

# Impact of Perceptions of Eco-Packaging on Purchases of Eco-Packaged Goods

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## Abstract

Eco-packaging can be defined as packaging designed to have a lesser environmental and ecological impact with a view to meeting more stringent environmental regulations and responding to ever increasing public sensitivity to environmental issues. For managers, investment in an eco-packaging process remains debatable given uncertainty linked to real return on investment. A study by a representative panel of 936 consumers reveals that perceptions of eco-packaging directly impact consumer propensity to purchase. The positive relationship between perceptions of eco-packaging and purchases of eco-packaged goods is indirectly supported by an increase in an organization's perceived brand capital and enhanced customer loyalty towards the organization.

**Keywords:** Eco-packaging; eco-design; brand equity; loyalty; purchase behaviour; mediation analysis.

## Introduction

Eco-design is more often than not described as a promising avenue for reconciling the managerial challenges of market penetration and those relating to protection of the environment at each stage in the product lifecycle [1]. Eco-packaging is a specific form of eco-design and represents a particularly advantageous advance from the dual standpoint of environmental and managerial concerns. Indeed, eco-packaging enables businesses to develop packaging presenting a lesser environmental impact and ecological footprint, the goal being to satisfy increasingly stringent environmental regulations and standards [2]. At the same time, businesses achieve extremely interesting strategic managerial objectives, notably with respect to marketing since eco-packaging optimizes brand/consumer communications, satisfies consumer needs and helps trim costs [1, 2].

Over and above environmental standards and regulations, eco-packaging design responds to ever increasing consumer demand for green products. According to a 2009 survey conducted by Boston Consulting Group (BCG) in Canada, China, Europe, Japan and the United States, 34% of consumers demonstrate an interest in purchasing green products [3]. More specifically, a study by Responsible Consumption Observatory (RCO) in Québec reveals that when pricing is identical, 72.9% of Québécois prefer goods featuring eco-responsible packaging [4].

In short, when eco-packaging design is incorporated into a company's marketing strategy, the company is better poised to sustain environmental pressures, improve its corporate image, conquer new markets and enhance product value [5]. Despite the supposed advantages, little research has examined the real impact of eco-packaging on consumers [2]. Efforts in marketing have focused essentially on the effects of various packaging attributes (colour, shape, logo) on consumers, the impact of packaging on brands, and the influence of product-related attitudes and beliefs [e.g. 6].

Attempts to achieve a better understanding of the impact of eco-packaging on consumers come replete with multiple advantages. Firstly, knowledge of the like would enable businesses to determine the extent to which investment in an eco-design process would effectively prove beneficial. Secondly, a more detailed examination of the link between the provision of eco-packaged goods and consumer behaviour (i.e. purchases) would help determine the variables which exert an impact on this relationship. Thirdly, eco-packaging represents a relatively fecund stream of industrial ecology and environmental economics, especially since the latter do not generally make allowance for consumer points of view. Our exploration of consumer behaviour respecting eco-packaging therefore constitutes an original contribution by providing an alternate outlook and by documenting the effective interest of those most concerned by this advance, namely consumers.

This study seeks to fill the void in topical literature on eco-packaging. The principal objective of the study is to achieve a better understanding of the impact of consumer perceptions of eco-packaging on purchases of eco-packaged goods. More specifically, research efforts provide answers to the following questions: (1) How is eco-packaging defined in marketing? (2) To what extent do consumer perceptions of eco-packaging impact purchases of eco-packaged goods? (3) What is the nature of the consumer process underpinning the purchase of eco-packaged products?

## **Discussion and hypotheses**

### **Impact of eco-packaging on purchase behaviour**

In this study, we employ Spence's signal theory [14] to comprehend more fully the mechanisms impacting consumer perceptions of eco-packaging and the impact of the latter on the purchase of eco-packaged goods. During a transaction, the signal theory [14] makes it possible to resolve the issue of information asymmetry developed by Akerlof [15]. According to the latter [15], in a commercial context, consumers are often incapable of determining inherent supplier skills. This asymmetry can lead to 'anti-selection', which is to say the risk of a market disappearing over time given the absence of a signal of quality that would enable consumers to make optimal choices by distinguishing between good and poor quality products [16]. The issue of 'moral risk' also arises as a result of information asymmetry since suppliers can readily manipulate the level of quality supplied with each transaction. Consequently, consumers refer to the signals transmitted by the seller to infer information about the non-observable elements of a product such as quality [17].

Swaen and Chumpitaz [18] demonstrate that the transmission of signals linked to corporate social responsibility makes it possible to reinforce trust in both a company product and

a company brand. One study in the field of responsible consumption demonstrates that eco-packaging significantly impacts consumer attitude and behaviour with respect to a product through the consumer's perception of environmental signals such as recyclable materials, reduced package size and presence of an ecolabel [10]. What is more, eco-packaging could impact consumer intent to purchase given that 71.9% of consumers favour products with eco-responsible packaging over other products in the same category [19]. Hence, the first hypothesis posits as follows:

*H1: Consumer perceptions of eco-packaging positively impact behaviour relating to the purchase of eco-packaged goods.*

### **Indirect impact on purchase behaviour**

*Trust.* Trust has been identified as a key concept in the emergence of relationship marketing in that this notion makes it possible to establish, develop and sustain important relational exchanges [20, 21, 22]. According to the theory of attribution, trust can be defined as a mechanism for attributing characteristics, motives and intentions to the partner involved in the exchange, and for evaluating partner potential by assuming that partner behaviour will be predictable and consistent with promises [23, 24]. Previous research on consumer trust and responsible consumption suggest the existence of a mediating effect of trust on brand in terms of the relationship between eco-packaging perceptions and purchases of eco-packaged goods. Swaen and Chumpitaz [18] demonstrate the existence of a positive link between consumer perceptions of corporate social responsibility and consumer trust in both the company and the brand via perceived product quality and consumer satisfaction. Consumer perceptions respecting a brand (e.g. quality) indeed represent the principal determinant of trust in the brand [21]. A number of previous research papers establish a relationship between consumer trust and purchasing behaviour [22]. At the cognitive level, consumer trust in a brand can have a direct, positive, mediating impact on purchases [20]. We therefore hypothesize as follows:

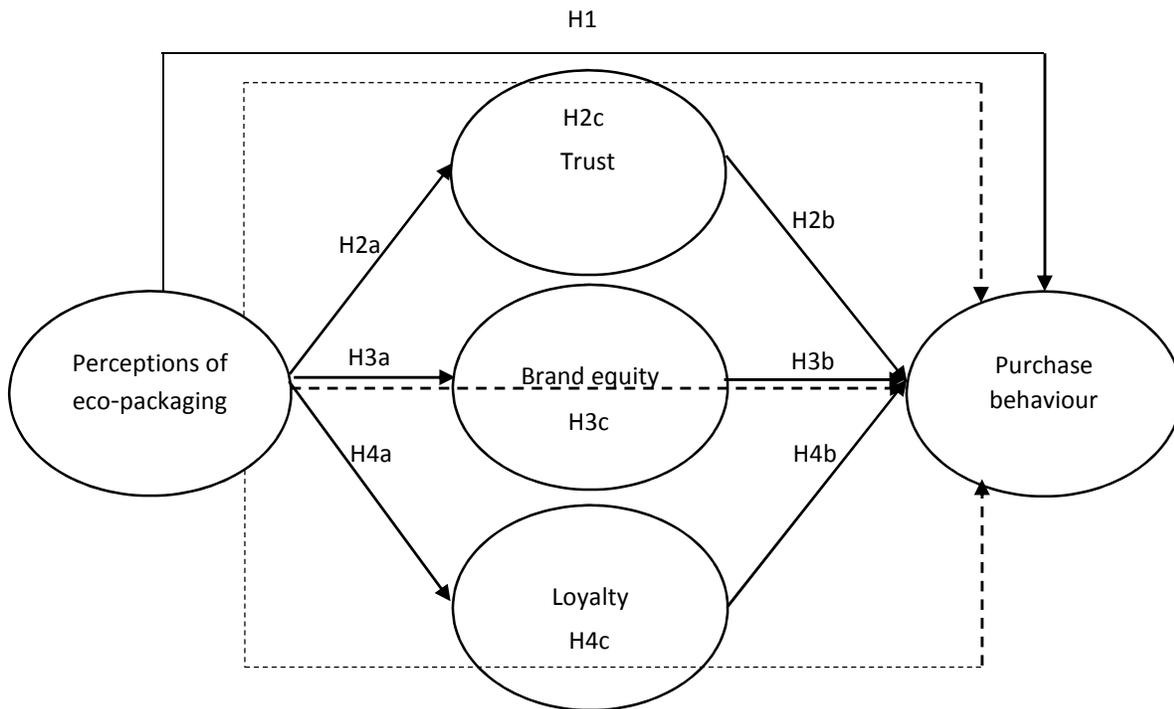
*H2: Consumer perceptions of eco-packaging positively impact consumer trust in the brand (a), which in turn positively impacts eco-packaged product purchasing behaviour (b). Together, the two variables interact and exert a positive impact on the purchase of eco-packaged goods (c).*

*Brand equity.* Brand equity is defined as an ensemble of assets and liabilities linked to the name and symbol of a brand, and having the effect of increasing or decreasing product value in the eyes of consumers [25, 26, 27]. Marketing mix and especially product characteristics contribute to brand equity [27, 28]. The product strongly influences the brand/consumer relationship through consumer perception of physical, tangible product attributes (principal/secondary characteristics, quality, design) [28, 29]. Brand equity is either strengthened or weakened by the perceived quality of a product's physical, tangible characteristics as a result of the mental associations that these characteristics spark in consumers [25, 26]. More specifically, the consumer purchasing behaviour model formulated by Tybout and Hauser [29] demonstrates the impact of consumer perception of product attributes on the decision to purchase. Packaging is an essential component of any product, especially in a pre-purchase setting. Attributes enable consumers to recognize an eco-packaged product by showcasing the eco-friendly aspects of the packaging and ultimately the product throughout each of the stages in the latter's lifecycle. Research to date indicates that aspects relating to eco-packaging are either

positively evaluated or over-evaluated by consumers [10, 19]. The presence of eco-packaging could thus lead consumers to form positive mental associations about the product and, ultimately, the brand. This mechanism definitely helps bolster brand equity. The following hypothesis encapsulates reasoning in this regard:

*H3: Consumer perceptions of eco-packaging positively impact brand equity from the consumer standpoint (H3a), which in turn positively impacts eco-packaged product purchasing behaviour (H3b). Together, the two variables interact and exert a positive impact on the purchase of eco-packaged goods (c).*

Figure 1 below presents a graphic representation of the conceptual model.



**Figure 1.** Conceptual model and hypotheses

*Loyalty.* According to Danaher, Wilson and Davis [30], loyalty can be defined as the outcome of a cognitive process based on the comparison of product-related benefits (e.g. product or brand), as well as an affective process. More recently, studies (e.g. [10]) have demonstrated the existence of a positive relationship between environmental signals and consumer loyalty through added benefits. Indeed, eco-packaging provides a number of added personal and public benefits. Respecting individual benefits, eco-packaging is perceived by consumers as healthier, more practical, more economical and replete with positive emotional and social values linked to protection of the environment. Public benefits include protection of the environment and enhanced community wellbeing. The perception of an eco-packaged product exerts a positive impact on loyalty given the combination of personal and social benefits that consumers attach to eco-packaging [10]. Lastly, earlier research evidences a link between loyalty and consumer

behaviour. For example, loyalty positively impacts word-of-mouth, product repurchasing intent and behaviour, as well as brand attachment [21]. Hence, the authors postulate as follows:

*H4: Consumer perceptions of eco-packaging positively impact consumer loyalty (H4a), which in turn positively impacts eco-packaged product purchasing behaviour (H4b). Together, the two variables interact to exert a positive impact on the purchase of eco-packaged goods (c).*

## **Data collection procedures**

### **Exploratory study**

The initial phase is exploratory and involves the detailing of the components of the eco-packaging construct by means of an analysis of academic and professional literature on eco-design and packaging. This exploratory stage enables the authors to identify and classify the principal attributes of eco-packaging and to shed light on the difference between eco-packaging and green or eco-friendly packaging.

Within the framework of this research, the authors rely on a corpus of academic and managerial research to characterize eco-packaging based on five categories of key attributes corresponding to the five lifecycle stages generally accepted in industrial ecology circles, namely: (1) materials [raw materials extraction stage]; (2) design, structure and graphic attribution [manufacturing stage]; (3) transport [distribution stage]; (4) consumption [usage stage]; (5) reuse [end-of-lifecycle stage]. Eco-packaging attributes are incorporated into each stage of the packaging lifecycle. The object in pointing up the attributes of eco-packaging is to build a scale of measurement for the concept.

Another objective of the exploratory analysis relates to evidencing the difference between eco-packaging and green or eco-friendly packaging. The level of integration into the packaging lifecycle would appear to differentiate the two concepts [10]. Green packaging incorporates environmental considerations into certain lifecycle stages. By contrast, eco-designed packaging or eco-packaging meets stricter criteria: packaging must make allowance for all stages in the packaging lifecycle. In other words, eco-design relates to deep-seated change intended to enhance packaging by means of a process extending from the procurement of raw materials to end-of-life management.

### **Confirmatory study**

*Formulation of instruments of measurement.* Construct instruments of measurement are twofold in nature. On the one hand, the scale of measurement for 'consumer perception of eco-packaging' is formulated based on the exploratory analysis. More specifically, consumer perception of eco-packaging is measured based on fifteen items defined and grouped together based on the principal components of eco-packaging identified during the exploratory phase. On the other hand, the instruments of measurement for 'trust', 'loyalty' and 'brand equity' are adapted from previous scales used to measure the constructs. The concept of brand 'trust' is measured based on six items sourced from work by Swaen and Chumpitaz [2008]. Four items measuring brand equity from the consumer standpoint are adapted from work by Yoo, Donthu

and Lee [28], and Hoeffler and Keller [31]. The scale used in this research to measure loyalty is adapted from Swaen and Chumpitaz [2008]. This scale comprises three items based on cognitive, affective and behavioural attachment to the brand, as well as positive word-of-mouth in the interest of the brand. The items used to measure the different constructs are all analysed on a ten-point Likert-type scale ranging from 'totally disagree' to 'totally agree'.

*Data collection.* Initial data collection is conducted using an online panel of between 200 and 250 Québécois, and serves to pretest the instrument of measurement. The object of the pretest is to reduce the number of ambiguous items of measurement and finetuning overall measurement. Three items (PERC7, PERC10, PERC 12) from the scale of measurement of 'consumer perception of eco-packaging', three items (CONF1, CONF2 and CONF3) from the 'trust' scale, one item (CAP1) from the 'brand equity' scale, one item (LOY4) from the 'loyalty' scale, and one item (PUR1) from the 'purchase' scale are ultimately deleted as they generated ambiguity for consumers. The second phase of data collection relates to a broad, Web-based survey of an online, representative panel comprising 936 Québec consumers. The sample provides for diversity in terms of gender, age, family income and level of education. Women account for 57% of the sample, 36% of respondents are married, 69% have less than an undergraduate degree, 74% report a family income of less than \$80 000, and 47% are between the ages of 35 and 64 years.

*Structural equation modelling.* To make allowance for the complexity of the relationships between many of the latent variables, we rely on a technique known as structural equation modelling. Within the framework of our research, the object is to test simultaneously the relationships between different latent variables (perception, purchase levels, trust, brand equity and loyalty) during the same analysis. We base ourselves on the robust maximum likelihood estimate technique (ML-r) as this method makes allowance for issues of non-linearity in large samples as in the case at hand where  $n = 936$ .

## Results

### Validation of measurement model

The final measurement model exhibits good fit ( $\chi^2_{(307)} = 1254.6832$ , CFI = .951, TLI = .944, RMSEA = .057 [.051; .064], GFI = .930, AGFI = .914). Respecting reliability, Cronbach's alphas for each latent variable are greater than 0.8 and therefore higher than the minimum value of .7 recommended by Nunnally and Bernstein [32]. In addition, Jöreskog's rho or reliability construct is greater than .9 for all constructs, confirming their reliability. Convergent validity is achieved through level of significance, factor loading value (Lambda value > 0.5) [32] and average value extracted (AVE) (> 0.5) [33]. Discriminant validity is estimated based on a comparison between the square root value of the construct's AVE and correlation between this construct and others. Discriminatory validity is said to be confirmed whenever the square root of average value extracted is greater than all correlations [33]. This means that the construct shares more variance with its own indicators than variance associated with other indicators ( $AVE > r^2$ ). These different parameters enable us to conclude that the measurement model demonstrates good quality fit.

**Table 1.** Descriptive statistics

Principal constructs	Mean [scale 1-10]	Standard deviation [scale 1-10]	Coefficient of variation (%) <sup>a</sup>	Internal consistency
Perceptions of eco-packaging	7.51	1.83	24	.96
Trust	5.94	2.09	35	.93
Brand equity	7.05	2.01	29	.94
Loyalty	6.20	2.27	37	.98
Purchases	7.00	1.99	28	.90

Note: <sup>a</sup> coefficient of variation = ratio of standard deviation to the mean.

**Table 2.** Confirmatory factor analysis and convergent validity

Items	$\lambda_i$
<i>(Lead-in question: Of the following attributes, which best describes eco-responsible packaging? Please indicate the level of importance you would attribute to each of the items below (from 'not at all important' to 'totally important'))</i>	
<b>1. Perceptions of eco-packaging (<math>\alpha^a = .961</math>, <math>\rho^b = .960</math>, <math>AVE^c = .643</math>)</b>	
Packaging made from renewable materials	.869
Packaging made from recycled materials	.905
Packaging made from vegetable matter	.747
Packaging is recyclable	.895
Packaging is compostable	.832
Packaging is biodegradable	.890
Packaging is reusable	.777
Packaging bears indication that product is recycled	.743
Packaging reduced to a minimum (required least possible amount of raw materials)	.788
Paper or cardboard packaging made using fibre from sustainably managed forests	.747
Packaging made from materials respectful of environment	.859
Packaging bears clear indication of method of disposal	.725
<i>(Lead-in question: To what extent do you agree with the following statements about brands which make an effort to use packaging more respectful of the environment?)</i>	
<b>2. Confidence (<math>\alpha = .927</math>, <math>\rho = .917</math>, <math>AVE = .786</math>)</b>	
These brands of products instil a sense of assurance in me	.854
I am confident about the quality of these brands of products	.910
Purchasing these brands of products is a guarantee of quality	.894
<b>3. Brand capital (<math>\alpha = .944</math>, <math>\rho = .934</math>, <math>AVE = .826</math>)</b>	
Even if products by other brands featured the same characteristics, I would prefer to purchase these	.901
Even were I to come upon other brands with products just as good, I would prefer these	.913
If products by other brands were similar on all counts, it would be preferable to purchase these	.912
<b>4. Loyalty (<math>\alpha = .978</math>, <math>\rho = .979</math>, <math>AVE = .939</math>)</b>	
I resonate more with these products	.951
I am more attached to these products	.986
I am more loyal to these products	.970
<i>(Lead-in statement: Please indicate whether or not you generally adopt this type of behaviour respecting day-to-day purchases)</i>	
<b>5. Purchase (<math>\alpha = .896</math>, <math>\rho = .924</math>, <math>AVE = .755</math>)</b>	
I favour products which use less packaging	.748
I favour the purchase of products sold in reusable or recyclable containers or packages	.819
I favour the purchase of goods made from recyclable materials	.944
I favour the purchase of recyclable products	.948

Note:  $\chi^2_{(307)} = 1254.6832$ , CFI = .951, TLI = .944, RMSEA = .057 [.051; .064], GFI = .930, AGFI = .914. <sup>a</sup> denotes Cronbach's alphas;

<sup>b</sup> denotes Jöreskog's Rhos; <sup>c</sup> denotes average variance extracted (AVE); <sup>d</sup> denotes path loadings.

**Table 3.** Correlation matrix and average variance extracted for principal constructs

	1	2	3	4	5
1. Perceptions of eco-packaging	<b>.802</b>				
2. Trust	.486*	<b>.887</b>			
3. Brand equity	.634*	.694*	<b>.909</b>		
4. Trust	.467*	.777*	.686*	<b>.969</b>	
5. Purchases	.627*	.594*	.717*	.596*	<b>.869</b>

Note: \*denotes significant correlations at the  $p < .01$  level. Diagonal elements in bold represent square root of AVE.

### Analysis and results

A bootstrap mediation procedure [34, 35] is used to test the hypothesized relationships in the model. The Preacher and Hayes macro for SPSS serves to determine the mediation effects. Estimates are based on 5000 bootstrap samples. The bootstrap method overcomes the issue of non-normal sampling distribution owing to the indirect effect being a product of parameters a and b [34, 35, 36]. The bootstrap analysis tests the direct effect of the independent variable on the mediating variable (path a), the direct effect of the mediating variable on the dependent variable (b), the direct effect of the independent variable on the dependent variable (path c), the overall effect of the independent variable on the dependent variable (c'), and the indirect effect of the independent variable on the dependent variable through the proposed mediator (path ab).

**Table 4.** Results of multivariate and bootstrap mediation tests<sup>a</sup>

	Path	Trust (mediator)	Brand equity (mediator)	Loyalty (mediator)	Purchase behaviour
Perceptions of eco-packaging → DV	c				.300***
Perceptions of eco-packaging → Mediators	a	.528***	.678***	.625***	
Trust → DV	b1				.063*
Brand equity → DV	b2				.348***
Loyalty → DV	b3				.130***
Perceptions of eco-packaging → DV	c'				.650**
Overall F					526.64***
R <sup>2</sup>					.733
Adj R <sup>2</sup>					.538
Mediation 95%	ab				.350
Confidence Interval					(.29, .41)
Mediation					Partial

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ .

<sup>a</sup> Path a = direct effect of independent variable on mediating variable

Path b = direct effect of mediating variable on dependent variable

Path c = direct effect of independent variable on dependent variable

Path c' = overall effect (ab + c)

Path ab = indirect effect of independent variable on dependent variable through proposed mediator

*Antecedents of moderators.* As shown in Table 4, the results show that perceptions of eco-packaging exert a positive direct relationship on the purchase of eco-packaged goods ( $\beta = .300, t = 9.831, p < .001$ ), providing support for H1. Perceptions of eco-packaging also positively influence trust ( $\beta = .528, t = 15.745, p < .001$ ), brand equity ( $\beta = .678, t = 22.813, p < .001$ ) and loyalty ( $\beta = .625, t = 16.887, p < .001$ ), providing support for H2a, H3a, and H4a. Hence, consumer perceptions of eco-packaging positively impact trust, brand equity and loyalty.

*Effects of mediators on purchase behaviour.* H2b, H3b and H4b predicted that trust, brand equity and loyalty would positively impact purchase behaviour respecting eco-packaged goods. Results fully support these hypotheses. The significant relationships between trust and purchase ( $\beta = .063, t = 1.989, p < .050$ ), brand equity ( $\beta = .348, t = 10.778, p < .001$ ) and loyalty ( $\beta = .130, t = 4.370, p < .001$ ) lend support to H2b, H3b and H4b. Collectively, these results indicate that the three mediators under study lead to greater levels of purchases of eco-packaged goods.

*Mediation test.* Full mediation occurs whenever a non-significant direct path from an independent variable to an dependent variable (c path) occurs together with a significant indirect path (ab path); partial mediation is found when both the indirect (ab) and direct (c) paths are significant [36]. The coefficient estimates for the direct and indirect effects appear in Column 6 of Table 4. Brand equity partially mediates the path from perceptions of eco-packaging to purchase behaviour since there is both a significant indirect effect ( $\beta = .236, z = 9.738, p < .001$ ) and significant direct effect ( $\beta = .300, t = 9.831, p < .001$ ). Likewise, loyalty partially mediates the path from perceptions of eco-packaging to purchase behaviour since there is both a significant indirect effect ( $\beta = .081, z = 4.224, p < .001$ ) and significant direct effect ( $\beta = .300, t = 9.831, p < .001$ ). However, trust does not mediate the relationship between perceptions of eco-packaging and purchase behaviour; whereas the direct path ( $\beta = .300, t = 9.831, p < .001$ ) and indirect path are significant ( $\beta = .033, z = 1.969, p < .05$ ), zero as a value is included in the 95% confidence interval provided by the bootstrap analysis (.009, .077). Given that bootstrap results are more robust, findings can be said to substantiate non-mediation. Three additional distinct models are tested with each mediator alone. Results confirm a partial mediation effect when either brand equity or loyalty is inserted as the mediator, but no mediation effect when trust is inserted as the mediator.

Partial mediation of perceptions of eco-packaging on purchases of eco-packaged goods means, first and foremost, that brand equity, followed by loyalty, strengthen the positive effect of perceptions of eco-packaging on purchases of eco-packaged goods because both direct and indirect effects are positive and significant. These results support both H3c and H4c. Surprisingly, the lack of a significant indirect effect of perceptions of eco-packaging on purchases of eco-packaged goods indicates that trust does not strengthen the positive effect of perception of eco-packaged goods on purchase behaviour since the indirect effect, albeit directional, is non-significant. This result invalidates H2c.

## Conclusions

This study investigates the impact of consumer perceptions of ecological packaging on actual purchases of eco-packaged goods, and has direct implications for the decision-making processes pertaining to the introduction of eco-packaged goods. In the current context in which consumers over-estimate the positive impact of eco-packaged goods and under-estimate the functional value of packaging, and in which businesses equate eco-packaging with more efficient, less costly production operations, product and packaging crystallize these different perceptions and impact actual purchasing behaviour.

This study is based on the assumption that managers and policy-makers should favour a shift to eco-packaging, if only because consumer perceptions of the structural elements which indicate that goods are eco-packaged positively relate to the purchase of such goods. Our findings reveal that actual purchasing behaviour can be generated through enhanced consumer perception of brand equity and loyalty to a company. Moreover, the study evidences that perception of brand equity and loyalty are mediators of many of the expected outcomes of perceptions of eco-packaging on purchases of eco-packaged goods.

Previous literature demonstrates that environmental signals emanating from packaging combined with loyalty [37] do exert an impact. We find a positive relationship between signals from eco-packaged goods and purchases of eco-packaged goods. Results indeed support a positive indirect effect of perceptions of eco-packaging and purchases of eco-packaged goods through loyalty. This finding is substantiated by prior research which examines the nature of loyalty and defines the latter as the result of a comparison of benefits within a specific category of goods [30]. Results indicate that perceptions of eco-packaging lead consumers to perceive higher benefits, spurring the likelihood of re-purchases and boosting overall purchases. Based on this finding, a company's appealing, straightforward mention of the ecological nature of packaging enhances perceptions of the benefits associated with the goods themselves, the packaging of the goods and purchases of the goods. This ultimately helps boost overall purchases of eco-packaged goods.

Eco-design and eco-packaged goods are considered responsible corporate initiatives [5]. Prior research points to a positive relationship between responsible company initiatives, in general, and consumer trust [18]. Our results support this positive relationship. However, we find the mediating role of trust on the relationship between perceptions of eco-packaging and purchases of eco-packaged goods to be non-significant. This is rather surprising given the central importance of trust as an antecedent and mediating variable for conventional purchases [20]. Our study suggests that although an important and significant antecedent for purchases of eco-packaged goods, action taken to provide more salient eco-packaging prompts and signals would not increase sales as a result of increased consumer trust in the company. This finding may indicate that consumers do not base purchases of eco-packaged goods on trust in a company's efforts but rather, first and foremost, on increased brand equity. The latter includes the likes of positive associations ascribed to a company and greater perceived benefits of eco-packaging and eco-packaged goods, both of which trigger enhanced loyalty.

## **International and managerial implications**

### **Implications**

This research provides insights into the role played by the eco-packaging characteristics perceived by consumers in generating perceptions of trust, brand equity and loyalty towards eco-packaged goods. Results show that perceptions of eco-packaging positively impact purchases of eco-packaged goods. In sum, goods displaying eco-packaging characteristics are more likely and not less likely to be purchased.

In addition to findings to the effect that perceptions of eco-packaging, trust, brand equity and loyalty directly and positively impact purchases of eco-packaged goods, our research reveals, for the first time, two indirect routes leading to purchases of eco-packaged goods. In the first instance, perceptions of eco-packaged goods can positively impact purchase behaviour by dint of the mediating role of brand equity. This finding identifies perceptions of brand equity as the most important mediating construct in the context of responsible purchasing. According to Yoo, Donthu and Lee [28], the four variables of the marketing mix which matter the most in terms of modulating brand equity and packaging relate to 'P' for product. It would therefore appear relevant to combine the offering of eco-packaged products with other, often overlapping elements of the marketing mix such as responsible communications ('P' for promotion), sustainable supply and responsible distribution ('P' for place), lower pricing as a result of a decrease in materials required for packaging and/or product ('P' for pricing). From an international perspective, these variables may need to be adjusted based on the international markets in which a company sells goods. However, past research points up that there are discrepancies with respect to concerns over and attitudes towards the environment in regions across the globe, with some countries and populations being more sensitive to the issue than others owing to a variety of transnational factors and determinants [40]. Hence, stressing efforts deployed to achieve eco-packaging through responsible communications (promotion) or even on-package information may be less relevant and appropriate in some countries. Managers need to assess carefully the sensitivity of consumer markets to the environment and issues relating thereto. They must further ascertain the extent to which environmental concerns have been integrated into national level politics [40].

Regarding the second route, perceptions of eco-packaging positively impact purchase behaviour by dint of the mediating role of loyalty. Drawing upon past findings which indicate that loyalty derives from comparisons of benefits within a specific category of goods [30], it therefore matters that companies demonstrate the superiority of eco-packaged goods compared with their conventionally packaged counterparts. In so doing, consumers may perceive higher levels of benefits for eco-packaged goods than for others, possibly leading to more frequent purchases. Ultimately, the eco-packaged goods might become the habitual choice and represent the habitual purchase behaviour, indicating a form of brand loyalty. From an international perspective, it might be interesting for managers to determine the ecological footprint and environmental impact of competing goods, especially those which are imported and which typically require not just more but heavier duty packaging to survive lengthy transport routes. In so doing, managers could include this aspect as an additional variable with respect to which consumers can compare goods, hopefully in favour of companies advocating the benefits of eco-packaging.

## Limitations and direction for future research

This research has several limitations. Although generalizability is ensured to the best of our ability by using a sample representative of the population, generalizability of population-related findings is limited because of the use of cross-sectional instead of experimental methodology. Cross-sectional methods typically lack the causality inherent in experiments. Furthermore, the cross-sectional nature of the work does not allow for the testing of the longer term effects of the different mediators. To overcome both limitations, future research might consider implementing experiments as well as longitudinal studies which could better test for causality and provide a more thorough understanding of the role of the mediators respecting eco-packaging purchases over time.

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