goals, by contrast, tend to be more open to consider and compare a broader variety of attributes before making a decision (Fujita et al., 2007; Murray et al., 2022).

Product-level labels are highly diagnostic for specific consumption goals because they provide detailed, relevant information about the product's environmental impact. These labels help consumers quickly and confidently identify products that meet their precise needs. For instance, when a consumer is looking for a sunscreen that will not be harmful to the reefs they will encounter during their next snorkeling trip, product-level labels such as "Reef Safe" provide clear, diagnostic information that the product meets this specific concern. Conversely, when consumers have a broader and more general consumption goal, such as making an environmentally responsible purchase for the summer, firm-level labels might be given more consideration and could

also offer more comprehensive assurance. These labels, such as B-Corp, indicate that the company as a whole operates responsibly, providing confidence that the purchase aligns with the consumer's overall ethical values and lifestyle choices. Firm-level labels thus offer a broader guarantee that may resonate more with consumers who are not focused on a specific usage context.

In sum, based on theory on consumers' goal pursuit and information processing during shopping, we propose that the specificity of the shopping goal moderates the preference for different types of eco-labels, with product-level labels being more influential under high goal specificity and firm-level labels under low goal specificity.

**H5a.** For purchases aimed at a specific task or need, consumers prefer product-level eco-labels over firm-level labels.

**H5b.** For purchases aimed at a broad task or need, consumers prefer firm-level eco-labels over product-level labels.

In addition to impacting product choice, the specificity of the shopping task might directly boost the monetary value consumers attribute to products. Marketing research has for long suggested that products are evaluated more positively if their attributes fit with the goals consumers are trying to fulfill (Büttner et al., 2015; Chernev, 2004; Lee & Higgins, 2009). In line with this and our argumentation further above, we expect that consumers focused on a specific product use will be more likely to perceive a fit between their purchasing goals and information from product-level eco-labels. Thus, they will value the associated products more than consumers pursuing a more general shopping task. In sum:

**H5c.** For purchases aimed at a specific task or need, consumers will be willing to pay more for products with product-level eco-labels.

**H5d.** For purchases aimed at a broad task or need, consumers will be willing to pay more for products with firm-level eco-labels.

## 4 | STUDY 1

We report on our methods and results and offer preliminary discussions per study. Out of consideration for readability and easy comparison, however, we provide demographic information for both studies in Table 1. Please refer to the Appendix for a summary of all results per hypothesis and all the regression models with all coefficients.

In Study 1, we tested H1–H4 by investigating preferences for different types of eco-labels and various eco-label combinations. In sum, we expected that consumers would generally prefer products with any eco-label over those without one (H1), that firm-level eco-labels would be preferred over product-level eco-labels (H2a), that external

**TABLE 1** Demographic information per study.

Demographic information	Study 1		Study 2	
	Count	Percentage	Count	Percentage
Age				
Mean age	45.513		46.023	
SD age	15.366		15.646	
Sex				
Female	153	51	153	51
Male	147	49	147	49
Ethnicity (simplified distribution)				
Asian	19	6	19	6
Black	36	12	36	12
Mixed	33	11	33	11
Other	24	8	24	8
White	188	63	188	63
Employment status				
Data expired	51	17	41	14
Due to start a new job within the next month	3	1	2	1
Full-time	109	36	158	53
Not in paid work (e.g., homemaker, retired, or disabled)	37	12	28	9
Other	17	6	11	4
Part-time	54	18	30	10
Unemployed (and job seeking)	29	10	30	10

firm-level labels would be preferred over internal firm-level labels (H2b), and that combinations of eco-labels including firm-level labels (H3a)—especially those including both external and internal firm-level labels (H3b)—would be more appealing than other label combinations. We also expected that products with more eco-labels would be preferred by consumers (H3c, H3d), and that preferences for external and firm-level labels would differ based on pre-existing perceived familiarity with given eco-labels (H4a) and the availability of full information about their meanings (H4b, H4c).

### 4.1 | Method

A representative sample (based on US Census Bureau demographics) of 300 participants from the United States was recruited through Prolific Academic to participate in the study. We used a choice-based conjoint experiment to study participants' preferences regarding shampoo products with or without eco-labels. A choice-based conjoint experiment is particularly suitable for this research as it simulates real-world decision-making processes by presenting participants with a series of trade-offs, allowing us to quantify the value placed on different eco-labels.

The study consisted of two stages. In the first stage, each participant completed five choice tasks, with three alternatives per task. The two attributes manipulated within the conjoint design were brand (three levels: Brand 1, Brand 2, Brand 3) and eco-label (five levels: no label, external product-level, external firm-level, internal product-level, internal firm-level). We used the R package cbcTools to generate individual choice sets for each participant by randomly sampling from the full set of profiles with replacement. Hence, each participant made five choices between three shampoo alternatives, where each alternative consisted of a combination of the brand and eco-label attributes.

In the second stage, each participant completed ten more choice tasks, using the same procedure to generate individual choice sets for each participant.

The attributes manipulated within the conjoint design were brand (three levels: Brand 1, Brand 2, Brand 3) and combinations of eco-labels (nine levels: no label, external product-level label, three combinations of an external product-level label with one of the three other labels, three combinations of an external product-level label with two of the three other labels, and one combination of an external product-level label with all three other labels). We selected the external product-level label as the baseline for each combination because it is the most common form of eco-label on the market. This choice allows us to test the additional utility provided by adding other types and combinations of eco-labels to this baseline.





Participants were randomly assigned to one of two conditions: full information or limited information. In the full information condition,

before the choice tasks, participants read clear explanations of what the labels meant. In the limited information condition, this information was not provided. The rationale for including the two conditions of full and limited information was to simulate different market situations where consumers may have varying levels of understanding about what eco-labels represent. The limited information condition reflects many real-world situations where consumers do not have a full understanding of the meaning behind eco-labels. We term this condition “limited information” rather than “no information” because participants may already be familiar with the labels, either through previous exposure or by deriving some information from the label name or logo. The full information condition, on the other hand, provides the best insights into participants' true preferences for different kinds and combinations of eco-labels, as it ensures they received explicit information about what each label stands for. To account for potential prior knowledge about labels, we asked participants about their (perceived) familiarity with the labels in addition to collecting demographic information.

## 4.2 | Stimuli

We utilized four distinct labels to represent different types of eco-labels. The external firm-level label was represented by B-Corp, the internal firm label was Eco Sustainable Business, the external product label was Green Seal, and the internal product label was Eco Product. Figure 1 provides visual representations of the labels and label

You will encounter the following eco-labels:

Label:	Description:
	B Corp is an independent certification for companies that meet high standards of social and environmental performance. It applies to the entire firm, indicating that the company as a whole is committed to sustainability.
	Green Seal is an independent certification for products that meet rigorous environmental standards. It applies to specific products, showing that they are eco-friendly.
	Eco Sustainable Business is a label created by the company to highlight its overall commitment to environmental practices. It indicates that the firm itself promotes sustainability.
	Eco Product is a label created by the company to highlight that a product is environmentally friendly. It highlights that the product has eco-friendly attributes.

**FIGURE 1** Descriptions of eco-labels encountered in Study 1.

descriptions; the latter were the same as provided in the full information condition of the study. Examples of the choice sets for both parts of Study 1 can be found in the [Appendix](#).

### 4.3 | Results and discussion

The data were analyzed using a series of multinomial logit models, where the dependent variable was participants' choice between the three alternatives in a choice set, and the independent variables were the different levels of brand and eco-label coded as dummy variables. The coefficients from the models represent the effect of each attribute level on the log-odds of choosing a specific alternative over the baseline. A positive coefficient increases the probability of that alternative being chosen, while a negative coefficient decreases it compared to the reference level. In choice-based conjoint experiments, the coefficients can be interpreted as the relative utility or preference participants have for an attribute level compared to the reference level.

To statistically test how preferences differed depending on whether respondents had limited or full information about the eco-labels, we included interaction terms between the information condition and the coefficients for the attribute levels in the model. This allowed us to examine whether the impact of each attribute level on participants' choices varied based on whether they were in the limited or full information condition.

#### 4.3.1 | Stage 1: Types of eco-labels

The results from the multinomial logit model on the first five choice tasks revealed that, on average and with all other factors held constant, participants significantly preferred alternatives with eco-labels over alternatives without an eco-label (external firm-level label:  $\beta = 1.365$ , 95% CI = 1.018, 1.713,  $p < 0.0001$ ; external product-level label:  $\beta = 1.880$ , 95% CI = 1.532, 2.229,  $p < 0.0001$ ; internal firm-level label:  $\beta = 2.191$ , 95% CI = 1.837, 2.544,  $p < 0.0001$ ; internal product-level label:  $\beta = 1.296$ , 95% CI = 0.943, 1.646,  $p < 0.0001$ ). We tested contrasts to examine the main effects of product versus firm labels and internal versus external labels; Wald tests showed that participants did not significantly prefer external or internal eco-labels ( $\chi^2(1) = 1.593$ ,  $p = 0.207$ ), but did significantly prefer firm-level labels over product-level labels ( $\chi^2(1) = 4.098$ ,  $p = 0.043$ ).

The interaction terms between the information condition and eco-label preferences were also significant. Specifically, participants in the full information condition had a higher preference for external firm-level labels ( $\beta = 0.992$ , 95% CI = 0.458, 1.533,  $p < 0.0001$ ) and external product-level labels ( $\beta = 0.618$ , 95% CI = 0.078, 1.165,  $p = 0.025$ ) compared to participants in the limited information condition. Participants showed no significant preference for Brand 2 and 3 over baseline Brand 1 (Brand 2:  $\beta = 0.067$ , 95% CI = -0.152, 0.280,  $p = 0.540$ ; Brand 3:  $\beta = 0.008$ , 95% CI = -0.204, 0.226,  $p = 0.944$ ).

To better understand participants' preferences for the different eco-labels under full and limited information conditions, we estimated separate follow-up multinomial logit models for both conditions. Participants in the limited information condition showed a significant preference for internal firm-level labels ( $\beta = 2.191$ , 95% CI = 1.842, 2.548,  $p < 0.0001$ ) and external product-level labels ( $\beta = 1.880$ , 95% CI = 1.536, 2.223,  $p < 0.0001$ ), followed by external firm-level labels ( $\beta = 1.365$ , 95% CI = 1.015, 1.707,  $p < 0.0001$ ) and internal product-level labels ( $\beta = 1.296$ , 95% CI = 0.950, 1.638,  $p < 0.0001$ ). Overall, participants who had limited information about the different eco-labels did not significantly prefer external or internal eco-labels ( $\chi^2(1) = 1.596$ ,  $p = 0.206$ ), but did significantly prefer firm-level over product-level labels ( $\chi^2(1, N = 800) = 4.097$ ,  $p = 0.043$ ).

Participants in the full information condition showed a strong preference for external firm-level labels ( $\beta = 2.357$ , 95% CI = 1.959, 2.776,  $p < 0.0001$ ) and external product-level labels ( $\beta = 2.498$ , 95% CI = 2.097, 2.920,  $p < 0.0001$ ), more so than for internal firm-level labels ( $\beta = 1.708$ , 95% CI = 1.301, 2.118,  $p < 0.0001$ ) and internal product-level labels ( $\beta = 1.449$ , 95% CI = 1.037, 1.872,  $p < 0.0001$ ). Importantly, participants who had full information about the eco-labels significantly preferred external labels over internal labels ( $\chi^2(1) = 65.377$ ,  $p < 0.0001$ ) but did not significantly prefer firm or product labels ( $\chi^2(1) = 0.336$ ,  $p = 0.056$ ).

We extended our analysis of familiarity under limited information conditions by including the familiar variable, which indicates respondents' familiarity with specific eco-labels. This variable could take multiple values, representing familiarity with different labels. We created dummy variables for familiarity with each label (External Firm, Internal Product, Internal Firm, External Product) and created interaction terms between these dummies and the respective label terms. We then ran a multinomial logit model on the subset of data under the limited information condition, including these interaction terms. The results revealed that familiarity with the external firm-level label had a strong positive and statistically significant impact on the preference for this label (coefficient = 1.994,  $p < 0.001$ ). Similarly, familiarity with the internal product-level label significantly increased the preference for this label (coefficient = 0.918,  $p = 0.039$ ). However, the impact of familiarity on preference for the internal firm-level (coefficient = 0.390,  $p = 0.253$ ) and external product-level (coefficient = 0.374,  $p = 0.184$ ) labels was not statistically significant, indicating that familiarity alone may not be sufficient to influence preference for these labels.

#### 4.3.2 | Stage 2: Numbers and combinations of eco-labels

We collapsed the eco-label levels into five categories: no label, one, two, three, and four labels to get a comprehensive understanding of participants' preferences for number of eco-labels. Compared to alternatives with no labels, alternatives with one label ( $\beta = 0.662$ , SE = 0.182,  $p < 0.0001$ ), two labels ( $\beta = 1.130$ , SE = 0.156,  $p < 0.0001$ ), three labels ( $\beta = 1.742$ , SE = 0.158,  $p < 0.0001$ ), and four



labels ( $\beta = 2.255$ ,  $SE = 0.161$ ,  $p < 0.001$ ) were significantly more likely to be chosen. These results suggest that participants generally preferred more eco-labels on shampoo products, with the preference increasing as the number of labels increased. The coefficients for the brand levels indicated no significant preference for Brand 2 ( $\beta = 0.022$ ,  $SE = 0.079$ ,  $p = 0.784$ ) or Brand 3 ( $\beta = 0.064$ ,  $SE = 0.079$ ,  $p = 0.416$ ) over Brand 1. The interaction terms between the information condition and the attribute levels revealed that participants' preferences for different eco-label combinations varied depending on the level of information provided. Specifically, participants in the full information condition showed a stronger preference for alternatives with three ( $\beta = 0.655$ ,  $SE = 0.257$ ,  $p = 0.011$ ) and four labels ( $\beta = 1.296$ ,  $SE = 0.263$ ,  $p < 0.0001$ ) compared to those in the limited information condition.

We then conducted a multinomial logit analysis with dummies for each unique combination of eco-labels. The results showed that each eco-label combination from one to four labels had significantly higher preferences over the baseline of no label, with coefficients ranging from 0.669 to 2.264 (all  $p < 0.0001$ ). We conducted contrast tests to compare preferences among different combinations of labels. To determine if the addition of each second eco-label beyond the external product-level label led to significantly higher preference, we contrasted the latter label with each level that has two labels. The results showed that adding an internal firm-level label ( $\chi^2(1) = 24.825$ ,  $p < 0.001$ ), adding an external firm-level label ( $\chi^2(1) = 5.285$ ,  $p = 0.022$ ), and adding an internal product-level label to the external product-level label ( $\chi^2(1) = 5.029$ ,  $p = 0.025$ ) all led to significantly higher preferences.

Among the two-label combinations, an external product-level and internal firm-level label was significantly preferred over an external product-level and external firm-level label ( $\chi^2(1) = 6.522$ ,  $p = 0.011$ ) and an external product-level and internal product-level label ( $\chi^2(1) = 8.707$ ,  $p = 0.003$ ). However, there was no significant difference in preference between an external product-level and external firm-level label and an external product-level and internal product-level label ( $\chi^2(1) = 0.041$ ,  $p = 0.839$ ). For the levels with three labels, the contrast between an external product-level, internal firm-level, and external firm-level label and an external product-level, internal firm-level, and internal product-level label indicated that participants significantly preferred the combination with the internal product-level label ( $\chi^2(1) = 7.015$ ,  $p = 0.008$ ). Lastly, to assess if the addition of a fourth label added significant preference, we compared the two levels with three labels against the level with four labels. The results revealed that adding a fourth label to the external product level, internal firm level, and external firm-level labels ( $\chi^2(1) = 10.933$ ,  $p = 0.001$ ) and to the external product level, internal firm level, and internal product-level labels ( $\chi^2(1) = 39.147$ ,  $p < 0.001$ ) significantly increased preferences.

Overall, the results from Study 1 highlight the significant influence of eco-labels on participants' preferences for shampoo products and the relevance of firm-level labels for impacting consumer choice. Participants significantly preferred products with eco-labels over those without, and firm-level eco-labels were generally preferred

over product-level eco-labels. Additionally, external firm-level labels were received more favorably than internal firm-level labels in the full information condition. Combinations of eco-labels, particularly those including external labels, were more appealing to consumers. Notably, inclusion of both external and internal firm-level labels significantly enhanced product appeal, and products with more eco-labels were generally preferred; this indicates that consumers generally value sustainability efforts and that an increased number of eco-labels enhances the perceived value of products.

While pre-existing familiarity with certain eco-labels (external firm-level and internal product-level) significantly enhanced consumer preferences for those labels, familiarity alone was not sufficient to impact preferences for other labels (internal firm-level and external product-level). Notably, comparing the limited and full information conditions of our study suggested that understanding what the labels mean strengthens consumers' preferences for external labels in general. This underscores the relevance of sufficient information about labels' meaning being available before consumers are made to choose among different product alternatives.

## 5 | STUDY 2

In Study 2, we aimed to further scrutinize consumers' responses to firm-level or product-level eco-labels compared to no labels (H1, H2a) and how their choices and valuations might depend on goal specificity (H5a, H5b). Additionally, we assessed the willingness-to-pay (WTP) for eco-labels on products (H5c, H5d), which helped to better reflect actual market choices where price is a significant factor in consumers' purchase decisions. In sum, we expected a general preference for eco-labels over no labels as shown in Study 1, but now predicted that product-level labels would be more preferred and valued under high goal specificity while firm-level labels would be more preferred and valued under low goal specificity.

### 5.1 | Method

A representative sample (based on US Census Bureau demographics) of 300 participants from the United States was recruited through Prolific Academic to participate in the study. We ran another choice-based conjoint experiment to study participants' preferences regarding sunscreen products with or without eco-labels. Each participant completed 10 choice tasks, with three alternatives per task. The attributes manipulated within the conjoint design were brand (three levels: Brand 1, Brand 2, Brand 3), price (four levels: \$7.99, \$9.99, \$11.99, \$13.99), and eco-label (three levels: no label, product-level, firm-level). We again used the R package cbcTools to generate individual choice sets for each participant. Hence, each participant made 10 choices between three sunscreen alternatives, where each alternative consisted of a combination of brand, price, and eco-label attributes. Before the choice tasks, participants were informed about the two eco-labels' meaning.

Importantly, participants were now randomly assigned to one of two conditions: high goal specificity or low goal specificity. In the high goal specificity condition, participants were instructed to consider their choice based on a specific usage goal related to the product (i.e., finding a sunscreen for a snorkeling trip that would best protect the reef). In the low goal specificity condition, participants were instructed to consider their choice based on a more generic goal (i.e., making an environmentally responsible sunscreen purchase for the summer).

## 5.2 | Stimuli

We used external labels based on findings from Study 1, which showed that external labels were most preferred by consumers as long as they were fully informed about the labels' meaning. The product-level label was Reef Safe, a fictional externally certified label indicating that products are made to minimize their impact on marine ecosystems such as coral reefs. The firm-level label was B-Corp, indicating that the entire company behind the product operates with a strong commitment to sustainability. To provide participants with the necessary context, we gave them information about the labels prior to the choice task, similar to the full information condition in Study 1. This approach provides the best information about people's real preferences by ensuring they understand what each eco-label signifies. Figure 2 provides visual representations of the labels and label descriptions. Examples of the choice sets used for Study 2 can be found in the [Appendix](#).

## 5.3 | Results and discussion

The data were analyzed using a multinomial logit model, where the dependent variable was participants' choice between the three alternatives and the independent variables were the levels of brand, price,

and eco-label. To statistically test how preferences differed depending on goal specificity, we included interaction terms between the goal specificity condition and the coefficients for the attribute levels in the model. This allowed us to examine whether the impact of each attribute level on participants' choices varied based on whether they were in the high or low goal specificity condition.

The results revealed that, on average, all other factors held constant, participants significantly preferred alternatives with eco-labels over alternatives without an eco-label (firm-level label:  $\beta = 2.628$ , 95% CI = 2.354, 2.910,  $p < 0.001$ ; product-level label:  $\beta = 3.247$ , 95% CI = 2.955, 3.540,  $p < 0.001$ ). Unsurprisingly, participants had a significantly lower preference for higher prices compared to the lowest price of \$7.99 (\$9.99:  $\beta = -0.886$ , 95% CI =  $-1.115$ ,  $-0.656$ ,  $p < 0.0001$ ; \$11.99:  $\beta = -1.798$ , 95% CI =  $-2.038$ ,  $-1.557$ ,  $p < 0.0001$ ; \$13.99:  $\beta = -2.581$ , 95% CI =  $-2.854$ ,  $-2.305$ ,  $p < 0.0001$ ). Finally, participants showed a significant preference for Brand 2 and 3 over baseline Brand 1 ( $\beta = 0.403$ , 95% CI = 0.210, 0.602,  $p < 0.0001$ , and  $\beta = 0.368$ , 95% CI = 0.164, 0.571,  $p < 0.0001$ , respectively). Importantly, the interactions between goal specificity and eco-label preferences were also significant. Specifically, participants in the high goal specificity condition had a lower preference for the firm-level label compared to participants in the low goal specificity condition ( $\beta = -0.708$ , 95% CI =  $-1.088$ ,  $-0.329$ ,  $p < 0.0001$ ) and a marginally significantly higher preference for the product-level label ( $\beta = 0.406$ , 95% CI =  $-0.005$ , 0.818,  $p = 0.055$ ). Finally, participants in the high goal specificity condition were also somewhat less price sensitive compared to participants in the low goal specificity condition, as evidenced by the positive interaction terms for high goal specificity with price levels \$9.99 ( $\beta = 0.326$ , 95% CI = 0.012, 0.642,  $p < 0.05$ ), \$11.99 ( $\beta = 0.279$ , 95% CI =  $-0.052$ , 0.611,  $p > 0.1$ ), and \$13.99 ( $\beta = 0.450$ , 95% CI = 0.075, 0.823,  $p < 0.05$ ).

To better understand participants' preferences for the different eco-labels under high and low goal specificity conditions, we estimated a separate follow-up multinomial logit model for both goal specificity conditions. Participants in the high goal specificity

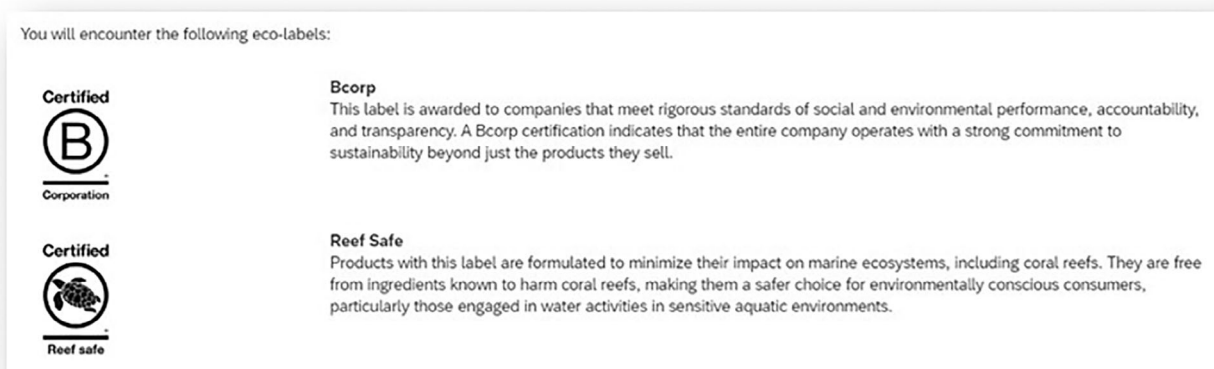


FIGURE 2 Descriptions of eco-labels encountered in Study 2.



condition significantly preferred eco-labels over no label (firm-level label:  $\beta = 1.921$ , 95% CI = 1.667, 2.173,  $p < 0.0001$ ; product-level label:  $\beta = 3.654$ , 95% CI = 3.366, 3.944,  $p < 0.0001$ ), and participants significantly preferred the product-level label over the firm-level label ( $\beta = 1.732$ , 95% CI = 1.534, 1.928,  $p < 0.0001$ ). Participants in the low goal specificity condition also significantly preferred eco-labels over no labels (firm-level label:  $\beta = 2.628$ , 95% CI = 2.353, 2.906,  $p < 0.0001$ ; product-level:  $\beta = 3.248$ , 95% CI = 2.955, 3.548,  $p < 0.0001$ ). Interestingly, even in the low specificity condition, participants significantly preferred the product-level label over the firm-level label ( $\beta = 0.619$ , 95% CI = 0.437, 0.797,  $p < 0.0001$ ), although this relative preference was markedly smaller than under high goal specificity conditions.

We calculated the relative influence of each attribute (brand, price, eco-label) on participants' choices by determining the range of utility values (part-worth  $\beta$  estimates) for each attribute, normalizing these ranges across all attributes, and expressing them as a percentage of the total utility range. The results showed that, across both conditions, brand accounted for 6.48% of the participants' choices, price accounted for 41.42%, and eco-label accounted for 52.11%. In the high goal specificity condition, brand accounted for 5.95% of the choices, price for 34.65%, and eco-label for 59.40%. In the low goal specificity condition, brand accounted for 6.47%, price for 41.42%, and eco-label for 52.11%. This suggests that when participants had a specific goal in mind, they placed slightly greater importance on eco-labels and were somewhat less sensitive to price variations.

Finally, we calculated WTP for the different eco-labels (compared to no eco-label) using the utility values (part-worth  $\beta$  estimates) from our multinomial logit model. The WTP for each eco-label is determined by dividing the eco-label's  $\beta$  coefficient by the mean of the price coefficients. Results showed that, in the specific context of this study, participants were willing to pay an additional \$1.50 for a sunscreen product with a firm-level eco-label and an additional \$1.85 for a sunscreen product with a product-level eco-label, compared to a product with no eco-label. In the low goal specificity condition, participants were willing to pay \$1.50 for a firm-level label and \$1.85 for a product-level label. In the high goal specificity condition, participants were willing to pay \$1.37 for a firm-level label and \$2.60 for a product-level label. This suggests that when participants had a specific goal in mind, they showed a greater WTP for product-level eco-labels, while their WTP for firm-level eco-labels remained relatively consistent across conditions.

Overall, the Study 2 findings highlight the significant influence of eco-labels—be it firm-level or product-level—on preferences for sunscreen products. In line with Study 1, participants significantly preferred eco-labeled products over non-labeled alternatives. Participants were willing to pay an additional \$1.50 for a sunscreen product with a firm-level eco-label and an additional \$1.85 for a product-level eco-label compared to a product with no eco-label, although these WTP values should primarily be interpreted within the context of our specific study and not as a general indication of WTP for eco-labels.

Our expectations that product-level labels would be more preferred under high goal specificity while firm-level labels would be more preferred under low specificity were, overall, partially confirmed. Participants indeed showed a higher preference for firm-level labels under low goal specificity than under high goal specificity conditions, but product-level labels remained the most preferred label in both conditions. As we return to in our general discussion, the unexpected lower relative preference for firm-level labels under low goal specificity could potentially be explained by changes in consumers' focal goals triggered by the product-level label.

## 6 | GENERAL DISCUSSION

Eco-labels are known to impact consumer evaluations of products and brands (e.g., Gosselt et al., 2019; Nyilasy et al., 2014; Parguel et al., 2011). However, questions have remained regarding consumers' abilities to distinguish between and derive the meaning of different labels (Dekhili & Achabou, 2014; Sigurdsson et al., 2022) as well as the relative impact of various label constellations on consumer preferences. By means of two choice-based conjoint experiments, this research investigated the effects of different types, numbers, and combinations of eco-labels—including the under-researched concept of firm-level eco-labels—on consumers' revealed preferences. Across two studies, we found that eco-labels positively impacted label choice (H1, supported) and that study participants generally preferred a firm-level over a product-level eco-label when labels were displayed in isolation (H2a supported). However, contrary to our prediction, participants did not show a general preference for an externally certified firm-level label over an internally developed such label (H2b, not supported). These results highlight firm-level eco-labels as an important alternative to product-level eco-labels but also suggest that consumers might be even more trusting or naïve (Gosselt et al., 2019; Sigurdsson et al., 2022) than hypothesized as they do not consistently discriminate between externally certified and internally developed labels.

For products with label combinations, ensuring that firm-level labels were featured did not consistently predict consumer choice (H3a and H3b, not supported), although a combination including an internal firm-level label was significantly preferred over other two-label combinations. One possible interpretation of this result is that consumers generally conserve information processing resources when making shopping decisions—especially when shopping online (Niza Braga & Jacinto, 2022). As a consequence, they pay less attention to differences in label quality when there are more labels to consider on the same product—a circumstance which may potentially shift attention in favor of label quantity. Indeed, study participants significantly preferred two eco-labels over one per product (H3c, supported) and preferences increased as the number of labels increased (H3d, supported). The latter underscores that all eco-label types included in our studies (product-level, firm-level, internal, external) can enhance product appeal. With these results, we heed recent calls to investigate

combinations of eco-labels (Sigurdsson et al., 2022) and not just eco-labels displayed on a product in isolation. Furthermore, we challenge prior research which found that confusion and dissatisfaction among consumers increased as more labels were added (Langer et al., 2007) by specifying that—when choice is the dependent variable—more labels were preferred in our study context.

An advantage of our work is that we accounted for conditions of limited and full information, where the former points to effects from preconceived information about labels held by study participants and the latter points to being provided with information about labels' (actual) meaning in the shopping context. Participants' perceived label familiarity increased the chance of some but not all of the labels included in our study getting picked (H4a, partially supported). Notably, receiving information about the labels' actual meaning did impact choice in the sense that no significant preference was detected for firm- or product-level labels among participants with full information, contrasting a significant preference for firm-level labels among those with limited information (H4b, partially supported, but inverted). The significant impact of receiving full information on preferences for external labels (whether firm- or product-level) can explain the prior result (H4c, supported). Notably, having full information was also associated with increased preferences for more labels combined on products; this result is interesting as it suggests that one mechanism through which eco-labels' can “work” is by educating consumers instead of confusing them (Langer et al., 2007).

Taken together, the study results on label familiarity and information further inform contentions in the eco-label literature on the importance of label familiarity among consumers (Langer et al., 2007; Lee et al., 2020). While prior work found that perceived label familiarity mediated a label's effect on willingness-to-pay, the impact on label choice had been left unclear as choice was not included as a variable (Sigurdsson et al., 2022). Our work indicates only partial effects on choice for the influence of perceived label familiarity. At the same time, it empirically validates the assumed relevance and impact of increasing the information provided to consumers about eco-labels' meaning (Atkinson & Rosenthal, 2014) by showing that such information can shift preferences in the direction of external labels. This further supports the notion that consumers are initially “naïve” (Gosselt et al., 2019) and may take internal eco-labels for granted without questioning their authenticity in the absence of explicit information.

In addition to providing evidence on the effect of information on label preferences, we hypothesized and found that the specificity of shopping goals mattered for eco-label preferences. Notably, while participants showed a higher preference for firm-level labels under low goal specificity conditions than under high goal specificity, product-level labels remained the most preferred label in both these conditions (H5a, supported; H5b, not supported). This highlights that, even though firm-level labels might generally add value to product-level labels and even be judged as more attractive under some conditions (e.g., our study 1's limited information condition with a mix of internal and external labels featured on shampoo products), they might fall comparatively short under other conditions (e.g., full information, only external labels featured on sunscreen products). Future

work should further scrutinize the impact of situational circumstances on consumers' shopping goals and associated eco-label preferences. As product-level labels provide diagnostic information about a products' general inclination toward certain sustainability aspects, it seems plausible that they could—contrary to our initial expectations—trigger relatively open-minded consumers with low goal specificity to form more concrete goals in the shopping moment based on the highlighted product attributes (e.g., “Reef Safe”) and thus prefer these labels.

Although some prior literature suggested that firms sometimes strategically refrain from displaying external firm-level labels on products to avoid accusations of hypocrisy or greenwashing (Carlos & Lewis, 2018; Marquis et al., 2016), our study results indicated no such backfiring effects. On the contrary, participants in our study indicated a willingness-to-pay (WTP) more for both external firm-level and external product-level labels. However, study participants with a specific goal in mind were willing to pay more for product-level eco-labels in our study context (H5c, supported) and were somewhat less price sensitive. WTP for firm-level eco-labels was relatively unchanged across conditions (H5d, not supported). Overall, these results corroborate the aforementioned study insights regarding the relevance of firm-level eco-labels for increasing consumer preferences, thus speaking to the literature on strategic hiding of firm-level labels (Cao et al., 2017). At the same time, they highlight to this literature the importance of taking the context of consumers' decision-making into account when making predictions about eco-label preferences; not only context with respect to the information provided about eco-labels (Atkinson & Rosenthal, 2014) but also with respect to which goals consumers hold focal in the shopping moment (Gollwitzer, 1993; Kopetz et al., 2012).

## 7 | CONCLUSIONS AND IMPLICATIONS

When aiming to attract consumers based on corporate social responsibility, firms face the strategic choice of whether and how to feature eco-labels on their products. Although research and legislation has dedicated most attention to labels displaying claims about specific products, firms have started exploring the use of firm-level eco-labels on products as well. Overall, our research suggests that firm-level eco-labels may be effective substitutes for product-level eco-labels, but that this depends on consumers' pre-existing familiarity with the labels, the availability of information about the labels' meaning in the shopping moment, and consumers' specific shopping goals. Irrespective of these conditional influences, however, our work establishes firm-level eco-labels as an effective add-on to product-level labels within our study context.

It should be taken into account that our choice of setting (i.e., shampoo and sunscreen products) cautions against generalization outside of the business-to-consumer body care industry. Some industries, like petroleum, are inherently riskier in terms of environmental failure and may therefore be more prone to consumer skepticism with regards to eco-labeling (Nyilasy et al., 2014). Future research could



explore the effect of eco-labelling in different industries while controlling for pre-industry standards. Furthermore, future research could look at emergent technologies that could potentially complement or substitute labels as means for communicating social responsibility. For example, blockchain technology might guarantee complete traceability and transparency of products in the textile, apparel, and fashion industry (Abbate et al., 2024); future research could study the relative effects of giving consumers access to trace data compared to displaying various labels reflecting responsible production and seek to address the effectiveness of regulatory pluralism in this regard (see Gunningham & Sinclair, 2019).

It should also be noted that each of the different eco-label types in this study was represented by one variant. These were—in line with recent research—all designed to be clearly visible and easy to process (Donato & Adigüzel, 2022). Still, impacts of differences in participants' design preferences cannot be completely ruled out. Furthermore, although the eco-labels and vignettes used were presented in a realistic way to simulate an online shopping experience, it remains an artificial setting, and future work can explore whether consumers' responses differ in a more natural context (e.g., an actual webpage with multiple products). This having been said, our study arguably provides more robust indications of consumers' actual preferences than many prior eco-label studies due to its focus on revealed preferences (i.e., choice) rather than product evaluations and purchase intentions (see Gosselt et al., 2019).

Overall, our general verification of firm-level eco-labels as relevant substitutes for or add-ons to (internal) product-level labels can already inform firms' eco-label strategies as it expands the scope of options to consider. In the present business environment and under current regulations, high efforts and investments on the end of a firm are often required to become accredited with an externally certified eco-label, while developing labels internally remains relatively low-cost. Yet, giving consideration to regulatory pressures to delimit the use of non-verified eco-claims (EC, 2022a, 2022b) and our study result that consumers generally prefer more labels over fewer labels, externally certified firm-level labels could emerge as increasingly relevant for firms that have until now used internal product-level labels on products. Given our study result that information provision can shift preferences in favor of external eco-labels, firms that already invested in external eco-labels—whether on the product-level or firm-level—should consider how they can contribute to making consumers more educated. Furthermore, managers of firms with only internal eco-labels should be aware that if competition starts using external eco-labels and consumers become better informed, customers may switch to the competitor's products.

Our results also matter for regulatory bodies who aim to reduce the use of non-certified labels. In terms of influencing consumers to make more ethical purchasing choices, prior work has hinted that eco-labels could be expanded with better explanations (Atkinson & Rosenthal, 2014). Our study points to a different alternative: to provide information not on the labels but near the labels and in close temporal proximity to the moment where purchasing decisions are made. In an online retail environment, information could be provided

near the display of any eco-label. In a physical store, eco-label information could be displayed near the relevant product shelves. Interestingly, this practice has recently been pushed by the Swedish Superior Patent and Market Court (PMT 1782–21) which ruled that information about eco-labels that are not publicly run (e.g., the EU eco-label) must be provided in an easily accessible and clear manner in close proximity to the labels to avoid violating the Swedish Marketing Act. In the absence of such rules, however, regulators should carefully check that the existence of firm-level labels has been sufficiently accounted for in law proposals aimed at reducing eco-claims that are not externally verifiable. Otherwise, such laws might only motivate a shift from non-verified product-level labels to non-verified firm-level labels and thus have a negligible effect on the goal of reducing firms' use of non-verified eco-claims.

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## REFERENCES

- Abbate, S., Centobelli, P., Cerchione, R., Nadeem, S. P., & Riccio, E. (2024). Sustainability trends and gaps in the textile, apparel and fashion industries. *Environment, Development and Sustainability*, 26(2), 2837–2864.
- ACDA. (2017). DA announces settlement with Walmart over 'greenwashing' claims. Office of the Alameda County District Attorney. [https://www.alcoda.org/newsroom/2017/feb/walmart\\_settlement](https://www.alcoda.org/newsroom/2017/feb/walmart_settlement)
- Atkinson, L. (2014). Wild west' of eco-labels: Sustainability claims are confusing consumers. *The Guardian*. <https://www.theguardian.com/sustainable-business/ecolabels-sustainability-trust-corporate-government>
- Atkinson, L., & Rosenthal, S. (2014). Signaling the green sell: The influence of eco-label source, argument specificity, and product involvement on consumer trust. *Journal of Advertising*, 43(1), 33–45.
- Bcorporation.net. (2021). About B Corps. <https://bcorporation.net/about-b-corps>
- Becker-Olsen, K. L., Cudmore, B. A., & Hill, R. P. (2006). The impact of perceived corporate social responsibility on consumer behavior. *Journal of Business Research*, 59, 46–53.
- Brécard, D. (2014). Consumer confusion over the profusion of eco-labels: Lessons from a double differentiation model. *Resource and Energy Economics*, 37, 64–84.
- Burger-Helmchen, T., & Siegel, E. J. (2020). Some thoughts on CSR in relation to B Corp labels. *Entrepreneurship Research Journal*, 10(4), 20200231.
- Büttner, O. B., Florack, A., & Göritz, A. S. (2013). Shopping orientation and mindsets: How motivation influences consumer information processing during shopping. *Psychology & Marketing*, 30(9), 779–793.
- Büttner, O. B., Florack, A., & Göritz, A. S. (2015). How shopping orientation influences the effectiveness of monetary and nonmonetary promotions. *European Journal of Marketing*, 49(1/2), 170–189.
- Cao, K., Gehman, J., & Grimes, M. G. (2017). Standing out and fitting in: Charting the emergence of certified B corporations by industry and region. In *Hybrid ventures*. Emerald Publishing Limited.

- Carlos, W. C., & Lewis, B. W. (2018). Strategic silence: Withholding certification status as a hypocrisy avoidance tactic. *Administrative Science Quarterly*, 63(1), 130–169.
- Chen, X., Gao, Z., Swisher, M., House, L., & Zhao, X. (2018). Eco-labeling in the fresh produce market: Not all environmentally friendly labels are equally valued. *Ecological Economics*, 154, 201–210.
- Chernev, A. (2004). Goal-attribute compatibility in consumer choice. *Journal of Consumer Psychology*, 14(1/2), 141–150.
- De Vries, G., Terwel, B. W., Ellemers, N., & Daamen, D. D. L. (2015). Sustainability or profitability? How communicated motives for environmental policy affect public perceptions of corporate greenwashing. *Corporate Social Responsibility and Environmental Management*, 22(3), 142–154.
- Dekhili, S., & Achabou, M. (2014). Towards greater understanding of ecolabel effects: The role of country of origin. *Journal of Applied Business Research*, 30, 433–437.
- Delmas, M. A., & Lessem, N. (2017). Eco-premium or eco-penalty? Eco-labels and quality in the organic wine market. *Business & Society*, 56(2), 318–356.
- Donato, C., & Adigüzel, F. (2022). Visual complexity of eco-labels and product evaluations in online setting: Is simple always better? *Journal of Retailing and Consumer Services*, 67, 102961.
- D'Souza, C., Taghian, M., & Brouwer, A. R. (2021). Ecolabels information and consumer self confidence in decision-making: A strategic imperative. *Journal of Strategic Marketing*, 29, 141–157.
- Du, S., Bhattacharya, C. B., & Sen, S. (2010). Maximizing business returns to corporate social responsibility (CSR): The role of CSR communication. *International Journal of Management Reviews*, 12(1), 8–19.
- Dupré, S. (2005). *Talk the walk: Advancing sustainable lifestyles through marketing and communications*. UNEP/Earthprint.
- EC. (2022a). Proposal for a directive of the European Parliament and of the council amending directives 2005/29/EC and 2011/83/EU as regards empowering consumers for the green transition through better protection against unfair practices and better information. European Commission. Brussels. Document number 52022PC0143, accessible via <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52022PC0143>
- EC. (2022b). *Circular economy: Commission proposes new consumer rights and a ban on greenwashing*. European Commission. [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_2098](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_2098)
- Ecolabel Index. (2021). <http://www.ecolabelindex.com/ecolabels/>
- Ellen, P. S., Webb, D. J., & Mohr, L. A. (2006). Building corporate associations: Consumer attributions for corporate socially responsible programs. *Journal of the Academy of Environment*, 12, 316–331.
- Fujita, K., Gollwitzer, P. M., & Oettingen, G. (2007). Mindsets and pre-conscious open-mindedness to incidental information. *Journal of Experimental Social Psychology*, 43(1), 48–61.
- Ginder, W., Kwon, W. S., & Byun, S. E. (2021). Effects of internal-external congruence-based CSR positioning: An attribution theory approach. *Journal of Business Ethics*, 169(2), 355–369.
- Global Eco-labelling Network. (2004). Introduction to eco-labelling. [http://www.globaleco-labelling.net/docs/documents/intro\\_to\\_eco-labelling.pdf](http://www.globaleco-labelling.net/docs/documents/intro_to_eco-labelling.pdf)
- Gollwitzer, P. M. (1990). Action phases and mind-sets. In *Handbook of Motivation and Cognition: Foundations of Social Behavior* (Vol. 2, pp. 53–92). Guilford Press.
- Gollwitzer, P. M. (1993). Goal achievement: The role of intentions. *European Review of Social Psychology*, 4, 75–109.
- Gosselt, J. F., Van Rompay, T., & Haske, L. (2019). Won't get fooled again: The effects of internal and external CSR ECO-labeling. *Journal of Business Ethics*, 155, 413–424.
- Groza, M. D., Pronschinske, M. R., & Walker, M. (2011). Perceived organizational motives and consumer responses to proactive and reactive CSR. *Journal of Business Ethics*, 102, 639–652.
- Grunert, K. G., & Wills, J. M. (2007). A review of European research on consumer response to nutrition information on food labels. *Journal of Public Health*, 15, 385–399.
- Gunningham, N., & Sinclair, D. (2019). Regulatory pluralism: Designing policy mixes for environmental protection. In *Environmental law* (pp. 463–490). Routledge.
- Harris, P., Riley, F. D. O., & Hand, C. (2018). Understanding multichannel shopper journey configuration: An application of goal theory. *Journal of Retailing and Consumer Services*, 44, 108–117.
- Heider, F. (1958). *The psychology of interpersonal relations*. John Wiley & Sons Inc.
- Honeyman, R., & Jana, T. (2019). *The B Corp handbook: How you can use business as a force for good*. Berrett-Koehler Publishers.
- Hosta, M., & Zabkar, V. (2021). Antecedents of environmentally and socially responsible sustainable consumer behavior. *Journal of Business Ethics*, 171(2), 273–293.
- International Food Information Council. (2020). 2020 Food & Health Survey. <https://foodinsight.org/2020-food-and-health-survey/>
- Iraldo, F., Griesshammer, R., & Kahlenborn, W. (2020). The future of ecolabels. *The International Journal of Life Cycle Assessment*, 25, 833–839.
- Kelley, H. H. (1973). The processes of causal attribution. *American Psychologist*, 28(2), 107–128.
- Kim, S., & Choi, S. M. (2018). Congruence effects in post-crisis CSR communication: The mediating role of attribution of corporate motives. *Journal of Business Ethics*, 153(2), 447–463.
- Kim, S., Karlesky, M. J., Myers, C. G., & Schifeling, T. (2016). Why companies are becoming B corporations. *Harvard Business Review*, 17, 1–5.
- Kopetz, C. E., Kruglanski, A. W., Arens, Z. G., Etkin, J., & Johnson, H. M. (2012). The dynamics of consumer behavior: A goal systemic perspective. *Journal of Consumer Psychology*, 22(2), 208–223.
- Langer, A., Eisend, M., & Ku, A. (2007). The impact of eco-labels on consumers: Less information, more confusion? *European Advances in Consumer Research*, 8, 338–339.
- Lee, A. Y., & Higgins, E. T. (2009). The persuasive power of regulatory fit. In M. Wänke (Ed.), *Social psychology of consumer behavior*. Psychology Press.
- Lee, E. J., Bae, J., & Kim, K. H. (2020). The effect of environmental cues on the purchase intention of sustainable products. *Journal of Business Research*, 120, 425–433.
- Lee, L., & Arieli, D. (2006). Shopping goals, goal concreteness, and conditional promotions. *Journal of Consumer Research*, 33(1), 60–70.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57(9), 705–717.
- Marquis, C., Toffel, M. W., & Zhou, Y. (2016). Scrutiny, norms, and selective disclosure: A global study of greenwashing. *Organization Science*, 27(2), 483–504.
- Mickels, A. (2009). Beyond corporate social responsibility: Reconciling the ideals of a for-benefit corporation with director fiduciary duties in the US and Europe. *Hastings International Comparative Law Review*, 32, 271.
- Morsing, M., & Schultz, M. (2006). Corporate social responsibility communication: Stakeholder information, response and involvement strategies. *Business Ethics: A European Review*, 15(4), 323–338.
- Morsing, M., Schultz, M., & Nielsen, K. U. (2008). The 'catch 22' of communicating CSR: Findings from a Danish study. *Journal of Marketing Communications*, 14(2), 97–111.
- Murray, S. D., Jin, H. S., & Martin, B. A. (2022). The role of shopping orientation in variety-seeking behaviour. *Journal of Business Research*, 145, 188–197.
- Nehf, J. P. (2018). *Regulating green marketing claims in the United States* (p. 9). Indiana University Robert H. McKinney School of Law Research.
- Niza Braga, J., & Jacinto, S. (2022). Effortless online shopping? How online shopping contexts prime heuristic processing. *Journal of Consumer Behaviour*, 21(4), 743–755.
- Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2014). Perceived greenwashing: The interactive effects of green advertising and corporate environmental performance on consumer reactions. *Journal of Business Ethics*, 125, 693–707.



- Öberseder, M., Schlegelmilch, B. B., & Gruber, V. (2011). Why don't consumers care about CSR?: A qualitative study exploring the role of CSR in consumption decisions. *Journal of Business Ethics*, 104, 449–460.
- Parguel, B., Benoît-Moreau, F., & Larceneux, F. (2011). How sustainability ratings might deter “greenwashing”: A closer look at ethical corporate communication. *Journal of Business Ethics*, 102(1), 15–28.
- Pomeroy, A., & Johnson, L. W. (2009). Constructing a corporate social responsibility reputation using corporate image advertising. *Australian Marketing Journal; AMJ*, 17(2), 106–114.
- Rangan, K., Chase, L., & Karim, S. (2015). The truth about CSR. *Harvard Business Review*, 93(1/2), 40–49.
- Rashid, N. R. N. A. (2009). Awareness of eco-label in Malaysia's green marketing initiative. *International Journal of Business and Management*, 4(8), 132–141.
- Rifon, N. J., Choi, S. M., Trimble, C. S., & Li, H. (2004). Congruence effects in sponsorship: The mediating role of sponsor credibility and consumer attributions of sponsor motive. *Journal of Advertising*, 33(1), 29–42.
- Romani, S., Grappi, S., & Bagozzi, R. P. (2016). Corporate socially responsible initiatives and their effects on consumption of green products. *Journal of Business Ethics*, 135(2), 399.
- Saphores, J. D., Nixon, H., Ogunseitan, O., & Shapiro, A. (2007). California households' willingness-to-pay for 'green' electronics. *Joun. Of Env. Pl. and Mgmt*, 50(1), 113–133.
- Schons, L., & Steinmeier, M. (2016). Walk the talk? How symbolic and substantive CSR actions affect firm performance depending on stakeholder proximity. *Corporate Social Responsibility and Environmental Management*, 23(6), 358–372.
- Sigurdsson, V., Larsen, N. M., Pálsdóttir, R. G., Folwarczny, M., Menon, R. V., & Fagerstrøm, A. (2022). Increasing the effectiveness of ecological food signaling: Comparing sustainability tags with eco-labels. *Journal of Business Research*, 139, 1099–1110.
- Sjovall, A. M., & Talk, A. C. (2004). From actions to impressions: Cognitive attribution theory and the formation of corporate reputation. *Corporate Reputation Review*, 7, 269–281.
- Tata, J., & Prasad, S. (2015). CSR communication: An impression management perspective. *Journal of Business Ethics*, 132, 765–778.
- Thøgersen, J., Haugaard, P., & Olesen, A. (2010). Consumer responses to ecolabels. *European Journal of Marketing*, 44(11/12), 1787–1810.
- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, 110(3), 403–421.
- Vargas, A. M. (2023). B lab and the process of certifying B corps. In H. Peter, C. Vargas Vasserot, & J. Alcalde Silva (Eds.), *The international handbook of social Enterprise law*. Springer. [https://doi.org/10.1007/978-3-031-14216-1\\_13](https://doi.org/10.1007/978-3-031-14216-1_13)
- Vlachos, P. A., Tsamakos, A., Vrechopoulos, A. P., & Avramidis, P. K. (2009). Corporate social responsibility: Attributions, loyalty, and the mediating role of trust. *Journal of the Academy of Marketing Science*, 37(2), 170–180.
- Weiner, B. (2000). Attributional thoughts about consumer behavior. *Journal of Consumer Research*, 27(3), 382–387.
- Yokessa, M., & Marette, S. (2019). A review of eco-labels and their economic impact. *International Review of Environmental and Resource Economics*, 13(1–2), 119–163.

### SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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APPENDIX

EXAMPLE OF A CHOICE SET IN STUDY 1 (FIRST PART)

Below, you see three options related to hand wash products to choose from. Please select the option that most appeals to you. Treat this scenario as standalone, assuming these are the only options available.

	1	2	3
Brand			
Eco-label	No label		

Alternative 1

Alternative 2

Alternative 3

EXAMPLE OF A CHOICE SET IN STUDY 1 (SECOND PART)

Below, you see three options related to hand wash products to choose from. Please select the option that most appeals to you. Treat this scenario as standalone, assuming these are the only options available.

	1	2	3
Brand			
Eco-label			

Alternative 1

Alternative 2






Alternative 3



EXAMPLE OF A CHOICE SET IN STUDY 2 (HIGH GOAL SPECIFICITY CONDITION)

Below, you see three options related to sunscreen products to choose from. Please select the option that most appeals to you. Treat this scenario as standalone, assuming these are the only options available.

Keep in mind that you are looking to purchase a new sunscreen for a snorkeling trip in a marine reserve.

	1	2	3
Brand			
Eco-label	<p><b>Certified</b></p>  <p><b>Reef safe</b></p>	No label	<p><b>Certified</b></p>  <p><b>Corporation</b></p>
Price	9.99	13.99	13.99

Alternative 1

Alternative 2

Alternative 3



## MULTINOMIAL LOGIT MODELS FOR STUDY 1 (PART 1)

Both conditions (all data)

Log-Likelihood						-1401.572
Null Log-Likelihood						-1642.425
AIC						2827.144
McFadden R <sup>2</sup>						0.147
Adj McFadden R <sup>2</sup>						0.139
Number of Observations						1495
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI
Brand2	0.067	0.110	0.613	0.5400	-0.150	0.285
Brand3	0.008	0.110	0.071	0.9436	-0.210	0.226
LabelExternal_Firm	1.365	0.177	7.706	0.0000	1.024	1.707
LabelExternal_Product	1.880	0.177	10.643	0.0000	1.533	2.226
LabelInternal_Firm	2.191	0.180	12.168	0.0000	1.846	2.535
LabelInternal_Product	1.296	0.179	7.242	0.0000	0.949	1.647
Full_Brand2	-0.091	0.162	-0.565	0.5723	-0.407	0.230
Full_Brand3	0.288	0.165	1.746	0.0808	-0.035	0.609
Full_LabelExternal_Firm	0.992	0.274	3.618	0.0003	0.452	1.530
Full_LabelExternal_Product	0.618	0.276	2.235	0.0254	0.083	1.151
Full_LabelInternal_Firm	-0.482	0.277	-1.741	0.0818	-1.014	0.055
Full_LabelInternal_Product	0.153	0.278	0.551	0.5814	-0.381	0.686

Limited information condition

Log-Likelihood						-766.940
Null Log-Likelihood						-878.890
AIC						1545.879
McFadden R <sup>2</sup>						0.127
Adj McFadden R <sup>2</sup>						0.121
Number of Observations						800
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI
Brand2	0.067	0.110	0.612	0.5402	-0.148	0.279
Brand3	0.008	0.110	0.071	0.9436	-0.208	0.230
LabelExternal_Firm	1.365	0.177	7.705	0.0000	1.016	1.719
LabelExternal_Product	1.880	0.177	10.643	0.0000	1.531	2.236
LabelInternal_Firm	2.191	0.180	12.168	0.0000	1.843	2.546
LabelInternal_Product	1.296	0.179	7.242	0.0000	0.943	1.657

## Limited information condition with familiarity terms

Log-Likelihood						-739.810
Null Log-Likelihood						-878.890
AIC						1499.620
McFadden R <sup>2</sup>						0.158
Adj McFadden R <sup>2</sup>						0.147
Number of Observations						800
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI
Brand2	0.063	0.112	0.559	0.5758	-0.158	0.282
Brand3	-0.011	0.112	-0.102	0.9190	-0.229	0.212
LabelExternal_Firm	0.989	0.188	5.254	0.0000	0.617	1.353
LabelExternal_Product	1.821	0.184	9.891	0.0000	1.460	2.179
LabelInternal_Firm	2.158	0.186	11.582	0.0000	1.794	2.515
LabelInternal_Product	1.237	0.183	6.773	0.0000	0.877	1.595
Familiar_External_Firm_Label	1.994	0.296	6.738	0.0000	1.417	2.572
Familiar_Internal_Product_Label	0.918	0.445	2.064	0.0391	0.052	1.788
Familiar_Internal_Firm_Label	0.390	0.341	1.144	0.2528	-0.288	1.046
Familiar_External_Product_Label	0.374	0.282	1.327	0.1844	-0.179	0.927

## Full information condition

Log-Likelihood						-634.632
Null Log-Likelihood						-763.536
AIC						1281.265
McFadden R <sup>2</sup>						0.169
Adj McFadden R <sup>2</sup>						0.161
Number of Observations						695
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI
Brand2	-0.024	0.119	-0.202	0.8400	-0.260	0.209
Brand3	0.296	0.123	2.413	0.0158	0.059	0.538
LabelExternal_Firm	2.357	0.209	11.268	0.0000	1.941	2.767
LabelExternal_Product	2.498	0.212	11.755	0.0000	2.075	2.907
LabelInternal_Firm	1.708	0.211	8.113	0.0000	1.297	2.118
LabelInternal_Product	1.449	0.212	6.825	0.0000	1.034	1.872



## MULTINOMIAL LOGIT MODELS FOR STUDY 1 (PART 2)

Both conditions (all data)

Log-Likelihood							-2634.035
Null Log-Likelihood							-3284.851
AIC							5292.069
McFadden R <sup>2</sup>							0.198
Adj McFadden R <sup>2</sup>							0.194
Number of Observations							2990
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI	
Brand2	0.022	0.079	0.274	0.7840	-0.132	0.175	
Brand3	0.064	0.079	0.814	0.4159	-0.091	0.220	
LabelsOne	0.662	0.182	3.642	0.0003	0.308	1.019	
LabelsTwo	1.130	0.156	7.254	0.0000	0.821	1.434	
LabelsThree	1.742	0.158	11.026	0.0000	1.431	2.048	
LabelsFour	2.255	0.161	13.986	0.0000	1.934	2.566	
Full_Brand2	-0.092	0.124	-0.742	0.4582	-0.335	0.148	
Full_Brand3	0.314	0.122	2.568	0.0102	0.071	0.553	
Full_LabelsOne	-0.455	0.311	-1.463	0.1434	-1.060	0.163	
Full_LabelsTwo	0.362	0.249	1.452	0.1464	-0.123	0.860	
Full_LabelsThree	0.655	0.257	2.554	0.0107	0.151	1.159	
Full_LabelsFour	1.296	0.263	4.918	0.0000	0.785	1.828	

Limited information condition

Log-Likelihood							-1551.601
Null Log-Likelihood							-1757.780
AIC							3115.202
McFadden R <sup>2</sup>							0.117
Adj McFadden R <sup>2</sup>							0.114
Number of Observations							1600
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI	
Brand2	0.022	0.079	0.275	0.7830	-0.134	0.180	
Brand3	0.064	0.079	0.814	0.4155	-0.092	0.222	
LabelsOne	0.661	0.182	3.639	0.0003	0.301	1.021	
LabelsTwo	1.130	0.156	7.254	0.0000	0.825	1.434	
LabelsThree	1.742	0.158	11.026	0.0000	1.432	2.046	
LabelsFour	2.255	0.161	13.986	0.0000	1.939	2.570	

## Full information condition

Log-Likelihood							-1082.434
Null Log-Likelihood							-1527.071
AIC							2176.867
McFadden R <sup>2</sup>							0.291
Adj McFadden R <sup>2</sup>							0.287
Number of Observations							1390
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI	
Brand2	-0.071	0.096	-0.734	0.4628	-0.260	0.117	
Brand3	0.378	0.093	4.048	0.0001	0.197	0.560	
LabelsOne	0.207	0.252	0.821	0.4117	-0.280	0.710	
LabelsTwo	1.492	0.195	7.667	0.0000	1.112	1.873	
LabelsThree	2.397	0.202	11.860	0.0000	2.005	2.798	
LabelsFour	3.551	0.208	17.042	0.0000	3.150	3.967	

## MULTINOMIAL LOGIT MODELS FOR STUDY 2

Both conditions (all data)

Log-Likelihood							-1951.349
Null Log-Likelihood							-3303.527
AIC							3930.698
McFadden R <sup>2</sup>							0.409
Adj McFadden R <sup>2</sup>							0.405
Number of Observations							3007
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI	
Brand2	0.404	0.101	3.983	0.0001	0.206	0.606	
Brand3	0.368	0.105	3.503	0.0005	0.164	0.578	
Price9.99	-0.886	0.116	-7.633	0.0000	-1.121	-0.659	
Price11.99	-1.798	0.124	-14.514	0.0000	-2.051	-1.556	
Price13.99	-2.581	0.142	-18.211	0.0000	-2.858	-2.302	
LabelFirm	2.628	0.143	18.419	0.0000	2.344	2.906	
LabelProduct	3.247	0.151	21.482	0.0000	2.948	3.541	
High_Brand2	-0.038	0.143	-0.266	0.7904	-0.320	0.241	
High_Brand3	-0.065	0.144	-0.453	0.6502	-0.349	0.214	
High_Price9.99	0.326	0.159	2.054	0.0400	0.011	0.638	
High_Price11.99	0.279	0.171	1.625	0.1041	-0.053	0.621	
High_Price13.99	0.450	0.194	2.321	0.0203	0.075	0.828	
High_LabelProduct	0.406	0.211	1.922	0.0546	-0.001	0.822	
High_LabelFirm	-0.708	0.192	-3.679	0.0002	-1.077	-0.331	



## Low goal specificity condition

Log-Likelihood							-1018.984
Null Log-Likelihood							-1754.484
AIC							2051.968
McFadden R <sup>2</sup>							0.419
Adj McFadden R <sup>2</sup>							0.415
Number of Observations							1597
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI	
Brand2	0.366	0.100	3.648	0.0003	0.169	0.562	
Brand3	0.302	0.099	3.051	0.0023	0.105	0.497	
Price9.99	-0.561	0.108	-5.201	0.0000	-0.777	-0.346	
Price11.99	-1.520	0.119	-12.820	0.0000	-1.747	-1.286	
Price13.99	-2.131	0.132	-16.137	0.0000	-2.384	-1.867	
LabelNo_label	-1.920	0.129	-14.883	0.0000	-2.177	-1.665	
LabelProduct_label	1.732	0.101	17.226	0.0000	1.534	1.932	

## High goal specificity condition

Log-Likelihood							-932.365
Null Log-Likelihood							-1549.043
AIC							1878.730
McFadden R <sup>2</sup>							0.398
Adj McFadden R <sup>2</sup>							0.394
Number of Observations							1410
Variable	Estimate	Std_Error	z_value	Pr_z	LCI	UCI	
Brand2	0.403	0.101	3.980	0.0001	0.205	0.605	
Brand3	0.368	0.105	3.507	0.0005	0.166	0.575	
Price9.99	-0.886	0.116	-7.628	0.0000	-1.117	-0.661	
Price11.99	-1.798	0.124	-14.514	0.0000	-2.045	-1.552	
Price13.99	-2.581	0.142	-18.211	0.0000	-2.862	-2.301	
LabelNo_label	-2.628	0.143	-18.419	0.0000	-2.912	-2.346	
LabelProduct_label	0.619	0.093	6.693	0.0000	0.435	0.798	

## SUMMARY OF MAIN RESULTS

Hypotheses	Main evidence	Interpretation
1 Consumers will generally prefer a product with any eco-label over the same product with no eco-label	Participants significantly preferred alternatives with an eco-label over no eco-label, and also significantly preferred alternatives with one to four eco-labels over alternatives without an eco-label	Supported
2 a Consumers will generally prefer a product with a firm-level eco-label over the same product with a product-level eco-label	Participants generally significantly preferred firm-level labels over product-level labels	Supported
b Consumers will generally prefer a product with an external firm-level eco-label over the same product with an internal firm-level eco-label	Participants with full information strongly preferred external labels (whether product- or firm-level). Participants with limited information did not significantly prefer external or internal eco-labels but did significantly prefer firm-level over product-level labels	Not supported; perceived label familiarity and access to information about labels' meanings appear to be more predictive of this potential preference (see also H4a, H4b)
3 a Consumers will generally prefer a product with a combination including an external firm-level label over the same product with other label combinations	Participants significantly preferred (i) an external product-level and internal firm-level label over (ii) an external product-level and external firm-level label and (iii) an external product-level and internal product-level label, with no significant difference in preference between the latter combinatory options	Not supported; adding more labels and providing information about their meaning appears to be more predictive of preferences for label combinations (see H3c and H4b, H4c)
b Consumers will generally prefer a product with a combination including both an external and internal firm-level label over the same product with other label combinations	For the combinations with three labels, the contrast between an external product-level, internal firm-level, and external firm-level label and an external product-level, internal firm-level, and internal product-level label indicated that participants significantly preferred the combination with the internal product-level label	
c Consumers will generally prefer a product with two eco-labels compared to the same product with one eco-label	Participants generally preferred more eco-labels, with the preference increasing as the number of labels increased and with the preference for three and four labels being significantly higher in the full information condition compared to in the limited information condition. Adding a fourth label to the combinations significantly increased preferences	Supported, with the added insight that preferences for the number of eco-labels increased with full information about labels' meaning
d Consumers will generally prefer more rather than fewer eco-labels on the same product		
4 a Perceived label familiarity is positively associated with label preference	Pre-existing familiarity with external firm-level and internal product-level labels significantly enhanced consumer preferences for those labels, but did not significantly impact preferences for the other labels	Partially supported
b Consumers' preferences for a firm-level over a product-level eco-label depend on the information available to them about the labels' meaning	Participants with full information did not significantly prefer firm or product levels, while those with limited information showed a significant preference for firm-level labels over product-level labels	Supported, but with an inverted effect (more information making the preference for firm-level labels go away rather than predicting it)
c Consumers' preferences for an external over an internal eco-label depend on the information available to them about the labels' meaning	Participants who had full information about the eco-labels significantly preferred external labels over internal labels, while those with limited information revealed no such preference	Supported

(Continues)



Hypotheses	Main evidence	Interpretation
5 a For purchases aimed at a specific task or need, consumers prefer product-level eco-labels over firm-level labels	Participants in the high specificity condition significantly preferred product-level eco-labels, and marginally significantly more than those in the low specificity condition.	Supported, with the added insight that when participants had a specific goal in mind, they placed slightly greater importance on eco-labels
b For purchases aimed at a broad task or need, consumers prefer firm-level eco-labels over product-level labels	Participants in the low specificity condition significantly preferred product-level eco-labels as well, although the difference was markedly smaller	Not supported
c For purchases aimed at a specific task or need, consumers will be willing to pay more for products with product-level eco-labels	When participants had a specific goal in mind, they showed a greater willingness-to-pay (WTP) for product-level eco-labels, while their WTP for firm-level eco-labels remained relatively consistent across conditions. The overall WTP was higher for product-level than for firm-level eco-labels.	Supported
d For purchases aimed at a broad task or need, consumers will be willing to pay more for products with firm-level eco-labels	Participants who had a specific goal in mind were somewhat less sensitive to price variations	Not supported