Food Quality and Preference 49 (2016) 70–74

Contents lists available at ScienceDirect

Food Quality and Preference

journal homepage: www.elsevier.com/locate/foodqual

Short Communication

Individual attitudes on food quality and safety: Empirical evidence on EU countries

Donatella Baiardi [a], Riccardo Puglisi [b], Simona Scabrosetti [c,*]

[a] Department of Economics, Quantitative Methods and Business Strategies, University of Milan Bicocca, Italy
[b] Department of Political and Social Sciences, University of Pavia, Italy
[c] Department of Law, University of Pavia, Italy

ARTICLE INFO

Article history:
Received 3 August 2015
Received in revised form 29 November 2015
Accepted 29 November 2015
Available online 30 November 2015

Keywords:
Individual perceptions
Food quality
Eurobarometer Special Survey on Risk Perception

ABSTRACT

The aim of this study is to examine how perceptions of food quality are explained by demographic and socio-economic features at the individual level. We analyze data from the 2010 Eurobarometer Special Survey on Risk Perception. By estimating ordered logit models, we find that women, older and more educated individuals are more interested about calories, safety and taste. Moreover, parents are more conscious about price, hunger satisfaction and safety, while managers care more about conviviality. Manual workers, house-persons and unemployed individuals are especially careful regarding prices. We also perform a Principal Component Analysis to investigate the unobserved drivers of individual responses.

1. Introduction

Food quality is generally defined according to three distinct types: product-oriented, process-oriented and user-oriented quality (Grunert, 1995). Product-oriented quality refers to those physical properties of food that can be objectively measured, while process-oriented quality is related to the characteristics of the production process.

On the other hand, user-oriented quality refers to the *perceptions* held by consumers, which are harder to measure in a replicable way (Cardello, 1995). User-oriented quality involves various attitudes about food consumption *per se* (hunger satisfaction, taste, appearance) and its convivial aspects. Interestingly, price could be also considered as a signal of quality, since it is connected with a personal judgment about whether it is affordable and fair relatively to what is purchased.

From this point of view, since food preferences about sensory attributes, convenience and conviviality are the basis of actual consumption choices, the existing literature has focused on the individual-level variables that help explain the importance attached by consumers to different aspects of user-oriented quality. More precisely, several studies investigate the role played by gender and age in explaining specific perceptions about food consumption (Dosman, Adamowicz, & Hrudey, 2001; Kyutoku et al., 2012; Rappoport, Downey, & Huff-Corzine, 2001; Verbeke, 2005), while other studies are focused on the relationship between those attitudes and some relevant socio-economic characteristics of the individual, such as income, educational level, marital status, household composition, social class and place of residence (De Boer, Hoogland, & Boersema, 2007; Dosman et al., 2001; Healty, McCarty, Kearney, & Gibney, 2007; Verbeke, 2005).

The current paper builds upon this literature, providing original contributions along different lines. First of all, differently from the previous literature, we do not focus on perceptions about specific circumstances related to food consumption, but on consumers' perceptions on food and eating in a more general fashion. On the other hand, similarly to previous studies, we explain user-oriented quality as a function of demographic and socio-economic variables at the individual level.

We do that by using the 2010 Eurobarometer Special Survey on Risk Perception, which allows us to simultaneously analyze a large set of psychological factors generally associated to user-oriented quality. These perceptions refer to hunger satisfaction, spending time with family and friends, convenience, freshness, taste, calories and safety.

Second, we take advantage of the fact that the Eurobarometer database is a statistically representative survey which includes 26,691 citizens of 27 European countries. To our knowledge, this is actually the largest survey on food perceptions at the individual level.

* Corresponding author at: Department of Law, University of Pavia, Corso Strada Nuova 65, 27100 Pavia, Italy.
E-mail address: simona.scabrosetti@unipv.it (S. Scabrosetti).

http://dx.doi.org/10.1016/j.foodqual.2015.11.011
0950-3293/

Third, for the first time we analyze this publicly available dataset by means of multivariate regression analysis. In fact, to our knowledge, no systematic regression analysis has been performed before, with the only exception of Vainio, Mäkiniemi, and Paloniemi, 2014, who focus on the subsample of Finnish respondents.

Summing up, our aim is to assess at the overall EU level the external validity of previous findings, that are based upon smaller surveys, whose participants are citizens of specific countries or cities, and are often asked about specific types of food. The generality of our approach would thus provide a more robust grounding to micro-targeted marketing strategies and public awareness campaigns.

2. Data and methods

2.1. Participants

We use data from the Eurobarometer 73.5 Special Survey on Risk Perception (European Commission, 2010). A representative sample of 26,691 individuals of 27 European countries, aged 15 years and above, is considered. Data have been collected by face-to-face interviews in mother tongue across the 27 European countries, during June 2010.

The sampled countries are: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovenia, Slovakia, Spain, Sweden and the United Kingdom.

2.2. Dependent variables

We focus on the following question: 'To what extent do you associate food and eating with each of the following?'. The six associated perceptions of food quality –which we use as dependent variables– are respectively: (1) 'Satisfying your hunger' ($Hunger_i$), (2) 'Enjoying a meal with friends or family' ($Conviviality_i$), (3) 'Selecting fresh and tasty foods' ($Taste_i$), (4) 'Looking for affordable prices' ($Price_i$), (5) 'Checking calories and nutrients such as fat and sugar, etc.' ($Calories_i$), and (6) 'Being concerned about the safety of food' ($Safety_i$). The answer ranges from 'To a large extent' to 'Not at all', and they have been recoded in a 1–4 scale where 1 = 'Not at all' and 4 = 'To a large extent'. We exclude from the analysis the answer 'Don't know'.

On average, as shown Table 1, the most important concern of respondents is taste, while conviviality and hunger satisfaction rank second and third, respectively. Price is fourth in rank, while safety and calories are fifth and sixth.

2.3. Respondents' profile

We extract from the questionnaire some demographic and socio-economic features of respondents, and create a set of indicator and categorical variables: (i) the gender ($Female_i$: 1 if she is a female, 0 otherwise); (ii) the place of residence ($Rural_i, Small_i$ and $Large_i$ for rural area, small or large city respectively); (iii) marital status ($Married_i, Partner_i$ if he/she is single but living with a partner, $Single_i, Divorced_i$ and $Widow_i$); and (iv) the employment status ($Selfemployed_i, Manager_i, Whitecollar_i, Manual_i$ if he/she is a manual worker, $Unemployed_i, Houseperson_i, Student_i, Retired_i$).

We also include the age of the respondent (Age_i) which is coded on a 1–4 ordered scale, where a value of 1 is for those who are between 15 and 24 years old, 2 for those between 25 and 39, 3 for those between 40 and 54, and 4 for respondents aged 55 and above. The respondent's self-assessed level in society ($Income_i$) is measured on an increasing $[1, 10]$ scale, where 1 stands for the lowest level and 10 for the highest: because of the lack of an objective classification of income along a discrete scale of thresholds, we use this variable as a proxy for household income. The family composition of the respondent ($Children_i$) is captured by the number of children less than 10 years living in the household. This variable takes on values from 0 (no children) to 4 (four children or more). The respondent's education level is measured by years of schooling ($Schooling_i$) and frequency of internet use at home ($Internet_i$). In the case of $Schooling_i$, a value of zero indicates that the respondent finished his/her studies till an age of 15, up to a value of three if he/she finished his/her studies at an age of 26 or more. $Internet_i$ ranges from 1 (never) to 7 (everyday).

Summary statistics of these variables are reported in Tables 2 and 3.

The majority of respondents are women (53.91%), while the median age group is the one between 40 and 54 years. The median number of children is zero (80.54% of respondents have no children below 10 years old). Respondents mostly live in rural areas or in a small town, while only 28.26% live in a large city. Most of respondents are married (52.33%), but there is a sizeable proportion of

Table 1
Summary statistics: dependent variables.

	Mean	Median	Std. Dev.	Min	Max	Obs
$Hunger_i$	3.31	3	0.73	1	4	26,569
$Conviviality_i$	3.42	4	0.69	1	4	26,562
$Taste_i$	3.55	4	0.62	1	4	26,597
$Price_i$	3.29	3	0.75	1	4	26,577
$Calories_i$	2.64	3	0.99	1	4	26,568
$Safety_i$	3.12	3	0.84	1	4	26,565

Table 2
Summary statistics: indicator variables.

	Proportion
Gender	
$Female_i$	53.91
Place of residence	
$Rural_i$	35.90
$Small_i$	35.68
$Large_i$	28.26
Marital status	
$Married_i$	52.33
$Partner_i$	9.94
$Single_i$	19.02
$Divorced_i$	7.44
$Widow_i$	9.48
Occupational status	
$Selfemployed_i$	7.11
$Manager_i$	10.15
$Whitecollar_i$	11.19
$Manual_i$	19.94
$Houseperson_i$	6.99
$Unemployment_i$	8.38
$Retired_i$	27.93
$Student_i$	8.30

Table 3
Summary statistics: categorical variables.

	Mean	Median	Std. Dev.	Min	Max	Obs
Age_i	2.89	3	1.05	1	4	26,691
$Income_i$	5.64	5	1.83	1	11	26,691
$Children_i$	0.28	0	0.65	0	4	26,691
$Schooling_i$	2.03	2	0.75	0	3	26,200
$Internet_i$	4.51	6	2.52	1	7	26,691