

**LA CONGRUENCE ET L'IMAGE ÉCOLOGIQUE SPÉCIFIQUE AU PRODUIT EN TANT  
QU'ÉLÉMENTS SOUS-JACENTS DE L'IMPACT DE L'ORIGINE GÉOGRAPHIQUE SUR  
L'ÉVALUATION DE LA QUALITÉ DES PRODUITS GÉNÉRIQUES ÉCO-LABELLISÉS**

**Résumé :** Dans la littérature, l'efficacité d'un écolabel est principalement appréciée dans un contexte de signal isolé. Cependant, les consommateurs traitent une variété d'informations et fondent leurs choix sur de multiples attributs. Au-delà de l'écolabel, les entreprises mettent en avant de plus en plus d'informations comme la mention d'origine géographique, particulièrement pour les produits génériques. Une expérimentation basée sur 375 réponses démontre qu'ajouter une mention de pays d'origine sur un produit écolabellisé n'est pas systématiquement bénéfique. Plus particulièrement, les personnes avec une faible sensibilité environnementale évaluent moins positivement la qualité du produit écolabellisé si la mention d'origine est non-congruente avec le produit et présente une image écologique défavorable. Pour les personnes présentant une forte préoccupation pour l'environnement, il n'y a aucune différence dans l'évaluation de la qualité des produits présentant un attribut ou les deux. Les résultats de ce travail conduisent ainsi à réinterroger l'intérêt de multiplier les attributs sur les produits génériques éco-labellisés.

**Mots clef :** écolabel ; pays d'origine ; image écologique ; congruence ; produit générique.

**CONGRUITY AND PRODUCT-SPECIFIC ECOLOGICAL IMAGE AS UNDERLYING ELEMENTS OF  
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PRODUCTS**

**Abstract:** In the literature, the effectiveness of an ecolabel is mainly assessed in a context of isolated signal. However, in a real purchasing situation, consumers face a variety of information and base their choice on multiple attributes. Beyond the eco-label, companies are bringing to the fore more and more information like the mention of geographical origin, especially in the case of generic products. An experiment, based on 375 responses, demonstrates that adding a country-of-origin mention on eco-labelled product is not always valuable. More specifically, individuals having low environmental sensitivity rate less positively the quality of an eco-labelled product if the origin mention is noncongruent with the product and has an unfavorable product-specific ecological image. For individuals having high environmental sensitivity, there is no difference in quality evaluation of products featuring one or both attributes. The outcome of this work lead to re-examining the interest of multiplying the attributes on eco-labelled generic products.

**Keywords:** ecolabel; country-of-origin; ecological image; congruity; generic product.

# CONGRUITY AND PRODUCT-SPECIFIC ECOLOGICAL IMAGE AS UNDERLYING ELEMENTS OF GEOGRAPHICAL ORIGIN IMPACT ON THE QUALITY EVALUATION OF ECO-LABELLED GENERIC PRODUCTS

## Introduction

The plethora of existing ecolabels, reflecting the multitude of certification schemes, has created confusion among consumers, reducing the credibility of ecolabelling (D'Souza et al., 2006) and affecting their efficiency (Dufeu et al., 2014; Jongmans et al., 2014). "Because label confusion reduces the value of labelling as a strategy to inform consumers about product quality" (Harbaugh et al., 2011, p. 2), producers are wondering whether it is better to overcome this confusion by coupling ecolabels with other quality attributes such as brand name (Larceneux et al., 2012) or mention of geographical origin (Thøgersen et al., 2017). Offering products with a variety of quality cues is especially important in food sector (Grunert, 2005). But, adding new attributes assumes additional costs for producers. Therefore, it is important the association between different attributes to be perceived as relevant and complementary, otherwise it will not add value, but contrarily, reduce it (Sirieix et al., 2013).

In this context, the analysis of ecolabel's efficiency is frequently based on its use by consumers as an isolated and single quality cue, while in a real purchase situation, consumers are facing a variety of information and base their choice on a combination of several attributes (Grunert et al., 2001). Recent research addresses this problem by investigating the combined effects of different quality signals. Even if these studies give some insights into the matter, yet some issues persist. First, there is no consensus about the combined effects of several cues (Dufeu et al., 2014). Second, most research focuses on the combined effect of similar attributes such as two ecolabels (Dufeu et al., 2014; Jongmans et al., 2014). If some studies go further by analysing the combined effects of ecolabel and product brand (Bodur et al., 2016; Larceneux et al., 2012), there are product categories for which branding is inappropriate, like fruits, vegetables, fresh meat and fresh seafood. Moreover, the effect of ecolabel is faded when analyzed in the context of branded products (Dekhili and Achabou, 2015). The products without brands are called generic (Prendergast and Marr, 1997) and their evaluation is different from the evaluation of branded products (Sogn-Grundvag and Østli, 2009). As for the products which carry a weak brand, a cue systematically used for identifying the quality of generic food products is country-of-origin (hereafter, COO) (Grunert, 2005). Due to the globalization of food supply chains and periodic food scandals, companies are seeking to promote the origin attribute of their products in order to provide more transparency to consumers (Carpenter and Larceneux, 2008).

Recent research underline the interest to analyze the combined effect of ecolabel and origin (Hempel and Hamm, 2016; Thøgersen et al., 2017). In the context where demand for eco-labelled food products is growing substantially faster than domestic capacity of supply (Willer and Schaack, 2015), it is important to understand consumers' preferences for imported eco-labelled food products. COO reveals special interest in the context of multiplication of harmonized labelling methods and standards between different countries (Larceneux, 2003). In consequence, the objective of this work is to contribute to the analysis of ecolabel's effectiveness by introducing a new signal: the mention of geographical origin. Therefore, the following research question arises: *How the effect of ecolabel on quality evaluation of generic products is impacted by the presence of information on geographical origin?*

Based on an experiment involving 375 respondents, this research highlights the importance of two key characteristics (congruity with the product and product-specific ecological image) of geographical origin mention when combined with eco-label information.

The following sections provide a theoretical framework including the development of the research hypotheses, a description of the methodology covering the presentation of a pretest and the experimental design, the results and the research implications.

## **Theoretical framework and hypotheses**

While the research streams on ecolabels effect or on the effect of COO are very substantial, the research on combined effect of ecolabel and mention of geographical origin is rather scarce (Adams and Salois, 2010). Moreover, some of these studies are only dedicated to a literature review and development of a research agenda (Thøgersen et al., 2017). Other ones analyze the importance of organic label compared to the origin cue, without taking into account the interaction between these two attributes, but only analyzing their relative importance (Aprile et al., 2012; Bernabéu et al., 2010; Dransfield et al., 2005). Or, studies that consider the interaction between these two attributes, are mainly focused on preference for domestic compared to imported organic foods (Hempel and Hamm, 2016; Onozaka and McFadden, 2011). According to Dransfield et al. (2005), consumers always prefer domestic products. However, sometimes domestic label can have a negative impact on decision to purchase eco-labelled products (Gabrielle Klein et al., 2006). It depends on the characteristics of the domestic country and the analyzed product category (Stefani et al., 2006). This situation is rather specific to domestic countries having a transitional economy (Gabrielle Klein et al., 2006) or can be due to the fact that the product is not at all associated with the domestic country (Dekhili, 2015). This fact rises the interest for imported eco-labelled food products in product categories that could not be produced locally. In the context of globalized food chains, producers are increasingly seeking to value the geographical origin of the products alongside the ecolabeling (Merle et al., 2016).

The main limitation of the research including non-native products, relates to the designation of foreign products with the word “imported” (Dransfield et al., 2005), rather than explicitly specifying the country of product provenance. As studies show, the preference for imported products is different depending on the importing country (Xie et al., 2015) and organic certification could mitigate the negative valuation that consumers may have about certain importing countries (Onozaka and McFadden, 2011).

Consumers’ acceptance or non-acceptance regarding an importing country depends on the product specific origin or ethnicity of the product (Usunier and Cestre, 2007). The two cues, product category and product origin, interact with each other (Roth and Romeo, 1992). According to Aurier and Fort (2005), the attitude towards the interaction between country and product is more important than the attitude towards the country or towards the product separately. This interaction is analyzed through the concept of congruity (or consistency) (Maille and Fleck, 2011).

Another important factor underlying the process of evaluation of importing country in the case of eco-labelled products is the country ecological image (Dekhili and Achabou, 2015). The most frequently, the studies integrate the effect of country of origin through the lenses of country image, but it doesn’t consider the ecological aspects. According to Allred et al. (2000), the stand of the country on environmental issues represents one of the dimensions of country image. This dimension is especially important in the context of products with low added value (i.e. generic products) (Van Ittersum et al., 2003).

Indeed, eco-labelled products coming from a country with positive ecological image are better evaluated than those coming from a country with negative ecological image (Dekhili and Achabou, 2015). However, the study of Dekhili and Achabou (2015) has some difficulties in explaining the influence of country ecological image for a specific product. According to

many COO researches, country image is strongly related to the considered product (Eroglu and Machleit, 1989). Consequently, the country ecological image is product specific (Van Ittersum et al., 2003). This may be referred to a certain congruity between the ecological image and the product category.

In line with cue consistency theory, multiple types of information are more useful when they offer consistent information (Miyazaki et al., 2005). When several attributes (COO and ecolabel) present corroborating information, they are more likely to be used complementarily (Anderson, 2014). It means that consumers complement (i.e. improve) the evaluation of an eco-labelled product with the COO information only when the origin represent a complete match with the product (i.e. favorable ecological image and congruity with the product category). Thus, the following hypothesis is formulated:

H1: COO mention improves the quality evaluation of an eco-labelled product only in the case of a favorable product-specific ecological image and congruity between the COO and the product.

According to Meyers-Levy and Tybout (1989) a complete mismatch between different features of a product generates lower evaluations than a moderated or complete match. Therefore, the following hypothesis is formulated:

H2: COO mention deteriorates the quality evaluation of an eco-labelled product only in the case of an unfavorable product-specific ecological image and non-congruity between the COO and the product.

Most studies agree that health benefits are one of the most important drivers of the purchase and consumption of organic food products (Adams and Salois, 2010). Organic products are associated with less chemicals and non-GMO components (Xie et al., 2015). According to Bougherara and Combris (2009), consumers' health concern has a significant impact on the purchase of eco-labelled products. The environmental concern represents another explicative variable of environmental friendly behaviour (Merle et al., 2016; Xiao and Dunlap, 2007) and the purchasing of eco-friendly products (Barbarossa and De Pelsmacker, 2016). Consumers having pro-environmental values are more likely to buy eco-labelled products (Binniger et al., 2014). Nevertheless, consumers having strong ethical beliefs show a greater embedding effect in the context where goods have two environmental labels: consumers with higher environmental concern are less sensitive to the number of environmental attributes (Jongmans et al., 2014). These findings lead to the consideration of consumers' environmental concern as moderating variable and proposing the following hypothesis:

H3: The impact of adding a COO mention on the quality evaluation of an eco-labelled product is weaker in the case of individuals more concerned about the environment than in the case of individuals less concerned about the environment.

## **Method**

*Experimental design.* To test the hypotheses an experiment, embedded in online consumer survey with visual stimuli, was conducted in France. Similar to previous studies (Larceneux et al., 2012), salmon was selected as a stimulus. Fresh unprocessed salmon is usually sold without brand; thus, it can be considered as generic product.

This experiment employs a 2 (product-country congruity: congruent vs noncongruent) \* 2 (product-specific ecological image of the country: favorable vs unfavorable) between-subjects factorial design. Additionally, a control condition was included. The control group

was shown a picture with salmon featuring only the ecolabel (European organic label) information. The other four groups received pictures having ecolabel information and origin information featuring different combinations between congruity/noncongruity and favorable/unfavorable product-specific ecological image.

*Pretest.* A pretest was conducted to ensure that proper manipulations of origins were selected. A total sample of 150 respondents, representative of the French population (in terms of gender, age and region), participated in this study.

The first objective of the pretest was to assess the associations that consumers make between salmon and countries. Therefore, the method of Usunier and Cestre (2007), based on ethnicity scores and global ethnicity scores, has been applied. Product ethnicity scores range between 0 and 1 and reflect the level to which a product–country association is strong (i.e., most consumers make this association) and quasi exclusive (i.e., the product is significantly associated with few COOs). The higher the degree of association, the closer it is to 1. The global ethnicity scores also range between 0 and 1 and summarize the extent to which an association is bidirectional, product–country, and country–product. A total of 10 countries were listed. Thus, when asked about countries associated with salmon, respondents mainly mentioned Norway, and when asked about products associated with different countries, salmon was frequently indicated for Norway, Iceland, Scotland and Ireland (see Appendix 1).

The second objective of this study was to determine consumers' perception of ecological images of (10 previously listed) countries in the context of salmon production, as the country images are product-specific (Van Ittersum et al., 2003). The 5-item scale developed by Allred et al. (2000) has been used (1=totally disagree, 6=totally agree). As the items were adapted and translated from English to French, an exploratory factor analysis (EFA) has been performed. It confirmed the unidimensionality, as well as the reliability of the scale (Cronbach's  $\alpha=0,952$ ). A confirmatory factor analysis performed in AMOS 25 also confirmed that the data fit the model (see Appendix 2).

Regarding the results, differences in the degree to which a country is considered as a favorable origin for salmon production have been observed ( $F(9;1499)=33,60$ ;  $p<0,01$ ). The mean values of product-specific ecological images for each of the 10 countries of interest are presented in homogeneous subsets in Appendix 3. Thus, the following countries were retained for the experiment: Norway (congruent and favorable ecological image), Ireland (congruent and unfavorable ecological image), Switzerland (noncongruent and favorable ecological image) and Spain (noncongruent and unfavorable ecological image) (see Appendix 4).

*Method.* 375 (75 per stimuli) participants from France were recruited to complete the study from an online survey panel. The sample was drawn to be representative of the country in terms of gender, age and location. Participants were told that they would be evaluating the quality of a salmon fillet based on information presented on a picture and a short description of the guarantees of the European organic label. The dependent variable, overall quality, was measured using 6 items (1=totally disagree; 6=totally agree) borrowed from previous studies on the perception on food quality and adapted for this study (see Appendix 5). The EFA confirmed the reliability of the scale (Cronbach's  $\alpha=0,920$ ). The environmental concern was measured using one item: "I am concerned about wasting the resources of our planet" which can be also found in the research of Thøgersen et al. (2010).

## **Results and discussion**

In order to test H1 and H2, a one-way ANOVA was conducted with quality evaluation as the dependent variable and stimuli as independent variable. This initial omnibus test was

significant ( $F(4;370)=10,89$ ;  $p<0,01$ ); thus, two contrast situations can be explored. The first set of contrasts explore the difference between organic labelled salmon without origin mention and organic labelled salmon with favorable ecological image of the origin. Thus, the organic salmon is compared with organic salmon from Norway (congruent origin) and organic salmon from Switzerland (noncongruent origin). As hypothesized, the quality evaluation is significantly higher for organic salmon from Norway than for organic salmon without origin mention ( $M_{\text{Norway}}=4,50$ ;  $M_{\text{Organic}}=4,14$ ;  $F(1;370)=8,32$ ;  $p<0,01$ ). There is no difference in the quality evaluation of organic salmon from Switzerland and organic salmon without origin mention ( $M_{\text{Switzerland}}=4,10$ ;  $M_{\text{Organic}}=4,14$ ;  $F(1;370)=0,79$ ;  $p=0,78$ ).

The second set of contrasts explore the difference between organic labelled salmon without origin mention and organic salmon with unfavorable ecological image of the origin. Organic salmon is compared with organic salmon from Ireland (congruent origin) and organic salmon from Spain (noncongruent origin). As hypothesized, the quality evaluation of organic salmon from Spain is significantly lower than for organic salmon without origin mention ( $M_{\text{Spain}}=3,68$ ;  $M_{\text{Organic}}=4,14$ ;  $F(1;370)=13,26$ ;  $p<0,01$ ). There is no difference in the quality evaluation between organic salmon from Ireland and organic salmon without origin mention ( $M_{\text{Ireland}}=4,19$ ;  $M_{\text{Organic}}=4,14$ ;  $F(1;370)=0,19$ ;  $p=0,66$ ); and, there is no significant difference in the quality evaluation of organic salmon from Ireland and Switzerland ( $M_{\text{Ireland}}=4,19$ ;  $M_{\text{Switzerland}}=4,10$ ;  $F(1;370)=0,52$ ;  $p=0,47$ ). In sum, adding an origin mention to an organic labelled product is relevant only when the country of origin is congruent with the product and has a favorable product-specific ecological image. Thus, H1 and H2 are validated.

For testing H3 the PROCESS macro written by Andrew Hayes was used. Environmental concern is used as a moderator variable along with stimuli (independent variable) and quality evaluation (dependent variable). As the stimuli is not a binary variable, the analysis is done by using "Organic" modality as reference. A conditional analysis based on different values of environmental concern (mean value-1standard deviation and mean value+1standard deviation), demonstrates that for individuals having a low level of environmental concern, there is difference in the quality evaluation between organic salmon and organic salmon coming from Norway ( $\beta=0,40$ ;  $t=2,3$ ;  $p<0,05$ ) and between organic salmon and organic salmon coming from Spain ( $\beta=-0,68$ ;  $t=-3,96$ ;  $p<0,01$ ). For individuals having a high level of environmental concern, there is no difference in the quality evaluation between organic salmon without origin mention and organic salmon with different origins (see Appendix 6). Thus, adding a congruent and ecologically favourable ecological image origin to an organic labelled salmon, would significantly improve its quality evaluation in the context of low environmentally concerned individuals ( $M_{\text{Norway}}=4,4$ ;  $M_{\text{Organic}}=4$ ), but not in the context of high environmentally concerned individuals ( $M_{\text{Norway}}=4,59$ ;  $M_{\text{Organic}}=4,3$ ). Adding a noncongruent and ecologically unfavourable ecological image origin to an organic labelled salmon, would significantly deteriorate its quality evaluation in the context of low environmentally concerned individuals ( $M_{\text{Spain}}=3,32$ ;  $M_{\text{Organic}}=4$ ), but not in the context of high environmentally concerned individuals ( $M_{\text{Spain}}=4,03$ ;  $M_{\text{Organic}}=4,3$ ). H3 is validated.

## Research implications

Within the framework of cue utilization theory, the ecolabel is conceptualized as a signal of quality which can ameliorate consumer quality transparency when evaluating unbranded products. Therefore, a better understanding of the conditions that are necessary for this effect to occur are provided. The experiment confirms that COO is an important attribute modifying the quality evaluation of an eco-labelled product. A COO congruent with the product and having a favorable product-specific ecological image, enhance the quality evaluation. If the COO is noncongruent or/and has an unfavorable product-specific ecological

image, the quality evaluation will not be improved, and may even be deteriorated. Thus, the joint impact of two cues depend on cue consistency, as well as on consumers environmental sensitivity.

Regarding practical contributions, the results of the experimental study show that specifying an origin information on an eco-labelled product is worthy only in the case of countries congruent with the product and having favorable product-specific ecological image. Otherwise, this complimentary information would not improve the evaluation of an eco-labelled product. Thus, exporters should consider the fact that the ecological image matters for consumer's quality evaluation even if the country presents a great congruity with the product. Countries should be aware of the importance to improve their perceived ecological images. These findings can be useful for manufacturers and distributors in order to better satisfy consumers demand.

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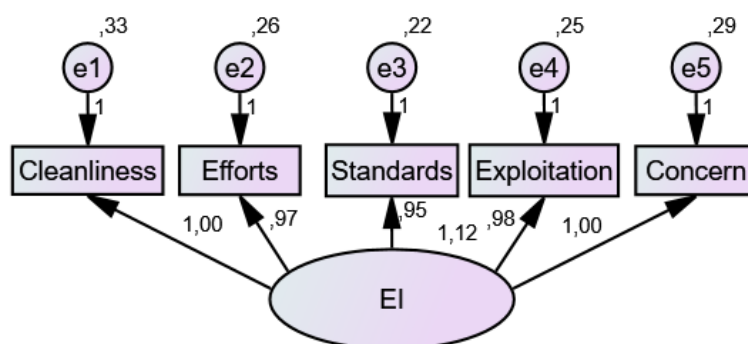
Xie B, Wang L, Yang H, Wang Y and Zhang M (2015) Consumer perceptions and attitudes of organic food products in Eastern China. *British Food Journal* 117(3): 1105–1121.

## Appendix 1: Salmon ethnicity scores

Iceland	/0,35
Ireland	/0,12
Norway	<b>0,76</b> 0,77/0,76
Scotland	/0,19

Notes: Only the countries having ethnicity scores different from 0 are presented in the tables. Global product ethnicity scores are in bold, and product–country/country–product ethnicity scores are indicated underneath.

## Appendix 2: Confirmatory Factor Analysis for ecological image scale



Note: The scale used for measuring the environmental concern presents good fit indices ( $\chi^2/df=1,272$ ; GFI=0,998; AGFI=0,995; RMSEA=0,013).

## Appendix 3: Mean scores of ecological images of the countries divided in statistically different subsets

Country	Subset			
	1	2	3	4
Spain	3,12			
Italy	3,17			
Portugal	3,32			
Ireland		3,79		
France		3,83	3,83	
Canada		4,08	4,08	4,08
Switzerland			4,15	4,15
Scotland			4,17	4,17
Iceland				4,25
Norway				4,42

## Appendix 4: Stimuli used in experiment

Saumon Bio 



Saumon Bio   
Origine Espagne



Saumon Bio   
Origine Irlande



Saumon Bio   
Origine Norvège



Saumon Bio   
Origine Suisse



## Appendix 5: Implemented measurement scales for the dependent variable – quality evaluation

Construct and source	Items	Degrees
Sanitary quality (Merle et al., 2016)	This salmon is healthy.	1 Totally disagree 6 Totally agree
	This salmon is good for the health.	
Nutritional quality (Steptoe et al., 1995)	This salmon is nutritious.	
Environmental quality (Larceneux et al., 2012)	This salmon seems to have been bred following an environmentally friendly process.	
Quality (Carpenter and Larceneux, 2008)	This is a good quality salmon.	
	The quality of this salmon is better than other salmons.	

## Appendix 6. Interaction effect between stimuli and level of environmental concern

