Consumers' literacy and preferences for sustainability labels: an exploratory analysis on Italian young adults

Riccardo Vecchio*

Department of Agricultural Sciences,
University of Naples Federico II,
80055 Portici (Naples), Italy
Email: riccardo.vecchio@unina.it
*Corresponding author

Azzurra Annunziata

Department of Economic and Legal Studies,
University of Naples 'Parthenope',
80133 Naples, Italy
Email: azzurra.annunziata@uniparthenope.it

Athanasios Krystallis

Department of Management,
Aarhus University,
8000 Aarhus, Denmark
Email: atkr@badm.au.dk

Eugenio Pomarici

Department of Land, Environment, Agriculture and Forestry,
University of Padua,
35020 Legnaro (Padua), Italy
Email: eugenio.pomarici@unipd.it

Abstract: Activists and policy makers strongly encourage consumers to act as responsible citizens when purchasing everyday products. Accordingly, retailers and brands are competing on the market introducing a plethora of sustainability labels that should address increasing customer demand. Nevertheless, the usefulness of these labelling schemes in aiding consumers to make informed purchase decisions is still heavily debated. Results of a survey on Italian young consumers (N = 500) reveal low levels of individuals' familiarity with sustainability labels and highlight that several socio-demographic characteristics and food habits have a significant impact on consumers' knowledge of these labels.

Keywords: sustainability labels; consumers; multivariate probit; Italy.

Biographical notes: Riccardo Vecchio is a Postdoc Scholar at the Department of Agricultural Sciences at the University of Naples Federico II. His main research activities are keen to analyse food consumers' attitude and behaviour towards sustainable certifications and labels.

Azzurra Annunziata is an Assistant Professor in Agricultural Economics, at the Department of Economic and Legal Studies of the University of Naples 'Parthenope'. Currently, her research focuses primarily on the analysis of consumer behaviour towards quality and safety of food products.

Athanasios Krystallis is a Professor of Consumer Behavior at the Department of Management, Aarhus University and senior member of the Centre of Research on Customer Relationships (MAPP). His interests focus on consumer perceptions towards extrinsic product quality cues, and their impact on customer behaviour. Areas of his research include products with sustainability (eco-products), authenticity (geographic indications) and wellness (health claims) cues and their branding and positioning. His work comprises +60 publications in journals such as *Psychology & Marketing*, *Journal of Business Ethics*, *European Journal of Marketing*, *Journal of Marketing Communications*, *Journal of Marketing Management*, *Journal of Product and Brand Management*, *Journal of Retailing and Consumer Services*, among others.

Eugenio Pomarici is an Associate Professor at the University of Padova, Italy, has carried out researches concerning quantitative tools for policy analysis; the wine industry in an international perspective (industry structure, EU wine policy, international trade, actors competitiveness); and sustainable development in the food context. The scientific activity resulted in more than 100 scientific works. He offers undergraduate courses about agri-food market economy, wine policy, agri-food firm management and post graduate seminars about the analysis of international wine market and policy. He is currently the Vice-President of the OIV Economy and Law Scientific Commission and member of OIV Scientific Committee.

1   Introduction

From an almost exclusive focus on product attributes, there is nowadays growing attention to process attributes, with consumers becoming constantly more demanding and more critical (e.g., Carrigan et al., 2004; Grunert, 2005). Among the many initiatives activated to respond to consumers requests, there certainly is the proliferation of certifications, programs and labels that address, in various and different ways, the many issues of sustainability (Hartlieb and Jones, 2009). Proved by the survey made by the

European Commission that identified 129 public and private sustainability-related food information schemes[1] available at the EU or national levels (European Commission, 2012). The United Nations Conference on Trade and Development (UNCTAD, 2013) defines sustainability claims as "distinctive marks, marketing labels and brands, developed by public and private sector institutions and placed on products and services attesting that their products and supply chains incorporate the pillars of sustainability (economic, social and environmental) into their agricultural production, processing, manufacturing and export processes and services". Alongside, several European governments have promoted official proposals, which set out the features of a sustainable diet (see among others Scottish Government, 2012; Health Council of the Netherlands, 2011). Nevertheless, analysing available literature, it is clear that labelling efficacy is strictly related to consumer interest toward the conveyed information and to the modalities these information are provided and communicated. Grunert et al. (2014) conclude in their large cross-national study[2] that currently sustainability labels do not have a core role in consumers' food choices, as general concern about sustainability is still hardly translated into actual shopping behaviour (Hussain, 2000). These results are consistent with previous (abundant) literature, which highlights the attitude-behaviour gap as a key barrier in the development of a large market for sustainability labelled foods (Vermeir and Verbeke, 2006). Furthermore, the usefulness of these labelling schemes in successfully aiding consumers to make informed purchase decisions is still heavily debated (Upham et al., 2011; Boström and Klintman, 2008). Some studies report that people need to be familiar with, and have trust in, sustainability labels before they will purchase products (Van Loo et al., 2014). As using information imposes costs upon consumers, those who attach little value to particular quality attributes may choose to ignore information about them. Labels are likely to be effective when they address specific informational needs and can be processed and used by their target audience (Verbeke, 2005). Furthermore, several researches show that consumers are more likely to read and understand labels that are clear and concise (e.g., Grunert et al., 2014). In this scenario, a key stakeholder valued in the conceptualisation of sustainable consumption is the young consumer (18–35 years old), as young individuals represent the future of our society and are considered the most consumption orientated generation of all times (Hume, 2010). Despite these considerations, there is currently a gap in thorough understanding of young individuals' knowledge and preferences for sustainability labelled food. The current paper has been designed to evaluate young consumers' attitudes towards sustainable foods and to verify the role of labelling in improving sustainable food choices. The main research purposes were to investigate young adults' knowledge of sustainable food products and analyse their preferences for different labels, with a view to deriving inferences that may contribute to better strategic and tactical marketing decisions. As only few studies compare consumer attitudes or behaviour for more than one specific sustainability label. Drawing on previous works (Grunert et al., 2014; Vecchio and Annunziata, 2015) we decided to focus our attention on four specific sustainability labels that well embrace the various issues of sustainable development: organic, locality (i.e., PDO and PGI), fair-trade and rainforest certified. These labels are all well established on the Italian market and embrace an enormous variety of food products (ranging from ice cream to wine).

2   Sample and methodology

2.1   Sample

Questionnaires were handed outside universities, gyms, shopping centres, supermarkets, restaurants, wine-bars and movie theatres of the Campania region (Southern Italy and particularly in the cities of Naples, Salerno and Caserta). Participation was voluntary, however to encourage young adults to take part in the study a chocolate bar was given once the questionnaire was concluded. 500 usable responses was collected, considering only respondents that fully answered to all survey questions included in the analysis (observations with responses like 'do not know' or 'refuse' were removed from the sample). The final sample (see Table 1) is composed of 61% individuals aging between 18 and 25, and 39% between 26 and 35 years. The mean age was 23 (S.D. = 6.05). The gender distribution of respondents was 59% female and 41% male. 29% of interviewees were married, and 8% had a child aged under five in the household. 77% of the sample lived in urban areas while 23% lived in rural areas. 18% of the sample was responsible for household food shopping. 68% of respondents stated to have an average annual household income below €30,000.

2.2   Questionnaire

The questionnaire was pre-tested among a convenience sample of n = 50 individuals recruited at the University of Naples, mostly undergraduates in economics, law and social sciences. Minor changes were made based on the pre-test. The final questionnaire, delivered in winter 2013, incorporated 40 questions, sub-divided into four thematic sections. The first section incorporated questions about general food buying practices and broad sustainability issues. The second section included specific queries related to knowledge and information on sustainable food products with reference to organic products, local foods, the fair-trade market and rainforest certified. The third block attempted to verify the degree of consumers' use of labelling when shopping and verify their familiarity with the sustainability labels, identifying which of this information mostly affect purchasing decisions. For this purpose, to broadly assess current consumer claimed use of sustainability labels in the purchase process, respondents were shown the four selected labels and asked if they recalled seeing each label (yes/no) on food products. Subsequently, the labels were also rated in terms of easiness to understand and helpfulness in decision making (on five-point scales). The final section requested demographic and socio-economic variables (including gender, area of residence, marital status, occupation, parental level of education and average annual level of household income). Constructs included in the questionnaire were based on previous academic literature (Grunert et al., 2014; Sharp and Wheeler, 2013; Vecchio and Annunziata, 2013).

2.3   Statistical analysis

To analyse the relationships between young adults' knowledge of specific sustainability labels and the explanatory variables, we used a multivariate probit econometric technique. We transformed all the explanatory variables in binary to evaluate the effect of each variable on the knowledge probabilities simply simulating a finite change in the

variable (i.e., from 0 to 1) while holding all other variables at the sample means. We performed statistical test to check for multicollinearity among the explanatory variables, no specific problem occurred among the current analysis. The data was analysed with the STATA Statistics software, version 12.

3 Results

3.1 Descriptive statistics

Socio-demographic characteristics of the sample can be seen in Table 1. The final sample is made up mostly of women (50%) aged between 18 and 25 years who live in urban areas, with a household income < 30,000 € in the 56%. Analysis of general food buying practices and consumption habits with regard to sustainability issues was carried out by proposing 12 statements adapted from other studies (Grunert et al., 2014; Vanhonacker et al., 2013; Annunziata and Scarpato, 2014) asking respondents' importance rating (on a five-point scale with the end points 1 = 'not at all important' and 5 = 'very important').

Table 1 Variable definitions and sample means

Variable	Definition and code	Mean
Socio-demographics		
Female	1 = female, 0 = male	0.59
Age 18–25	1 = age 18–25, 0 = 26–35	0.61
Student	1 = yes, 0 = otherwise	0.32
Household < 30,000	1 = household average annual income is below €30.000, 0 = otherwise	0.44
Area of residence	1 = urban, 0 = otherwise	0.77
Married	1 = yes, 0 = otherwise	0.29
Child < 5	1 = child under 5 years in the household, 0 = otherwise	0.08
Level of education	1 = graduate, 0 = otherwise	0.38
Mother's years of education	1 = over 12 years, 0 = otherwise	0.33
Father's years of education	1 = over 12 years, 0 = otherwise	0.36
Food buying habits		
Responsible of household food shopping	1 = yes, 0 = otherwise	0.18
Main food shopping location	1 = supermarkets, 0 = otherwise	0.39
Dependent variables		
Organic	1 = correct, 0 = wrong	0.44
Local	1 = correct, 0 = wrong	0.48
Fair-trade	1 = correct, 0 = wrong	0.32
Rainforest	1 = correct, 0 = wrong	0.08

As shown by Table 2, 41% of respondents stated that they considered it very important that food 'is produced in full respect of human rights' and 40% 'without exploiting women and children'. 31% stated to consider very important that food 'is produced without the use of pesticides' and 30% that 'is obtained in an environmentally friendly way'. Other attributes considered important are 'is locally produced to support local farmers' and 'is sold at a fair price for the producer' rated very important by 28% of respondents. The attributes receiving less attention from respondents are low carbon emission (not important at all: 16%), animal welfare rights (not important at all: 15%), and environmentally friendly packaging (not important at all: 14%).

Table 2   Food buying practices and consumption habits with regard to sustainability issues

"It is important that the food I eat on a typical day…"	Not at all	Very important
Is obtained in an environmentally friendly way	6	30
Is locally produced to support local farmers	11	28
Is produced in full respect of human rights	-	41
Is sold at a fair price for the producer	9	28
Is produced in a way that respect the biodiversity	11	22
Is made without exploiting women or children	-	40
Is grown using sustainable agricultural practices	7	26
Is respecting animals' rights	15	16
Is produced without the use of pesticides	5	31
Is packaged in an environmentally friendly way	14	22

With reference to self-reported knowledge on sustainable food products (Table 3), respondents state a high level of knowledge of local and organic food (respectively 3.6 and 3.4). While fair-trade and rainforest certified products are less known (2.1 and 1.2). Similarly, we asked individuals to specify if and with which frequency they buy these products. Also, in this case, local foods are the most bought, 25% of the sample state to buy often these food, while for rainforest certified prevail individuals that have never bought these products. Before testing respondents' knowledge of the selected labels, we verified their degree of interest in food labels in general. The analysis of consumers' attitude towards labelling highlighted that most respondents paid attention to the food labelling only occasionally (26%) or only when purchasing a new product (32%) while 22% of respondents read regularly nutrition labelling and 14% did not read them at all.

Table 3   Self-reported knowledge of sustainable food products – mean scores and standard deviations (scale 1 to 5)

	Mean	S.D.
Organic	3.4	0.9
Local	3.6	0.7
Fair-trade	2.1	1.1
Rainforest	1.2	0.9

As previous studies (Grunert et al., 2014; Annunziata et al., 2011), the degree of consumers' knowledge with the four sustainability labels was tested by asking to indicate the meaning of each label. Specifically, a multiple-choice question was applied,

consisting in one correct answer, two incorrect answers and one declaring to not know the meaning. As can be seen from Figure 1, the majority of respondents show a good knowledge of the local product labels, indicating in 48% of the cases the correct answer. Similarly, the label of organic products turns out to be quite popular, 44% of respondents selects the correct answer even if only 20% of the sample state to know the label. In the case of the Fair Trade logo, instead 32% indicates the correct answer, while for the rainforest label is by far the least known by respondents, with only 8% able to indicate the correct meaning.

Figure 1   Consumers' objective knowledge of sustainability labels
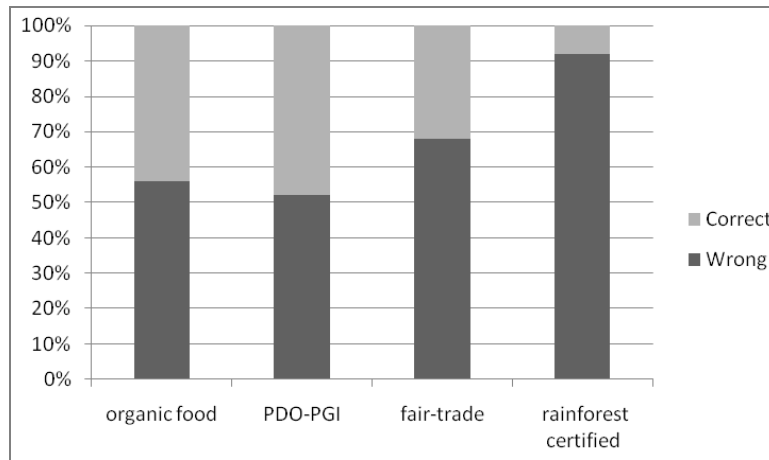
Table 4   Sustainability labels' preference mean scores

	How easy it is to understand [1–5]	*Helpfulness in decision making [1–5]*	*Trustfulness of labelling [1–5]*
Organic	2.5	3.0	2.4
	(0.7)	(0.9)	(1.0)
Local	3.2	3.5	3.0
	(0.8)	(1.1)	(0.9)
Fair-trade	2.8	3.2	2.3
	(1.0)	(1.2)	(1.2)
Rainforest	1.1	1.0	2.0
	(0.9)	(0.8)	(1.1)

Note: Standard deviations in parenthesis.

3.2   Multivariate statistics

Table 5 reports outcomes of the multivariate probit models. As usual in this type of study, the pseudo R-squared values (Wooldridge, 2002) for the probit equations are fairly low, ranging from 0.086 for fair trade products to 0.112 for organic products. Implying that several factors that have an impact on sustainability labels knowledge have not been included in the current study.

Table 5   Multivariate probit estimated marginal effects of respondents knowledge

Variable	Organic	Local	Fair trade	Rainforest
Female	0.019*	0.012	0.021*	0.017*
Age 18–25	−0.004*	0.003	−0.009*	0.011
Student	−0.100	−0.076	−0.088	−0.093
Level of education	0.018**	0.011**	0.020*	0.007*
Household income < 30,000	−0.015	−0.001	−0.022	−0.010
Area of residence	0.013	0.091	0.025***	0.016***
Married	0.007*	0.004	0.013	0.009
Child < 5	0.012***	0.003	0.007	0.018
Mother's years of education	0.053	0.032	0.020	0.031
Father's years of education	0.042	0.051	0.029	0.019
Responsible of household food shopping	0.122***	0.039***	0.061***	0.010**
Main food shopping location	−0.011	−0.006	0.004	0.007
It is important that the food I eat everyday is locally produced to support local farmers	0.023*	0.012*	0.015	0.021
It is important that the food I eat everyday is made without exploiting women or children	0.019**	0.012	0.024**	0.016
It is important that the food I eat everyday is produced without the use of pesticides	0.027*	0.010	0.016	0.011*
Is packaged in an environmentally friendly way	0.023	0.025*	0.019	0.034***
Trustfulness in labelling	0.014*	0.003	0.015*	0.009*
Pseudo R^2 coefficients	0.112	0.093	0.086	0.101

Notes: For food buying practices and consumption habits with regard to sustainability
        issues scores 4 and 5 were coded as 1, while scores 1, 2 and 3 were coded as 0.
        Levels of statistical significance: *** < 1%, ** < 5%, * < 10%.

As depicted in Table 5, among the socio-demographic variables gender and age affect overall knowledge of sustainability labels. In particular, female gender has a better knowledge of these labels except for local food and a significant relation can be found between older cohort (26–35) and knowledge of organic and fair trade labels. Education level has a positive influence on knowledge of the four labels. Living in an urban area also affects particularly (sig. < 1%) on the knowledge of the labels fair trade and rainforest. Finally, the presence of children under five years old has a significant impact on knowledge of the organic label.

With reference to the variables related to food habits our findings reveal a significant relationship between the sensitivity to the problem of exploitation of women and children and the knowledge of the labels fair trade and organic. While attention to the local farmers has a significant impact on the knowledge of PDO and PGI and organic. As for the variables related to food habits, the sensitivity toward foods produced without pesticides influences knowledge of the organic and rainforest labels; but does not affect

knowledge of fair trade and local. Finally, attention to eco-friendly packaging significantly affect knowledge of organic and especially rainforest label. Outcomes also reveal that trust in the certification schemes positively affected knowledge of the labels rainforest, organic and fair trade.

4   Discussion and conclusions

As food are implicated in a significant proportion (about one third) of the total environmental impact and emissions arising from EU economies, public bodies and activists are placing strong efforts on consumer behaviour change in everyday shopping (Upham et al., 2011). However, even if public interest toward sustainability issues in everyday life has increased, it is often not matched by everyday behaviour change (e.g., Dutra de Barcellos et al., 2011; Krystallis et al., 2009). van Dam and van Trijp (2013) effectively conclude their study stating that most consumers in food choice do consider sustainability issues relevant but not determinant, thus not translating intentions into sustainable food choice behaviour.

Product-labelling schemes have become one of the most used measures to facilitate more sustainable consumption and production models (Dendler, 2014). Indeed, today labelling has an increasingly important role for the solution of problems related to collective well-being, as it seeks to change consumption choices and increase consumer awareness and responsibility (Valor Martínez et al., 2014; Caswell and Padberg, 1992). However, label overload and gaps in the understanding of both the general concept of sustainability and of specific sustainability labels may result in consumer confusion and limit the use of such labels (Comas Martí and Seifert, 2013; Krystallis et al., 2012; Horne, 2009). As Berry et al. (2008) effectively underline, simply providing additional information may increase consumer confusion and ultimately lead to weaken sustainable consumption patterns. In sound with transaction costs theory that highlights consumer dissatisfaction related to the necessary efforts to seek and to process food information (among others see Ramsay, 2007). Moreover, consumers will not spend time in searching information on a product if it is not immediately apparent (Sharp and Wheeler, 2013). Thus, the assumption that consumer knows, cares and can comprehend the information they are given in a sustainability label is yet to be empirically established as consumer literacy and preferences for these labels has not yet been fully researched (Pomarici and Vecchio, 2014).

Our results prove that young food consumers do not feel well informed to make purchasing decisions based on sustainability labels; indeed average level of knowledge of the selected labels was quite low, mainly for rainforest and fair trade. Confirming results from previous studies performed in other countries (e.g., Grunert et al., 2014; van Dam and Van Trijp, 2011).

Respondents were also sceptical on overall credibility of labels, specifically toward fair trade and rainforest; in sound with Teisl et al. (2008) that found the credibility of the endorsing entity as a central issue in influencing attitudes towards sustainability labels. Corroborating previous studies, understanding and use of sustainability labels may be inhibited by a lack of credibility of the labels but also by uncertainty about which body is responsible for the certification (Borin et al., 2011).

The multivariate probit model shows that gender, age and level of education have a significant effect on knowledge of sustainability labels. Focusing on the four labels, our findings highlight that women have an overall higher level of knowledge. Similarly, Grunert et al. (2014) found that women and respondents of higher social classes are more concerned about sustainability labels, however, in their research, there is no difference in the overall level of understanding. Valor Martínez et al. (2014) found that education influences directly knowledge. Moreover, in sound with Engels et al. (2010), our results also show that living in an urban area also affects particularly on the knowledge of labels particularly Fair Trade one.

With reference to the influence of food habits our results show that the knowledge of sustainability labels is affected by variables related to the social and environmental sphere as sensitivity toward foods produced without exploiting women or children or recyclability of the packaging, confirming results from other studies. Hanss and Böhm (2012), for example, found that consumers placed high emphasis on fair payment of producers and recyclability of the packaging as important attribute of sustainability that consumers research in food labels. While Valor Martínez et al. (2014) found that social and environmental motivations are the most powerful factor to explain label use; knowledge is a necessary but not sufficient condition. Also, Grunert et al. (2014) indicated that use of sustainable labels is related to both motivation and understanding, at the same time motivation, understanding and use are affected by demographic characteristics and human values.

Policy makers could implement the findings from this research in their efforts to build effective ways to encourage the promotion of sustainable dietary patterns, plan educational and information programs to promote sustainable consumption models, and to better define the future development of food labelling legislation. As designing easy to understand labels and conferring to it a strong intrinsic credibility. At the same time, practitioners should consider these results in formulating marketing strategies focused on exploiting the sustainable features of their products (e.g., addressing specific consumer targets). Nevertheless, in the interpretation of the present research results, several limitations have to be carefully taken into account. Firstly, sampling issues limit representativeness of our data, as respondents do not precisely mimic national young adults' population; moreover, individuals were all living in Southern Italy. Secondly, self-administration bias strongly affects this type of research (Bowling, 2005). Thirdly, social desirability is another relevant issue in stated preferences questionnaires, as individuals tend to present themselves favourably with regard to socially accepted standards (e.g., Kreuter et al., 2008). Future research should try to explore consumer knowledge and preferences for food products that include several sustainable aspects. Furthermore, an interesting (and quite under researched) avenue is the evaluation of sustainability labels effect on consumers' sensory expectations. Prospective studies should also address an issue arisen by various actors: consumer preference for an overarching sustainability product-labelling scheme, focusing both on environmental and social aspects.

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Notes

1   Paired by the over 430 product labelling schemes focusing on sustainability related issues currently included in the ecolabel index (for further details see http://www.ecolabelindex.com/).

2   The study involved 4,408 consumers in the UK, France, Germany, Spain, Sweden, and Poland.