How important is the carbon claim in Generation Y Italians' wine choice?

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Abstract:

Purpose - In the last decade, the issue of global warming has led scholars to increase their attention on carbon-related claims. Many studies are devoted to understanding their role on consumer perceptions. However, research experiments usually compare carbon claims with the other social claims, overshadowing their influence on choice. This paper aims to analyse the role of the carbon claim in driving consumer choice, measuring consumer utility and willingness to pay when the carbon claim is conveyed on a wine label, combined with other product attributes.

Design/methodology/approach - The study focuses on Italian Generation Y. It analyses consumers' stated choices of wine applying a Discrete Choice Experiment. Five attributes were identified as the main characteristics of a bottle of wine: label style, brand, guarantee label, back label information and price. Consumers were asked to choose the preferred bottle of red wine to drink during a meeting with friends in 12 choice sets. A structured questionnaire was online submitted through Facebook. The final survey sample consists of 982 respondents. Latent Class Choice Models were applied.

Findings - The seven-class solution was chosen. About 4 young individuals in 10 are driven by the carbon claim in their choice or willing to pay for it. Wineries ability to obtain a premium price from this claim is conditioned by the linkages of this cue with the other product characteristics, like a fashionable wine with a contrasting label, a traditional wine focused on the winemaker, and a popular wine, easy to understand, for an occasional and price sensitive consumer.

Keywords: Carbon Claim, Generation Y, Latent Class Choice Models, Market Segmentation

1. INTRODUCTION

The decision-making process of the consumer is increasingly complex nowadays, because many choice variables come into play. These are not only linked to the manifold intrinsic and extrinsic product characteristics determining the perceived quality of a product, but they are also connected to consumer characteristics, and the consumer's social and psychological sphere has become pivotal when choosing a product.

In this context, on the one hand, a more and more important segment of consumers is increasing its attention to ethical and environmental issues, with a strong impact on food choice (Frewer and van Trijp, 2007). On the other hand, businesses are implementing communication strategies designed to increase their appeal among this segment and communicate their corporate social responsibility.

Social claims attesting the social commitment of a business are increasingly significant for food products, and their impact on consumer perception and choice are the focus of much research. Organic claims are the most analysed social claim in the literature, given the growth in appeal of organic production for consumers in the last decades and its legal recognition at European legislative level.

In the last decade, the issue of global warming has led scholars to increase their attention on carbon-related claims. Much research is devoted to understanding the impact of the carbon footprint or a carbon claim on consumer perceptions, especially in comparison or competition with the other social claims. This paper is focused on the carbon claim and intends to analyse its role in wine consumer choice, when labelled together with the other product attributes on the bottle.

2. LITERATURE REVIEW

Carbon claims, also called 'carbon footprint' or 'carbon zero claim' by scholars (Pomarici and Vecchio, 2014), attest different kinds of businesses' commitment to reduce CO₂ emissions. In recent years, many marketing scholars in all fields and countries have been focusing studies in understanding the impact of such a claim on consumer choice behaviour.

Many studies are focused on food consumption, pointing out the minimal role played by the carbon claim in consumers' choice. Hartikainen et al. (2014) showed that although the term 'product carbon footprint' is familiar to many Finnish consumers', there is a substantial misunderstanding concerning its meaning. They highlighted positive attitudes towards carbon claims, but this information became meaningful only when other purchasing criteria, like price and taste, are satisfied. Sirieix et al. (2013) analysed the impact of social claims on the consumer of fruit and vegetables from the UK, through focus groups. They highlighted little interest in the carbon claim, due to the lack of knowledge about this claim and the issue of global warming by the average consumer. Onozaka and McFadden (2011) analysed US consumers of apples and tomatoes and the impact of social claims on their choice through a discrete choice experiment. They highlighted the negative impact of the carbon claim, which is however mitigated when it is associated to more well-known claims, like the organic one.

Another study by Mueller Loose et al. (2013) analysed the importance of social claims, together with the other packaging attributes, in the choice of oysters by Australian consumers through a discrete choice experiment. In general, social claims appeared to have little importance on choice, and a brand attesting the health benefits of oysters is preferred to the carbon claim. Instead, Vanclay et al. (2011) demonstrated the importance of business commitment in reducing CO₂ emissions for consumers, analysing the impact of the carbon claim at the sales point. They labelled a group of products with carbon claims of different colours, according to the degree of commitment of producers in reducing CO₂ emissions. The experiment involved a shop and many products and brands. Results showed that sales of products labelled with the claim in green, attesting the highest reduction of 4% in sales.

Concerning wine, Mueller and Remaud (2010) highlighted the little importance of social claims in Australian consumer choices; the role of the carbon claim is overshadowed by the other claims, depressing the utility for some segments of consumers. Mueller and Remaud (2013) tested the impact of many social claims on wine stated choices by consumers from UK, France, Germany, US and Canada, pointing out that on average, the carbon zero claim showed the lowest level of trust and highest level of distrust compared to the other social claims, and this also occurs in the majority of markets. Pomarici and Vecchio (2014) analysed the impact of carbon claim in comparison with ethical and a social brands on Italian Generation Y wine choice, highlighting that older females living in an urban area are more willing to buy a wine labelled with the carbon claim.

The literature analysis reveals some limitations, given that many studies analysing the impact of social claim on consumption choices do not take the other product characteristics into account or consider social claims as mutually exclusive in the choice experiment, leading to an underestimation of the importance of the carbon claim, overshadowed by other most known claims.

3. OBJECTIVES

The purpose of this research is twofold:

- 1) to analyse the role of the carbon claim in driving consumer choice, measuring consumer utility and willingness to pay (WTP) when the carbon claim is conveyed on a wine label, combined with other product attributes;
- 2) to understand if heterogeneity in carbon claim evaluation occurs, and therefore the power of this claim in differentiating the product.

This study focuses on Italian young consumers from 16 to 37 years old, the so-called Generation Y (Bakewell and Mitchell, 2003). The literature highlights their environmental commitment (Lee, 2008). Generation Y is expressing its own cohort dynamics concerning wine preferences, also in a traditional producing and consuming country like Italy (Mueller and Charters, 2011). This can give a useful insight into product assessment by young consumers and into product differentiation practices to be adopted by wineries to meet the expectations of this target.

4. METHODOLOGY

This study analyses consumers' stated choices of wine applying a Discrete Choice Experiment (DCE) (Louviere and Woodworth, 1983).

Different product attributes and levels are combined into hypothetical situations to build a choice scenario, asking consumers to choose the preferred bottle of red wine to drink during a meeting with friends. This scenario represents the preferred wine consumption situation for Generation Y (Mueller and Charters, 2011).

The experiment was built drawing from previous studies applying discrete choice and analysing wine cues in consumer choice (Mueller et al., 2010; Orth and Malkewitz, 2008), and an exploratory in-depth interview amongst a sample of young consumers. Five attributes were identified as the main characteristics of a bottle of wine: label style, brand, guarantee label, back label information and price. Each of them was described through different levels reflecting the Italian market of superpremium and ultrapremium red quality wines: minimal, natural, contrasting or sophisticated labels for label style; indication of winery name, product name, vineyard name or social media domain for brand; carbon claim, Protected Designation of Origin (PDO) or a coalition logo (like 'Famiglie dell'Amarone d'Arte') for guarantee label; indication of some information about *terroir* (soil characteristics, traditionalism of production process, family history and grape typicality) for back label; and four price levels (8.90, 13.90, 18.90 and 23.90 euros/750 ml bottle).

Invented brands and labels were included to avoid distorting the importance of levels and attributes because of the consumer experience.

An orthogonal design was adopted and two blocks composed by 12 choice sets each resulted (Louviere and Woodworth, 1983). Every set consisted of four bottles, graphically represented simulating their display on a wineshop shelf. Some questions about respondents' sociodemographic characteristics and wine consumption behaviour were included in the questionnaire.

The questionnaire was online submitted through the Facebook fanpages of Italian Universities, associations of young people and wine lovers in November 2013. The final survey sample consists of 982 respondents, 52.7% of them are women. Most of them still study (60.6%) and live with their parents (73.3%). Workers cover 47.5% of the sample. For most respondents, wine consumption occurs occasionally.

Latent Class Choice Models were applied (Greene and Hensher, 2003) and the seven-class solution was chosen as the preferred one. Respondents' socio-demographic and behavioural characteristics were included as covariates in the model and their effect was estimated in the seven latent classes.

5. RESULTS

Latent class model estimated the importance of the different attributes (part-worth utilities) and levels for the seven latent classes (LCs). The characteristics of the individuals with highest probability of belonging to each LC have been estimated (Table 1).

The analysis highlighted the heterogeneity of Generation Y Italians' choice. LC1 and LC2 are mainly driven by label style, while other latent classes are price-driven (LC1, LC3 and LC7) and others are more attracted by back label information (LC4 and LC5) or by a guarantee label (LC6). Brands generated some utility especially for LC2, LC5 and LC6.

LC1, the largest segment, is most likely to contain females, whose choice is fashion driven and the carbon claim is important because it contributes by generating product originality.

LC2 is mainly composed by males, with high education, living with parents and is driven by a natural label style and the winemaker brand. A label posting the carbon claim has a negative impact on their choice, because they prefer product origin attested by the PDO brand.

LC3 is mainly composed by low educated females. They aspire to luxury wines and the carbon claim does not meet their needs.

LC4 is composed by low-educated young individuals with little experience of wine. They look for information, and therefore they are interested in the back label. Little importance is played by guarantee label for this class, and the carbon claim does not have impact on its utility.

Consumers in LC5 are traditional wine consumers for many aspects, they were introduced to wine consumption by family, mainly consume wine during meal and buy it in wineries. They look for a brand attesting producer's adherence to an association certifying compliance with specific production rules and winemaking culture, which become more important than the designation of origin itself. The carbon claim seems to have no impact on the choice of this class.

Attributes	Part-worth utilities (%)	Level importance*	Characteristics of individuals with the highest belonging probability	Sample share (%)			
Latent Class 1: Fas	hion-driven co	onsumers					
Label style	25.9	+ contrasting;- minimal; - sophisticated	26.2				
Price	25.7	+ 13.9 euros; + 18.9 euros; - 23.9 euros					
Back label information	21.4	+ soil; + production process					
		- grape variety; - family history					
Guarantee label	18.6	+ carbon claim; - coalition brand					
Brand	8.4	+ product; + vineyard					
Latent Class 2: Bra	and origin-driv	en consumers					
Label style	47.8	+ natural; - minimal; - sophisticated	Males	17.0			
Brand	24.0	+ winery; + product; + vineyard; - social	Well-educated				
Price	15.1	+ 13.9 euros; + 8.9 euros	Living with parents				
		– 18.9 euros; – 23.9 euros					
Guarantee label	8.5	+ PDO; - carbon claim					
Back label information	4.6	- soil					
Latent Class 3: Con	isumers aspiri	ng to luxury wines					
Price	28.1	+ 23.9 euros; + 18.9 euros; - 8.9 euros	Females	14.7			
Back label information	24.9	+ family history; - grape variety; - soil					
Brand	16.6	+ vineyard; + product; +winery; - social					
Label style	15.6	+ natural; - minimal					
Guarantee label	14.8	+ PDO; – carbon claim					
Latent Class 4: Infe	ormation seeki	ng consumers					
Back label information	61.6	+ production process; - grape variety; - soil	Low level of education	12.8			
Price	16.0	+ 13.9 euros; + 18.90 euros;	Little wine experience				
		- 8.90 euros; - 23.90 euros					
Label style	10.8	+ natural; + contrasting; - minimal					
Brand	6.0	- social					

Table 1 - Attribute and level importance for the seven latent classes

Latent Class 5:Typica	ılity-driven	consumers				
Back label information	42.7	+ grape variety; - soil	11.2			
Brand	22.2	+ vineyard; + product; - social	consumption by family			
Price	15.6	+ 13.9 euros; + 8.9 euros; - 23.9 euros	Consumption during meal			
Guarantee label	13.1	+ coalition; – PDO Purchases by wineries				
Label style	6.5	+ natural				
Latent Class 6: Const	umers look	ing for a traditional product				
Guarantee label	38.7	+ PDO; - carbon claim; - coalition	High level of education	10.2		
Brand	22.3	+ product; + winery; - social	Living outside family			
Price	15.3	+ 18.9 euros; + 13.9 euros; - 23.90 euros				
Back label information	11.9	+ production process; - family history				
Label style	11.8	+ natural; - minimal				
Latent Class 7: Price-	driven con	sumers				
Price	71.9	+ 8.9 euros; +13.9 euros	Very young males	8.0		
		– 18.9 euros; – 23.9 euros	High level of education			
Guarantee label	10.2	+ PDO; + carbon claim ; - coalition	Living outside family			
Brand	5.3	- social	Occasional consumers			
Back label information	7.3	– soil	Outside meal			
Label style	5.3	+ natural				

* Only significant levels are included (p<0.01, p<0.05 and p<0.10) in descending order of importance. The symbols + and – respectively indicate the positive and negative effect on consumer utility.

LC6 includes well-educated individuals living outside family. Their choice is driven by the guarantee label, but they seek the warranties provided them by a designation of origin brand, and the carbon claim plays a negative role on their utility.

LC7 is completely price driven, and this could be justified by the dominant socio-economic and behavioural characteristics of people belonging to it: namely very young and welleducated males, living outside family, occasional wine consumers not usually with meals. Among guarantee labels, they prefer the PDO brands. However, positive signals in favour of the carbon claim emerge from this cluster, given the positive relation between utility and this attribute level.

Table 2 shows LCs' WTPs for each attribute level.

	Latent classes						
Attributes and levels	LC1	LC2	LC3	LC4	LC5	LC6	LC7
Label style							
Natural (reference level)							
Sophisticated	- 8.27	- 12.50	- 5.20	- 14.39		- 12.60	- 0.71
Contrasting	+ 21.25	- 9.53			- 1.73	- 22.55	- 0.59
Minimal		- 15.31	- 10.21	- 19.41	- 1.26	- 27.37	- 1.06
Brand							
Vineyard name (reference level)							
Social name	- 9.89	- 6.72	- 10.39	- 12.05	- 5.20	-43.38	- 0.59
Winery name	- 11.35				- 2.37		
Product name				- 7.03		+ 9.33	
Back label information							
Soil (reference level)							
Family history	- 23.68		+ 17.38	+ 55.71	+ 4.73		+ 0.71
Grape variety	- 23.36		+ 3.58	+ 41.32	+ 10.88		+ 1.06
Production process	- 6.00	+ 0.94	+ 8.60	+ 107.41	+ 6.47	+ 21.30	+ 0.71
Guarantee label							
PDO (reference level)							
Carbon claim	+ 15.57	- 2.81	- 10.21	- 10.04	+ 1.58	- 93.14	
Coalition brand	- 6.33		- 5.73	- 7.36	+ 5.05	- 92.99	- 1.06

Table 2 – Consumer WTP for attribute levels (euros)

Given the different sensitivity of the LCs to price, the sample has been divided and seven MNL models have been estimated, setting different relations between price and utility for each LC.

LC1 consumers confirm their attraction toward the carbon brand, being willing to pay more for a bottle presenting such a social claim than for a PDO branded bottle. Despite LC7 showed a preference for the carbon claim, this is not reflected in the analysis of its WTP, confirming its high price sensitivity. Conversely, the results from LC5 suggest a definite WTP of 1.58 euros more for this environmental sustainable claim than for the designation of origin brand. A positive willingness to pay also for the coalition brand shows the combined utility drawn from these claims. The other latent classes are more willing to pay for a bottle of PDO wine than for a bottle of environmental friendly wine.

6. DISCUSSION

This research highlights the preference context in which the carbon claim acts for wine, characterised by low price sensitivity, in line with the literature about Generation Y consumers, defining them as conspicuous consumers (Noble et al., 2009). The territorial brand has the strongest positive influence among the guarantee labels. PDO brand is preferred by four classes, namely more than half of the sample, with the carbon claim depressing the utility for three of them. This may suggest that wine regions' efforts to produce typical sustainable wines could not often be rewarded with an added value by some consumer segments.

However, a segment of young people influenced by the carbon claim emerges: about 4 young individuals in 10 are driven by this claim in their choice or willing to pay for it, partly confirming previous studies about the sensitiveness of Generation Y to the environmental issues (Lee, 2008).

Three profiles of young individuals potentially interested in a bottle labelled with the carbon claim emerge by this study. In line with findings of Pomarici and Vecchio (2014), for some segments of females, especially the ones attracted by fashion, the carbon claim becomes an important driver both for choice and willingness to pay. The carbon claim also results in significant willingness to pay terms for the most traditional consumer segments. Additionally, in terms of utility, the carbon claim assumes a positive role for the segment most sensitive to price.

Therefore, three consumer profiles can be linked to three different uses of the carbon claim in a product differentiation process:

- 1. *The carbon claim to enhance a fashion wine*: for a consumer using all the attributes in assessing the modernity of a wine, there is a preference of the carbon claim to the other guarantee labels because it is the most able to meet this expectation;
- 2. *The carbon claim to support a terroir wine*: for a consumer not using the carbon claim in product assessment, but showing a willingness to pay for it when compared to a PDO wine and in combination with a coalition brand;
- 3. *The carbon claim to support a pop wine*: for a consumer with little product expectation, the carbon claim and the PDO represent easily perceived cues when choosing a product. However this does not lead to a willingness to pay more for the carbon claim.

7. CONCLUSIONS

This study provides wineries with relevant suggestions in terms of product strategies, to have positive market feedback to their environmental sustainability and corporate social responsibility. It highlights the carbon claim importance for some segments of young consumers, who positively assess it as an alternative to the PDO brand. The emergence of different consumer profiles leads the research to highlight the capacity of the carbon claim in creating product differentiation when it is combined with the other wine attributes positively assessed by consumers. Wineries ability to obtain a premium price is conditioned by the linkages of this cue with the other product characteristics, like an original and contrasting label to attract a consumer looking for fashionable wine, a traditional wine focused on the winemaker for a consumer attracted from the intrinsic typicality of the product, and a popular wine, easy to understand, for an occasional and price sensitive consumer.

8. REFERENCES

- Bakewell, C. and Mitchell, V.W. (2003), "Generation Y female consumer decision-making styles", International Journal of Retail and Distribution Management, Vol. 31 No. 2, pp. 95-106.
- Frewer L. and van Trijp H. (2007), Understanding consumers of food products, Woodhead Publishing, Cambridge, UK.
- Greene, W.H. and Hensher, D.A. (2003), "A latent class model for discrete choice analysis: contrasts with mixed logit", Transportation Research Part B: Methodological, Vol. 37 No. 8, pp. 681-698.
- Hartikainen, H., Roininen, T., Katajajuuri, J. M. and Pulkkinen, H. (2014), "Finnish consumer perceptions of carbon footprints and carbon labelling of food products", Journal of Cleaner Production, Vol. 73, pp. 285-293.
- Lampert, P., Soode, E., & Menrad, K. (2015). The carbon-conscious-consumer? A causal model for the product carbon footprint of asparagus at the consumer stage. International Journal of Consumer Studies, 39(3), 269-280.
- Lee, K. (2008), "Opportunities for green marketing: young consumers", Marketing Intelligence and Planning, Vol. 26 No. 6, pp. 573-586.
- Loose, S.M., Peschel, A. and Grebitus, C. (2013), "Quantifying effects of convenience and product packaging on consumer preferences and market share of seafood products: The case of oysters", Food Quality and Preference, Vol. 28 No. 2, pp. 492-504.
- Louviere, J.J. and Woodworth, G. (1983), "Design and analysis of simulated consumer choice or allocation experiments: an approach based on aggregate data", Journal of Marketing Research, Vol. 20 No. 4, pp. 350-367.

- Mueller, S., Osidacz, P., Francis, I.L. and Lockshin, L. (2010), "Combining discrete choice and informed sensory testing in a two-stage process: Can it predict wine market share?", Food Quality and Preference, Vol. 21 No. 7, pp. 741-754.
- Mueller, S. and Remaud, H. (2010), "Are Australian wine consumers becoming more environmentally conscious? Robustness of latent preference segments over time", paper presented at the 5th International Conference of the AWBR, 8-10 February, Auckland, New Zealand, (NZ), available at: http://academyofwinebusiness.com/wpcontent/uploads/2010/04/MuellerRemaud-Are-Australian-wine-consumersenvironmentally-conscious.pdf (accessed 23 July 2015).
- Mueller, S. and Charters, S. (2011), "Generation Y and wine: Guest editorial", International Journal of Wine Business Research, Vol. 23 No. 2, pp. 2-4.
- Mueller Loose, S. and Remaud, H. (2013), "Impact of corporate social responsibility claims on consumer food choice: A cross-cultural comparison", British Food Journal, Vol. 115 No. 1, pp. 142-166.
- Noble, S.M., Haytko, D.L. and Phillips, J. (2009). "What drives college-age Generation Y consumers?", Journal of Business Research, Vol. 62 No. 6, pp. 617-628.
- Onozaka, Y. and Mcfadden, D.T. (2011), "Does local labeling complement or compete with other sustainable labels? A conjoint analysis of direct and joint values for fresh produce claim", American Journal of Agricultural Economics, Vol. 93 No. 3, pp. 693-706.
- Orth, U.R. and Malkewitz, K. (2008), "Holistic package design and consumer brand impressions", Journal of Marketing, Vol. 72 No. 3, pp. 64-81.
- Pomarici, E. and Vecchio, R. (2014), "Millennial generation attitudes to sustainable wine: an exploratory study on Italian consumers", Journal of Cleaner Production, Vol. 66 No. , pp. 537-545.
- Sirieix, L., Delanchy, M., Remaud, H., Zepeda, L. and Gurviez, P. (2013), "Consumers' perceptions of individual and combined sustainable food labels: a UK pilot investigation", International Journal of Consumer Studies, Vol 37 No. 2, pp. 143-151.
- Vanclay, J.K., Shortiss, J., Aulsebrook, S., Gillespie, A.M., Howell, B.C., Johanni, R., and Yates, J. (2011), "Customer response to carbon labelling of groceries", Journal of Consumer Policy, Vol. 34 No. 1, pp. 153-160.