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Emergence of Quality Conscious Consumer Segments: Insights from the Greek Olive Oil Market

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4.1 INTRODUCTION

The present survey attempts initially to develop the cognitive profile of a hypothetically quality-conscious consumer cluster in terms of olive oil-related purchasing motives and personal values (objective a), by performing both qualitative (Means-End Chains analysis) and quantitative (Conjoint, Cluster, Discriminant analyses) research. Furthermore, it identifies Greek olive oil market clusters with respect to a combination of product quality attributes and investigates the potential of each cluster to constitute purchaser of quality-differentiated olive oil brands (objective b). Moreover, the survey statistically tests and verifies the emergence of a quality-conscious consumer cluster (objective c).

4.2 METHODOLOGY

The study attempts to achieve its objectives by performing both a qualitative and a quantitative research. During the former, the Means-End Chains (MEC)

methodology is used in order to identify olive oil quality conscious consumers' purchasing motives and their values related to different quality attributes, thus fulfilling the first objective. In the latter phase, Conjoint Analysis (CA) is used to test the results obtained on a four-times larger sample (different indivinduals). Olive oil extrinsic quality attributes strongly linked to the personal values of those who participated in the qualitative phase is used in order to develop conjoint profiles. Different consumer segments and their socio-demographic and behavioural profiles are subsequently developed through Cluster and Discriminant Analysis, thus fulfilling the second objective. In a subsequent step of the survey, it is shown that at least one of the market segments identified in the quantitative phase mirrors the quality conscious sample of the qualitative one, according to the third objective. Thus, this sample of the qualitative phase represents an existing segment of homogeneous consumers whose size, motives, and purchasing behaviour are measurable. The corollary of this result is that there exists a market for brands differentiated in terms of quality.

4.2.1 The qualitative phase: Means-end Chain Analysis

The 40 participants chosen for MEC analysis were consumers responsible for food purchasing in their households who had purchased at least 1L of bottled olive oil one month prior to the survey period (May-September 2000). Participants were selected to be well educated, young and of above-average income, a profile typical of quality-conscious consumers (Steenkamp and van Trijp 1996; Shine et al. 1997a and b; Wandell 1997; Abbot 1997; Lappalainen et al. 1998; Sethuraman and Cole 1999; Trognon et al. 1999; Tse 1999; Nayga Jr. 1999; and Acebron and Dopico 2000). Data were collected by asking participants to fill in a short questionnaire, including food and olive oil purchase behaviour, olive oil purchase involvement and overall attitude, and a list of olive oil attributes used as the starting point for the laddering interviews. Finally, socio-demographic variables were included to enable a detailed identification of the respondents' profiles. The pre-specified list of olive oil attributes chosen as a starting point for laddering was developed based on secondary data and included 27 groups of attributes in six cognitive and abstract categories (Siskos et al. 1995; Bech-Larsen et al. 1996; Vali 1997; Nielsen et al. 1998).

Each respondent was provided with the master list of attributes to which they assigned weights that indicated their importance (1 = very important, 2 =

indifferent, 3 = not important at all) in the purchase decision (Claeys et al. 1995; Bech-Larsen et al. 1996; Botschen et al. 1999). Definitions of the elements, which could have been ambiguous for the respondents, have been provided in written form to avoid confusion. In the second stage, all the attributes chosen as "very important" were selected as the starting point for laddering. A ladder was considered to be at its terminal level when respondents started giving circular answers, or were unable/unwilling to answer. The response time per subject varied from 45 to 75 minutes, mainly depending on their willingness to answer, ability to express themselves and the degree of involvement in the purchasing of olive oil.

4.2.2 The quantitative phase: Conjoint Analysis

Conjoint analysis (CA) enables the identification of attribute combinations that are preferred by respondents and the relative importance of each attribute. In the present survey, the selection of 8 olive oil attributes was based on the results of the MEC analysis, thus related to the perceived quality and healthiness of olive oil (Table 4.1). An additive part-worth model was employed and an orthogonal experimental design was generated using the Orthoplan procedure in the SPSS, Version 8.0. Sixteen olive oil profiles were estimated from the combination of the levels of each of the 8 factors selected after the MEC phase.

Table 4.1 Levels of the CA factors selected and their relationships, extra virgin olive oil

Factors	Organic label	PDO label	ISO certif.	HACCP certif.	Health info	Glass bottle	Country of Origin	Price levels[1]
Levels no:	**2**	**2**	**2**	**2**	**4**	**2**	**2**	**4**
Level description:	1:YES, 0: NO	1: YES, 0: NO	1YES, 0: NO	1: YES, 0: NO	1:Best before date 2:Keep until instructions 3: Additives/ preservatives free 4:Cholesterol free	1:YES 0: Other (*)	1: Written on the label 0: Not written on the label	1: 3.25 € 2: 4.41 € 3: 5.88 € 4: 6.76 €
Relation:	Linear more (direct)	Linear more	Linear more	Linear more	Discrete	Linear more	Linear more	Linear Less (inverse)

1: Price levels were identified from averaged retail prices in Athens, April-May 2000.
** 'Other' usually implies plastics bottle*

The 16 profiles were presented on cards with a metric preference scale (0 = "Not preferable at all", 10 = "Totally preferable"). Prior to the presentation of the 16 stimuli, each respondent was provided with a definition of the "organic label", "PDO label", "ISO certification" and "HACCP certification" concepts and was asked to indicate their awareness of the subjects in a 5-point scale (1= "I am totally aware of", 5= "I am totally unaware of"). The questionnaire of the second phase also included sections on shopping behavior, olive oil purchase involvement, overall attitude towards olive oil and the socio-demographic profile of the respondents. Data were collected through personal interviews conducted with 160 respondents during May-July 2001.

4.3 ANALYSIS AND RESULTS

4.3.1 Coding of Laddering Data – Consequences and Values Elicited

The constructs elicited by the question "why is this important to you?" repeatedly addressed to the 40 respondents were grouped by assigning a number to each one of them. The Laddermap software was used in this stage of the research (Gengler and Reynolds, 1995). An interactive data entry feature was provided, under which multiple attribute-consequence-value ladders per respondent were entered. Qualitative data were converted into nominal codes, which were then quantified. Twenty-three extrinsic cues of expected quality were finally included in a summary table called "Implication Matrix", and the number of consequences and values was reduced accordingly. The attributes selected mainly concern olive oil perceived quality and health attributes usually found on the label, and frequently chosen as very important. Using the Implication Matrix, dominant connections were represented graphically as a tree diagram in the form of a "Hierarchical Value Map" (HVM). The HVM represents 83.1% of the associations mentioned by more than four respondents in the Implication Matrix. The various paths depicted in the HVM represent potential chains that indicate perceptual orientation. The strength of these chains was evaluated based on the times each concept was mentioned by the respondents. Subsequently, the HVM was divided into five olive oil perceptual orientations: a) quality (Figure 4.1); b) healthiness; c) ethical; and d) taste perceptual orientations.

4.3.2 Conjoint Analysis Results

SPSS was used to perform Conjoint Analysis (Table 4.2). Quality of fit was measured by the Pearson's R and Kendall's Tau statistics, and the null hypothesis that the correlation between the observed and predicted model is not significant was not accepted ($p<0.001$). Part-worth scores ("utilities") indicate the influence of each factor level on respondents' preference for a particular combination. The most preferred brand was one that had a "best before date" on the label, organic and PDO signs, ISO and HACCP certification, was presented in a glass bottle, with country of origin information, and for a price of €6.76/L (Table 4.3). The most important olive oil attributes were found to be country of origin, organic labelling and health-related information.

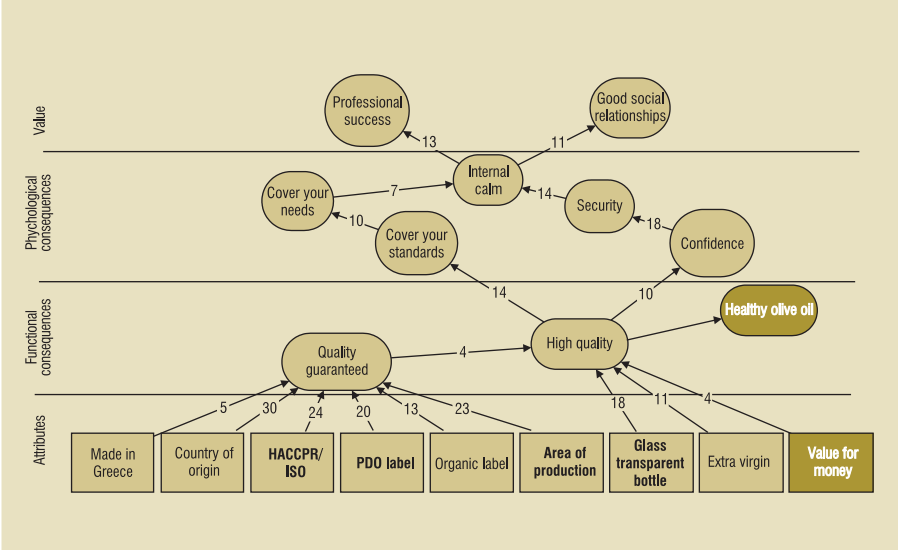

Figure 4.1 The olive oil QUALITY perceptual orientation of the HVM

Table 4.2 SPSS 10.0 estimated aggregate Conjoint model

FACTORS	AVER. IMPORTANCE %	UTILITY	LEVELS
HEALTH	**16.96**	.2469 .0440 -.5173 .2264	'Best before' date 'Keep until' instructions 'Additives free' sign 'Cholesterol free' sign
ORGANIC LABEL	**19.07**	.0000 1.5660	NO YES
PDO LABEL	**8.1**	.0000 .6399	NO YES
ISO CERTIFICATION	**9.58**	.0000 .7673	NO YES
HACCP CERTIFICATION	**11.11**	.0000 .9701	NO YES
GLASS BOTTLE	**6.29**	.0000 .4135	NO YES
Country Of Origin SIGN	**21.71**	.0000 2.0094	NO YES
PRICE / L	**7.17**	.0318 .0635 .0953 .1270	3.25 Euro 4.41 Euro 5.88 Euro 6.76 Euro
Constant	**2.4057**		
	Pearson's R=**.995**, Kendall's Tau=**.967**		Significance = .0000

Table 4.3 Predicted Preference for the 16 olive oil profiles according to their total utilities

Rank	Profile Number and Description	Predicted Preference (actual preference)
1	6: Organic and PDO olive oil, with ISO and HACCP, 'best before' date and the Greek origin on the label, bottled in glass and with the highest price (6.76Euro)	MOST PREFERRED **9.1460** (9.00)
2	5: Organic olive oil, with ISO and HACCP, 'keep until' instructions and the Greek origin on the label, bottled in glass and with average for organic olive oil price (5.88Euro)	**8.2703** (8.05)

3	10: Organic and PDO olive oil, with ISO, 'cholesterol free' sign and the Greek origin written on the label, bottled in glass, with average for organic olive oil price (5.88Euro)	**8.1235** (7.893)
4	9: PDO olive oil with HACCP, 'keep until' instructions and the Greek origin written on the label, bottled in glass, with average for conventional olive oil price (4.41Euro)	**6.5461** (6.587)
5	11: Organic and PDO olive oil, with HACCP, 'cholesterol free' sign written on the label, bottled in glass, with the highest price (6.76Euro)	**6.3486** (5.831)
6	7: Olive oil with HACCP, 'best before' date and the Greek origin on the label, bottled in other than glass, with average for conventional olive oil price (4.41Euro)	**INDIFFERENT 5.6956** (5.393)
7	16: Organic olive oil with ISO, 'additives/preservatives free' sign written on the label, bottled in glass, with average for organic olive oil price (6.76Euro)	**5.6716** (6.218)
8	3: Organic and PDO olive oil, with 'best before' date written on the label, bottled in glass, with the highest price (6.76Euro)	**5.3990** (5.131)
9	14: PDO olive oil with the 'additives/preservatives free' sign and the Greek origin on the label, bottled in glass, priced cheaply (3.25Euro)	**LEAST PREFERRED 4.9830** (5.137)
10	2: Organic olive oil, with HACCP, 'additives/preservatives free' sign, bottled in glass, with average for organic olive oil price (5.88Euro)	**4.9333** (4.737)
11	15: Olive oil with ISO and HACCP, with the 'cholesterol free' sign written in the label, priced cheaply (3.25Euro)	**4.8148** (4.937)
12	8: Olive oil with 'cholesterol free' sign and the Greek origin written on the label, bottled in other than glass and priced cheaply (3.25Euro)	**4.6733** (4.768)
13	13: Organic olive oil with 'keep until' instructions on the label, bottled in glass, with average for organic olive oil price (5.88Euro)	**4.5245** (4.425)
14	12: PDO olive oil with ISO and HACCP, with 'additives/preservatives free' sign written on the label, bottled in other than glass, with average for conventional olive oil price (4.41Euro)	**4.3292** (4.381)
15	4: Olive oil with ISO and 'best before' date written on the label, bottled in glass, with average for conventional olive oil price (4.41Euro)	**3.8969** (4.268)
16	1: PDO olive oil, with ISO, 'keep until' instructions written on the label, bottled in other than glass, priced cheaply (3.25Euro)	**3.8887** (3.653)

The cases where there was not any quality label, country-of-origin sign, or glass bottle, the relevant utilities were zero. These cases exercised a "neutral" effect on respondents' preferences. The corresponding olive oil brand was perceived as indifferent by the participants. It represents the most common olive oil brands that consumers are very familiar with, a fact that may explain the appearance of zero utilities for common characteristics. The "additives/ preservatives free" health information was the only factor level with negative utility, a surprising fact. Greeks are generally aware of the fact that olive oil does not contain any kind of chemical additives or preservatives. Hence, the "additives/preservatives free" claim may be considered as irrelevant or even misleading for a food product such as olive oil. All the remaining factor levels had positive part-worths, representing preferred product attributes. Especially price, at all the specified levels, resulted in positive utilities for consumers. It seems that the notion of a "value for money" olive oil price is satisfied by the actual price levels of Greek olive oil brands.

4.3.3 Segmentation of Consumer Preferences

The percentage of relative importance attached to the eight olive oil attributes by respondents was used as a clustering criterion, and hierarchical and k-means clustering procedures of SPSS Version 10.0. The five-cluster solution was preferred due to the fact that all socio-demographic variables were found to be statistically significant for $p<0.01$, and its easiness of interpretation in relation to the sample size. Cluster analysis results were tested through Discriminant analysis, with the between-cluster variances being larger than those within-clusters (Wilk's Lambda: .035 and F: .0001). When a linear discriminant function was used to re-substitute respondents in clusters, 96.2% were correctly classified.

The statistically significant variables with discriminating power among the five clusters were identified using One-way ANOVA in the case of scale variables or chi-square contingency tests for $p<0.01$ for nominal variables. In order to develop the profiles of the five clusters (Table 4.4), cluster membership and the statistically significant variables were cross-tabulated. No significant differences between the five clusters were found along the following variables: "existence of PDO label" and "price" importance levels, organic and HACCP awareness, "food and olive oil purchase/consumption behaviour" and "olive oil involvement/overall attitude".

Table 4.4 Clusters of respondents with respect to conjoint attribute relative importance

	Attribute importance, % CLUSTERS				
Attributes ("factors")	**1 (n=40, 25%)**	**2 (n=21, 14%)**	**3 (n=10, 8%)**	**4 (n=60, 37.5%)**	**5 (n=28 18%)**
Country of origin sign	13.87	44.66	5.79	27.19	9.64
Organic label	22.71	8.71	9.37	13.25	37.58
Health information	19.88	14.51	16.30	19.06	10.40
HACCP certification	10.52	9.77	31.60	8.64	10.91
ISO certification	11.87	5.71	11.92	9.24	9.11
PDO label *	7.96	6.61	11.40	7.85	8.78
Price *	8.38	5.98	7.43	7.41	5.75
Glass bottle	4.81	4.05	6.20	7.36	7.83

** : not statistically significant for $p<0.001$*

Finally, as a last step of the analysis, chi-square and one-way ANOVA tests were performed in order to statistically establish the convergence of conjoint Cluster 1 with the laddering sample. These two consumer groups exhibited statistically significant differences along 5 out of the 38 variables compared. In particular, for eight variables, in the demographics, olive oil substitution, olive oil use, olive oil involvement and olive oil overall attitude, an almost perfect convergence (significance from 0.823 to 1.000) was found. The main difference between the two identical consumer groups is that 47.5% of Cluster 1 members never purchase bottled olive oil because they produce their own. The scope of the MEC phase was to examine only (potentially quality and health conscious) purchasers of bottled olive oil. A similar finding would have appeared in the conjoint phase if people with own production had not been excluded from the sample.

4.4 DISCUSSION

Regarding the findings of the qualitative phase and in relation to the first objective of the study, the "olive oil quality" perceptual orientation constitutes the core-part of the HVM. It shows that olive oil origin (country and production region) and the different quality assurance schemes (PDO/PGI label, organic

label, and ISO/HACCP certification) were perceived by consumers as quality attributes rather than simply product characteristics associated with a "safe" food. Also important to consumers was found to be the "glass transparent bottle," because it adds a special quality image to the product.

Regarding the findings of the quantitative phase and in relation to the second objective of the study, the profiles of the segments identified are as follows: the typical consumer is represented by the larger Cluster 4, which can be termed the "average decision-maker". In terms of its socio-demographic and behavioural characteristics, and level of awareness for the quality schemes under investigation, Cluster 4 is closer to the sample's average than any other cluster. These consumers do not seem to have a strong preference for any of the 8 quality attributes examined here. On the other hand, the importance attached to the country of origin, health information and glass bottle were high enough to indicate an underlying quality and health consciousness. Under these conditions, and given that price is regarded as reasonable, a sub-segment of Cluster 4 consumers could become potential purchasers of higher quality olive oil brands.

In contrast, consumers in Cluster 3 can be described as "innovators". They exhibit the highest food purchase frequency and expenditure, despite small family size. They claimed to be olive oil experts. Their attitude seems to indicate a thorough search process, since none of them agree that olive oil is consumed out of habit. Both male and female were well educated, while age was not a discriminating factor. Cluster 3 members were found to be the most aware of all labels and schemes under examination.

Clusters 2 and 5 include two types of female consumers. They purchase olive oil in large quantities and generally spend a considerable amount of money on food items, perhaps due to the large size of their families. The main difference between these two clusters is that they include women of different generations, with the typical member of Cluster 2 being a middle-aged working woman (the "working mother") while her counterpart in Cluster 5 is older and does not work (the "housewife and mother"). Working women, possibly due to their low education and income levels, exhibit a rather simplistic attitude towards olive oil quality, since to them the only important attribute was its Greek origin. They agree with the traditional attitude that an olive oil brand is better than any other just because it is Greek, indicating a rather superficial acceptance of the so-called "olive oil culture". They do not seem to constitute potential buyers of quality assured olive oil.

Cluster 1 members may be termed the “highly health and quality conscious consumer,” since they exhibited high awareness of the quality schemes, and had better overall knowledge of olive oil than the common consumers and both types of female clusters. In comparison to the other clusters, they attached the highest importance to health information, the second highest to the organic label and ISO certification, and an average importance to the country of origin and HACCP certification. This high level of health and quality consciousness indicates that Cluster 1 consumers define a market segment for high quality olive oil brands. Given their high income level, companies producing high quality olive oil should consider targeting such consumers.

Regarding the third objective of the survey, the above-described statistical convergence between conjoint cluster and the MEC sample indicate that in the Greek olive oil market, a particular market segment emerges, whose consumers care for high quality brands and are knowledgeable of quality standards. Additionally, the perceptual orientations of quality and healthiness as identified in the MEC phase can be considered as the dominant paths that relate quality olive oil attributes to motivation and values in the cognitive structure of quality-conscious consumers.

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