

**Are consumers willing to pay for quality European food labelling?
A choice experiment approach.**

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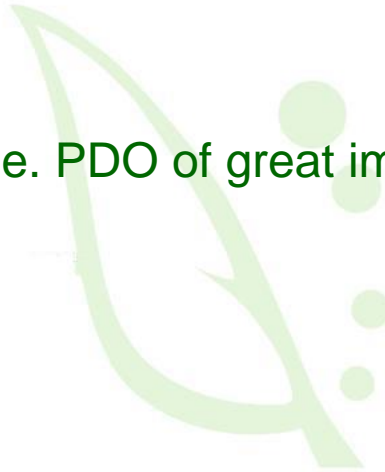
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Introduction

- EU regulated labels:
 - Protected Designation of Origin (DPO) - EEC Regulation 1151/2012 on a quality scheme for agricultural foodstuffs
 - Organic production - EEC Regulation 834/2007 on organic production and labeling of organic products
- Olive oil – main component of the Mediterranean diet.
- Important health benefits.
- In Mediterranean countries consumption olive oil shift towards higher quality: Extra Virgin Olive Oil (EVOO).

Introduction

- Quality differentiation increase stakeholders attention – including consumers
- Previous literature on consumers and olive oil:
 - Price and brand
 - Organic certification
 - Origin certification (i.e. PDO of great importance)



Objective

- To assess consumers' willingness to pay (WTP) for two European food quality labels:
 - Protected Designation of Origin (PDO).
 - EU organic production.

for Extra Virgin Olive Oil

- To study whether these labels are complements or substitutes.

Methodology

- Data was obtained from a survey conducted in Zaragoza to a total of 540 respondents in 2014.
- The questionnaire was self-administrated to the responsible of the food purchase in the households that consume olive oil.
- Choice experiment was designed to calculate main and two-way interaction effects
- The Survey and the Choice experiment design was based on
 - Supermarket observation
 - Previous literature review
 - Focus group

Methodology: designed of the choice experiment

- Choice experiment: **1 bottle of Extra Virgin Olive Oil (EVOO)**

Attributes and levels:

- **Price (Euro/liter): 3 - 5 - 7 – 9**
- **Organic:**
 - Yes (when carried the Organic certification)
 - No (when has not the Organic certification)
- **Designation of Origin:**
 - Yes (when carried the PDO certification)
 - No (when has not the PDO certification)

“Street and Burgess” Choice Design for main effects and two-way interaction effects

Each choice set have three alternatives:
Two designed alternatives + a non-buy option

Number of choice sets = 24

Number of blocks = 3

96.66 % efficient compared to the optimal design

Methodology: specification and estimation

$$U_{njt} = \alpha + \beta_1 PRICE_{njt} + \beta_2 PDO_{njt} + \beta_3 ORG_{njt} + \beta_4 PDO * ORG_{njt} + \varepsilon_{njt}$$

- n = number of respondents
- j = available choosing options (A, B or none)
- t = number of choice sets
- α = dummy: 1 for A and B options; and 0 otherwise (no-buy)
- PRICE = price levels in the choice options (negative impact in utility)
- PDO and ORG = Dummy: 1 if the label is present and 0 otherwise
- PDO*ORG = Interaction variable by multiplying PDO and ORG dummies variables
- ε_{njt} = an observed random term distributed following an extreme value type (Gumbel) distribution

An Error Component Random Parameter Logit model (ECRPL) with correlated errors was finally selected (NLOGIT 5.0 Software)

Results: socio-demographic characteristics of the sample

Characteristics	Sample
Gender	
Female	65.2
Age	
Average	49.0 (15.2)
18-44 years	33.6
45-54 years	29.5
More than 55 years	36.9
Education	
Primary	14.5
Secondary	29.9
University	55.6

Results: socio-demographic characteristics of the sample

	Parameters in utility functions		
	Parameter	Std Err	Z-ratio
α	5.5364***	0.1859	29.77
PRICE	-0.6621***	0.0126	-52.44
PDO	1.3004***	0.1155	11.25
ORG	0.6754***	0.101	6.69
PDO*ORG	-0.2632**	0.1251	-2.1
	Standard deviations of parameters distribution		
PDO	1.3790***	0.1482	9.3
ORG	1.2216***	0.1114	10.97
PDO*ORG	0.3306*	0.1748	1.89
Sigma	2.5198***	0.1769	14.24
	WTP	Std Err	Z-ratio
PDO	1.9642***	0.1707	11.51
ORG	1.0205***	0.151	6.76
PDO*ORG	-0.3975***	0.188	-2.11

Results

- α was positive and significant: consumers obtain higher utility from choosing any alternative than from the non-buy option.
- The price variable (PRICE) was negative and statistically significant.
- The estimated parameters and WTP for the main effects of the PDO and ORG labels were positive and statistically significant at the 1% significance level.
- Then, consumers positively value the PDO and the Organic production labels.

Results

- The interaction between PDO and Organic labels was negative and statistically significant.
- Then, consumer's utility for the olive oil with both the PDO and the organic production labels is lower than is the sum of the utilities derived by the PDO and the organic production labels.
- Thus, **both labels** can be considered **substitutes**.
- Finally, consumers' preferences are indeed heterogeneous because the standard deviations of estimated parameters were statistically different from zero.

Economic results

	Coefficients	T-ratio (z)
WTPs		
PDO	1.96***	11.71
ORG	1.02***	6.76
PDO*ORG	-0.40***	-2.11

- Consumers' valuation for the PDO label was higher than for the Organic production label: the extra price for the PDO is **double**.
- Consumers were willing to pay an extra premium of approximately **2€/liter** for a bottle with the **PDO label** respect to one without this label and approximately **1€/liter** for a bottle with the **organic label** in relation to one without this label.
- However, the WTPs for the combination of both labels in the same bottle is not 3 €, due to the fact that the interaction term between the two labels has a negative impact on utility.

Discussion and further research

- Our data shows that close to 90% of consumers find that the presence of both labels decreases utility. For them, the two certifications are substitutes.
- Only a minority of our sample has a positive WTP for the interaction of both labels. For them, the two certifications are complement.
- Further research: to explain consumers heterogeneity.

Thank you for your attention.

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