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The country-of-origin dilemma: domestic bias or need for transparency? Assessing consumer's value of information for country-of-origin labelling in Italy

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Abstract

Purpose – The main objective of this study is to analyze consumers' willingness to pay (WTP) for country-of-origin (COO) labels of two processed food products, disentangling the value of information (VOI) that consumers place on COO information from the value they place on specific countries of origin.

Design/methodology/approach – A convenience sample of 96 university students completed a face-to-face experiment that included a multiple price list and a discrete choice experiment. Data are analyzed employing interval censored regressions, and random parameter logit models.

Findings – Our results indicate that, on average, consumers place a higher value on origin information when a country name is explicitly mentioned. Furthermore, COO information is, on average, more relevant to consumers for products with low involvement than for products with high involvement. Finally, the effect of ethnocentrism is heterogeneous across product categories.

Research limitations/implications – Mandatory COO labeling may or may not reinforce domestic bias, depending on the rationale behind consumer support. If consumers are driven by blind ethnocentrism, it may lead to market inefficiencies. However, if they use COO as a cue to align their stated preferences with their choices, it will not. For this alignment to occur, consumers must be fully informed about product attributes, which requires new and smart methods of communicating product attributes.

Originality/value – The present study contributes to the literature on COO food labels, being the first in Italy to disentangle the VOI consumers place on origin information itself from the value they place on specific countries of origin. In addition, it is the first study that applies this methodology across different product categories, each of which has a different level of cultural sensitivity to consumers.

Keywords Labelling, Country-of-origin, Value of information, Discrete choice experiment, Multiple price list

Paper type Research paper

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1. Introduction

As part of the recent Farm to Fork (F2F) strategy, the European Union (EU) proposed to extend the origin information requirements for specific food categories to all Member States. Currently, *country-of-origin* (COO) information is regulated by the Food Labelling Regulation (EU) No. 1169/2011, which establishes uniform criteria for the provision of food information to consumers, including the origin of food, which varies between mandatory and voluntary depending on the category of food and the Member State concerned. The literature has shown that the COO serves as an extrinsic quality cue for consumers, especially when they lack sufficient information about a product's intrinsic attributes (Aboah and Lees, 2020; Bitzios *et al.*, 2017; Holdershaw and Konopka, 2023). However, this reliance on the COO as a quality cue may be intertwined with consumers' ethnocentric tendencies, which include a natural preference for domestic products and a prejudice against foreign products (Shimp and Sharma, 1987), leading to a phenomenon where origin labels might bias consumers' quality judgments (Lusk *et al.*, 2006). For example, ethnocentric biases may lead consumers to believe that domestic products are inherently superior, regardless of objective differences in quality.

This raises questions about the effectiveness and fairness of COO labelling policies. An extended COO labelling policy may inadvertently perpetuate ethnocentric consumer biases rather than promoting informed choices based on genuine product attributes, causing potential harm and having an asymmetrical effect on producers who manufacture domestically versus those who import raw materials. These complex interactions pose a challenge in assessing the potential spillover effects of the expanded policy measure. If product quality is conflated with ethnocentric sentiments, the COO labelling policy could be transformed into a sort of protectionist measure that may ultimately harm societal welfare (Lusk *et al.*, 2006) and move away from the original policy premise, which is to protect consumers and address their need for transparency (Alberti *et al.*, 2021; Basnayake and Rajapakse, 2019; Chandan *et al.*, 2023).

Previous literature has mainly focused on measuring the willingness to pay (WTP) for the COO label by constructing an experiment in which a country of origin was explicitly mentioned, showing that consumers are willing to pay more for a product from their own country (e.g. Ardeshiri and Rose, 2018; Boncinelli *et al.*, 2024; Carzedda *et al.*, 2021; Chern and Chang, 2012; Chern and Lin, 2012; Cosmina *et al.*, 2016; Klain *et al.*, 2014; Lee *et al.*, 2014; Lim *et al.*, 2013; Ortega *et al.*, 2014; Schott *et al.*, 2022; Tempesta and Vecchiato, 2013; Zhang *et al.*, 2020), suggesting that consumers use COO labels to identify and purchase domestic products rather than focusing on the COO label itself (Blazquez-Resino *et al.*, 2021; Boncinelli *et al.*, 2024; Bryła, 2021; Chryssochoidis *et al.*, 2007; Gao *et al.*, 2024; Lusk *et al.*, 2006; Schnettler *et al.*, 2018; Thøgersen *et al.*, 2017; Van Loo *et al.*, 2019).

Thus, previous studies left an unexplored gap, since to rightly understand the potential spillover effects of the mandatory COO labelling F2F policy, it is crucial to distinguish whether consumers attribute value to the origin information *itself* or to a specific country of origin. To our knowledge, only Klain *et al.* (2014) have attempted to address this gap by developing a method to distinguish between the general value consumers place on origin information and the specific value attributed to particular countries. Building on their work, we aim to contribute to the literature gap by assessing how Italian consumers perceive COO labels with and without explicit country of origin information. This will allow us to distinguish the inherent value consumers place on origin information from their preferences for specific countries of origin, contributing to a better assessment of the potential policy spillover effect.

We conducted a face-to-face experiment in an Italian University lab using a convenience sample of 96 university students evaluating their WTP for two different processed products (canned peas and pasta) utilizing two stated preference methods, a direct approach – a Multiple Price List (MPL) - and an indirect one – a Discrete Choice Experiment (DCE).

The combination of methods allows us to disentangle the value of origin information (VOI) from any specific origin (with the direct approach) and at the same time to evaluate the COO information for specific countries (with the indirect method). Italy is a particularly suitable context to study the dynamics of COO labelling because, on the one hand, its government actively supports the extension of COO mandatory labelling rules and, on the other hand, its population has been shown to have a so-called home bias, preferring domestic over foreign products (Scarpa *et al.*, 2005). In fact, Italy has recently introduced stricter mandatory COO standards for certain food categories: in December 2016, the Italian government, through a ministerial decision (*Decreto Ministeriale*, DM), made the indication of origin mandatory for milk and dairy products. The following year, this decision was integrated with a DM on July 26, 2017, requiring the provision of origin information for wheat pasta and rice. Another DM, dated November 16, 2017, extended this requirement to tomatoes and processed tomato products. Finally, the DM of August 6, 2020, completed the current extension of the Italian policy framework by introducing the origin labelling requirement for pig processed and cured meats.

Our work is the first to follow Klain *et al.* (2014) example applying it to Italy – which presents a different food context – and focusing on two processed products – pasta and peas. The selection of these two products allowed us to extend the current literature, which mainly focuses on fresh produce (Thøgersen, 2023), and to examine how VOI varies across different product categories (Schnettler *et al.*, 2018). Furthermore, by selecting products with different levels of sensitivity among Italian consumers, we were able to investigate the role of ethnocentrism in two different product categories in Italy, thus answering the need for research on the role of ethnocentrism in COO evaluation of culturally relevant food products such as pasta (Boncinelli *et al.*, 2024).

We expect that ethnocentrism would influence the value that consumers place on the Italian COO label for pasta more than for peas, since pasta is very important for Italian cultural identity (Altamore *et al.*, 2020). This importance has been translated into policy, in fact COO information has been made mandatory for pasta in Italy (but not in the EU), while across the EU it remains voluntary, following the same regulatory framework as for peas.

On these premises, this study aims to address the following hypothesis:

H1. The indirect approach (DCE), providing COO information with explicit mention of the country name (e.g. "Italy"), will lead to higher estimates of VOI than the direct approach (MPL), only providing information about the COO label being present or absent, without mentioning any country name.

H2. Under the indirect method (DCE), highly ethnocentric individuals will have a higher WTP for Italian products, and we expect this effect to vary across product categories (i.e. the VOI associated with the Italian label will be higher for pasta, while lower for peas).

Our results show that the estimated VOI is on average higher when a country name is explicitly mentioned (indirect approach) than when COO information is provided without mentioning a country name (direct approach) for both products in the analysis. The study also revealed a clear preference for domestic over foreign products. Participants consistently assigned the highest utility to products labeled as Italian, followed by those labeled as EU-produced. Instead, there was an aversion to extra-EU products, as indicated by a lower WTP for them compared to products that did not carry the COO label. Moreover, we found that on average VOI is relatively higher for food products with low involvement (i.e. peas) than for products with high involvement (i.e. pasta). Finally, we found that ethnocentrism influences consumer's VOI for the domestic COO label only for foods relevant to consumers' cultural identity (i.e. pasta).

This paper proceeds as follows. Section 2 provides an overview of previous literature on the topic, Sections 3 and 4 give an overview of the experimental design, and of the empirical strategy, respectively. Section 5 presents the results of the experiment. Finally, in Section 6 we draw some conclusions and limitations of the study, giving some policy and business recommendations.

2. Literature review

A large body of empirical research has been conducted to examine the role of COO in influencing consumer choice (see Verlegh and Steenkamp, 1999 and the recent Samiee *et al.*, 2024 for a comprehensive review). COO effects arise from the interaction of cognitive, affective and normative aspects (Verlegh and Steenkamp, 1999). The cognitive dimension refers to the fact that COO is perceived as a heuristic for making quality inferences about a product. That is, consumers often rely on a country's reputation to assess the quality of a product, especially when they lack prior knowledge about its intrinsic characteristics (Balcombe *et al.*, 2016). This reliance persists even after consumers have tasted the product and thus can actually influence the evaluation of the intrinsic product attributes, as studies have shown that COO can influence both consumers (Schott *et al.*, 2022) and experts (Chauvin *et al.*, 2024) taste evaluations of food products. Affective responses to a product's COO are related to concepts such as status, self-image and pride, and the fact that consumers often associate products with countries based on stereotypes, leading to positive or negative perceptions of the product itself (Chattalas *et al.*, 2008). Normative responses instead refer to the moral considerations of the buyer in relation to the COO. For example, consumers may perceive it as more "moral" to buy products from their home country or may reflect a moral action in their purchase decision, which is the so-called "customer vote," that is the decision to buy or not to buy a product is seen as a vote for or against the policies and practices of a country (Pouta *et al.*, 2010; Verlegh and Steenkamp, 1999).

One of the most significant normative reactions influencing consumer perception of COO is ethnocentrism (Thøgersen, 2023; Verlegh and Steenkamp, 1999). Ethnocentrism can be defined as the tendency to evaluate foreign products negatively and to strongly prefer – or even feel obliged to buy – domestic products (Shimp and Sharma, 1987). Empirical literature found that the stronger the ethnocentrism, the stronger the preference for a COO label (Lewis and Grebitus, 2016) and that ethnocentric consumers show a positive behavior in purchase intention and consumption of products from their own country (e.g. Gao *et al.*, 2024; Kilders *et al.*, 2021; Lusk *et al.*, 2006; Van Loo *et al.*, 2019).

Despite the acknowledged importance of ethnocentrism, the boundaries between cognitive, affective and normative aspects of COO are blurred, as they all play a role in determining the importance of COO in consumer choice, that seems to be quite relevant according to Thøgersen's (2023) extensive literature review, which examines the empirical studies that use hypothetical experimental methods (either conjoint analysis or DCE) to estimate consumers' willingness to pay for the COO attribute. The author found that COO is a factor of considerable importance in product evaluation, in some cases even playing a stronger role than price (Dumitrescu *et al.*, 2013; Peschel *et al.*, 2016; Schnettler *et al.*, 2018), and that consumers are consistently willing to pay a higher price for products from their own country.

Most previous studies have focused on fresh produce such as meat and fruits and vegetables (Thøgersen, 2023). To our knowledge, there are only two DCEs conducted on pasta (Boncinelli *et al.*, 2024; Dumitrescu *et al.*, 2013), only one of which was conducted in Italy (Boncinelli *et al.*, 2024). There are no studies focused on canned peas, with the closest available focusing on peeled canned tomatoes (Frez-Muñoz *et al.*, 2016).

Using a DCE, Dumitrescu *et al.* (2013) investigated the preferences of Greek and Romanian consumers for pasta labeled as either from Italy or from the USA. The authors

found that, holding constant the type of wheat from which the pasta is made, consumers place more value on pasta from Italy than from the USA, most likely due to the strong country stereotypes associated with the Italy–pasta nexus. Boncinelli *et al.* (2024) conducted a DCE experiment investigating Italian consumer's willingness to pay for pasta produced with wheat either from EU, extra-EU or from Italy finding that Italian consumers are willing to pay a premium price for pasta made with Italian wheat. Frez-Muñoz *et al.* (2016) conducted a conjoint analysis investigating which are the consumers key attributes when purchasing canned tomatoes across Chile, the Netherlands and Italy finding that country of origin (combined with PDO certification) was the most important attribute for Italian consumers.

However, we note that neither Dumitrescu *et al.* (2013) nor Boncinelli *et al.* (2024) DCEs assessed the WTP related to the presence or absence of origin information, as none of them included an unlabeled alternative in the choice set shown to respondents. In addition, Boncinelli *et al.* (2024), in their paper limitations, acknowledged the lack of analysis related to ethnocentrism, which could influence the impact of COO labeling.

3. Experimental design

The face-to-face experiment was presented to participants using the Qualtrics online survey platform. It encompassed three distinct sections: an introductory segment, an experimental section and a final questionnaire. The experimental section was furtherly divided into three tasks: the first one aimed at determining the WTP for COO labels without mentioning specific countries (direct approach); the second one with the objective of estimating the WTP for COO-specific information (indirect approach); the third one used to elicit participants' behavioral insights.

The direct elicitation followed a *within-subject* approach: each participant was shown two different independent questions, one for each product, in the form of an MPL. The order of the questions was randomized for each individual to control for order effects. Instead, we adopted a *between-subject* approach for the indirect elicitation (DCE): each participant was shown either the choice set for pasta, or the choice set for canned peas, and the order of the choice questions composing a choice set was randomized to control for order effects.

The introduction of the survey incorporated a *cheap talk*, strategically employed to mitigate the hypothetical bias stemming from social desirability concerns (Cummings and Taylor, 1999; Ladenburg and Olsen, 2014). Moreover, to further minimize potential hypothetical bias, participants were explicitly informed that they would be making concrete, non-hypothetical choices with real consequences. Upon completing the study, they would have been engaged in a virtual dice-rolling activity. If the dice yielded the number six, participants would have been required to make actual payments for a part of their virtual purchases and, in return, they would have received a prize as compensation.

3.1 Direct elicitation method

The first experimental task consisted of an MPL. For each product, given its weight, participants were presented with different situations involving a labeled and an unlabeled version and were asked to choose between them. The price assigned to the labeled option was progressively increased in three scenarios: in the first, both options had the same price; in the second scenario, the labeled option was priced 10% higher than the unlabeled option; in the last one, the labeled option was priced 20% higher than the unlabeled option. Respondents were only shown the premium price they would be willing to pay for a labeled product compared to an unlabeled one instead of the product selling price. The premium prices were derived starting from the average market prices (1.65 € for 500 g of pasta, 2.60 € for 600 g of canned peas). In order to avoid any potential bias in the respondents' minds, this section was

always displayed as the first one in the survey flow, since the product selling price and the countries of origin were not made explicit in these questions, while the same products were presented and associated with a price and a specific country in the following tasks. In a MPL context, the upper bound of a respondent's WTP for the origin information can be determined by observing the price level at which they shift from the labeled to the unlabeled option. Figure 1 shows an example of how participants viewed the MPL task for a product.

3.2 Indirect elicitation method

The second section was designed as a DCE, in which individuals were presented with various scenarios, differing for two attributes (origin label and price) and their levels (Table 1), and were asked to select the option that most closely represented their true preference. Two different choice sets were created for pasta, and canned peas, each containing nine choice questions. Figure 2 shows an example of a choice set for canned peas as presented to

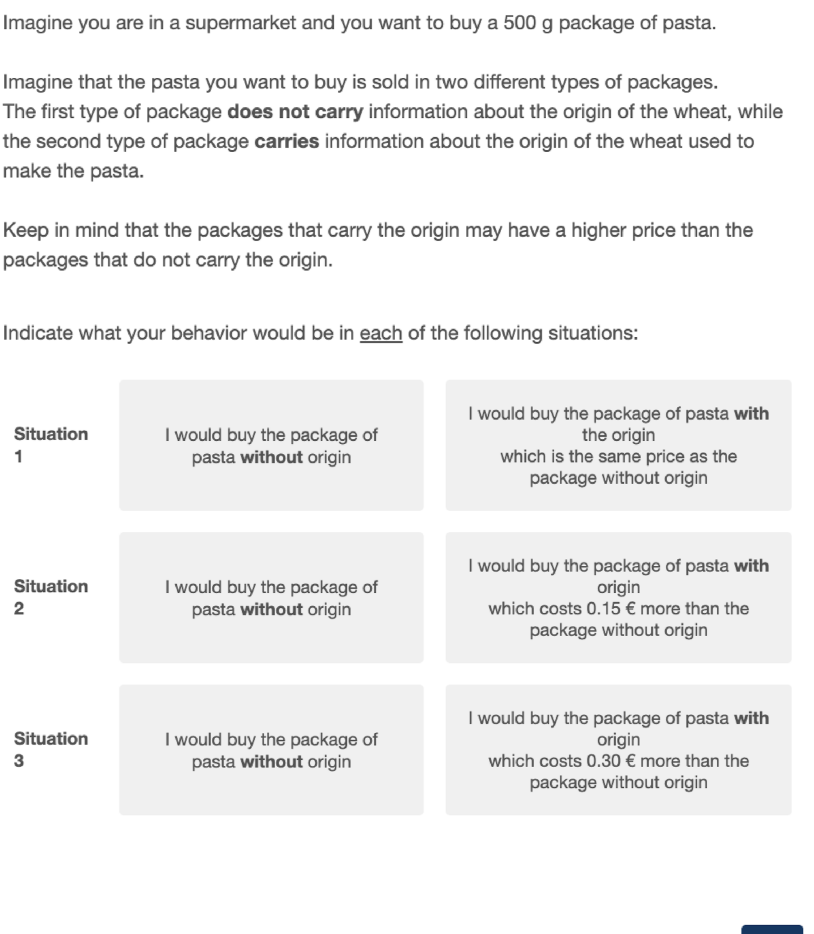

Figure 1.
Example of a multiple price list

Source(s): Authors' own work

participants. Employing the Ngene software, an *orthogonal design* for each product was extracted, by reducing the full factorial matrix of $3^4 = 81$ combinations to obtain 9 combinations. Each option in the combinations differed by origin label and price: a vector of four label alternatives (no label, Italian origin, EU origin, Extra-EU origin), and a vector of three prices were created. The former was the same vector for both products. The latter was product-specific, and it was set by using the average market price as the medium price option (1.65 € for 500 g of pasta, 2.60 € for 600 g of canned peas), then adding and subtracting its 10% to obtain the highest and lowest price options respectively.

Table 1. Attributes and levels included in the discrete choice experiment (DCE)

Attributes	Number of levels	Levels	
		Pasta (500 g)	Canned peas (600 g)
Price	3	1.50 €, 1.65 €, 1.80 €	2.35 €, 2.60 €, 2.85 €
Origin	4	No label, Italy, EU, Extra-EU	

Source(s): Authors' own work

As formerly stated, each choice set was composed of nine choice questions, in which respondents had to choose one product among four, otherwise selecting the No buy option if they were not satisfied with any of the product alternatives.

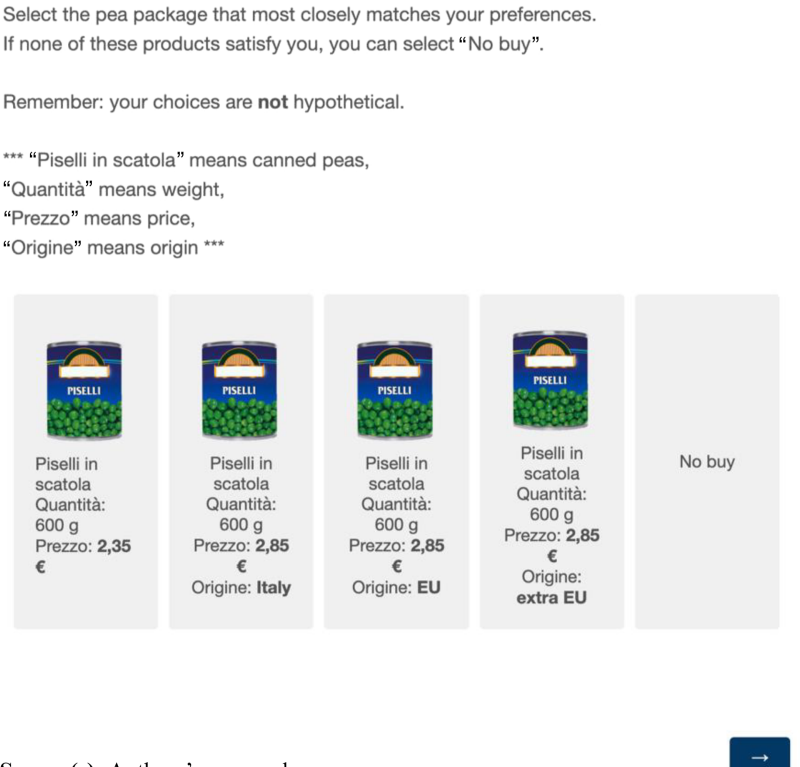

Figure 2. Example of a discrete choice experiment (DCE) choice card

Source(s): Authors' own work

3.3 Collection of behavioral insights

The third section was inspired by the basket-based choice experiment as described by Caputo and Lusk (2022). However, fully replicating their experimental setting would require presenting participants with multiple baskets, each with different prices. Due to the time constraints of our face-to-face experiment, we presented each participant with only a single basket. For this reason, the data collected from this single basket were then used to derive descriptive behavioral variables, rather than estimating a basket-based econometric model.

Respondents were presented with a basket of food items and asked to imagine that they had to prepare a meal for themselves or their household. They could choose one or more of the items presented, otherwise they could select the "no purchase" option if they did not wish to purchase any of the food items offered in the question. The items that made up the baskets were twelve (apples, canned chickpeas, canned peas, chicken breast, eggs, pasta, pork sausage, rice, sliced beef, strawberries, tomatoes, zucchini), including the two products analyzed in the previous sections, integrated with substitutes and complements to create a more realistic shopping situation.

We designed two different types of baskets: a group in which no origin information was presented (i.e. *unlabeled baskets*) and a group in which two versions of each product were presented (for a total of twenty-four products): one version provided origin information, while the other version was unlabeled (i.e. *labeled baskets*). To reduce the full factorial matrix of $3^{12} = 531{,}441$ combinations for the group of labeled baskets and of $3^{24} = 282{,}429{,}536{,}481$ combinations for the group of unlabeled baskets, we used the Ngene software and performed a fractional factorial reduction for both. We obtained a design of twelve combinations for each of the two groups. Each respondent was randomly shown only one basket from either the labeled or the unlabeled group of baskets (*between-subjects design*). An example of how participants viewed the food basket (i.e. the unlabeled version) is shown in Figure 3.

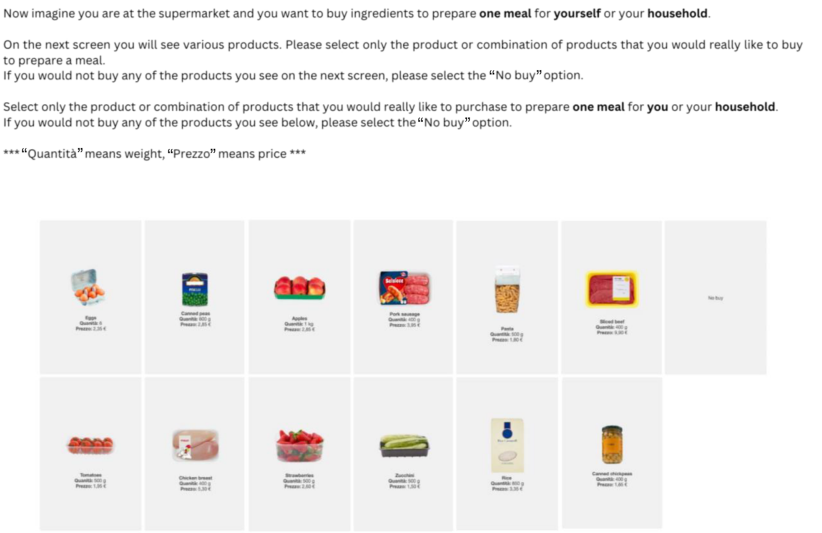

Figure 3.
Example of a food items grocery basket shown to participants

Source(s): Authors' own work

4. Empirical strategy

4.1 Empirical strategy direct approach

The data from the direct approach, coming from the MPL task, represent WTP intervals rather than specific point data for each individual. Therefore, these data are analyzed with interval censored regression models. Specifically we estimated a separate model for each product (pasta and canned peas). The true individual i willingness to pay $WTP^{*}_{i,j}$ for the COO information of product j (with j = pasta, canned peas) lies within the upper and lower bounds at which respondent selected the labeled option (Klain *et al.*, 2014).

Following Klain *et al.* (2014), we can define $P_{i,j,low}$ and $P_{i,j,high}$ as the lowest and highest prices, respectively, that individual i is willing to pay for the labeled product j. Given that $WTP^{*}_{i,j}$ falls in the range between $P_{i,j,low}$ and $P_{i,j,high}$, and assuming that ε_i is identically and normally distributed with mean μ and standard deviation σ, it is possible to formulate the likelihood function (LF) for the interval censored regression as:

$$LF = \Phi\left[\frac{P_{i,j,high} - \mathrm{WTP}^{*}_{i,j}}{\sigma}\right] - \Phi\left[\frac{P_{i,j,low} - \mathrm{WTP}^{*}_{i,j}}{\sigma}\right] = \Phi\left[\frac{P_{i,j,high} - \beta + \rho X_i}{\sigma}\right] - \Phi\left[\frac{P_{i,j,low} - \beta + \rho X_i}{\sigma}\right] \quad (1)$$

where Φ is the cumulative standard normal distribution function.

We empirically define $\mathrm{WTP}^{*}_{i,j}$ - the true WTP of individual i for product j - for each of the two products, as:

$$\mathrm{WTP}^{*}_{i,j} = \beta_0 + \rho_1 (CET\_high)_i \quad (2)$$

where β_0 is the intercept representing the mean value of information across individuals, whereas ρ_1 represents the marginal effect of the individual-specific explanatory variable (ethnocentrism) when including ethnocentrism in the estimation. Models 1 and 3 presented in Table 4 are estimated including only the intercept, thus obtaining the mean VOI without considering the sample heterogeneity. Instead, Model 2 and 4 (Table 4), included a control for ethnocentrism (CET_high), indicating whether a consumer had a higher (CET_high = 1) or lower (CET_high = 0) than the median level of ethnocentrism [1]. This dummy variable was derived by splitting the sample through a median split.

4.2 Empirical strategy indirect approach

The data from the indirect approach (gathered through the DCE) are analyzed employing a random (or mixed) parameter logit (RPL) estimation. We estimated a separate model for each product (pasta and canned peas).

The theoretical framework underlying this part of the research is random utility theory (McFadden, 1974), which assumes the utility $U_{i,j}$ that individual i derives from the choice alternative j to be as follows:

$$U_{i,j} = V_{i,j} + \varepsilon_{i,j} \quad (3)$$

where $V_{i,j}$ represents the deterministic function reflecting representative tastes, meaning that it is the utility derived from the price and origin attributes characterizing choice alternative j as well as from individual explanatory variables (ethnocentrism level), and $\varepsilon_{i,j}$ represents the stochastic error term.

We empirically define $V_{i,j}$ as

$$V_{i,j} = \beta_1 (Italy)_{i,j} + \beta_2 (EU)_{i,j} + \beta_3 (ExtraEU)_{i,j} + \beta_4 (no\_label)_{i,j} + \alpha (Price)_{i,j} + \rho_1 (Italy)_{i,j} (CET\_high)_i + \rho_2 (EU)_{i,j} (CET\_high)_i + \rho_3 (ExtraEU)_{i,j} (CET\_high)_i + \rho_4 (no_{label})_{i,j} (CET_{high})_i \quad (4)$$

where β_n are the specific intercepts for each category, giving the value of the utility (or disutility) of each category with respect to not buying the product, whose utility was specified to zero for specification and interpretation aims; $Price_{i,j}$ is the price faced by individual i for the alternative j and α is the marginal utility derived from the price of alternative j; ρ_n represent the shifts in the alternative specific intercepts for participants having a high level of ethnocentrism (i.e. *CET_high* defined as in Equation (2), since *CET_high* was included only when interacted with the ASCs). To allow for a more flexible representation of preference heterogeneity, we employed a RPL model, where the β_n coefficients were assumed to be independently and normally distributed, such that they could be either positive or negative (Train, 2009).

Following Chang *et al.* (2009), in a RPL model, the alternative specific constant (ASC) β_j shown in Equation (4) is specified as:

$$\beta_{i,j} = \overline{\beta_j} + \sigma_j v_{i,j} \quad (5)$$

where $\overline{\beta_j}$ is the population mean ASC for alternative j, σ_j is the standard deviation around the population mean of the distribution of the coefficient $\beta_{i,j}$, and $v_{i,j}$ is a stochastic term distributed normally with zero mean and unit standard deviation. In our specification, the alternative specific constants were assumed to be random across the population, following a normal distribution, while price was assumed to be fixed.

5. Results

5.1 Descriptive results

The participants of the study were 96 university students recruited in an Italian university. Participation was voluntary and students could withdraw at any time during the study. The experiment was conducted in a laboratory provided by the university. The descriptive statistics of the sample are presented in Table 2. Descriptive results show that participants lacked awareness regarding the COO policy frameworks for both products. Specifically, 28% of the participants demonstrated familiarity with regulations governing the labelling of canned peas and only 10% of the participants were aware of the COO labelling policy for pasta. The behavioral insights allowed us to characterize the shopping habits of our sample. Within the unlabeled group of baskets, respondents selected on average 31.5% (3.78 out of 12) of the presented products, while this percentage decreased to 23.1% (5.54 out of 24) in the labeled group. Notably, within the labeled group of baskets, the average proportion of products reporting the COO information represents more than 68% of the total products selected (3.79 out of 5.54). Combining data from both groups of baskets, we further analyzed the selection patterns across product categories. The fruit and vegetable category (apples, strawberries, tomatoes, zucchini) was the most selected, constituting 38% of the chosen products. Carbohydrates products (pasta, rice) followed closely, representing 23% of selections, while animal products (chicken breast, eggs, pork sausage, sliced beef) accounted for 21%. Finally, canned products (canned chickpeas, canned peas) made up 17% of the overall selected items.

Variable	Unit of measurement	Mean
Sex		
Female	Binary variable	0.51
Male	Binary variable	0.49
Nationality		
Italian	Binary variable	0.93
Other	Binary variable	0.07
Education		
High School	Binary variable	0.31
Bachelor's degree	Binary variable	0.50
Master's degree	Binary variable	0.19
University study course		
Viticulture and enology	Binary variable	0.07
Agricultural science and technology	Binary variable	0.19
Food science and technology	Binary variable	0.35
Economics/Marketing	Binary variable	0.15
Agricultural and food economics	Binary variable	0.19
Other	Binary variable	0.05
Household size		
(1–6)	Continuous variable	3.06 (1.30)*
Diet		
Flexitarian	Binary variable	0.04
Vegetarian	Binary variable	0.04
Omnivorous	Binary variable	0.92
Policy framework knowledge		
Pasta		
Yes	Binary variable	0.10
No	Binary variable	0.90
Canned peas		
Yes	Binary variable	0.28
No	Binary variable	0.72
Look for COO information		
Yes	Binary variable	0.45
No	Binary variable	0.55
Ethnocentrism (median-split)		
Low ethnocentrism (lower than the median 4.00)	Binary variable	0.45
High ethnocentrism (greater than or equal to the median 4.00)	Binary variable	0.55
Primary shopper of the household		
Yes	Binary variable	0.54
No	Binary variable	0.46
N. of observations	96	

Note(s): *Standard deviation reported in parenthesis
Source(s): Authors' own work

Table 2.
Summary statistics of the sample

Following previous literature (see Jiménez-Guerrero *et al.* (2014) for a comprehensive review of past studies employing the CETSCALE), we employed a reduced version of the original 17-items CETSCALE, as established by Shimp and Sharma (1987), to measure the consumer's ethnocentrism. We acknowledge that there are multiple adaptations of the CETSCALE – in terms of both the number of items and their wording – that could be used to assess

consumer's ethnocentric tendencies (Jiménez-Guerrero *et al.*, 2014). We are also aware that some scholars have raised concerns regarding the unidimensionality of the CETSCALE, defined by Hattie (1985) as the ability of a scale to explain a single latent trait or construct (Jiménez-Guerrero *et al.*, 2014). Furthermore, we recognize the CETSCALE has been criticized for its inability to assess varying levels of ethnocentrism, as opposed to merely identifying whether a consumer exhibits ethnocentric tendencies or not (Bawa, 2004). Nevertheless, our objective was to assess the different perceptions of ethnocentric versus non-ethnocentric consumers, while also attempting to maintain the length and complexity of the experiment at a minimum to avoid increasing participant fatigue. That is why, we decided to employ the four-items long (1–5 Likert Scale) reduced version of the CETSCALE, which has been validated by Vida *et al.* (2008). Given that the original version of the CETSCALE was created in the United States, but the survey was conducted in Italy, the items were adapted by substituting "Italy" to "United States" in each sentence. The CETSCALE employed for this experiment shows a good internal validity, having a Cronbach's α of 0.81. In Table 3 we present summary statistics of each CETSCALE item. The participants in the experiment showed a high level of ethnocentrism, with 55% of them being highly ethnocentric, as indicated by a mean score of 3.85.

Item	Min	Max	Mean	S.D
CET 1: Italian goods first, last and foremost	2	5	4.02	0.80
CET 2: We should purchase products manufactured in Italy instead of letting other countries get rich from us	1	5	3.59	1.18
CET 3: It is always better to purchase things made in Italy	1	5	3.79	1.03
CET 4: It may cost more in the long run, but I prefer to support products produced in Italy	2	5	4.00	0.82
Reduced CETSCALE Cronbach's Alpha			0.81	

Source(s): Authors' own work

Table 3. Summary statistics of the CETSCALE

5.2 Results from the direct approach

To evaluate the results from the direct elicitation method, we estimated four interval censored regression models using *Stata 18*. Models 1 and 2 used data referring to the pasta sample; Models 3 and 4 refer to data gathered for the canned peas. The results of the models are presented in Table 4 [2].

Parameter	Pasta		Canned peas	
	Model 1	Model 2	Model 3	Model 4
Constant	0.136^{***} (0.010)	0.111^{***} (0.014)	0.225^{***} (0.015)	0.232^{***} (0.022)
CET_high	N/I	0.046^{*} (0.019)	N/I	−0.013 (0.030)
Scale (std. dev.)	0.092^{***} (0.007)	0.090^{***} (0.007)	0.138^{***} (0.011)	0.138^{***} (0.011)
N. of observations	96	96	96	96
Log-likelihood	−0.678	2.045	−1.974	−1.884

Note(s): ***, **, * and . denote less than 0.1%, 1%, 5% and 10% significance levels, respectively
[(a)]Numbers in parentheses are standard errors
N/I: not included
Source(s): Authors' own work

Table 4. Results of the interval censored regression models, for both pasta and canned peas

Models 1 and 3 include only a constant term, being interpreted as the mean WTP for the information across the whole sample (Klain *et al.*, 2014). In Models 2 and 4 we added the *CET_high* control variable, as specified in Equation (2). The mean value of information for a package (500 g) of pasta (Model 2) is 0.11 €. Given that the average price of pasta used to extract the premium prices was 1.65 €, the value of the information represents 6.67% of the pasta price. Similarly, the mean VOI for a can of peas (600 g) is 0.23 €, which represents 8.85% of the price (2.60 €). The variable *CET_high* is positive and significant at 5% only for the pasta sample (Model 2). Specifically, individuals with a high level of ethnocentrism are willing to pay 0.05 € more than who shows a low ethnocentrism level, increasing the WTP for labelled pasta by 3.03%.

5.3 Results from the indirect approach

For estimating the indirect VOI we estimated one RPL model for pasta and one for peas. The RPL assumed variability in preferences for the different labels but kept the price parameter fixed across the population (Caputo *et al.*, 2023). The analysis was carried out using the *Apollo* package (Hess and Palma, 2019) in the statistical software *R version 4.2.3*. Results of this analysis are presented in Table 5. The standard deviation of the Italy and EU ASCs (in both Models 5 and 6) and of the No label ASC (Model 5) is significant at less than 1% significance level, while the significance of the No label (Model 6) and of the Extra-EU ASCs (in both Models 5 and 6) are significant at 1 and 5% significance level respectively.

Since the models were estimated in preference space, the ratio between the COO intercepts (ASCs) and the absolute value of the price coefficient represents the WTP for buying each of the differently labelled products, compared to not buying any of the products. Likewise, the ratio between the *CET_high* coefficient and the absolute value of the price produces the marginal value that this covariate holds. As previously stated, we kept the utility of the No buy option to 0 for interpretation purposes. All the ASCs are positive and significant, meaning that respondents would always derive less utility if not purchasing the product, independently on the label the product holds.

Referring to pasta, the WTP for un unlabeled package of pasta (500 g) can be calculated as 19.762/13.268 = 1.49 €. Following the same reasoning, the WTP for a package of pasta with the Italian label is 1.79 €, with the EU label is 1.64 € and with the Extra-EU label is 1.40 €. The highest marginal WTP for a COO label, compared to an unlabeled package, is held by the Italian label (0.30 €), followed by the EU label (0.15 €), while the Extra-EU label holds a negative marginal WTP (–0.09 €). Hence, the average VOI across the labels is 0.12 €, representing 7.3% of the pasta price.

Referring to canned peas, the WTP for un unlabeled can of peas (600 g) can be calculated as 12.165/5.287 = 2.30 €. Similarly, the WTP for a can of peas with the Italian label is 3.05 €, with the EU label is 2.61 € and with the Extra-EU label is 2.20 €. As for the pasta case, the highest marginal WTP for a COO label, compared to an unlabeled product, is held by the Italian label (0.75 €), followed by the EU label (0.31 €), while the Extra-EU label holds a negative marginal WTP (–0.10 €). Hence, the average VOI across the labels is 0.32 €, representing 12.3% of the canned peas price.

Ethnocentrism (*CET_high*) influences the two products differently. In the case of pasta, the WTP for Italian pasta increases significantly (at 5% significance level) by 2.528/13.268 = 0.19 € for highly ethnocentric individuals (+11.5%). Instead, in the canned peas model the shift given by the level of ethnocentrism is significant only at 10% significance level for the Extra-EU coefficient and for the unlabeled option.

Table 5. Results of the RPL model in preference space for the pasta and canned peas samples

Parameter		Pasta sample (model 5)				Canned peas sample (model 6)			
		Italy	EU	Extra-EU	No label	Italy	EU	Extra-EU	No label
ASC[(a)]	Mean	23.780*** (2.588)	21.740*** (2.435)	18.638*** (2.481)	19.762*** (2.441)	16.117*** (1.702)	13.802*** (1.572)	11.608*** (1.798)	12.165*** (1.608)
	Std. dev	−3.558*** (0.644)	2.280*** (0.458)	−2.546* (1.070)	−2.126** (0.772)	2.455*** (0.420)	2.331*** (0.506)	1.957* (0.975)	−2.336*** (0.668)
ASC_shift_CET	/	2.528* (1.263)	0.914 (0.894)	−1.027 (1.568)	0.726 (1.027)	−0.234 (0.882)	−0.845 (0.880)	−2.906. (1.508)	2.053. (1.059)
Price	/	−13.268*** (1.460)	−13.268*** (1.460)	−13.268*** (1.460)	−13.268*** (1.460)	−5.287*** (0.567)	−5.287*** (0.567)	−5.287*** (0.567)	−5.287*** (0.567)
Log likelihood		−338.845				−370.783			
AIC		703.690				767.570			
BIC		756.850				820.180			

Note(s): ***, **, * and . denote less than 0.1%, 1%, 5% and 10% significance levels, respectively
We kept the No buy option as the reference category
(a) Random parameter
Source(s): Authors' own work

6. Discussion and conclusions

The purpose of this study was to examine consumer VOI for the COO label, distinguishing the value consumers place on the origin information itself from the value they place on specific countries of origin in different product categories, each of which with varying levels of relevance for consumers cultural identity. We achieved this goal by applying the method of Klain *et al.* (2014), that is examining consumers' VOI for COO labeling using a direct and indirect approach, and extending it by applying it to pasta and peas.

Our results confirm H1 showing that the estimated VOI is on average higher when a country name is explicitly mentioned (indirect approach) than when COO information is provided without mentioning a country name (direct approach). This effect is homogeneous for both pasta and canned peas, as the value of origin information for pasta is 0.61% higher in the indirect approach than in the direct approach and for canned peas, 3.46% higher. Furthermore, the indirect approach revealed a clear preference for domestic over foreign products for both products. Participants consistently assigned the highest utility to products labeled as Italian, followed by those labeled as EU-produced. Instead, we found an aversion to Extra-EU products, as indicated by a lower WTP for them compared to unlabeled products. This suggests that respondents would rather buy a product without the COO label than buy a product sourced outside the EU.

While the direction of VOI is homogeneous across product categories, we found heterogeneity in magnitudes. We showed that, on average, consumers attach more value to the COO label for canned peas than for pasta, both in the direct and indirect approaches. This result is in line with the literature, which shows that the COO label plays a more important role in consumers' decision making when dealing with low involvement products, since in the absence of more information to evaluate them, they rely more on heuristics and peripheral cues to make decisions (Ahmed *et al.*, 2004; Prendergast *et al.*, 2010). This dynamic occurs because when consumers are highly engaged with a product, they may have a more extensive set of information about it, and prior beliefs and expectations, and therefore COO become relatively less important and influential in their product evaluation process (Basfirinci and Cilingir Uk, 2020). Pasta is a product deeply rooted in Italian cultural heritage and identity. As shown by Altamore *et al.* (2020), Italian consumers often believe that the pasta they buy and consume is made exclusively from national or local wheat, when in fact pasta is often made from a mix of local and foreign wheat. This suggests that consumers may attach less importance to COO information for pasta than for peas, not because they are uninterested, but because they assume that the wheat used to produce is Italian, even without explicit labeling. This results in an information asymmetry between consumers and producers, which could be addressed by the introduction of a mandatory COO label that would allow consumers to align their preferences and expectations with their actual purchasing choices.

However, the relative value consumers place on COO information and their WTP for it – for peas and pasta – changes when we take ethnocentrism into account (H2). Our results show that highly ethnocentric consumers place more value and have a higher VOI for the domestic COO label only for pasta (direct approach). A similar pattern occurs in the indirect approach, where results show that, while high ethnocentrism does not increase WTP for the domestic COO label for peas, it actually does so for pasta. This result is in line with the literature that claims that the effect of ethnocentrism depends on the product category (Fernández-Ferrín *et al.*, 2018; Pharr, 2005). As discussed, pasta is a product that is relevant to the cultural identity of Italians, and we hypothesize that consumers' moral considerations play a role in their purchasing decisions. Thus, they are willing to pay more for *domestic* COO on pasta because they ultimately feel that they are protecting their own identity and traditions. Our results point to the direction that other factors, such as product-related characteristics (e.g. price, brand name, product type and product complexity) and individual-

related constructs (involvement level, involvement type, product familiarity and product importance), influence the strength and direction of the ethnocentrism effect and thus must be taken into account (Pharr, 2005).

Overall, we conclude that introducing a mandatory COO could be a way to protect consumers and address their need for transparency, as it could theoretically solve information asymmetry problems (Alberti *et al.*, 2021; Basnayake and Rajapakse, 2019; Chandan *et al.*, 2023). However, we emphasize that through the indirect-direct comparison, we have shown that the VOI consumers place on specific countries of origin is higher than the VOI attached to the information itself. Therefore, there is a risk that the COO labeling policy could be transformed into a kind of protectionist measure that could ultimately harm social welfare (Lusk *et al.*, 2006). We agree with Lewis and Grebitus (2016) in saying that whether or not this risk would occur depends on the consumer's rationale for supporting COO labeling. If consumers are only willing to receive COO information guided by blind ethnocentrism, then COO could only exacerbate home country bias instead of addressing consumers' right to know (Fraser and Balcombe, 2018; Lusk *et al.*, 2006; Thøgersen, 2023) and ultimately lead to the opposite of solving information asymmetry: preventing consumers from making more informed choices. In fact, in such a situation, the COO could become disproportionately influential in the consumer's decision-making process, regardless of whether other attributes are actually more important to them (Fraser and Balcombe, 2018).

However, this is only one side of the coin. As discussed by Lewis and Grebitus (2016), if consumers support COO labeling and use it as a cue for food safety and transparency, it may not lead to market inefficiencies because it does not act in a protectionist manner, but simply aligns stated preferences with actual choices (Lewis and Grebitus, 2016; Lusk *et al.*, 2006). However, for this to happen, consumers need to be fully informed – that is, the COO should be accompanied by information about safety-related attributes, and at that point, ceteris paribus, if consumers still choose to buy the Italian product, it means that they are not confusing Italian with other attributes and that they are paying a premium for what they really want (Lewis and Grebitus, 2016). In fact, it has been shown that when consumers are presented with more information about the safety of a product, the premium placed on the COO label decreases (Loureiro and Umberger, 2007).

The solution to the potential safety-origin conundrum cannot be to put more labels on product packaging, because it is acknowledged that – when it comes to labelling – more is not better (Janßen and Langen, 2017). We agree with Fraser and Balcombe (2018) that new smart ways of communication are needed to effectively solve information asymmetry, and – as they suggest – this could be done by using new technologies such as blockchain. Blockchain is a methodology for securing supply chain processes. With blockchain, COO information can be reported along with other details and communicated through a QR code, which consumers can scan if they wish, without encountering a cluttered package with overwhelming information.

Although our study used a convenience sample of students, which limits its representativeness, the findings on ethnocentrism are particularly relevant within such a specific demographic group. Despite their academic focus on agriculture and food, the participants showed a remarkable lack of awareness regarding food COO labelling policies. At the same time, results highlight the established link between ethnocentrism and a heightened WTP for COO labels for food products rooted in their cultural traditions. While generalizability of these results to the wider population is limited, we expect that the ethnocentrism phenomenon may be even amplified within the general population.

The purpose of this study is not to criticize or blame the EU's mandatory labelling policy. We simply wish to shed light on the already recognized problem (see Lusk *et al.*, 2006) of its potentially negative and unaccounted for spillover effects, which should instead be considered when policymakers decide to extend it from voluntary to mandatory for a wide

range of food products. We conclude that when consumers lack complete information about a food's characteristics, a mandatory COO alone may not effectively address information asymmetry and align consumers' purchase decisions with their preferences. In fact, there is a high likelihood that consumers will confuse origin with other attributes (such as safety) and end up paying a premium for an attribute they did not intend to prioritize. As suggested, policymakers may find other smart and technological ways to reduce information asymmetry without causing strong market spillover effects.

The present study has limitations that must be acknowledged. First, the results confirm the hypothesis that a DCE leads to higher estimates than an MPL. However, there may be specific reasons why this occurred in this experiment. The direct method asked only three questions per product, while the indirect method was more repetitive, requiring respondents to answer nine sets of choices. This likely increased task fatigue, which may have affected the reliability of responses, or participants may have understood the purpose of our study, which may have influenced their responses due to social desirability. Furthermore, we conducted a hypothetical experiment with a convenience sample of young Italian students. This does not allow to generalize the results to Italian and/or European consumers and to explore difference in age or wealth considering that we worked with a homogeneous sample of young participants. Moreover, our study focused only on two attributes of food products, namely price and country of origin, whereas consumers typically consider multiple factors such as color, expiration date, nutritional values, brand and more when making purchase decisions. Hence, the importance assigned to the COO attribute in our study may have been overestimated, as we did not account for the full range of attributes that influence consumer choices. Future studies should aim to replicate our methodology in a more realistic setting, allowing consumers to make real purchases.

Notes

1. Unlike Klain *et al.* (2014), we chose to include ethnocentrism as a binary variable rather than a continuous variable. However, we provide an additional robustness check in the Online Appendix by estimating the models with CET as a continuous variable (see Table I-A and Table III-A). Since we did not observe a significant difference in the results, we preferred to keep the variable as binary in the main model, following a line of literature (Bawa, 2004) that suggests that using a scale to measure consumers' ethnocentric tendencies only provides information about whether a consumer is ethnocentric or not, and does not reveal information about their level of ethnocentrism.
2. We conducted robustness checks to assess whether socio-demographic variables significantly influenced WTP under both model specifications. Our results indicate that these variables did not have a significant effect on either model, thus the inclusion or exclusion of these variables did not result in differences between the models. Detailed information on the estimated models can be found in the Online Appendix (see Table II-A, Table IV-A, Table V-A, Table VI-A, Table VII-A)

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Supplementary material

The supplementary material for this article can be found online.

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